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### ► To cite this version:

Christophe Prieur, Dominique Cardon, Hélène Delaunay-Téterel, Cédric Fluckiger. Self expression as a relational technique, Four types of personal blog networks. 2006. hal-00131612

**HAL Id: hal-00131612**

**<https://hal.science/hal-00131612v1>**

Submitted on 17 Feb 2007

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# Self expression as a relational technique

## Four types of personal blog networks

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### Abstract

While weblog is unquestionably a publication tool that provides individuals with original formats for recounting their personal identities, it is also a communication tool that offers diverse and original ways of putting people into contact. In this paper, blogs are considered as a relational technique enabling individuals to form relationships around the way they produce their social identity. A typology of four forms of communication, between posts and comments on blogs, is proposed in order to take into account the effects of the blog's public on its content. These four types are described using different kind of indicators, combining qualitative ethnographic approaches and quantitative social network analysis, showing the diversity of uses, the multiplicity of blogger's careers and the plasticity of the public space.

### Keywords

Social Networks, Blogs, Ethnography of virtual worlds, Sociology, Ego-Centered networks, Graph Theory

## 1. Introduction

Sociologists often interpret the tremendous growing of weblogging practices as a characteristic symbol of the individualisation of our society. However, in focusing on personal characteristics of self expression in public space (narcissism, pursuit of celebrity, feeling of isolation, and searching for differences towards others), they often miss the relational dimension of weblogging practices which has been underlined by researches conducted in the Weblogging Ecosystem community<sup>1</sup>. The rise of the blogosphere must be seen as an original articulation between individual and collective ways of building identities in contemporary societies where expression of the self appears as a relational technique [10, 7]. Blogs are both publication and communication tools. Bloggers produce specific content in order to reach others and to start a

conversation with them. Recent researches have shown that when a blog has no comment, the blogger often stops producing new content on a regular basis [19, 16]. Bloggers need to meet a public to encourage them and develop different strategies in order to convince others bloggers to comment on their blog [20]. Bloggers personal identities are built on the basis of the multiple interactions they have set up with their commentators. We hypothesize that the way people blog has a meaning effect on the shape of the relational networks of their commentators. We will suggest that social networks of blogs have different structures according to the kind of content (intimate, familiar, specialized, political) that they produce. That's the reason why we propose an interdisciplinary approach mixing social science and computer science, in order to bring a more comprehensive view of the different ways people build social relations through weblogging practices. Thereby ego-centered network analysis can contribute to a better understanding of socialisation processes in virtual worlds.

## 2. A multidisciplinary approach of weblogging practices

Many works have been done in recent years using social networks approaches to catch the relational dimension of blogging practices. Those analysis have been introduced by mathematical works on the structure of the WWW. They underline the tremendous growing of the blogosphere and its internal connectivity [Kumar, Novak, Raghavan, Tomkins, 2003], the epidemic diffusion of information [Adar, Zhang, Adamic, Lukose, 2004] or identify blogs who play the role of 'authority' [Marlow, 2004]. These works insist on the communicative dimension of blogs and have defined methodologies in order to isolate relations between individuals from relations between websites. Going further in details, a few works brought to light specific features of the network structure of the blogosphere. In the first place, the role of comments in blogs' life has been discussed. Some underline the small number of comments —an average of 0.3 comments by post— and the limited interactivity of blogs [13], others [19] have shown that even if the number of comments follow a power law (a small number of blogs very commented and a long tail of blogs with

<sup>1</sup> <http://www.blogpulse.com/www2006-workshop/>

few or without comments [24]), their role is essential in the building, in a conversational way, of the interlinked blogosphere [21]. The negative results from Herring & al [13] can be explained by the heterogeneity of blogs, the large number of personal journals and isolated blogs without any readers or commentators. Those researches also pointed out the fact that all links don't have the same importance in blogs' life. One should pay attention to the dynamics of the relationship between two blogs [16], to the various ways bloggers connect to each other using blogrolls, comments or citations [2], and to the importance of the reciprocity of the link if it is to be considered as an effective social relation between two bloggers *citelinsundaram:mutual*. Finally, Susan Herring, Inna Kouper et al [12] have explored the hierarchical organization of the relational structure of the blogosphere, that appears as a fragmented and levelled universe. A little core of a few blogs, reading, commenting and citing each other, outclass a huge nebula of small islands of unread and never commented blogs. Some middle-range clusters of blogs cite each other, but when they address a link towards dominant blogs of the A-list, they are not linked in return.

