A 'Paglian' Interpretation of Hacking and Other Amateur Practice

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INTRODUCTION

It is widely accepted that the stereotypical hacker is a rather asocial male. In this paper I will try to look in more detail at potential causes of this gender imbalance and similar imbalances in settings which I generically call 'amateur'. I am doing this as part of a possibly wider exploration, experimenting with ideas rather than seriously proposing a definite perspective. The background of the present paper, exploring 'why most members in certain amateur communities are male, while the balance is more even in others' is centered around the amateur community perspective which I proposed earlier (Bogdan 2003) and the art-historical work of Camille Paglia (1991, 2003), which, one has to say at the outset, is not uncontroversial. For a different perspective on similar questions, see Jonsson (2004).

In what follows, I will illustrate the question with a number of personal stories. An initial discussion of the question in relation to feminist arguments follows. Then follows a characterization of hacking from an amateur perspective, including my observations from amateur radio and student amateur management and programming work, with hacking proposed as an amateur programming activity. Paglia's work on gender differences will then be presented. I will close with a discussion on possible reformulations of an amateur perspective on hackerism and similar practices through Paglia's work.

SOME PERSONAL STORIES ABOUT AMATEUR WORK

I got pneumonia when I was fifteen, as a high-school student in my Romanian hometown. That's ten days at home, getting penicillin shots, with the corresponding pin pricks in the relevant parts of the body. But I didn't get to think of them too much because the last day in school before finally admitting that I was sick, I had borrowed a photocopy of the Sinclair ZX Spectrum user manual[1], so instead of keeping the precious thing for a couple of days, I 'had' to keep it for ten whole days! At the end of the ten days I was an enthusiast of Spectrum BASIC and I had a Spectrum keyboard drawn on an A5 paper, training on how to type different keywords and characters. That was required, because there was no Spectrum around. And the Spectrum wasn't entirely needed. From my previous mathematic orientation, there were so many algorithmic problems to solve with the Spectrum BASIC that nothing much else mattered, not even the computer itself. When I first got to the machine (a Romanian clone, most probably illegal), I was among the most enthusiastic barkers in the pack. Most of my peers were male.

Five years later, after BASIC, Z80 assembler, Pascal and C went in and out of the "exciting" category, I joined a summer course on C++, organized by a certain student organization in my university. The course was oriented mainly towards students from other European technical universities. Since I knew more about the local environment than other participants, I slowly became an organizer, joining a handful of enthusiast types. That brought me into the world of the European student organization, with all its meetings and cross-cultural affairs, which were really interesting especially in the context of the gates to the West (or better put, the exits from the East) finally being open to us young Easterners. I discovered slowly that, in spite of my hacker-level social skills, I can take responsibility for a group in organizing periodic jobfairs, summer courses or plain-old parties, for managing the affairs of an association. Again I became one of the most enthusiastic of the pack. This time, my peers were evenly male and female.

Another (almost) five years later I began post-graduate studies at KTH, in Computer-Supported Cooperative Work (CSCW). By that time, my student organization had built software supporting the European coordination of their summer course program with its 500 participants selected out of 10000 applications. This serious business and its computer support inspired me to realize that most understandings of "work" in CSCW meant "office work" or "control room work" and in any case "employed work". I recognized that there were other kinds of work that needed to be (and were) computer

[1] For more on hacking in communist Eastern Europe, its constrained resources and its attitudes to politics and copyright, see Şandor (2004)

supported, and that became my PhD theme. In order to get a better understanding of such work (which I slowly came to call 'amateur work') I decided to go to a foreign domain and study work in the well-established Amateur Radio (ham) community. Now this was an impressive pack, scattered all over the world, confident that whatever happens to the world's communication systems, they can count on their own transceivers taming the radio waves and making the most of them. A significant part of their communication (which they specifically call "work") can be generally described as 'checking the equipment'. They are doing that for most of their radio part of the day, which can vary from some minutes to the whole 24h uninterrupted, tuning transceivers, antennae, cables, and what have you, seeking long-distance connections with as little emission power as possible, seeking new destinations to be reached by radio, generally pushing the limits of their radio skill and equipment. Throughout the hundred years of amateur radio activity, most of radio operators were male.

