

NEGOTIATING THE SOCIAL

OF PEOPLE NOT MACHINES: AUTHORSHIP, COPYRIGHT AND THE COMPUTER PROGRAMMER¹

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Since the early years of the Information Society, legal policymakers and scholars alike have noted the ways in which digitally-mediated creative practices might challenge copyright law's concept of 'authorship'. Not only are new forms of creation thought to make the identification of the 'author' difficult,² but the status of authors in law is thought often to bear no relation to how they are perceived in creative communities.³ These issues, amongst others, are the subject of a detailed empirical study which forms part of the HERA funded *Of Authorship and Originality* project, which draws on qualitative interviews with sixteen 'digital artists' and/or 'digital poets'.⁴ As a further round of interviews is planned for this year, this paper presents some preliminary comments only, focussing on just one aspect of the interface between notions of authorship in law and those articulated in the interviews: authorship of computer programs.⁵

Authorship of computer programs merits close attention, on one level, because it illustrates what is one of my more general observations about the relationship between ideas of authorship in law and the 'digital arts': its complexity. The sphere of 'digital arts' is characterised by a multiplicity of creative practices and consequently a diversity of ideas about 'authorship', which resist simplistic conclusions as to what the challenge of the digital should mean for law. At the same time, the status of computer programmers as authors draws attention to what for modern lawyers is likely to be an unexpected and counter-intuitive observation about certain aspects of the relation between digital art and law: far from always a source of challenge, the discourses of authorship in the 'digital arts' can also provide the law with assistance.⁶ Indeed, as we will see, in humanising technology and exalting the computer programmer as a creative poet, certain discourses of digital art can in fact provide coherence and legitimacy to legal concepts of authorship, rather than challenging them.

This paper starts with an outline of the ideas surrounding authorship of computer programs as revealed in the interviews conducted so far (section 1), before turning to consider their implications for the concept of authorship of a computer program contained in law (in sections 2 and 3).

The Status of the Computer Programmer as revealed in the Interviews

By way of background,⁷ the interest of art museums, galleries and funders, in art employing digital technology is understood to have received momentum in the early 1990s, in the context of the origins of the internet era which renewed enthusiasm for creative uses of new media. Yet, while some of this generation of so called 'new media artists' sought and received institutional recognition from established contemporary art institutions, others stayed outside these channels. The result was the rise of specialist institutions dedicated to supporting 'new media art', such as Ars Electronica in Linz, Austria and the ZKM in Karlsruhe, Germany.

As one interviewee explained, these 'new media institutions' sustain a very different set of ideas about what it means to be

creative, than 'contemporary art institutions' (such as, for example, the Tate Modern). For the new media institutions, what matters is creative use of technology. The same interviewee (who works in 'interactive installation') expressed:

when I exhibit in the new media institutions, they want to know about what software I used and what computer I used, but at the fine art institutions, they just don't care.

This environment provides art institutional underpinning to ideas about the primacy of the creative role of the computer programmer that had been articulated in art colleges since at least the mid-1980s. As the same interviewee explained 'in digital media there is a whole movement that the programmer is the supreme being...' and this stems from the view that 'programming a computer is an art form', that it is 'something poetic'.

In 2003, these ideas formed the centre-piece of Ars Electronica's annual festival, entitled *CODE*. An interviewee recalled the key themes to be these: 'It was about the programmer [being] more than a tool builder... [but] a poet, a philosopher.'

The 'core creative task', in this view, is the writing of the computer code. As the volume of essays accompanying the Ars Electronica's *CODE* festival explain,⁸ it is the emphasis on the creative nature of code writing, that distinguishes the discourse on art sustained by 'new media institutions', from the work of the those so called 'soft' digital artists, who use the computer as a mere tool to make art, without having any technical skills to program. As one essay in the collection explains:

The advocates of 'software art' emphasise the primacy of the code as the main creative achievement and demand an unobstructed presence and role for it in the artwork.⁹

This emphasis on the 'centrality of code', results in the downplaying of the significance of the user interface (or screen display) which the code produces when the program is run on a machine. As the same essay explains:

...the principal 'sin' media art has committed seems to be its excessive attention to interface design.... instead of... the true nature of the system, hidden 'behind the façade'.¹⁰

