The Electronic Red Herring Gambit – Selected issues on the misapplication of the Copyright Amendment Act 125 of 1992 and the new future of software copyright law.

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1   Introduction

In 1992 the Amendment Act[1] created a new category of copyrightable work for computer programs. Although, at the time, few nations shared South Africa's view that software should be protected as a sui generis type of work, our legislature presented a clear and persuasive argument in favour of the amendment.[2] Unfortunately, today the legal position of software under copyright is less certain, and, therefore, more difficult to ascertain, primarily due to the court's failure to apply this type of protection appropriately.

Computer programs are unique in nature, contain many peculiar elements and are therefore problematic as a species of literary work.[3] Consequently, computer programs require a bespoke mechanism for protection.

However, to maintain a system of protection that is vigilant when protecting existing work as well as effective at motivating further creation, it is not enough to create a set of rules designed specifically for computer programs. It is necessary to expand on these rules through case law.

To function properly, our software copyright law must do more than protect software in name alone. The application of such law must not only be consistent with the nature of the work, but also inconsistent with any other type of work. Unfortunately, neither the nature of the work nor the intended scope of application has been applied correctly by our courts.

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[1] Copyright Amendment Act 125 of 1992 (the Amendment Act).

[2] Memorandum on the Copyright Amendment Bill 1992 in General Notice 576, *Government Gazette* 13328, 28 June 1991 61 (The Memorandum) 61-62.

[3] The Memorandum 61-62.

A review of local case law involving computer programs reveals a lack of deference to the legislator's intention to the extent that, after the Amendment, some incidents of computer programs are eligible for less protection than before. Due, in part, to a lack of sound instruction from counsel, most software copyright cases have been decided in a manner consistent with other (older) types of work.[4] In other cases the court was persuaded to interpret the new provisions of the Act to mean almost precisely the same as the traditional (former) position.[5] This trend is most noticeable in the few cases where the author and first owner of the program in dispute is not the same person. In these cases it appears as if the court interpreted the "control"[6] and "scope of employment"[7] requirements in the Act[8] to mean precisely what labour law principles dictate.[9] As a result, the legislator's intention to create a new and different means of protecting software became meaningless.

Furthermore, by failing to acknowledge the need to consider software afresh, as a unique type of work, the courts have created a precedent that leads away from the entrepreneurial, progressive and developmental nature of software copyright expressed by the Amendment Act.[10] Instead, our law protects computer programs in such a conservative (and in some cases arbitrary) manner that the incidental elements and underlying ideas are in some cases better protected than the material expression itself.[11] Once again, in those cases where the non-literal, visual or incidental parts of the program

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[4] See for example *Nintendo Co Ltd v Golden China TV Game Centre* 1995 4 All SA 421 (T); *Golden China TV Games Centre v Nintendo Co Ltd* 1996 4 All SA 667 (SCA); *King v SA Weather Service* 2009 2 All SA 31 (SCA).

[5] See for example *Haupt t/a Softcopy v Brewers Marketing Intelligence (Pty) Ltd and Others* 2005 1 SA 398 (C) and *King v SA Weather Service* 2009 2 All SA 31 (SCA)2009 2 All SA 31 (SCA).

[6] Section 1 definition of 'author'.

[7] Section 21(1)(d).

[8] The Copyright Act 98 of 1978 (the Act).

[9] See the discussion of *King v SA Weather Service* below.

[10] Memorandum on the Copyright Amendment Bill 1992 in General Notice 576, *Government Gazette* 13328, 28 June 1991 61 62. The Memorandum motivates the need for *sui generis* protection by referring to similar (former) inventions such as cinematograph film and sound recordings, both of which are protected as *sui generis* types of work.

[11] For example, the sequence of images produced by a video game is protected as a cinematograph film while the component parts of this film are not protected at all, and the underlying computer program only protected in theory (the court did not pronounce on this point). See *Nintendo Co Ltd v Golden China TV Game Centre* 1995 4 All SA 421 (T) and *Golden China TV Games Centre v Nintendo Co Ltd* 1996 4 All SA 667 (SCA) discussed below.

were central to the dispute, our courts elected to ignore the fact that the Amendment Act was specifically drafted to cater for those parts of computer programs that are peculiar, inherently characteristic and does not qualify for protection as a form of literary work.[12]

It is beyond doubt that the legislature foresaw, and left room for, drastic developments in the field of software copyright.[13] However, it is doubtful whether it envisioned the introduction of abrogated labour law, American tort law and agency principles, and local delictual elements to copyright law.[14] Furthermore, albeit a noble ideal to keep copyright law for all types of work as simple as possible, the nature of this type of work requires precisely the opposite. Clarity and legal certainty in the case of software copyright cannot be achieved by forcing it the moulds of fields of law that has little or nothing to do with software. In fact, both the nature of the work and the demands of its authors require a legal solution that is, firstly, considerate of the peculiarity of the genre and, secondly, slow to reach for a ready-made solution from anywhere but information technology law.