Fast forward five years. My graduate studies were approaching an end, and I designed a WWW development platform for the technical crew of my student organization (as part of the 'design' part of my thesis). The group consisted of volunteers doing amateur IT development and maintenance work (a softer form of hacking) for the organization at large. At the time, and throughout the seven years I had been in contact with the student amateur programming group, members came in and out, but most of them were male.

At about the same time, I started holding some Participatory Design sessions in the organization in order to encourage them to do more structured thinking about the design of their software. As in any new thing within the organization, several working groups were set up in a number of meetings in Europe, and a more formal and permanent international group was formed out of the most enthusiastic participants. These amateur software designers were evenly male and female.

THE QUESTION AND AN EARLY DISCUSSION

It's about time to ask the question: why is it that some amateur preoccupations (including hacking) are pursued mostly by males, while others are preferred evenly by the genders (and yet others may be pursued mostly by females)? I had this question on the back of my mind all these years. Far from feeling superior, I was wondering why the members of the opposite sex don't join in to enjoy the pleasure of this or that amateur quest. This question's pressure accumulated while writing footnotes like "radio amateurs are mostly male, so I will refer to them as 'he' or 'him' and hereby apologize to the few but significant female operators" without taking the time to reflect on this rather interesting fact, a reflection which should be appropriate when you are, like I was, after ethnographic understanding of the ins and outs of being a radio amateur. The 'armchair science' course that produced this collection of articles has provided an excellent opportunity to reflect on the matter.

Any question about gender difference has to take into consideration the feminist work on gender equal opportunity, in other words the preoccupation with females having an equal opportunity to pursue a certain occupation, with equal chances of promotion with men, within the Western[2] societies. I will attempt in this section to discuss my current understanding of the most main feminist approaches. Jonsson (2004) provided a guide for my review.

From the outset, there is an important observation to be made about the notion of "gender opportunity": it generally refers to a profession, or a political position, etc. I believe that the subject of gender in relation to amateur work in general and hacking in particular is different from the ordinary gender discussion because it does not refer to a *profession* but to an *inclination*. To illustrate this distinction, one may be an excellent software hacker by inclination and a very bad software professional, or the other way around. I would like to posit that, in comparison to the opportunity to join a profession, the opportunity to start pursuing an amateur vocation is much less constrained socially because in being an amateur, one does not consume from the peer's resources or otherwise territory, nor does one typically enter a power relationship, so the classical, patriarchal opportunity of males to dominate females is not as pronounced.

Modern feminists would probably argue that starting to pursue a certain amateur activity, i.e. starting to

[2] It is interesting to reflect on gender opportunity in former communist countries. The communists achieved a certain discontinuity with the old patriarchal traditions. For example, in many technological fields, especially in computing, there were an important number of women (they were sometimes harassed in the computer science education, especially by hardware teachers, so the discontinuities with the old patriarchy were clearly not complete). My wife is certainly one of them, and she has a story about a colleague from the Western-European branch of her company coming to the Romanian branch for the first time and asking with a low and surprised voice "do these girls really program??"

get to know and "love" doing a certain thing, is strongly influenced by cultural background. In other words, cultural myths about boys being better on a domain than girls may influence girls into not getting attracted to the respective domain and not pursuing it as an amateur or professional. This is inline with the 'blank slate' theory which argues that we are born equal and our social and cultural involvement makes us different. Evolutionary psychology (e.g. Pinker 2002) argues strongly against this theory, and similar arguments are made by Camille Paglia (1991) on the issue of gender (i.e. there are at least strong gender differences from the very first moment of life).

I do not want to argue for or against the cultural position, yet an incipient reflection is worth doing. One possible argument against the cultural view is that more or less anecdotal evidence from the two domains that are pronouncedly male-amateur (amateur radio and software) suggests that while males are superior in numbers in the professional field by the order of tens of percents, the corresponding amateur field is numerically dominated by males almost totally. Judging from the less tensed social environment in the amateur setting comparing to the corresponding professional setting, one would expect the opposite: girls would be harassed by boys' dominance in the professional field and yet would assert their inclination by being active in the less tense amateur domain. By this reasoning, we should see more girl-amateurs than girl-professionals in such domains.

