Open source, software development and users involvement: a semiotic perspective

Claudia Gianelli

Introduction

A semiotic approach to design implies a radical comparison with the theoretical and practical background of designer's competence. This means for us an attempt to find a place for semiotics in a wide and confused disciplinary field. So, we need both to define some limits of pertinence for our analysis and both to stress some traits suspected to be unclear and problematic. The role of semiotics could be, once again, the one of a discipline able to act as a "mediator", bearer of a meta-analysis. In particular, we need to focus on questions concerning (i) the definition of web standards, (ii) how to structure he object to analyse and (iii) how to pass from description to prediction in design.

For (i) we should consider the role of *de facto* standards, since standards can be considered for their way of diffusion and stabilization. In fact, it is quite easy to see that the diffusion of technologies like personal publishing makes possible a double direction for standards' creation: not only top-down, but also bottom-up. In (ii) our aim is to demonstrate the actual weakness of a traditional paradigm, still mainly used in computer science to explain communication. A better choice is to re-structure this paradigm in order to show how each form of manifestation articulates a deeper plan of immanence. And more, to show how both of this two plans need to be internally articulated between expression and content. Finally (iii) we feel urgent to reduce every dichotomy between description of objects and structure of projects, since they are different sides of the same problem. In fact, the distance between theory and practice has already produced a lot of misunderstandings and interruptions in design studies.

User-centered design and roles in Open source development

The development of free and open source software (F/OSS) seems to involve a radical revision of the roles assigned to users and designers. A sort of "ethic of decentralisation" is invoked against a more economical point of view, which tends to centralize production. Nowadays, the great diffusion of some F/OSS projects seems to force us to reconsider this radical contrast between economy and ethic. This will lead us to study how these projects are similarly structured, to clarify how this common "procedural grammar" has been modified by some commercial implications.

The origin of these projects is usually a technical requirement of one or more software developers: the need to improve a performance, an action or to create a new solution to a problem not yet considered. That's the beginning of a first manipulation of the code, in some way independent from the software as a whole, previous of any possible structure of interface. At this point, the change could remain a local solution, with no influence on the entire project. However, it i

absolutely common that a "personal" need reveals to be a collective and diffuse one; the work of some single coders stresses or builds up a new need, so that a (or some) coders are forced to be part of a collective action, in order to release source always available and modifiable.

The wider is the action, the stronger is the development of concrete procedures o problem solving: for each new bug and error revealed in the code, the grou works to solve it. But it is not so fast as it seems: quite often, there is reasonable lack of time between bug and its solution. This involves a continuou alternation of roles: i.e. a coder-user finds a bug, another coder evaluates th possible consequences and another one bears the risk to purpose a change. A you can see, this structure of problem solving could be chaotic or even impossibl to manage: the affirmation of informal procedures to manage modification prevents it, since these informal structures often become very "formal"throug use. In fact, it is not completely true that any one can change a code anywhere the modifications are always expected to be approved, through different degree of evaluation, by all the community or by a small group of project leaders. In th first case, the collective evaluation is limited to a practical judgement based on th dichotomy between functional/non functional: the code is proved in order t understand its effectiveness and future implications. However, the second level i the one in which changes and new functions are evaluated in order to be part o the project, to distinguish "what can be done" from "what we need to do". Th main task of project's leaders is to maintain a total image of product, evaluatin the availability of resources and defining some – less or more formal – guideline for code's planning.

To summarize, we have revealed two different lines of action: the first concerns a the participants/possible developers and it is connected with the deeper level o pure code, the second mainly regards just some coders and takes into account th relations outside the code. Now that we have distinguished these typica procedures of action, we can define two different main groups of participants t F/OSS: a large number of users-coders and on the other side a small group o coders-developers (designers), defined in this way since they are expected t orient and guide the project in order to follow a certain "order". This distinctio seems to be confirmed by the internal division between Free and OS projects: th second ones have, in fact, a smaller amount of users with a medium-hig competence in software development. This forces projects to diversify th possibilities to be part of the development, even for users with no technica background. Think of the Mozilla Firefox users: here we find a great number o users being part of the "spreading group", but less possibilities to work directly o the source.

How to involve users and evaluate software

The first and main role given to users is to evaluate the program, that is to be par of the operations of code debugging. This means to be able to recognize errors i use, since recent studies have demonstrated that there is not relevant differenc between newbies and experts in assuming this task. The competence to us software and to perform basic actions has no dependence with technical abilities

but it is strictly connected with the acquaintance degree about products, derive from use. The release of a stable version is, then, preceded by a great number evaluations, in order to solve as many errors as possible, taking advantage different possibilities of communication: direct(with mail, text forms, multipl choices) or in use, i.e. the automatic creation of registries for errors. But ou opinion is that we can not reduce the essence of F/OSS to its technical qualities since we would like to evaluate it in order to show different degrees effectiveness.