It is therefore essential that software copyright law becomes more sophisticated; complemented by several layers of policy considerations and elements of computer programming based on practical and theoretical facts outside the law. To support a copyright system that can address the demands of software today, as well as protect the incarnations of this type of work in the future, our law should grow into a more nuanced system augmented by a clear and open list of scientific factors the court must (and will) consider.

2   The core problems

This paper is presented as a contribution to our understanding of software as a species of *copyrightable* work. To address the needs (outlined above), it presents research on the effect of selected judgements on the rights of software authors. It will show the practical

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[12] Dean "Protection of Computer Programs by Copyrights in South Africa" 1995 *Stell LR* 1 86 87.

[13] At the time, the Amendment Act was welcomed for its ability to allow "this form of intellectual product to develop and thrive in South Africa" Dean *Stell LR* 95.

[14] See the discussion of *King v SA Weather Service* 2009 2 All SA 31 (SCA) below. Although the court considered the "work made for hire" doctrine under US law and the delictual principles of vicarious liability, its judgment in this case was only influenced by these arguments and not based thereon. However, it is submitted (and argued below) that, had the court applied the Amendment Act as intended, it would have been directed away from these foreign principles.

implications of several mistakes on our understanding of the law, as well as illustrate the way in which these mistakes may be remedied through a better understanding of software as a form of intellectual expression.

Therefore, this paper examines the mistaken classification of computer games as an instance of video games, the difference between computer-generated and computer-assisted work and the impact thereof on South Africa's information technology market. Furthermore, in the light of recent case law, the authorship and ownership questions of software copyright are analysed in support of two related arguments. Firstly, that the control test, when applied to commissioned software, must be clarified and extended to contain a clear list of control elements, and, secondly, to ensure fairness in the case of employment-related software, that the control test be included as part of the "scope of employment" enquiry in section 21(1)(d) of the Act.

It will be shown that the court has failed to attach enough importance to the nature of computer programs and, in some cases, did not consider the implications of its judgments on the practicability of software copyright law.[15] As a result, examples of the misapplication of the Amendment Act can be found in almost every case after 1992. However, many (if not all) of these problems can be discussed as one of two primary errors of application; the classification problem and the authorship problem.

Before these problems can be discussed, it is necessary to introduce the background of the Amendment Act, review the intention of the legislature and consider the particular nature of software as a form of expression.

2 1   The Amendment Act

Between 1980 and 2000 the debate about which form of protection is most suitable for software came to a head in a series of WIPO publications,[16] clearly outlining the main

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[15] The distinction between video games and computer games may serve as an example. Similarly the protection afforded to visual displays produced by computer programs. However, since the matter of *Pastel Software (Pty) Ltd v Pink Software (Pty) Ltd and Another* 1991 JOC (13) 398 was decided before the Amendment Act came into operation, it is not discussed here. For more information see *Haupt t/a Softcopy v Brewers Marketing Intelligence (Pty) Ltd and Others* 2005 1 SA 398 (C) 220 E – G and 221 A – B; Van der Merwe "Copyright and Computers, with Special Reference to the Internet" 1998 *SALJ* 180 191.

[16] WIPO "Committee of Experts on Model Provisions for Legislation in the Field of Copyright - Draft Model Law on Copyright (Preparatory Document) CE/MPC/III/2" 1990 *Copyright* (9) ; WIPO "Committee of Experts on Model Provisions for Legislation in the Field of Copyright - Report

arguments prevalent at the time. Unfortunately, the WIPO reports never managed to settle the debate and, despite statements to the contrary, it fell to member nations to choose between the full integration model and the *sui generis* model. A third alternative, the so-called partial integration model, was never fully supported by any member state.[17]

Inspired by the extension of copyright to software as a species of literary work under the English Copyright, Patent and Designs Act, South Africa first acknowledged that copyright would subsist in a computer program as early as 1981.[18] This close affinity between South African and English copyright law[19] also allowed our courts to draw on English case law, particularly when faced with a technical, software or computer related question. However, by operation of the doctrine of precedent, the Amendment Act has effectively excluded the possibility of leaning on to, or borrowing from, foreign software copyright law. As regrettable as this position may be, the court has on occasion still referred to American and English decisions as a comparative (albeit non-guiding) instruction on (particularly) the demands of computer programmers and the very complex nature of software development.[20]

The Amendment Act is, however, very clearly different from that of any other nation. The definition of a computer program shares many features with its foreign counterparts, i.e. "a set of instructions" that is capable of directing the operation of a

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CE/MPC/III/3" 1990 *Copyright* (9) ; WIPO "Model Provisions on the Protection of Computer Software" 1978 *Copyright* (January) ; WIPO "Overview of the International Protection of Copyright and Related Rights: From the Berne Convention for the Protection of Literary and Artistic Works to the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty WIPO/CR/DAM/05/8" 2005 *WIPO National Seminar on Copyright and Related Rights for Lawyers and Judges* .

[17] Emery "Some Questions Underlying the Draft Model Provisions for Legislation in the Field of Copyright - A Pragmatic Approach" 1990 *Copyright* (9) 304 - 308.