Surely a culturally-based counter-argument is possible for example in the field of amateur radio. At the beginning of the radio age, men were having a clearly dominant social position in the Western world, and certainly cutting-edge technology was not the turf of women. The next generations were born into seeing the radio-related activities as a male thing, hence women never had the chance to begin work as radio operators. In other words, lack of initial opportunity has compromised women's chance.

It may also be argued, especially in the case of female computer programmers, that it is more important for gender-conscious women to pursue a gender-imbalanced activity professionally than as an amateur, in order to promote and ensure equality. This could explain the lack of female computer amateurs, i.e. the lack of hackers. Similarly, the low number of female hackers can be culturally induced in itself: being a hacker may more culturally discriminated against females than being a professional programmer. Finally, one can argue that due to gender-related social imbalances that still persist, women simply do not have enough time to pursue amateur activities (however, activities such as knitting, even if culturally-induced, are still counter-examples).

In this paper I would like to pursue my gendered amateurism question based on a different theoretical platform than the cultural argument. I will use the work of Camille Paglia (1991, 2003) in the field of art history as a framework to develop (from a gender perspective and otherwise) earlier ideas about amateur work, which I formulated during my research studies (Bogdan 2003). I am not choosing this framework because I think it is superior in any way to the cultural framework or other feminist approaches, but because I think it is worth exploring, and it may be less well known than the feminism-inspired arguments.

AMATEURS. HACKERS AS AMATEUR COMPUTER SCIENTISTS

Although pejorative understandings of the word 'amateur' as 'lack of professionalism' are dominant, there are more constructive (and more in line with amateur self-description) understandings as 'pre-professional competence' or even 'complementary to the profession' such as e.g. in astronomy. The latter is the understanding taken by sociological writings about amateurs: Stebbins (1979) provides a series of ethnographies in amateur baseball, archaeology, etc, Bourdieu and colleagues (1996) study amateur photography, Jenkins (1992) studies amateur Star Trek episode writers, Gary Alan Fine (1998) looks at amateur mushroom pickers, who are also trying to identify new species of fungus, becoming in effect amateur mycologists. This 'research value' that amateurs have for their professional counterparts and for the world at large will be examined later on.

I will take some time to describe my understanding of amateur work and community (Bogdan 2003), and I will later put gender and gender motivation in the framework of this understanding. The notion of *challenge* as main motivation for work is an important vehicle for understanding amateur motivation. On closer observation on amateur radio operators and student amateur managers, programmers and software designers, challenge can be interpreted as giving value to certain contingencies that arise in the domain, and need to be addressed with skill (cf. Csickszentmihalyi 1991). For example, an amateur radio operator will see a challenge in the fact that VHF propagation does not seem to work today in the direction of a certain destination that he or she wants to reach over radio. This contingency will give him an opportunity to show his mastery (cf. Turkle 1994) over radio equipment and communication standards. If contingencies are not found naturally, they are provoked by e.g. attempting a connection to a totally new destination, a totally new country or with a new

radio transmission method. The amateur radio operator will never become bored. The challenges of a healthy amateur community are of *inexhaustible* nature.

Such challenge and contingency aspects are clearly visible in hackers as they appear from Levy (1994). The computer is an exceptionally rich source of software-related contingencies; working on software in 'hacking mode' involves a lot of trial and error. This is one form of 'pushing the limit' of what can somebody achieve with a computer. It is important here to note that my observations in amateur radio and their subsequent resemblances in amateur student work indicate that the "limit" is a socially-agreed (constructed) matter and not a unique, absolute ideal. Even in amateur software, Linus Torvalds (Kollock 1999) indicated that there needs to be a challenge for an open source project and he exemplified an operating system kernel (what else?) as a challenge and a word processor as a non-challenging, boring project. Surely an operating system kernel is a challenge if one is interested in algorithms and optimizations, while a word processor can become a challenge (as e.g. OpenOffice.org) has shown if one is interested in other areas of computing (for example object-oriented architectures, open document standards) or simply in the challenge of beating the main actor on the market. Similarly, the challenge of an amateur community is not necessarily something positive. Members can agree on writing Microsoft-liberating office software (which many people happen to regard as positive) or can agree on cracking network protection (which is generally understood as negative) or video formats (which is still being intensively debated). In any case, "the hacker ethic" (e.g. Levy 1994) (with its opposition to cracking) is not, in this perspective, an absolute truth. Some amateur computing communities may adopt it, some not, yet they will still be regarded as amateur computing groups. However, by 'hackers as amateur computer scientists' I generally understand people that do respect the hacker ethic. Many ideas of the hacker ethic such as freedom of information can be found in many amateur communities' peer review and audience patterns as it will be described below.