Quality or usability?

And so, is free software usable? The question is quite recent and it has mainl emerged to answer to a lot of critiques, stressing the difficulty to use software there is still a lack of awareness of how use is affected by technical constraints However, the need to discuss about usability in F/OSS is now growing, finding new spaces to renew the discussion. It is widely accepted the fact that a good usabilit is a main factor to acquire users and to compete with similar products. Maybe, i reason of the fact that we are now in a period of great transition, that should le free software to be diffused and used by common users in basic actions, such a to communicate or to write. More, we should remark the fact that there isn't an form of equivalence between F/OSS and difficulty of use, and that a difficult us does not always mean insufficient usability. In fact, as stressed by Nichols Twidale (2003), we have to divide usability and usefulness of a software, since thi distinction will lead us to clear some structural nodes.

These projects are characterized by a continuous change of design and software their products are always opened by coders, in some way stable but neve completely defined. It becomes really hard to try to develop usability tests: how can wedefine a group of typical users? And the real amount of users? Take care the fact that just a little quote of users becomes part of a support project, and jus a little number of people is involved in development. For us, the crucial step is t assume that we can not study software and use without considering all th process standing before and during use to implement the product: if the product i usable, then the project needs, in some way, to be usable too.

These projects are often divided into modules: not only single portions autonomous code, but also single sections of development and of the spreadin project, in order to make a project easier to manage. For example, the definitio of functions, interface design and graphic studies. These fragmentation obviousl refers to a small number of leaders, who judge the entire work of users developers in order to evaluate its acceptability. In the case of no or littl modularization, the role of evaluation is taken by procedures of problem solving new forms of judgement can be supported by a group of developers wit competence in usability studies.

A semiotic project?

Introduction to a semiotic of code and interface

As we have remarked, both the structure of software and its developing project are characterized by a structural modularization distributed on different levels. The code is, in effect, a sort of minimal unit of the project, the smallest part we are able to describe in semiotic terms. This is useful in order to maintain one of the structural reasons of these projects: the mere technical data, their micro-levels are the basis for the entire development. The ability of these projects is to take origin by a code and to grow in reason and through this code. The "source" is not only a shared object of value or a sort of "language"used by adepts; we will assume that the semiotic relations between code and project are more complex and they involve a plurality of dimensions and levels we need to describe. These internal constraints are the unavoidable ground on which we need to found our analysis of the upper level, the one of the community of users and developers.

On the other hand, as we have already said, our aim is to give account levels other than the only one of interface: this was, in fact, a limit for the previous contributes in this field. This means that a semiotic approach should be able to consider both code and interface, through a study capable to reach internal dynamics of inter-semiotic translation and of contamination between a code and its extensions/modifications. Much more, if we consider that this code has sense because there is a subject who manipulates and let it act: it is in reason of the cognitive and pragmatic activity of a subject that it activates a process of self delimitation. In this sense, a code is always product of a human action, not only of a technological one: that is what leads it to be able to circulate, to be modified and distributed.

Planning through bodies

This first assumptions about the link between code and plan seems to be necessary to understand the dynamics of inner participation and development structured around a code a project is oriented to develop and implement. However, it appears quite obvious that some projects of great dimension have in common a special ability ability to rise and to exit from code, in order to return to it with a collective baggage of competences. Therefore, what allows this double guideline, one oriented to widen participation and the other to develop a software that is optimized, even if only in relative sense, for effectiveness and complexity?

We would like to understand how it is possible to maintain a competence about management– just for someone – and at the same time to build up a new competence – at least a preliminary "can be" - that defines the semiotic character of subjects, progressively integrated into collective development. In effect, the management of these subjects and in some way the structure of their access is not a secondary issue, but indeed it can help us to give account of real differences from a plan to the other. It will help us, for example, to clear what Raymond (1998) has defined a true sociological experiment: the passage from the great cathedrals of software to the bazaar of Linux. In fact, the first situation was

characterized (also in free software as GNU) by a inner hierarchy in projects accepted by the community, managing the (narrow) access of new elements and competences. In other words, in projects self-defined as "free" the opening of the code is strictly linked to a form of sociality and of internal hierarchies, defined by the how-to-do of users. Structure aiming to make possible the modalisation of subjects, in order to define them through a competence given them by the project as an internal Sender: the programs of action are oriented (i) to the construction of an object of value – the software – and (ii) to the research of a Sender of superior order, prefigured by the community itself, still uncertain.