On the other hand, only a few works put forward a typology of blog contents. Herring et al. [13] have shown differences between *filter blogs* (12.6% of currently active blogs), used to redirect readers towards selected information, *personal journals* with an intimate and personal tonality and *k-blogs* dealing with specialized subjects. In France, sociological works also suggest different typologies [4, 22] underlining the differences between intimate blogs and everyday life (or 'familiar') blogs which are not distinguished in the personal journal category. France is the first European country for blogs practices. 12% of French internet users have created a blog (3,3 millions of persons)<sup>2</sup>. Blogging has known a tremendous increase among young people who have invested the *Skyblog* platform<sup>3</sup>, a website developed by a famous teenagers' radio station. Sociological surveys using interviews and a comprehensive study of blogs content and computer-aided social network analysis are rarely conducted together. The aim of this paper is to show that a sociological interpretation of the different ways of producing social boundaries with blogs can bring some useful insights to the structural analysis of the blogosphere.

### 3. A linguistic model of weblog communication

Weblogs relational system is mediated by the content produced by webbloggers. Social relations on blogs are always built through texts, photos or videos. That's the reason why we suppose in this research that modes of communication between bloggers are quite different according to the kind of content they publish. We hypothesize that one can differentiate the content of blogs by the various shape of the networks of blogrolls and commentators. In order to present our analytical model, we will first distinguish four different ways of producing content. For this, we use the linguistic distinction between *enunciation* (the act of producing a content) and *utterance* (the content of the enunciation) [23] in order to modelize four different ways of linking people to what they've published<sup>4</sup>. In an analytical way, we can suggest four differ-

ent relationships between the blogger himself and the content of the blog (figure 1).

In the first configuration, the utterance is embedded inside the enunciation, the blogger reveals to others some aspects of his intimate personality. In the second one, utterances are closely linked to the everyday life activities of the blogger (familiar, social and cultural practices, pictures of friends, etc.). In the third one, the utterances produced are linked to specific competencies or particular interests of the blogger. They characterize one (and often only one) facet of bloggers' identity. In the last one, utterances are isolated from the person of the enunciation. They are shared public objects that are evaluated by bloggers when they suggest an opinion in the public space.

This brief distinction between four forms of enunciation leads to four different manners of creating links between bloggers in an appropriate communicative way. The nature of the link between two bloggers depends on the way the utterance has been produced and is attached to the blogger (see figure 2). In the first configuration, bloggers are linked by mutual revelation of their inner feelings. In the second one, links between bloggers are made by mutual activities that have been done in real life and that they have recorded on their respective blogs. In the third one, persons link together because they share the same interest and have mutually demonstrated their competencies. In the last configuration, persons link together in order to discuss and oppose their views on a public issue. This analytical model offers only an ideal-typical description of different communicative acts on blogs. Of course in practice, blogs are always a mixture of these different types even if they may be closer to a particular one.

## 4. Methodology

Before detailing what these four different types of blogs look like, we describe the data on which we have worked and how we collected and analyzed it, combining qualitative and quantitative information.

### 4.1 The panel of bloggers

For this research we've made sociological interviews of 27 adult bloggers. Two thirds of them are male and live in or near Paris. The average age is 29 (with age dispersion between 18 and 40). 89% are working (11% of students), but more than a third is in a precarious situation: 37% are working in informatics and 11% in journalism. However, the most significant feature of our sample is the meaningful part of single people (2/3) and the fact that our bloggers have no kids (80% of our sample). We've also conducted 30 interviews with young people and made an ethnographic study of the behaviour of kids in secondary school in order to have an understanding of the articulation between their real and virtual relationships [8]. With those different studies, we have a large representation of different blogging practices in the French blogosphere. We will use these sociological studies to illustrate the different patterns of our model.

### 4.2 Ego-centered network analysis

Each of the four types of blogs can be described with particular shapes of networks or at least with some tendencies expressed by means of network indicators (See Table 1, that summarizes the different descriptions made of the four types

see [4]

<sup>2</sup> Source : Médiamétrie, *Les tendances de la blogosphère*, juin 2006

<sup>3</sup> <http://www.skyblog.com>

<sup>4</sup> For a complete presentation of this analytical model inspired by the notion of speech act in pragmatic linguistics,