[18] *Northern Office Micro Computers (Pty) Ltd v Rosenstein* 1981 (4) SA 123 (C)

[19] The first legislative mention of computer programs in the copyright context came with the 1980 amendment to the US Copyright Act of 1976 in §101. In South Africa the matter of *Northern Office Micro Computers v Rosenstein* 1981 4 SA 123 C recognised computer programs as a type of literary work even before the courts of leading Commonwealth nations could reach consensus on the matter. The UK legislator resolved the dispute between UK and Australian courts on this point by passing a private member's Bill known as the Copyright (Computer Software) Amendment Act in 1985. *Cf* Bainbridge 2008 *Legal Protection of Computer Software* 5ed Tottel 57.

[20] *King v SA Weather Service* 2009 2 All SA 31 (SCA)15 – 18; *Haupt t/a Softcopy v Brewers Marketing Intelligence (Pty) Ltd and Others* 2005 1 SA 398 (C) 220 – 221.

machine to "bring about a result", but the definition of a computer program in our law is *separate* from that of literary works and specifically excluded from the definition of cinematographic films. Unfortunately, it is the implications of this point that local case law has not noticed, and the reason why many decisions digress.

Even if (with some effort) it is possible to argue that our courts have thus far maintained a proper and sufficient level of copyright protection for computer programs, it is still difficult to ignore the fact that these judgments are not led by *practical* considerations. Software itself, and software copyright law in particular, is not an exact science (a notion every legal academic is certainly aware of). Therefore, in the case of computer programs, it is a mistake to apply the rigid, pigeonhole approach embedded as part of every copyright enquiry. It is beyond doubt that the Amendment Act was meant to address the excessively constricting principles of (literary) copyright by creating a new, broadly defined and open-ended category into which all manner of software creation may be placed. Furthermore, by specifically excluding computer programs from the definitions of literary work and film, the legislature provided the court with the freedom to shape new, customised and more liberal copyright principles that would do *more* for software authors and copyright owners alike. It was, undoubtedly, never the intention to create a new type of work that would do *precisely* the same as before with the added burden of having to find a way to re-import existing principles from other types of work.

The Amendment Act was, of course, conceived as an *improvement* on the existing regime. However, in the light of recent case law it appears that our courts have failed to heed even this, very basic, ideal. An improvement should be more than an alternative measure of achieving the former goal – it should be a *better* way of addressing the same question. Furthermore, it has been suggested that the Amendment was intended to cultivate a regime of software copyright that is capable of more rapid expansion to parallel the pace of software development and so meet the challenges it would, inevitable, face. However, *sui generis* protection did not facilitate the only recent extension of software copyright principles, i.e. the protection of non-literal elements of software. Furthermore, the arrival of "look and feel" protection was ill timed, extrapolated from

(what would soon be) abrogated policy arguments and hopelessly unsupported by *sound* technological pronouncements about the scope of protection.[21]

At this point it is clear what the legislature wished to achieve by amending the Copyright Act. It would also seem that, on some issues at least, the court has missed the target, while creating several unnecessary distractions in the process. However, it is pointless to criticise the work of greater minds if a substantial effort is not made to address these mistakes. For this reason, it is necessary to understand why it is so important that South Africa's software copyright law be reinforced with software programming theory, contemporary legal principles and a greater measure of deference to our international obligations.

2 2   The software industry in South Africa

Despite the inadequacies of our current copyright laws and the unfortunate state of affairs created (jointly) by the courts' less than enthusiastic reception of the Amendment Act as well as governments' marked absence from the development process since the mid 1990's, South Africa's IT industry is far more prominent than many would estimate.

In fact, South Africa's IT market is the largest in the Middle East and African (MEA) region with a total expenditure in 2007 of $5,1 billion, of which $1,8 billion relates to software sales.[22] Several of the world's largest and most prominent IT multi-national corporations[23] operate local subsidiaries. Of course it is highly likely that the largest share of local software sales is part of the income of these companies, and that the choice of jurisdiction clause in every software license agreement does *not* elect the South African courts. Be that as it may, South Africa's software related industry deserves, and desperately needs, more support from the law. A year later, our IT market expanded to $11,46 billion, while software experienced the greatest annual growth of 10,4%.[24] In 2010 software sales generated R12, 778 million as part of the R103, 861 million derived

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[21] See *Pastel Software (Pty) Ltd v Pink Software (Pty) Ltd and Another* 1991 JOC (13) 398; De Villiers "Computer Programs and Copyright: The South African Perspective " 2006 *SALJ* 123 (2) 318.

[22] The Department of Trade and Industry 2010 *Geared for Growth* 3:8.

[23] Including IBM, Unisys, Microsoft, Intel, Systems Application Protocol (SAP), Dell, Novell and Compaq; See DTI *Geared for Growth* 2010 3:8.