This orientation has led to the most recent and important developments of projects aiming to build up a community as wide as it's possible, taking advantage of the public representation of collective constitution. The same distinction between free and open seems for us more complex now than ever. The communitarian dimension needs to be studied by new categories, not limited to the cognitive aspects of interaction and to the technical abilities. Categories that can clarify the possibilities and the constrictions given by a progressive integration of a properly personal dimension - the subjective passion for design, desire to participate in terms of "wanting" - with the macro dimension of the collective.

We need at least two levels of analysis: a socio-semiotic point of view, considering the communitarian articulation and the possibilities of a collective management of sense, and a psycho-semiotic one, referring to a personal contribution, we dare to say "corporal", to the project, given from the interaction of users and their bodies with a code, given of a particular materiality, and a community of other bodies "at a distance" (cfr. De Ruggieri 2004). This double approach permits us to give account of that surplus of sense which goes beyond the pure ergonomic dimension and beyond every dimension ideologically connoted as "communitarian" or "politic". This surplus will probably reveal a true level of semiotic manipulation, in order to act in an effective way from the real beginning of a project.

We will now consider (i) how users' passions are capable to be involved and showed and (ii) the role of body in this "patemic" interaction, passing then to analyse (iii) the possibility to form a true body-of-users, as a collective actor. This will presuppose the possibility to give a rhythmic and aspectual orientation, liable to influence this sort of "collective"passion and project's development itself. Then we have to focus our attention on how this corporal contribute may lead to a sort of new design centered on users and their bodies, where the user is fully active.

We have decided to concentrate this article on the project of development for Mozilla Firefox browser: maybe it is one of the most complex text we have chosen since it is very effective on presenting passions and putting them on a collective "theatre". This is supported by a rare ability to involve bodies through a lot of different forms of presentation. We notice, in fact, how a great number of similar projects tends to reduce and somehow eliminate this dimension, while SpreadFirefox even seems to force this (re)call to bodies. These bodies are finally non only logically presupposed to enunciation, but in some way "present" to interaction.

Assumed that what an user produces, his ability to perform actions, is referred to

the modality of knowing (*savoir* or *savoir-faire*), it is also true that it could b
better to stress also the modality of being. Presenting not only the gesture c
users (cfr. Greimas 1970) or their gestural competence, but also the body tha
makes a gesture possible. In this sense, we can shift from the idea of a projec
evolved by users to a project evolving *through* users, as they gradually become
collective actor, sharing a rhythm and intensity of growth.

One of the most interesting articulations is the one between individual an
communitarian space: one in relation with the collective action and the other wit
personal transformations of passions. Clearly, these two spaces share the sam
system of value, which leads them to continuous contacts and interactions
Different discursive forms in different spaces refer to similar values, mutuall
influencing, even giving radically opposite enunciative strategies. The maintenanc
of this balance guarantees a sort of continuity and prevents to produce of tw
opposite situation: (i) the communitarian space could precede the patemic space
influencing its formation and sometimes neutralising every form of passionat
discourse; or (ii) an individual space could precede the communitarian one
producing effects of discontinuity and breakage.

The tendency is to maintain and conserve a unique system of values, maintainin
a shared passion in order to reach a balance between two possible spaces. A sor
of translation process about passion, which tends to make passions comparable
the result is a progressive homogenization of individual passions, both in a dee
configuration and on a more superficial level (i.e. effects of sense). This explains
for example, why there are so many captions: the presence of a body (i.e. it
photograph) stresses the individual perceptual experience, unique an
unrepeatable. On the other side, describing and nominating passions ar
performances useful to uniform them to a collective passion, to let them b
understandable and shared. The body - perceptually lived - maintains a mark c
the individual passion, of personal dispositions to passion or of a passion alread
done. Even if forms of true inter-somatic contamination (cfr. Landowski 2004) ar
limited by the virtual nature of interaction, each single photo assumes a role c
"witness", following what Fontanille (2004) proposed. Witness of the interactio
with Firefox and with other members of the community, since they are *all* i
mission for the browser.

That is why we have found a tendency to a progressive similarity in photos, bot
in the style (objects, dresses) and in the pose assumed by bodies. On th
contrary, there is also a growth in the use of presentation forms such as "that'
me" and nothing else, as a way to take distance both from the collective passio
and from the individual one. This is probably due to a quest to balance a generi
euphoric disposition and a form of rejection of a full interaction with othe
subjects, even when sharing a common object of value.