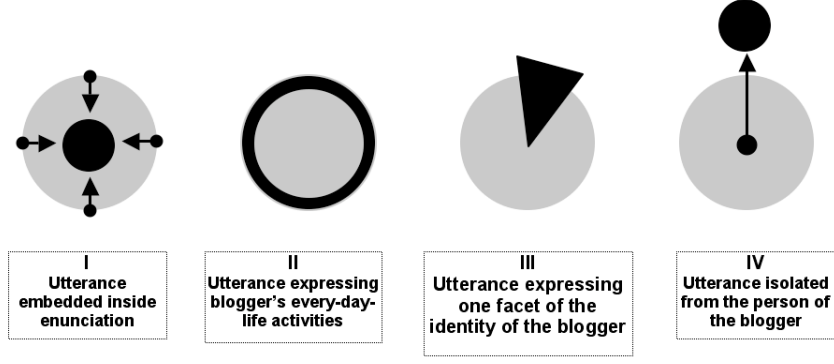


Fig. 1: Four types of relationships between enunciation and utterance

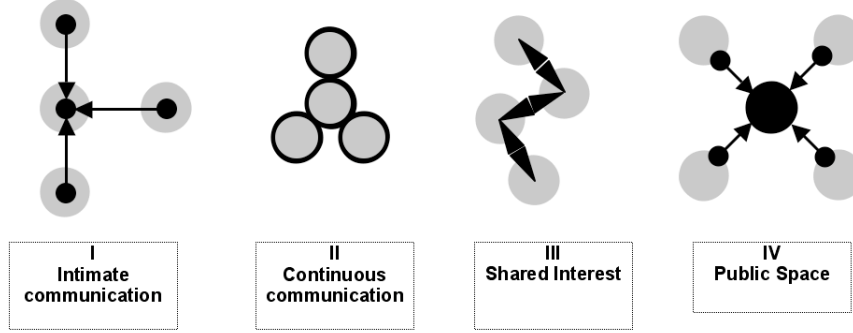


Fig. 2: Four ways to link bloggers together

so far). Before explaining how these indicators have been defined and computed on our sample, let us discuss which links to consider. As already noticed by other studies [6, 2, 18], commenting on someone else's post is an act of communication, unlike having their blog on your blogroll, which just indicates a particular interest at a given unspecified time.

However for many blogs of our sample, it is quite hard, if not just impossible, to know the blog-identity of commenters, when they have one. Actually this feature is in the very nature of Type-II blogs, where commenters are close friends of the blogger who don't bother giving a more precise identity than 'alex' or 'your best mate'. In this case, as well as in some Type-III blogs, the blogroll may even be quite reliable and informative on the actual correspondents of the blog's owner, although a certain delay is noticed as will be discussed in Section 6. We thus started to work on blogroll networks as a proxy, mainly for this technical reason of easily harvesting blogroll data.

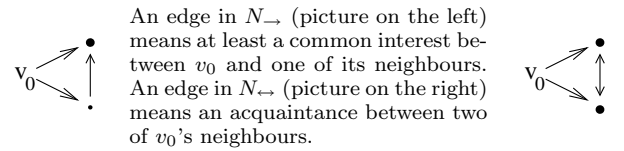
Now the network analysis was done in the following way<sup>5</sup>. On each blog (let us call it *ego* or  $v_0$ ) of our sample, one collects *ego*'s blogroll which is a set  $V_1$  of blogs, as well as the set  $V_2$  of blogrolls of all blogs of  $V_1$ . Note that  $V_1$  and  $V_2$  are not necessarily disjoint and  $v_0$  may —and is even likely to— be in  $V_2$ . We will just make the assumption that  $v_0$  is not in  $V_1$  (its blogroll...) and remove it otherwise. With these sets, one builds a *directed graph* (i.e. a network with directed links)  $G = (V, E)$ , whose *vertices* (i.e. nodes) are

blogs:  $V = \{v_0\} \cup V_1 \cup V_2$  and whose set  $E \subseteq V \times V$  of edges (i.e. links between two nodes) is such that  $u \rightarrow v$  (<sup>6</sup>) is in  $E$  if, and only if  $v$  is in  $u$ 's blogroll.

From  $G$ , two undirected graphs  $N_{\rightarrow} = (V_{\rightarrow}, E_{\rightarrow})$  and  $N_{\leftrightarrow} = (V_{\leftrightarrow}, E_{\leftrightarrow})$  are built, with only neighbours<sup>7</sup> of  $v_0$  (blogs in  $V_1$ ) and edges between them, if and only if they are linked to each other (respectively by some link or by two reciprocal links). Formally:

$$\begin{aligned} E_{\rightarrow} &= \{u - v \in V_1 \times V_1 \mid u \rightarrow v \in E \text{ or } v \rightarrow u \in E\} \\ V_{\rightarrow} &= \{u \in V_1 \mid \exists u - v \in E_{\rightarrow}\} \\ E_{\leftrightarrow} &= \{u - v \in V_1 \times V_1 \mid u \rightarrow v \in E \text{ and } v \rightarrow u \in E\} \\ V_{\leftrightarrow} &= \{u \in V_1 \mid \exists u - v \in E_{\leftrightarrow}\} \end{aligned}$$

Note that blogs in *ego*'s blogroll may not be in  $V_{\leftrightarrow}$  or even in  $V_{\rightarrow}$  (which is stronger since  $V_{\rightarrow}$  is included in  $V_{\leftrightarrow}$ ), if they have no neighbours of *ego* in their blogroll.