[24] International Data Corporation (IDC) 2009 *White Paper – How to Reduce Software Piracy in the Middle East and Africa: The Case of South Africa* 19. Available at http://www.bsa.org/country/Research%20and%20Statistics/me/me-reducepiracy.aspx?sc_lang=en-US-ME.

from IT services. It is estimated that the IT industry in South Africa is responsible for 450 916 employment opportunities, and should increase to 524 000 workers by 2013. In addition, the IT industry (and the ±16 000 IT companies in South Africa) has contributed R27 million in taxes to the Treasury for the 2008/09 financial year and represents 4,5% of the GDP for 2010 – about 2% more than the MEA level.[25]

As a result, South Africa is the 20th largest consumer of IT products and services in the world and the continental leader in information and communications technology (ICT) development[26] generating $14 billion (R103 billion) in revenue for 2007.[27] Furthermore, by operating a telecommunications network that is 99% digital[28] it is clear that our reliance on computer technology will continue to increase. With an estimated 3.5 million users South Africa is the largest Internet market in Africa and the fourth fastest growing mobile communications industry in the world with about 44 million subscribers recorded in 2007.[29] Of the total national IT environment a staggering 63.5% is occupied by the legal sector.[30]

Clearly South Africa has positioned itself as a market force in Africa and a noticeable contributor in the global IT environment. As one of the fastest developing nations in the world[31] there is even greater pressure on South Africa's legal framework to maintain this pace and initiate (as well as support) the expansion of the African economy.

The need for appropriate, effective and enforceable copyright protection for computer programs in South Africa is further emphasised by the work of the International Data Corporation (IDC) and the Business Software Alliance. According to a recent study, the software piracy rate in South Africa was estimated at 35%, resulting in

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[25] IDC *White Paper* 20.

[26] The Department of Trade and Industry 2006 *Investors Handbook* 5; Available at

 http://www.thedti.gov.za/publications/finaldtibooklet.pdf.

[27] The Department of Trade and Industry 2008 *Geared for Growth* 15; Available at

http://www.thedti.gov.za/publications/SAGearedforgrowth2008.pdf.

[28] DTI *Investors Handbook* 2006 5.

[29] DTI *Geared for Growth* 2008 15.

[30] 15.

[31] South Africa is one of the Group of Five (G5) emerging nations along with Brazil, India, China and Mexico. However, because South Africa has an upper middle gross national income (GNI) and advanced market infrastructure it is one of the seven FTSE advanced emerging market countries. See also FTSE *Emerging Market Indices*. Available at http://www.ftse.com/Indices/FTSE_Emerging_Markets/index.jsp.

a loss to the economy of R2,4 billion a year.[32] Furthermore, if this rate is reduced by 2.5% per annum between 2010 and 2014, South Africa's GDP will increase by $819 million for the same period.[33]

While local copyright is not the only (or most effective) anti-piracy matter, it is still has a substantial contribution to make in the fight to protect the rights of software authors.[34] It is true that South Africa does in many ways fail to meet its obligations in terms of international law,[35] but this may be cured in some cases by a proper application of the Amendment Act. A full review of our international obligations falls outside the scope of this work. However, it is submitted that the Amendment Act was not intended to operate as the sole source of software copyright principles and was definitely never meant to steer our law away from international standards.[36]

In fact, it is trite that the Amendment Act was drafted at a time when South Africa's participation in WIPO, UNESCO and the WTO was more pronounced that it is now, and it follows that the Amendment Act expected South Africa to ascent to several

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[32] Business Software Alliance *News Release – Software Piracy Costs the Economy R2,4 billion* 1; Business Software Alliance *News Release – Study Finds the Economic Benefit of Reducing Software Piracy Compounds as The Pace of Progress Quickens*. Available at http://portal.bsa.org/piracyimpact2010/index.html.

[33] IDC *White Paper* 21.

[34] The Southern and East African Copyright Network (SECONET) and the United National Educational Scientific and Cultural Organisation (UNESCO) are working toward "harmonising the region's copyright laws and combating piracy and copyright theft"; Dean "A hotbed of Piracy" 2008 *Without Prejudice* November 10.

[35] To date South Africa has ratified only 5 of the 26 treaties administered by the WIPO. These are the Berne Convention (since October 1928), the Paris Convention (since December 1947), the WIPO Convention (since March 1975), the Patent Cooperation treaty (since March 1999) and the Budapest treaty (since July 1997). As WTO member South Africa is also a signatory to the TRIPS Agreement since January 1995. As a member of WIPO South Africa played an active role in the conclusion of the WCT (WIP Copyright Treaty) and signed it in 1997, but has to date not deposited an instrument of ratification. Details of South Africa's participation is available from the WIPO at http://www.wipo.int/treaties/en/summary.jsp. See also Pistorius "Copyright Law and IT" in: Van der Merwe D (eds) *Information and Communications Technology Law* (2008) 272 n235; Visser "Copyright in Works Created in the Course of Employment: The Supreme Court of Appeal Gives Guidance" 2009 *SA Merc LJ* 21 591592; Tong "Authorship of Computer Programs under South African Copyright Law" 2005 *SALJ* 122 (3) 518.

[36] The degree of flexibility allowed to member states should also be considered, and is discussed by Visser *SA Merc LJ* 592 and Tong *SALJ* 518.