Values and passions

In each moment, a subject faces a universe of values, to which his contribute i
often quite limited. In other words, the community can be opened in reason c
some indetermination of values but this is made possible just by the conformatio

of subjects to those values. In the same time, the community itself can assume role of sanction to participants' actions, in a sort of interpretative proces mediated by a portion of encyclopaedic knowledge (cfr. Pezzini 1998). More than simple "duty", this progressive conformation is one of the guaranties to maintain passion and its intensity, giving a superficial effect of continuous flux and o harmonic passion. From here, it takes origin that "doing together at the sam time" theorised by Landowski (2004), based on a sort of synchronisation whic leads to a unique rhythm of action.

The subjects always act into an horizon of inter-subjective relations, whos happening presuppose a common adequacy to a shared universe of values. A already noticed by Marsciani (1991) a subject contracts an obligation to mak values able to live and circulate, because his proper existence is due to the value he assumes (cfr. Greimas 1983). Passion's maintenance becomes, in this way part of these values and all the community is involved. We have to take int account what Fabbri (1997) writes: we give rise to a passion not only through a action, but we usually manipulate action and passion through passions. Wha Firefox shows is a more complex form of this relation between actions an passions, in order to transform local values. In this case, in fact, each actio makes possible browser's life – as it is presupposed to interaction – and thes actions are made by subjects whose passions are not always manifested and clea Subjects act to modify (the materiality of) an object of value, contributing t maintain a sort of unstable collective identity. This means a continuous quest for shared identity, whose aim is to remain unstable and modifiable.

The subject itself can evaluate his own passion, in a sort of interpretativ movement that is not only appanage of the community-Sender. It seems ver useful the distinction made by Pozzato&Violi (2002) between:

- nominating a passion, as a strategy of categorization to refer passions to cultural system;

- describing a passion, as a phenomenological strategy, aiming to remain into visible level of manifestation/representation.

Because of this double interpretation we can find different social and individua forms to regulate passion. Our corpus also stresses the difficulty to give account o the entire process of passional development, and so to show it all into the theatr of virtual interaction. In fact, it shows a radical impossibility to reduce virtua exchanges to a mere game of a simulacrum to another. Even if this kind o interaction reduces or abolishes some properties usually involved in interactin living bodies, and their entire perceptual systems. Here we do not find fragmentation or a dispersion of bodies, but a strategical realisation of a collectiv body, which sums bodies and maintains their singularity.

The body becomes the main and more visible way to spread the product, since also remains a mediator between subjects and an object with whom they desire t be (or to be again) connected. This produces a transformation of virtual bodie and of their perceptible properties: new potentialities can be attributed, creating sort of "new body", regaining some perceptual properties through a collectiv integration. An individual passion becomes so "authentic" in reason of a particula

body's disposition, of a particular position it assumes in a space it doe continuously contribute to form, in reason of its presence.

Access and contractual logics

As a partial conclusion of this article we can consider the study made b Landowski (1989) on contractual and purchase logics. This can be useful to giv another characterisation of F/OSS projects, referring to the logics that inforr them, only partially manifested in the structures we have already seen. W remember that a logic of purchase is typical of brand discourses, since the propose products to potential consumers; a contractual logic, instead, involves shift of communication, because it is oriented to create relations to join two c more subjects. These are two different matrix of narration, deeper respect th level of their realisation in discourses.

We can affirm that F/OSS projects tend to a contractual logic, in order to define contractual system between project and users. However, we must consider that similar logic produces different effects in discourse. GNU projects, in example, ar based on a strong contractual logic, whose aim is not only to build up a relatior but also to maintain it in time. This happens not on the basis of a mere affiliatior but exploiting very strict structures of access and selection on knowledge. Ou hypothesis is that these structures are as stronger as the contract established i stronger: the aim is to hold values in time. The case of project such as OpenOffic is quite different: they are oriented to establish a contract whose normative forc may be graduated according to the trust users put on it. It is a relationship base on a common belief, presented as shared, natural and diffused, nor imposed c centralized. This is made possible by a non hierarchical structure.

Finally, we have projects like SpreadFirefox that develop a sort of hybri discourse: a contractual and fiduciary relation is established on the basis of a forr of purchase, that is downloading the software. These explains why we find wea and informal structures of access and, at the same time, explicit incentives t contribute. In this sense this hybrid structure, opened and closed, can b described in order to evaluate the effectiveness of a project, often proportional t the different effects of hybridisation. These projects need to dialogue bot internally and externally: we must think of these projects in terms of loca balances of tensions. Design and evaluation are supposed to study how to manag and guide these tensions.