An edge in  $N_{\rightarrow}$  (picture on the left) means at least a common interest between  $v_0$  and one of its neighbours. An edge in  $N_{\leftrightarrow}$  (picture on the right) means an acquaintance between two of  $v_0$ 's neighbours.

<sup>5</sup> Some mathematical notations will be given here in order to be precise, but given the scope of the paper they are intended to be easily ignored by unfamiliar readers.

<sup>6</sup> We will denote by  $u \rightarrow v$  the (oriented) pair  $(u, v)$  and later on by  $u - v$  the (unordered) set  $\{u, v\}$ .

<sup>7</sup> For a better readability, we will use the term *neighbour* where *successor* would be formally the correct one. Let us put as a definition that  $v$  is a neighbour of  $u$  in  $G$  iff. the graph contains the edge  $u \rightarrow v$ . This way a node always knows its neighbours, which may be more intuitive.





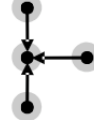



	I	II	III	IV
Person/Content				
	Utterance incorporated inside enunciation	Utterance expressing blogger's everyday life activities	Utterance expressing one facet of the identity of the blogger	Utterance isolated from the person of the blogger
Identity	Anonymous	Nickname	Pen name	Civil identity
Communication mode	<b>Intimate communication</b>	<b>Continuous communication</b>	<b>Shared interest</b>	<b>Public space</b>
Relational form				
Blog public	Anonymous nebula	Circle of familiar people	Community of interest	Public space
External links	Few	Very few	Many	A lot
Type of blog	personal journal	Teenager, family, travel blogs	Fans, collectors, community blogs	Journalists, citizen, political blogs
Shape of ego-network	<b>Star</b>	<b>Clan</b>	<b>Community</b>	<b>Polarized</b>
Size	Very small	Small	Large	Very large
ego in-degree	High	High	Quite low	Low
$V_{\leftrightarrow} \subseteq V_{\rightarrow} \subseteq V_1$		$\dots\dots\dots V_{\leftrightarrow} \cdot V_{\rightarrow} \cdot V_1$	$V_{\leftrightarrow} \dots\dots\dots V_{\rightarrow} \dots\dots V_1$	$V_{\leftrightarrow} \dots\dots\dots V_{\rightarrow} \cdot V_1$

Table 1: Four types of production of a blog's public

## 5. Four types of blogs

Let us now illustrate more in detail the four types of blogs, first as qualitative descriptions and then using the graph model we have just described.

### 5.1 Intimate Communication: A Star Structure

The first form of narrative that we have met in blogs consists in an intimate enunciation in which, anonymously, bloggers produce content on their inner life. They testify of personal trouble, confess their sexual life, or describe their feelings, dreams or hopes. Some posts are highly emotional, and the narration is always directed towards the intimate life of the blogger so that it's quite impossible to distinguish the content produced from the person of the blogger. Enunciation and utterances are so closely attached that the way bloggers express themselves are sometimes more important than what they've said. This first configuration follows the tradition of the self-addressed personal diary, but the publication on internet gives them an opportunity to meet a few selected readers who become personal correspondents when people begin to confess to each others their intimate feelings [15].

In the regime of intimate communication, bloggers don't want to be read by people that they know in real life — sometimes blogs have stopped when friends or family discovered the existence of the blogs. Bloggers often set up a clear division between electronic and real relationships. They try to establish a sensitive and comprehensive communication with anonymous and unknown persons with whom they reciprocally confess elements of their personal life. Intimate bloggers also prefer having few but dense relations than a

large number of correspondents. In our survey, they don't try to meet persons in real life and insist on the subjective importance of this virtual exchange. That is the reason why the number of commentators is often very low and exchanges are regular and mutual. The analysis of the relational structure of their small blogroll reveals a star shape. The communication between a blogger and his commentators appears as a kind of personal dialogue which is not shared with others.

### 5.2 Relentless conversation: the clan structure

Proximity blogs are clearly different from intimate blogs. They don't express the interiority of the blogger but record his daily life sometimes with a very accurate meticulousness. In this model, blogging is an efficient way to keep in touch with relatives and friends. People show themselves as they are in ordinary interactions, write in a conversational style, and discuss daily life issues. . . Every act of the day can be described: the list of things to purchase, the last party with friends, or the change of decoration in the apartment. . . On those blogs, pictures of friends, family and the environment of the blogger can be found.