This is most clearly illustrated by 'Code Poetry' which involves using computer programming language as a literary medium: the poetry is written in the specific code language of software which is made visible to the reader.¹¹

This is in contrast to the aesthetic that often underpins digital art installations displayed in contemporary art institutions, which downplays the significance of the programmer's role:

Although the movements and reactions of robotic devices and objects (or the responses produced by sensors) may be driven or processed by artist-written software, little attention is commonly paid to the conceptual aspects, cultural impact, or 'elegance' of the software itself, which remains a hidden force that isn't foregrounded and often induces such complex interactions that its 'writing process' simply isn't as accessible as that of a piece of code poetry.¹²

Indeed, the interviewees whose work consists of art installations involving digital technology, put forward a very different view of the status of computer programming. While acknowledging

that there *is* skill and creativity in programming,¹³ the programmer, in their view, is not the 'author'. Rather, the 'author' is the person who 'directs' the project.¹⁴ As interviewee Ken Feingold explained to me, this notion of 'director' is analogous to that used in relation to certain genres of film:

...in the sense that we talk about [authorship] in art... I use the analogy of a film. ... Who would call the film theirs? Generally the director. ... Yes, there are a lot of people that worked on it, but you would say that this is a new film by so and so; Jean Luc Godard has made this film. We know that he had camera people, lighting people, sound people, make up, costume, sets, you know people who were moving the equipment around and who drove the trucks to bring it from one location to another. People who made the food you know, people who edited it, people who made the copies and who distributed it, but still we say this is a film by Jean Luc Godard. It is of that nature.¹⁵

Far from 'the supreme being', on this view, the programmer is just one of many contributors, who though creative and skilled, does not deserve the status of 'author'.

A Copyright Lawyer's Response

From art, we now turn to law. How are computer programmers classified as a matter of copyright law, and what observations can we make about how this corresponds or diverges with the ideas of authorship in the digital arts revealed in the interviews?

The Berne Convention, the major international copyright treaty to which most countries of the world are signatories, concerns the protection of 'literary and artistic works'.¹⁶ After some debate in the 1970s and 1980s, the decision was made that 'computer programs' would be brought within the Berne Convention definition, on the basis that they were 'literary works'.¹⁷ That principle is now enshrined in international copyright law (in the TRIPS agreement¹⁸ and the WIPO Copyright Treaty¹⁹) and in EU law via the Directive harmonising copyright in respect of computer programs.²⁰

The EU Directive further specifies that protection shall 'apply to the expression in any form of a computer program'²¹ and in two recent references to the European Court of Justice, national courts have sought guidance on the meaning of this phrase. In *BSA*,²² the Court made clear that while this covered source code and object code, as the 'literary elements which are at the basis of computer programs',²³ it would not include the graphic user interface displayed on computer screens when the program was run; the latter was merely a 'means of which users make use of the features of that program'.²⁴ Also not encompassed, according to the European Court of Justice in *SAS*,²⁵ are a program's 'functionalities' (or service which the user receives) or a programming language, at least in so far as protection for these aspects is sought 'as such'.

To a lawyer uncovering the varied artistic discourses on authorship (sketched in Section 1), it is immediately striking that none are antithetical to copyright principles. On either the 'new media' or 'contemporary art' views on computer programming, it is accepted that programming is an activity involving skill and creativity, and this accords with the inclusion of computer programs as copyright works involving an author's 'own intellectual creation'.²⁶

The divergence between law and the 'contemporary art' model of authorship²⁷ stems from the fact that there is no provision for authorship (at least in the UK²⁸) for the 'director' of the art installation, as distinct from the authors of the individual elements (such as the computer program) that make up that installation. However, in drawing an analogy with film, the interviewees were not articulating a concept of authorship that goes against the grain of copyright thinking. Under various European Directives, member states are obliged to recognise the 'principal director' as at least one of the authors of a 'cinematographic or audiovisual work'.²⁹ This reflects the view that the director is, as the European Court of Justice explained in *Luksan*, at least one of the 'natural persons who have contributed to the intellectual creation of the film'³⁰ (as distinct from the discrete copyright works which might arise in various contributions). It would not be unthinkable to legislate for art installations in a similar way.³¹

Not only do the 'art' authorship concepts not appear to challenge copyright thinking, but in fact there appears to be much in common between the concept of authorship of a computer program in copyright law and new media art discourse. Both classify the computer programmer with an established category of literary author: the poet. Further, both see the programmer as the creator of a particular expression of code, downplaying the user interface or functionality produced when the program is run on a machine.