This shaping-in-common of challenge comes to doubt Levy's (1994) romanticized expression of "the right thing", which can only be defined once it is clear what a sub-community of amateurs is interested in (in the case of the MIT AI Lab hackers described by Levy it was probably similar with Torvalds' concern of performance and resource sparing, yet it was probably not so pronounced as Linux is in the areas of reliability). Defining what an amateur sub-community is interested in is thus the same with defining what a sub-community *is*. Even within a sub community, members usually accept and appreciate a number of alternative ways for achieving something. One could speculate that the mathematical background of many people at the MIT AI Lab (Levy 1994) made them believe that there is only one solution (yet it is also true that at some moments famous hackers such as Greenblatt have traded the right thing for having something done less 'right' technologically but sooner and more useful).

Besides valuing the addressing of such amateur-domain-related contingencies, amateurs are trying to colonize new contingency spaces by pushing their domain forward in what I have called *pioneering*. For example radio amateurs are at all times looking for new radio transmission methods and new solutions for building higher-performance radio equipment. Thus pioneers bring about radical new approaches in the amateur community, opening entirely new possibilities (contingency spaces) for members to asses their mastery, entirely new challenges for them to address. This is a stronger form of 'pushing the limit' because while pioneering one practically discovers new kinds of frontiers to be colonized.

Again, the large potential of computing to provide opportunities for pioneering suggests that the amateur vocation in software (hacking) will have plenty of new spaces to discover and colonize. One only needs to think of new algorithmic problems to find solutions for, new operating system concepts to be implemented, etc. The pioneering character of the MIT AI Lab hackers due to their opportunity of being among the first to take lots of new challenges in computing (Levy 1994) makes us understand the huge amounts of energy devoted to pursuing their pioneering mission.

Peer review is yet another defining aspect of amateur work. It is evident when shaping a challenge in common. A radio amateur may for example try to make a transmitter output amplifier circuit using an approach that may be sanctioned as very innovative or, alternatively, useless by his peers. The important thing here is that the amateur always resorts to his or her peers to assess the value of his or her ways of challenge addressing. Peer review, and the peer amateur community in general thus play very important roles in the amateur's life. They can help to achieve an understanding of what constitutes a challenge as known-in-common by the community or they can help to reshape that challenge (re-defining the limit to be pushed). Also, they can help to assess the value of one's own amateur work, as a global contribution to the overall *research* effort of the community (e.g. the first radio connection via moon reflexion), or simply as a more modest local contribution (e.g. testing the local VHF repeater).

Peer review is evident in hacker groups such as those at the MIT AI Lab. The availability of precise scales for evaluating peer contribution (even absolutist scales such as "the right thing") is an important advantage of some hacker communities, especially traditional such groups that are typically interested in measurable values such as speed or memory size. Yamauchi et al. (2000) studied the communication in two open source communities (one of them is GCC) and they considered this possibility of precise measuring of the effects of certain solutions proposed to be an important factor in the success of the open source communities that had email as their main means of communication and no face-to-face meetings at all. Such precise scales should be more difficult to find in amateur software groups interested in e.g. object-oriented structures.

Considerations on the importance of peer review are much in disagreement with Keller's views on "machismo" (1990), where she views the hacker as a solitary male animal meeting others only to make a proof of his mastery over technology and superiority over the others in such matters. Her views are not confirmed by my observations in amateur radio (Bogdan 2003) yet my personal experience as a hacker and distinctions between "winners and losers" observed by Levy (1994) do suggest that 'becoming a peer' can indeed be difficult. However, such forms of 'bullying' do not seem to be gender-biased, as showing-off (of skill or anything else) is certainly something specific to both genders and directed towards both genders.