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international mechanisms to guide the development of our law. The fact that today our participation on the world stage is close to none is a factor the Amendment Act could not foresee, and the consequences of a rapidly stagnating software copyright system lies at the legislature's door as much as it does before the bench. This matter is most evident in the precarious status of the WCT.[37]

3   The classification problem

3 1   Video and computer games

One of the first post-Amendment Act cases presents a clear example of the problems outlined above. In the matter of *Nintendo Co Ltd v Golden China TV Game Centre*[38] the court was asked to decide on the copyrightability of a series of video games authored by the applicant. Although it can hardly be said that the court was not guided through the technical nature of the work,[39] with the aid of hindsight it is clear that the counsel failed to grasp even the most fundamental aspects of computer/video games. The applicants devoted much of their argument to the stages of development a proposed game must complete, as well as the process of assembling each of the three layers of work into a single game.[40] These layers (as the applicant would have it) consist of the initial game play sequences outlined on paper, sketches and drawings of the game's background, characters and/or accessories.

These elements (or component works) are then represented as a complete storyboard that illustrates the plot, or mission, of the game. Thereafter a computer program is written "for the video game"[41] to control the visual display of the game and "manipulate the character"[42] as it moves through the artificial environment and interact with other characters or objects. According to the applicant, the component works are

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[37] See note 35 above.

[38] *Nintendo Co Ltd v Golden China TV Game Centre* 1995 4 All SA 421 (T).

[39] The court commented on the fact that respondents "went into the minutest detail to explain how intergrated circuits are created, what a computer is, and what in their view in a video game is eligible for copyright protection" (*Nintendo v Golden China* 429) and dedicated seven pages (out of 20) to a discussion on the nature of this work, the design and fixation processes, the way video games are played and the utilitarian purpose thereof.

[40] *Nintendo v Golden China* 424 – 427.

[41] 425.

[42] 425.

transferred to the digital storage media (CH-ROM disc or integrated circuit in this case) by conversion "into computer data"[43] – a process which then enables the underlying computer program to display these elements in the correct order. Similarly the apparently lifelike movements of the characters are nothing more than a repeated sequence of time-spliced images prepared by hand, although the position of each component element (such as the main characters or foreground objects) on the screen is determined by a separate (and automated) process also stored on the CH-ROM. The accompanying musical track(s) and sound effects are produced at the same time and stored on the P-ROM, while the two sequences of sound and image are synchronised by the controlling computer program also fixed on this chip.[44]

With this in mind, the court considered the applicant's submission that the video game should be protected as a *cinematograph film*. This argument leaned heavily on two factors; one, the games' images displayed on the TV screen during game play is programmed to appear in a self-propagating, predetermined order[45] and, two, the range of possible sequential images is limited by the controllable character's range of motion and the extent to which the human operator may interfere with the sequence of images by manipulating the character.[46] Therefore, so the argument goes, the component works and controlling software is nothing more than a sophisticated means of producing a moving picture or "sequence of images"[47] in terms of the Act.

Respondents, on the other hand, took the view that video games are not, and cannot be, cinematograph film because it differs from conventional film in two important ways. Firstly, the sequence of events or images in a normal film cannot be manipulated in any way after fixation[48] and, secondly, that the duration of the video game is infinitely changeable (depending on the success and skill of the player) while the length of a film is constantly the same regardless of how many times it is viewed.[49]

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[43] 425.

[44] 426.

[45] 432 – 433.

[46] 432.

[47] The Copyright Act section 1 definition of 'cinematograph film'; See also *Nintendo v Golden China* 428 – 429.

[48] 431.

[49] 431.

Consequently, the respondents argued that the only part of the video game that may be eligible for protection is the computer program that allows the player to manipulate the game.[50] Unfortunately, counsel for the respondent did not pursue this argument because such programs are "not eligible for protection as it is the basis of a video game and the Legislature has so far not extended the provisions of the Act to video games".[51] Instead, the respondents argued (with less fervour) that the computer program (recorded directly onto an executable disc and therefore classified as firmware) might be protectable as a functional design in terms of the (then) Draft Designs Bill – an argument the court had no difficulty in dismissing without further ado.[52]

The Amendment Act came into force three days before the instant case was filed with the Registrar and, as a result, both parties proceeded on the assumption that the Amendment Act does not apply. However, on appeal the court noted that, because service of the application took place after the Amendment Act came into operation, the parties' contention was not correct and that the matter should be decided with reference to the Amendment Act's provisions as well.[53] This point was of crucial importance to the outcome of this case because, firstly, it introduced computer programs as a *sui generis* type of work and, thus, could find a new cause of action for the (now) respondent. Secondly, the Amendment Act changed the definition of cinematograph film in section 1 of the Act to specifically exclude computer programs. Therefore, in principle, if the court *a quo* erred, Nintendo would now have to establish that all the component works for which it seeks protection was *incorporated as a part* of the computer program which, on the evidence, does nothing more than orchestrate the visual and auditory elements.