Indeed, in explaining why this is the case in copyright law, certain aspects of judicial reasoning come remarkably close to the characterisation of the programmer in the volume accompanying Ars Electronica's *CODE* festival from 2003. Under the title *The Poesy of Programming* one essay in the *CODE* volume argues that:

Programming can be compared to writing a novel: even though the language of the novel is defined (say French or German or English), the content of what is expressed is subject to the author's imagination and creative expression.

The same holds true for the art of programming: programmers each have their own style in writing programming code, and the result usually depends upon their skill and their experience... and the personal creativity of the programmer.³²

In *SAS*³³, Advocate General Bot's characterisation is cast in similar terms, again drawing on a comparison with novel writing:

...creativity, skill and inventiveness manifest themselves in the way in which the program is drawn up, in its writing. The programmer uses formulae, algorithms which, as such, are excluded from copyright protection because they are the equivalent of the words by which the poet or the novelist creates his work of literature. However, the way in which all of these elements are arranged, like the style in which the computer program is written, will be likely to reflect the author's own intellectual creation and therefore be eligible for protection.³⁴

Conclusions

To conclude, what are the consequences of this convergence between certain discourses of art and law?

On one level, the discourses of new media art add coherence to copyright's categories; they provide a way of thinking about the computer program which answers concerns about its

classification in law as a 'literary work.' For example, it has been said that fundamental to copyright's category of 'literary work' is the ability of the subject matter 'to afford either information and instruction or pleasure' to humans, and computer programs are more accurately seen as being concerned with controlling machines.³⁵ A similar concern is expressed in a leading commentary on European copyright law:

What is problematic about copyright protection of computer programs is the fact that computer programs in their nature do not appeal to human senses but address data processing machines and may not be deemed literature and art in the broadest sense of the word.³⁶

As we have seen, the discourses of new media art conceive of the computer program in a very different way: the code is to have (as we saw above³⁷) 'an un-obstructed presence and role... in the art work', it is to be in the foreground. In this way, creative practices such as 'Code Poetry' make visible to the human eye, aspects of the computer program which judges have previously thought of as 'invisible to the eye' and unlike conventional literary works.³⁸

Indeed, in stressing the 'primacy of the code as the main creative achievement', problematic aspects of the analogising computer program copyright and literary copyright as it applies to novels, fall away. In the UK, it has been long accepted that copyright protection extends to non-literary elements such as aspects of the plot of a novel. For so long as code is seen as 'invisible', addressed to a machine rather than a human, the tendency has been for claimants to present the 'plot' of a computer program as the aspects visible to humans (whether user interface or functionality) because the 'plot' of code is thought impossible to discern. As Pumfrey J said in *Navitaire v. Easyjet*, like a 'book of instructions', the computer code itself 'has no theme, no events, and does not have a narrative flow.'³⁹ The discourse on 'new media art', in bringing the creative use of code to the fore, opens up the possibility for code itself to have a 'plot', thereby facilitating the resemblance of computer programs to novels for copyright purposes.

More than merely providing copyright with coherence, the discourses of new media art also provide copyright categories with legitimacy. Anne Barron has convincingly argued that the relationship between 'art' and 'law' matters because copyright derives its legitimacy from the claim that it promotes the arts.⁴⁰ As is evident from the much publicised interview, *On the Origins of Virtualism*, given by art historian Frank Popper, a theme of art discourse is 'how technology is – or can be – humanised through art', that is how technology can be a product of human authorship.⁴¹ In this way, the discourse of new media art, with its focus on *humanising* technology, and exalting the position of the programmer as a 'poet' or 'supreme creative being', can be brought to the assistance of law so as to resolve what Sam Ricketson has referred to as the 'struggle over the soul of copyright', when the law protects the products of machines, rather than human authorship.⁴² Writing in 1992, Ricketson described the protection of computer programs as literary works by copyright, as a 'considerable distortion' of the 'concept of authorship' and not mandated by the Berne Convention (which he argues implies human authorship), as he queried whether or not they were creations of a 'literary or artistic kind'.⁴³ As we have seen, the discourse on new media art today, however, provides the theoretical basis for such treatment. To this extent, contrary to the perceptions noted in the opening of this paper, the digital arts can be said to provide not only coherence to copyright's notion of 'authorship', but also legitimacy to its treatment of computer programs as products of the literary and artistic domain.