A new usability of relations

Finally, a semiotic re-definition of "usability" must be linked to a radical change c point of view: if usability as "facility to use" and "quality of interaction"(Nielse 2000) maintains an order from designers to user, our definition will be in terms c strategic management of interaction, from project to users, considered as textua strategies. This formal model can be applied not only in local design contexts, bu also to a large number of cultural objects. Decentralization and open access – har to be included in traditional descriptions – will become a concrete element o which a semiotic description can be based, since they are the result of deep an

complex relational configurations.

The basic function of evaluation to define guidelines for the project is maintaine and it becomes even wider: evaluating means already to guide the managemer of sense, individual and collective, defining possibilities of action and interactior The semiotic constraints are not limits, but resources to plan actions. A user, i fact, is always, in some way, "productive", since he acts re-producing sense in th same moment he starts using a product : there is always something to adapt That's why we propose to consider evaluation and design as two practices amon the others, articulated and inserted in complex nets of sense: the F/OSS is a exemplar text, where we have found some tendencies and structures that can b found at a more general level in many other projects.

We can say that evaluating to design will always more mean to take care of th fact that a project is made to define the structural possibilities to manag strategically and effectively users' actions. This means to guide the managemer of sense. The true resource for future design will be this collective management c sense. Our purpose a radical shift of attention from the usability of a product t the usability of its project, that is of product and of project *together*. A product i.e. its interface – does always maintain some traces of its production and thi makes it recognizable to users. Usability can be just locally defined, as a form c virtual property, needing a subject to be actualised. In other terms, a produc implements some strategies defined by design, but these strategies need a subjec who manipulates them, in order to let them be effective.

Bibliographical references

De Ruggieri, F.

2004, *Tecnologie Incarnate*, Meltemi, Roma.

Fabbri, P.

1997, *La svolta semiotica*, Laterza, Roma-Bari.

Fontanille, J.,

1991, "La passione negata. Un frammento de La principessa di Clèves"in Pezzin I. (ed.), *Semiotica delle passioni*, Esculapio, Bologna.

Fontanille, J.

2004, *Figure del corpo. Per una semiotica dell'impronta*, Meltemi, Roma.

Greimas, A.J.

1970, *Du sens,* Seuil, Parigi (it.tr. *Del senso*, Bompiani, Milano, 1974).

Greimas, A.J.,

1976, *Sémiotique et sciences sociales*, Seuil, Parigi (it.tr. *Semiotica e scienz sociali*, Centro scientifico editore, Torino 1991).

Greimas, A.J.

1983, *Du sens II.* Essais sémiotiques, Seuil, Parigi (it.tr. *Del senso II. Narrativa*

modalità, passioni, Bompiani, Milano 1985).

Greimas, A.J. Fontanille, J.

1991, *Sémiotiques des passions. Des états des choses aux états d'ames*, Seui Paris (it.tr. *Semiotica delle passioni: dagli stati di cose agli stati d'animo* Bompiani, Milano 1996).

Landowski, E.

1989, *La société réflechie*, Seuil, Parigi (it.tr. La società riflessa, Meltemi, Rom 1999).

Landowski, E.

1997, *Présences de l'autre*, PUF, Parigi.

Landowski, E.

2004, *Passions sans nom*, PUF, Parigi.

Marsciani, F.,

1991, "Uno sguardo semiotico sulla vergogna" in Pezzini, I. (ed.), *Semiotica dell passioni,* Esculapio, Bologna.

Nichols, D., McKay, D., Twidale, M.

2003, *Participatory Usability: Supporting Proactive Users Proceedings,* CHINZ'03 Dunedin, New Zealand.63-68, disponibile all'indirizz http://www.cs.waikato.ac.nz/%7Edaven/docs/participatory-usability.pdf

Nichols, D., Twidale, M.

2003, "The Usability of Open Source Software", First Monday 8 (1).

Nielsen, J.

2000, *Designing Web Usability: The Practice of Simplicity*, New Riders Publishing Indianapolis (trad. it. *Web Usability*, Apogeo, Milano, 2000).

Pezzini, I. (ed.)

1991, *Semiotica delle passioni. Saggi di analisi semantica e testuale*, Bompian Milano.

Pezzini, I.

1998, *Le passioni del lettore. Saggi di semiotica del testo*, Bompiani, Milano.

Raymond, E.S.

1998, "The cathedral and the Baazar", *First Monday,* 3,3.