On appeal, Harms JA began by analysing the provisions of the Act (post Amendment Act) and remarked;

> "As with many definitions in the Act and its antecedents, very wide terms have been employed. The only reason for this can be an *intention to cover future technical innovations* by using general words. Legislative inertia ought not to impede human ingenuity and the reasonable protection thereof. Typical is the case of computer programs."[54]

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[50] 429 – 430.

[51] 430.

[52] 430 – 431.

[53] *Golden China TV Games Centre v Nintendo Co Ltd* 1996 4 All SA 667 (SCA) 672.

[54] *Golden China v Nintendo* 671 (emphasis added).

As the first case to deal with the law after the Amendment Act, Harms JA here displayed a sound understanding of the legislature's intention and the Amendment Act's intended scope. Regarding the manner in which the Amendment Act should be applied to computer programs, Harms JA referred to the American decision of *WGN Continental Broadcasting Co v United Video*[55] and remarked that "the definitions in the Act should be interpreted flexibly, so that it would cover new technologies as they appear" instead of "narrowly and so force the Legislature [to] periodically […] update the act".[56] Unfortunately, because it was common cause among the parties that the video game was not a computer program, the court was unable to find that video games may be protected as software.[57]

However, it is not surprising that the court did not take a more free hand with the Amendment Act because, at the time, the technology did not necessitate a more flexible approach. It is true that today software recorded directly onto hardware (so-called firmware) will be protected as computer programs, but the clear separation between the component works, the controlling software and the film-like output *in casu* led the matter directly away from computer programs. It is submitted that the amount of attention both courts devoted to the development of video games proves a common understanding that there were several types of work in evidence and that only some were eligible for protection – and the program was the least important. Once again it is submitted that the court paid too much attention to how the work was made, instead of how this type of work operates.

The appeal court then found that the video game does meet the definition of a film and is protectable as such.[58] Regarding the applicants arguments (outlined above) the court found that the Act does not require the film to be capable of *exact* reproduction to be eligible for copyright.[59] Therefore, the argument that the video game is not a film, because it is not a reproducible sequence of images, was dismissed because it is capable of *any* reproduction, as opposed to *a* reproduction.[60] In other words, the court found that

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[55] *Continental Broadcasting Co et al v United Video Inc* 693 F.2d 662; *Golden China v Nintendo* 671.

[56] *Golden China v Nintendo* 671.

[57] *Golden China v Nintendo* 675.

[58] *Golden China v Nintendo* 675.

[59] 674.

[60] 674.

the degree of manipulation was not material enough to render every occurrence of the video game so unique that it is not capable of reproduction as a film.[61]

Although the court did not mention why the video game (in its entirety) could not be protected as a computer program, it is obvious. Cartridge-based (or chip driven) games, at the time, were a technological innovation that combined several elements (software, closed circuit or read-only memory chips and electronic user interface manipulation), none of which was comparable to any known form of literary work. As a result, the court would have made a mistake (both legally and technically) if it found that video games were protectable as software.

Unfortunately, this decision is still current law regarding video games and, today, completely incorrect. Consequently, the first part of the classification problem relates to our understanding of the many forms of computer programs. The *Nintendo* cases made it clear that the output (or visual display) of an electronic system is decisive in the classification of types of work. It also attached much significance to the *creative process* when deciding on the nature of the work for classification *and* infringement purposes.

Although the *Nintendo* cases have been widely discussed and often criticised,[62] very few scholars contribute anything substantial toward a better (or alternative) manner in which a similar matter should be decided. Furthermore, it would seem that the same manifest lack of technical knowledge about the nature of electronic-based works present in the *Nintendo* cases is also rife among local academics. As a result, several publications (including some recent surveys) have summarised the law (after Nintendo) incorrectly, confused it with American copyright principles and then applied it to an overbroad, incomplete and faulty understanding of computer programs and/or video games.[63]

Firstly, it must be understood that video games of the mid 1990's and computer games today *are not the same* thing, and that the *Nintendo* decision does not mean that "a

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[61] 673 – 674.

[62] See De Villiers "Computer Programs and Copyright: The South African Perspective" 318 – 319; Ebersöhn "Protecting Copyright in Computer Games and Computer Software" 2005 *TSAR* 1 113 – 115; Van der Merwe *Computers and the Law* 2000 61; Pistorius and Visser "The Copyright Amendment Act 125 of 1992 and Computer Programs: A Preliminary Overview" 1992 *SA Merc LJ* 4 346 354.