Notes

1. This paper was prepared as part of the *Of Authorship and Originality* project which is financially supported by the HERA Joint Research Programme which is co-funded by AHRC, AKA, DASTI, ETF, FNR, FWF, HAZU, IRCHSS, MHEST, NWO, RANNIS, RCN, VR and The European Community FP7 2007-2013, under the Socio-economic Sciences and Humanities programme. I am grateful to Lionel Bently and Mireille van Eechoud for their comments on an earlier draft of this paper.
2. See for example the European Commission's Green Paper on Copyright and Related Rights in the Information Society, COM(95)382 final of 19 July 1995 at p.25, and Woodmansee et al. (1994) at, for example, 26.
3. This assumption underpins questions contained in the *Of Authorship and Originality* project proposal.
4. The names of the sixteen interviewees were selected from lists of 'notable individuals' on Wikipedia entries for 'Digital Art' and 'Digital Poetry' accessed in March 2011. The names were verified as genuine by Simon Biggs of Edinburgh College of Art, a Principal Investigator on the ELMCIP project, a HERA funded sister project to *Of Authorship and Originality*. No claim is made that the sample is representative of all creative practice in the digital arts. However, it was considered by Simon Biggs as providing a good spread of examples. The full list of interviewees is as follows: Philippe Bootz, Donna Cox, Marc Downie (of the OpenEnded Group), David Em, Ken Feingold, Herbert Franke, Loss Pequeño Glazier, Lynn Hershman Leeson, Miltos Manetas, Michael Mandiberg, Joseph Nechvatal, Jason Nelson, Casey Reas, Don Ritter, Lillian Schwartz and Alan Sondheim. I was also grateful to Nicholas Lambert of Birkbeck College, London and Bronac Ferran of the Royal College of Art, London for early discussions regarding project design.
5. The empirical study's findings will be presented at the final conference of the *Of Authorship and Originality* project, to be held in Amsterdam in April 2013, and published as part of that project's output.
6. As a historian of copyright law, this however is not surprising. Similar observations can be made about the relationship between ideas about photography and photographic copyright law in the nineteenth century. See Cooper (2010) at, for example, p.143.
7. The contextual information contained in this paragraph derives from the observations of artist and curator Mark Tribe and art critic Reena Jana. See Tribe et al. (2006) at 20-3.
8. *Ars Electronica* (2003).
9. Huhtamo (2003) at 113.
10. *Ibid.* at 114.
11. For example, see the work by Alan Sondheim which is explored in detail in Horst (2009) at, for example, 168.
12. Paul (2003) at 132.
13. For example, interviewee Ken Feingold explained: 'Yes, I depend a good deal on the creativity of the people that I work with, they have a tremendous influence on the outcome of the project, and it is a quite interesting process to collaborate in that creative moment with computer programmers and with sculptors...' Similarly, in interview, Joseph Nechvatal explained: 'Certainly [the computer programmers] are creative within the process. Because I am demanding things that they have not done before, in fact perhaps that no one has ever done before, so they need to bring all their creative powers to the enterprise.'
14. Interviewee Lynn Hershman Leeson described the role as follows: 'it really is like being a director of a project, you know I do so many projects and so many digital kinds of things, it is impossible to know how to program for everything. So if I want to do something with sound I get a sound expert, if I want to do A.I. now I get an A.I. person and so forth.' A.I. denotes work using artificial intelligence technology, such as utilised by Hershman Leeson in her work *Agent Ruby*. Another interviewee, Joseph Nechvatal, described his role in similar terms: 'So, I am the project director and I am controlling what comes out of it, it came from my original intentions and my name is going to be on it, so I have to be the one that is completely pleased with the end result.'
15. In another instance in the same interview, Feingold explained his view of the process as follows: 'I would say that it is collaborative to the extent that people were helping me, but I always took it as one might think of a film director, that it was my project, I was not seeing this as co-authorship, neither with the programming nor with this sculptural factors, and so the works would be fabricated for me, the physical object would be fabricated for me and sent to my studio at which point I would assemble them into sculptural objects which appear in the final work.'
16. Art. 2(1) Berne Convention for the Protection of Literary and Artistic Works (as amended 1979).