Besides peer review, *audience* of amateur activity is yet another component that places the amateur strongly in a social context. The audience of amateur activity can be defined as the totality of actors that may at some point be interested in the results of amateur work. For example, by working on new methods of radio propagation, amateur radio operators know that they are potentially contributing to practically the whole world. The larger the audience of an amateur, the bigger is their motivation. As already emphasized, peers constitute an important part of the amateur audience, yet outsider *beneficiaries* of the amateur work can be of impressive numbers, and can sometimes compensate for a 'weaker' challenge. This was especially evident for me in my observations of student amateur managers.

It is again easy to see how the potential audience can shape hacker motivation especially in the Internet years. Software easy to spread around the world in an infinite number of copies via a cheap medium (the internet), so if one wants to publish their software as freeware or as open source, the audience effect is guaranteed. This is similar to Bruckman's (1997) observation on the audience effect that generated lots of home-pages at the beginings of the World-Wide Web. A different kind of audience, more research-oriented can be thought of in terms of work on algorithms, and new approaches in computing (e.g. operating systems, networks, distributed systems, etc). The audience effect is evident in pioneering, when the whole computing industry is likely to be interested in a new approach developed in places like the MIT AI Lab as described by Levy (1994).

PAGLIA'S ART-HISTORICAL PERSPECTIVE ON GENDER AND THE TRANSFORMATION OF NATURE

Camille Paglia (1991, 2003) has come to her principles about gender through the study of art, which she regards as the realm where all ambiguities between sexes are projected, and also the realm where the imbalance between humans and nature (such as imbalances provoked by advanced technology) manifests itself. Paglia's remarks about art are in many ways remarks about gender and technology. The bigger the mystery about the opposite sex, the more high-quality art is produced, and the same happens when the imbalance with nature is increased by technology. Art is also important for Paglia as a measure of imagination.

Paglia regards sex, sexuality and biological differences as basic for our understanding of what it means to be a human being. This comes in stark contrast with modern views that regard gender as a social construction, and consider that humans are capable of constructing themselves sexually, with heterosexuality being just a culturally-imposed norm in a wide repertoire of possibilities.

Paglia's basic tenet is that biological origins operate on us at a subliminal subconscious level, and we will never be able to ignore them. As such, she completely disagrees with concepts held in modern liberal democracies such as the assumption of self-creation where gender is no longer important for destiny and relationships and everything can be re-sculpted by will. In her view, there is a thin social layer that equalizes the sexes, providing for a weak, but functional mechanism that ensures gender equal opportunity. She views this as an utopian, politically-driven, shaky edifice, which will tumble once society will weaken, for example due to internal disorder, or in case of aggression from the outside, or natural catastrophe. Therefore "over time gender will reassert itself when society is no longer strong enough to protect the weak". As such, we are blinded by the illusion of political equality when in fact we are sex-driven and nature-driven beings.

Male versus female behavior and inclination

Although she may be viewed as promoting unjust gender inequality, Paglia's perspective on males is certainly not admiring. Due to their high levels of testosterone that affect them ever since they are separated from their mother, men are flawed, weak and driven beings, who always need to supplement their identity with some objective accomplishment. Their mental focus becomes obsessive, which can drive them in all sorts of directions, ranging form crime to genius. Paglia's study of art reveals that an important number of major artistic achievements as being driven by hormonal compulsion.

The importance of physiologic aspects on women's life is emphasized by Paglia as an important determinant of their behavior. Ever since puberty, menstruation gives the girl an opportunity of coming closer to cosmic realities and gets a much better understanding of natural limits than men do. *In contrast* to the prudent approach of girls, males exhibit a great deal of risk-taking behavior, and are in a continuous striving to overcome nature. Paglia considers that they are in a search for a physical limit which women already discovered, as it happens to them every month.