[63] The discussion by Ebersöhn in *TSAR* is particularly superficial and summarises the law incorrectly. His view that the protection of video games apply also to computer games is discussed, and disproved, below.

video game, and therefore also a computer game"[64] is classified as a cinematograph film. The mere fact that both are used for entertainment purposes in the form of some challenge or game is not enough to equate the two types of work.[65] Secondly, video games (or cartridge-based firmware driven ROM chips) were (in the simplest terms) created by digitising a series of drawings, combined with a specific range of configuration options and then *encoded* by computer (with the aid of an early compiler application) and the final result duplicated and transferred to the ROM chip. Thereafter the console (or machine) simply selects the display from the range of pre-made configurations of movement, scale, background and other elements to produce the display. The user input (or manipulation of the film) is therefore nothing more than a means by which the player selects the range of short films he wishes to see in sequence. The film is therefore a product (or output) of the *object code* recorded on the ROM disc during creation. The computer program used to synchronise the visual and auditory elements is not separate from the former program, and it is recorded as either source or object code (depending on the generation of console). During the *Nintendo* cases the applicants argued that this program was the only software on the disc because the division between source and object code was not yet part of legal jargon, and the controlling program most likely a version of the widely used *generic* application every game manufacturer at the time used to *execute* their vision for a new game. In other words, the design elements are recorded, encoded and transferred to disc in the form of a data file (similar to the My Pictures folder in Windows)[66] – but it is capable of producing exactly the same series of images without the controlling program, as long as a similar program is executed to collect and arrange the images. A second, very simple algorithm is then used to select the correct order and number of images to display depending on the user input in some cases, and the pre-programmed sequence in others. This algorithm is the secondary program referred to as the controlling computer program during the *Nintendo* case.

Furthermore, the data files after assembly (the elements program) often contain several lines of elementary code designed to quickly copy and reproduce a succession of the same image(s) on screen. These loop instructions allow the game to display a

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[64] Ebersöhn *TSAR* 113.

[65] Neither is the fact that the video game, component works and controlling computer program is recorded in the same medium. See De Villiers *SALJ* 319.

[66] In the *Softcopy* matter the computer program was designed to cross-tabulate and analyse pre-existing data from the All Media Products Survey.

seamless background that appears to move away from (or alongside) the character. In this way the illusion of a moving landscape is created. Clearly, therefore, the elements program is not a static range of images only, and is capable of (an in fact designed to) interoperate with the controlling program's standardised algorithms in the same way that the applications of a modern computer must comply with the parameters of its operating system to produce the desired result. Therefore, because "computer programs are necessary to access the [elements] of the game all the time and the game would be unplayable without the underling [sic] computer programs",[67] video games should be protected as computer programs. If the Amendment Act was applied correctly (as we understand it today) the same level of protection could have been achieved in the *Nintendo* case without the need to force video games into the category of film.

However, some have argued that classification as a computer program would be insufficient because "the same visual effigies may be attained by two completely different computer codes".[68] As mentioned above, the controlling program may be exchanged for another to achieve the same (or similar) result, and in practice this was often done to create turbo or super versions of original games with many more levels by simply adapting the controlling program. In fact, it is likely that *Nintendo* did not seek protection of the controlling program because it was generic and therefore either in the public domain, or not theirs to claim. However, the fact that *a part* of the entire work (the video game as a single computer program consisting of several interlinked applications) is common cannot prevent (or diminish) the copyright in the work. There is, after all, no requirement for literary, artistic or programming quality. The common origin of the controlling program will, at best, influence the originality enquiry. A reverse engineered version of a video game would still infringe copyright in the first, even if it uses a different controlling program, because infringement is a question of quality (or substance) over quantity.

Computer games (on the other hand) do not utilise this combination of encoded data files on firmware and source code on separate chips. Computer games are equal to (and in every technical sense precisely the same as) computer programs. A computer

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[67] Van der Merwe *Computers and the Law* 2000 61, cited by Ebersöhn *TSAR* 113. The original text by Van der Merwe refers to the *underlying* computer program.

[68] Pistorius and Visser *SA Merc LJ* 354; this statement was, however, made with reference to computer programs, and not video games.

game is a single application program in object code recorded in digital media that, when executed by computer, produces a result. Although computer games most often still contain a large data file from which the program can draw specific images, the data is only accessible through the rest of the program code. Furthermore, computer games (including console games) allow the user to alter the data files in a myriad of ways, and often contain a feature that creates new data either by the user's instruction or automatically. Many games today contain advanced artificial intelligence that intuitively adapts the game play depending on the way the player chooses to interact with the program. These changes are not set or pre-determined and are *created* during game play according to general rules for adaptation contained in the program code. As a result, the display produced by a computer game is indeed *infinitely* alterable while the portions of repeated visual elements are limited to the game menu, user interface and heads-up-display (HUD).

Therefore, while Ebersöhn correctly points out that the "program generating both the visual displays [and] the accompanying sounds is protected as a computer program",[69] he fails to recognise that the visual display will only be protectable as a film if the work is a *video* game, in the traditional sense, and *not* a computer game, in which case the visual display will be protected as part of the computer program, or a literary work.[70] The fact that the Act excludes computer programs from the definition of cinematograph film is no longer of any consequence. There is no part of a computer game that is protectable as a film (unless it incorporates or displays an actual film before or during game play), and the mistaken distinction between the controlling software and visual elements of a video game has become moot.[71]

Unfortunately, the court has not had the opportunity to reconsider the *Nintendo* case and, as a result, many still labour under the impression that computer games are protected as films. Consequently, almost every major gaming software house has refused to sell their online products in South Africa because our law (apparently) offers no

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[69] Ebersöhn *TSAR* 114.