Blogs' enunciative system dramatically changes as soon as the blogger doesn't speak to an anonymous halo of virtual contacts but to close friends and/or family. Instead of communication between inwardness, bloggers speak to people they know in real life and with which they have strong and regular relationship. Blogs locate themselves inside the different personal communication tools that they are using to exchange continuously with closer friends and family (with Instant Messaging and Short Message System). In this com-

munication mode, blogger's contacts are known and bloggers often refuse to communicate with unknown visitors. That is the reason why the shape of the relational network of the blog is formed by a small cluster of very interlinked blogs citing themselves mutually. Most of the time, referenced blogs replicate on the web the relational structure that can be observed in the real life of the person. This phenomenon can be clearly observed for teenagers blogs as it will be discuss in Section refs:further of this paper. Teenagers' *skyblogs* present this kind of structure (as in the example of Camillou below). They are surrounded by one or some small clans of friends from classmates, sport team or neighbourhood. We have also observed around the small clan of close contacts a nebula of various more distant people that the blogger has the opportunity to meet in his everyday life (for example someone in another class or school, etc.) This articulation between clan and nebula appears to be a classical structure of juvenile relationships where young person clearly differentiate the circle of the few close friends from the large space of acquaintances [3, 5].

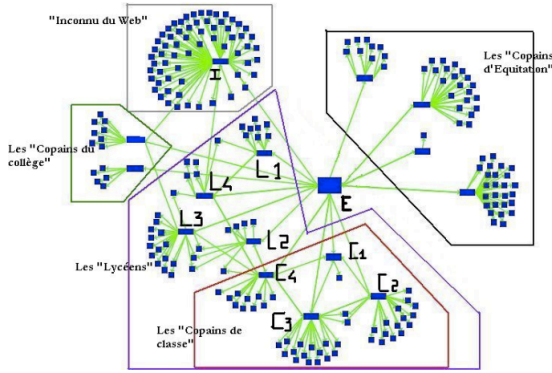


Fig. 3: The circle of Camillou's web friends

Camillou is a 15 year old girl who goes to high school in a rural area. Figure 3 represents Camillou's network made from her blogroll. Squares and rectangles represent blogs and lines represent the links between the blogs. The big square represents ego (Camillou's blog) and rectangles ego's blogroll ( $V_1$  in our graph model). Other small squares represent other blogs linked ( $V_2 \setminus (\{v_0\} \cup V_1)$ ). We observe different social circles in her relational universe. Camillou's blogroll contains 15 links among which two are boys and only one person is neither a relative nor a friend. They are all between 15 and 17 years of age. Different social circles in her relational universe emerge on the basis of this visualization.

The core of Camillou's network is made up of her high school's clique, who brings together 8 persons. All these people are in the same school level and 4 are in the same class. Out of this clique, two nodes correspond to young people, who have repeated a year. Although this clustered high school's clique forms the main Camillou's sociability network, she integrates other specific groups. There are three blogs about horses' passion, which are not linked to each other. Finally, one blog of an unknown person was added to the blogroll because of its poetic contents and romantic pictures.

### 5.3 Searching for peers: a community structure

Compared to the two former types of communication on blogs, the third one presents two important shifts in the enunciative system of communication between the blogger and his commentators. First, the blogger does not question his own interiority, as in the first type, but makes the demonstration of his or her competencies in order to express one facet

of his or her personality. In second place, he uses this specialized identity to recruit and exchange with people having the same characteristic. Most of the times, he didn't know those persons before the beginning of his blog. The practice of blogging appears as a relational technique in order to discover person who shared the same passions, interests, tastes or skills. Those two shifts yield what has been called 'instrumental intimacy' in community building on Internet [9]. 'Johnny Depp fan', 'cartoonist', 'collector of old cars', 'expert in climate change', etc.: bloggers try to produce a definition of themselves that can be recognized and validated by others in the interactive building of a community of peers. Bloggers don't need to express other elements of their personality than the one that is central to the community.

For this kind of blogs, we have observed that the blogger attracted comments of blogs that have quite the same style or genre. He or she chooses progressively and interactively the commentators with whom he or she wants to carry on the relational interaction by responding to some posts only. So the building of the community is based on the selective cooptation of homogenous blogs. That is the reason why we observe an important degree of connexity between community blogs. Moreover, the network can be larger than with blogs of the second type since it may spread geographically with no limits.