The conception about life itself is different between sexes. Women think of life as a cycle, they even look different during the month. *In contrast*, men think of it as the struggle to reach a "grand climactic peak", where everything is resolved. Paglia regards this as an overall Western illusion, seen also in the biblical reincarnation, with a spectacular climax, which will consequently be the end of time.

Technology and the ultimate supremacy of nature

The belief in such a glorious ascent of mankind is for Paglia a "delusional mistake" which she considers to be an important source of art originating from the "neurotic imbalance" of humans and nature. The imbalance comes from the fact that nature always wins over whatever technological attempts humans make to transform it.

In their continuous attempts to overcome nature, men are the principal agents of technological development. They build machinery that allows us to be free from nature, but nature will return in the form of disasters because the "artificial paradise of high-tech" makes us ignorant in terms about surviving as individuals in case of chaos or war. We are, as Paglia puts it "too alien from nature".

Feminism, androgens and the vulnerability of advanced civilizations

Once male weakness is established, Paglia condemns the "feminist melodrama of victimology" which she regards as unfounded. But she is not totally opposed to feminism; she views feminism as having an important mission in the public realm, but she believes that the private realm, the land of emotion, desire, personal relationship should not be affected by legislation, as that is the realm of art, ambiguity and paradox. She believes that the distinction between public and private is not well understood by modern feminism, with its obsession of equality in public.

Paglia regards the tendency of diminishing the differences between man and woman (leading to so-called androgens, kind of non-sexual beings) with concern; she believes that such diminishing contributes to the weakening of culture, of art and imagination. She is worried by a culture that treats masculinity as a social construction and wants to brainwash masculinity from the minds of the young. Such a culture becomes vulnerable to warrior tribes from outside, where manhood has not been deconstructed. This has happened repeatedly throughout history, in Babilon, Rome and other great civilizations that were destroyed by barbaric intervention. Young invaders bond together for the joy of killing, hunting, and military adventurism, and regard destroying the achievements of civilized cultures[3] as a beautiful mission that will take them to martyrdom and eternal fame.

DISCUSSION

I will center my comparison between the amateur perspective and Paglia's art-historical perspective on the male striving to transform and overcome nature. Although Paglia makes that point mostly about men pushing *physical* limits (in their ignorance of the nature supremacy which women know much more about), there is a clear extension towards general transformation of nature. There are significant resemblances between the act of addressing contingencies while taking an amateur challenge and Paglia's view of men that continuously 'push the limit' of what can be achieved in the relation with nature. The amateur ideals of continuously perfecting a certain domain are similar to the male tendency of ascent towards a "grand climactic peak".

All in all, Paglia offers an interesting possible answer to my gendered-amateurism question. The resemblances between her views on gender and my perspective on amateur communities suggest that my perspective is biased towards amateurism that is of the male-striving kind, which I'm beginning to refer to as *male amateurism*. Forms of amateurism such as hacking and amateur radio are much better depicted by my amateur perspective because (one would infer

[3] Paglia's concrete example is the World Trade Center Twin Towers

from Paglia's views) such amateur activities are pursued as part of the continuous male striving with nature and their continuous tendency to push limits of technology in that striving with nature.

In contrast, more cyclical amateur activities, which do not climax into the perfection of a technology are less well depicted by my perspective on amateurs. Amateur management of annual activities such as the management of summer courses in the student organization is thus not part of the male striving to objective achievement, and makes females, with their more realistic, cyclical view of life, be more inclined to pursue such activities voluntarily. Iterative amateur design, where "perfection" or "the right thing" (and, as a consequence, progress to a climax) is much harder to identify, much less measurable, is yet another kind of such activity.

Besides being a non-physical (or not necessarily physical) form of striving, male amateurism -Paglia might suggest- is a softer, non-physical form of conquering territory. Instead of conquering (and marking) territory of another human or otherwise animal enemy, male-dominated amateurism conquers and marks territory in the working domain through pioneering (the first program that plays good chess, the first time-sharing operating system, etc).

It may be argued that the non-physical territory of hacking is a domain where nature cannot assert its supremacy over male striving. However, the failures of artificial intelligence are, in my opinion, yet another sign that nature cannot be beaten, even at non-physical games such as intelligence.

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