17. See Ricketson et al. (2006) at Vol. 1, para. 5.54, and von Lewinski (2008) at paras. 7.13-19.
18. Art 10(1) Agreement on Trade Related Aspects of Intellectual Property Rights 1994, to which all members of the World Trade Organisation are signatories.
19. Art. 4 WIPO Copyright Treaty, adopted 1996.
20. Art 1(1) Directive 91/250 (as originally enacted), which has more recently been codified in Directive 2009/24 EC.
21. Art 1(2) *Ibid.*
22. *Bezpečnostní softwarová asociace – Svaz softwarové ochrany v Ministerstvo kultury C-393/09* [2011] FSR 18.
23. *Ibid.* per Advocate General Bot at paragraph AG49.
24. *Ibid.* at para. 41. The ECJ accepted that the graphic user interface might be protected under the 'ordinary law of copyright' if it met the standard of own intellectual creation. *Ibid.* at para.44. This is consistent with earlier pre-Directive case law in the UK. See the ruling of Ferris J in *Richardson v. Flanders* [1993] F.S.R. 497, 527: 'The screen display is not itself the literary work which is entitled to copyright protection. A particular display may enjoy a separate copyright protection as an artistic work in the form of a photograph, or as a film, or as being a reproduction of an artistic work in the form of a drawing the copying of which will be, for copyright purposes the copying of the drawing.' For an example of a UK case involving *inter alia* artistic copyright in a screen display see *Nova v. Mazooma* [2007] EWCA Civ 219.
25. *SAS Institute Inc v World Programming Ltd C-406/10*, 2 May 2012, at para. 46.
26. As per Art. 1(3) Directive 2009/24/EC.
27. See text accompanying footnotes 13 to 15.
28. Due to the closed list of works under s.1 Copyright Designs and Patents Act 1988, an arrangement of objects is not protected in UK: *Creation Records v. News Group* [1997] EMLR 444.
29. Article 1(5) of Directive 93/83 concerning satellite broadcasting and cable retransmission; Article 2(2) of Directive 2006/115 concerning rental and lending rights; Article 2 of Directive 2006/116 concerning term of protection.
30. *Martin Luksan v Petrus van der Let, C-277/10*, European Court of Justice ruling of 9 February 2012, arising from Austrian litigation between on the one hand, the scriptwriter and principal director, and on the other, the producer, of a documentary film called *Fotos von der Front*.
31. Indeed, currents of artistic thought often impact on how authorship is perceived by legislators. For example, a number of commentators have attributed the inclusion of the 'director' as author of a film, to the development of the French *auteurist* discourse, which spread beyond France in the 1960s. See Barron (2004) at fn.108.
32. Mignonneau and Sommerer (2003) at 243.
33. [2012] E.C.D.R. 1.
34. At para. AG55. See also the comments at para. AG71 'In my opinion, programming language must be regarded as comparable to the language used by the author of a novel. It is therefore the means which permits expression to be given, not the expression itself.'
35. Christie (1994) at 488, drawing on the dicta in the nineteenth century case of *Hollinrake v. Truswell* [1894] 3 Ch. 420. See also Bing (2009), who notes the characterization of programs as 'soft machines' in the early debates about the appropriate form of protection.
36. Blocher et al. (2010) at 92-3.
37. See p.3 above.
38. As Ferris J. noted in *Richardson v. Flanders* [1993] F.S.R. 497, 527: 'Under the 1988 Act computer programs are protected as 'literary works.' They are, nevertheless invisible to the eye which can discern a conventional literary work.'
39. [2004] EWHC 1725 (Ch) at paragraph 125.
40. Barron (2002) at 399: 'the relation between art and copyright law matters ... in particular... copyright law is in some important sense answerable to the claims of art, and amenable to being judged by reference to whether and how it responds to those claims.'
41. Nechvatal and Popper (2004) at 71: 'A main thread in your new book, and the reason that you stress the biographical details of the artists, I believe, is your desire to show how technology is – or can be – humanised through art.' See also Popper (2007) at 1.

42. Ricketson (1991-2) at 2. The title of this conference paper is intended to indicate a dialogue with Sam Ricketson's observations made at the early days of the changes of technology relating to the internet.
43. *Ibid.* at 25.

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