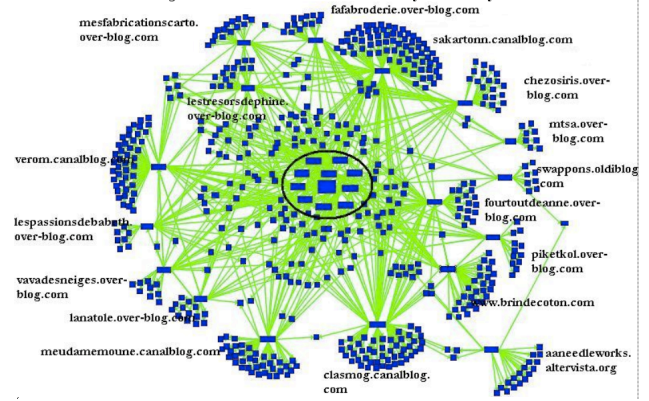


Fig. 4: Cousette's network: the embroidery community

Cousette (Figure 4) owns a blog dedicated to the practice of embroidery. She presents and comments photographs of her creations. She relates different phases of the conception in details and waits for comments from other embroiders. Nothing is said about the author's identity. All the blog's participants are also interested in embroidery's topics. Her blogroll contains 28 links, among which 10 are tightly linked to Cousette and densely interlinked (these blogs are in the black circle on the graph). The 18 others blogs designated by their URL on the graph are tightly linked to Cousette's blogroll but they are also linked to other blogs and websites about same topic.

### 5.4 Blogging opinions in public space: a polarized structure

The last mode of communication of our typology could be the same as the third if the kind of categorization used by the bloggers to express themselves wasn't so important. In identifying themselves as 'citizen', bloggers put forward a particular definition of themselves which is quite different from the community model. When people claim to speak as 'citizens' they create an open public space where various and similar points



of view can be raised on the same subject. That is the reason why —unless in the French political context— the closing of the public space around similar opinions is forbidden. Parallel edition of journalists outside their ‘official’ publication, experts in a specialized public domain, inhabitants informing on local politics, no-global activists mobilizing on an international issue, the growing of the ‘citizen blogosphere’ [11] has taken a new dimension since recent events (war in Irak, bombing in London, tsunami, etc.) and political elections (mainly in the French context of the referendum on the European constitution).

Some observers expressed the fear of a ‘balkanisation’ of cyberspace where people were more willing to exchange with people having the same opinions than with opponents with whom they could confront their views [25]. Public deliberation on Internet could be inhibited by the selective exposition to blogs of its own political tendency [17]. Even if homophile behaviour appears frequently in bloggers preferences, the analysis of citizen blogs networks underline a structure of communication which is quite different from the focused community preference. First because citizen blogs appear to have a much larger number of links than other blogs. Bloggers link themselves to numerous other blogs but also to a lot of other sites of the WWW. Blogrolls are longer, the number of comments are more important and the deliberative style between bloggers are more significant than in the three other type of blogs we’ve described previously [14]. Second, network analysis of political blogs have shown a polarized structure of different political tendencies inside a global political space. In their study of the blogosphere during the presidential election of 2004, Adamic and Glance show that 15% of republican or liberal blogs were directed to the other camp [1]. French cartography of the present blogosphere shows similar results<sup>8</sup>.

*Christophe Grebert (Figure 5) has created a blog in order to criticize the local policy of the mayor of his town, Puteaux (in the Paris suburban area). As a member of the socialist party he is a political opponent to the local power. However, on his blog he presents himself as a ‘citizen’. His blogroll network shows the diversity of links that can be observed on citizen blogs with many links to other local blogs but also to different political and non-political blogs. On this picture, it is difficult to see the political diversity of Grebert’s links. But as soon as one reads comments on his blog one can see many comments of them coming from his opponents.*

*This graph represents the blogroll of his blog, Monputeaux. We deleted the links from Monputeaux to his blogroll, in order to increase readability. This figure shows a cluster of densely interlinked local citizen blogs from different cities, whereas global citizen blogs in his blogroll are almost never interconnected.*

## 5.5 Results on the graph model

Now in order to test the graph indicators on the different type of blog networks, Table 2 shows the sizes of  $V_{\leftarrow}$  and  $V_{\rightarrow}$  as well as *ego*’s input and output degrees<sup>9</sup> in the whole graph  $G$ , for some blogs of our sample. Let us recall that one always has:  $V_{\leftarrow} \subseteq V_{\rightarrow} \subseteq V_1$ . The proportions of these sets with respect to each other are what is to be looked at.

The first thing to notice is that the protocol described above is not much suitable for Type-I blogs, whose blogroll is often empty. The blogs of the first two rows of Table 2 are somewhere between Types I and III: they both use their

<sup>8</sup> <http://www.observatoire-presidentielle.fr/index.php?pageid=3>

<sup>9</sup> The *output degree* is the size of *ego*’s blogroll and the *input degree* the number of *ego*’s neighbours that have reciprocated this blogroll link.

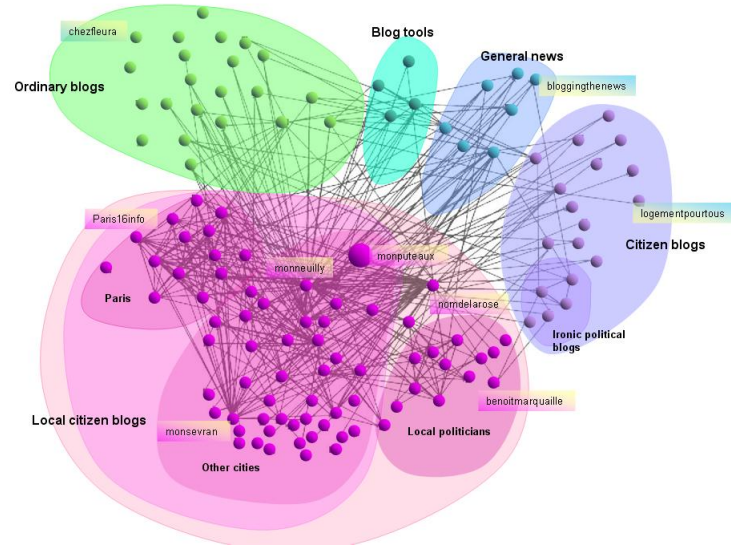


Fig. 5: Monputeaux (C. Grebert) blogroll network

	$ V_{\leftarrow} $	$ V_{\rightarrow} $	$ V_1 $	in	name
I/III	3	10	13	6	anemya
	7	24	28	8	amoursparisiennes
II	6	7	9	6	exagone21
	6	10	15	7	camillou
	8	8	11	7	rokoko
	4	9	10	4	starman
	3	6	11	6	lilifrank
III	2	10	19	7	regis-lavisse
	16	24	27	6	cousette
	8	24	36	9	lisel
IV	44	301	301	52	monputeaux

Table 2: graph indicators for different types of blogs

blog for intimate subjects, but on a very thematically focused way: eating disorder for the first one, sexual affairs for the other one.

What the measures show best is the differences between Types II and III, namely the importance of reciprocate links in Type-II and the size of the blogroll in Type III: as detailed earlier in this section, Type-II blogs are for real-life friends that want to communicate online whereas on Type-III blogs, people meet new friends online. Online friends can be much more numerous and know each other less.

As for the Type-IV blog that was described in detail above, the results are not that convincing: the large size is as expected but there are quite many reciprocal links, even though it is not relevant to compare their proportion with networks of very different size. Here again, the explanation lies in the fact that the measures were done on the blogroll network, which is a real handicap in this type of blogs, as was discussed earlier: although many opponents comment on the blog, they are not in the blogroll that rather lists political friends of the blogger, which is more likely to form a densely connected cluster.

Of course this simple analysis on the few exemplar weblogs that we’ve met during our explanatory survey should be con-

sidered as a first approximation. We suggest that it could be a basis for further works on a larger scale.

## 6. Further discussions: real and virtual relationships

In this study, we examined ego-centered networks generated from the blogrolls illustrating the four communication patterns of our typology. Those preliminary findings could be extended into three main directions. First as noted above, networks of commentators could provide a more accurate overview of the relational formats in the blogosphere. Second, in the ever changing context of the blogosphere, a dynamic analysis of blog communities could help understanding the constructing process of a blog and its public. Third the analysis of weblogs networks could be greatly enriched using a methodology allowing the comparison between the real and online communities in order to determine to what extent they match.

Concerning the last two directions, we tried and implemented a methodology to compare real and virtual relationships into a group of teenagers. We studied the weblogs appropriation by a group of teenagers (aged 14 to 16) during a few months. Their blogs all belong to the second type of our typology as they mainly relate everyday life activities. This approach combined ethnographic observations of the teenagers' real-life sociability and the virtual community formed by their weblogs. Figure 6 shows the correspondence between informal groups of friends and the network formed by their blogrolls, as studied between September 2005 and March 2006.

This figure shows that weblogs networks used as communication tools are the result of a constructing process, as it seems that teenagers at first use blogs as a publication and expressive tool. It can only become a convenient communication tool when there are enough interconnected weblogs. It suggests as already mentioned, that blogrolls only partially reflect real-life relationships and that some blogs may remain in one's blogroll even when not seeing each other as often as before. However, the dynamic analysis of online exchanges suggests that it is more the whole network that is used as a communication tool than just the weblogs. Conversations are distributed on the entire network, and two members of the group may use someone else's blog to exchange, whether or not they own their own blog. This network, functioning as a communication tool, emerges from the links between blogs as they appear in the blogrolls. Thus, blogroll networks structural analysis remains useful to get some informations on real-life relations. Clusters detected in this kind of networks are likely to match to a certain extent groups of friends. Such approaches combining structural network analysis and methodologies giving an insight of face-to-face communication patterns could provide useful results for a better understanding of the blogosphere.

## 7. Conclusion

In this work we suggest a possible method to detect the type of blogs by the shape of their networks. We argued that the four different types of blogs have various blogroll networks in size, connexity and presence of known or unknown contacts. This last dimension appears as one of the main results of our explanatory research. In intimate blogs, people don't know each other in real life and the anonymity of exchanges is often a central condition of the quality of blogs conversa-

tions. On the opposite, in the second type of blogs, bloggers have daily and multiple exchanges because they also have previously developed close links in real life. In the third type of blogs, people enlarge their social network in using blogs to discover new person that have the same skills or tastes. They mix in their network of contacts people they already know and people they will encounter. In the fourth type of blogs communication, bloggers gather themselves in clusters of similar points of views but always comment others. Even if people discuss with people that they didn't know before, citizens conversations on blogs are also tools for mobilisation and encounter in real life.

Our ideal-type modelisation needs to be tested on a larger scale on comments networks. One of the main issues of our future work is to show that blogs are always a composition of the different ideal-type of our model. In their everyday practices, bloggers often mix the different modes of communication (intimate, familiar, specialized and political) so their blog networks have a far greater complexity than the first insight we have developed in this article.

## Acknowledgements

This research has been done in the AUTOGRAPH project<sup>10</sup> (Self-organization and Visualisation of large networks of interaction on the web) funded by the french Agence Nationale de la Recherche (ANR/RNRT).

We would like to thank Mathieu Jacomy and the RTGI team (Guilhem Fouetillou, Franck Ghitalla) who developed the NaviCrawler, the software we used to extract links on blogs.

Network pictures were generated using GUESS tool<sup>11</sup>.

The L<sup>A</sup>T<sub>E</sub>X-oriented author is grateful to Nicolas Nicourov and Eytan Adar for providing a complete ready-to-use bundle...

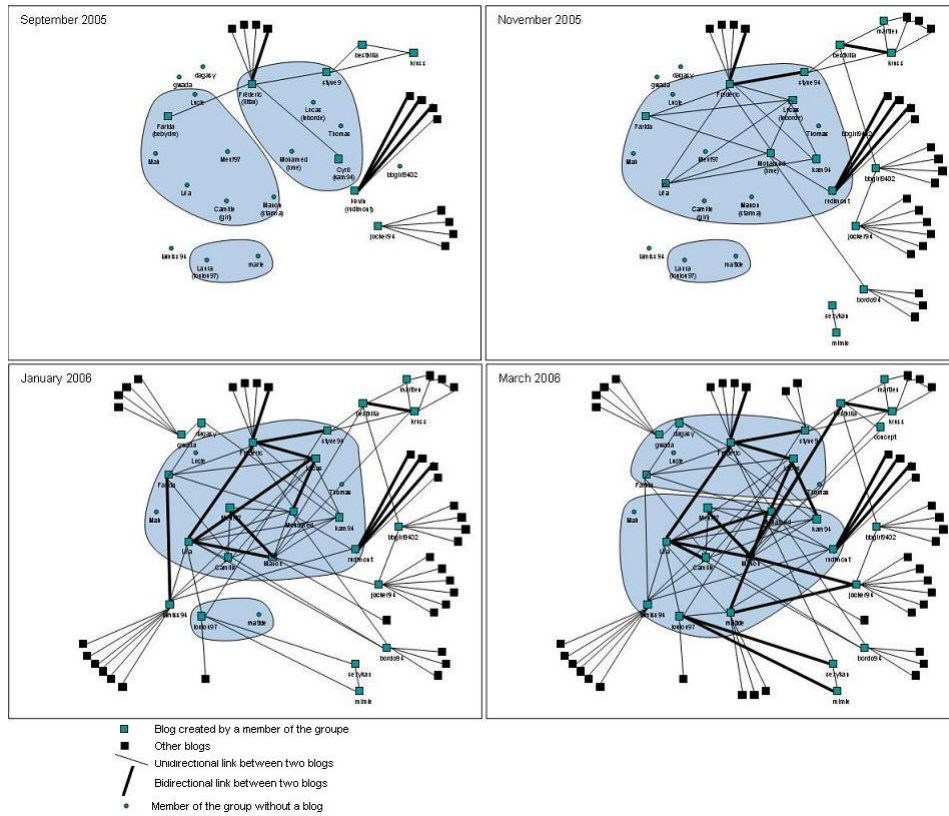
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<sup>10</sup> <http://overcrowded.anoptique.org/ProjetAutograph>.

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**Fig. 6:** Blogs network and real-life relationships in a group of teenagers

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