[70] *Pastel Software (Pty) Ltd v Pink Software (Pty) Ltd and Another* 1991 JOC (13) 398.

[71] Under American law computer programs are protected as literary work, while the component parts are protected as audio-visual works separately from the program code. Therefore, the same two-fold protection afforded to video games was extended without any difficulty to computer *games*. However, the need to create even more protection for the visual display of computer *programs* eventually led the court to find that some elements of a program's look and feel may be protectable *independently* of the program.

protection for the computer program (the essence of a computer game). Instead, South Africans are only able to procure a copy of a game on disc (which allows for stricter anti-piracy measures on the disc), while the Apple AppStore in South Africa has less than 1% of the American content, there is no Microsoft Online Store for South Africa, the Xbox Live network has not yet been extended to South Africa and the Playstation Network has only limited functionality. The market figures outline above, suggest that South Africa's IT industry can certainly support a larger investment by these operators.

3 2   Computer-generated and computer-assisted works

The Copyright Act distinguishes between computer generated works[72] and computer programs[73], but there is no direct reference to computer-assisted works. While most authorial works might be computer generated and thus protected as such under the Act,[74] computer assisted work does not receive independent protection and must qualify as any one of the traditional authorial works to found copyright protection.

While some still struggle to grasp the complex array of computer related work, the court has, on occasion, managed to aptly describe the difference between computer-generated and assisted works. During the *Payen Components v Bovic* case,[75] Schutz JA was referred to the English decision of *Express Newspapers v Liverpool Daily Post*[76] and several authors who drew a distinction between computer-assisted and generated works with reference to the author. The court found that computer assisted work employs the computer as a mere writing or *drawing tool* while the author performs all the creative and intellectual effort.[77] On the other hand, computer-generated work is done by the internal procedures of the computer itself according to pre-programmed orders and requires "relatively little human input"[78]. According to the court, the category of computer-generated work is reserved for products or works produced by more advanced or sophisticated computers that can complete an assigned task without substantial guidance

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[72] Section 1(1) definition of author.

[73] Supra.

[74] Provided that it meets the requirements for subsistence of copyright in the particular type of work.

[75] *Payen Components SA Ltd v Bovic CC* 1995 (4) SA 441 (A).

[76] *Express Newspapers plc v Liverpool Daily Post and Echo plc* [1985] 1 WLR 1089 (Ch); [1985] 3 All ER 680; [1985] FSR 306.

[77] *Payen Components* 448 F – H.

[78] 448 G.

or user interference.[79] Thus, work produced without "expenditure of significant human skill and effort"[80] would be computer-generated works. It seems however that the court does not require computer-generated work to be made in complete isolation from a human author.

During the *Nintendo* cases, the court paid close attention to the manner in which the work was recorded on the ROM chips. The respondents argued that, because the video game produced a series of variable films, there had been no *fixation* of the image sequence[81] in terms of the Act.

Although the court's decision on this matter is faultless (although unduly convoluted), the court arrived at its conclusion by postponing the moment of first fixation beyond the facts. On the evidence, many of the drawings that form the sequence of images was drawn by hand or with the aid of a computer. Therefore, the moment of first fixation of these works was the moment when each *original* drawing was complete. The court also recognised this fact, and yet found that the moment of first fixation was the moment all the component parts came together on the ROM chips.[82] On appeal the court avoided the matter, and held simply that the computer program used to encode and transfer the video game to the ROM chips, was "but a step in the fixation of the film",[83] which must be read to mean that it is a computer-assisted work.

Apart from the legal mistake, the court's finding created a larger problem. The *Nintendo* case found that the video game *display* was protected as a film, consisting of images stored on one disc, arranged and processed by a computer program stored on another disc and then displayed as a moving picture with the assistance of an electronic device. Therefore, if viewed alongside the *Pastel Software* case, our law currently dictates that the output of a computer program (computer-assisted works) may be protectable as either cinematograph film or literary work, depending on whether the underlying instructions (the computer-generated work) is classified as a video game or a computer program.

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[79] 448 H – I.

[80] 448 I – J.

[81] *Nintendo v Golden China* 431 – 432, 433 – 434.

[82] 434; See also De Villiers *SALJ* 319.

[83] *Golden China v Nintendo* 673.

However, in the second *Softcopy* case[84] Streicher JA referred to the definition of computer-generated work in section 178 of the British *Copyright, Designs and Patents Act*[85] and held that the existence of a human author should be decisive.[86] He found support in the *Payen Components* case for the decision that work produced by a computer would only be computer generated when the desired product was created without the involvement of a human hand *in any way*.[87] The court went further to find that electronic databases created with the aid of a computer application thus qualifies as a computer-assisted work because the programmer was able to direct the computer to make a series of tables of specific size and with the required names. Where such a degree of user interference is still possible, the database created is computer assisted rather than generated.[88] The fact remains however that since "a database structure does not consist of a set of instructions"[89] to be executed by a computer, databases are not computer programs (regardless of the fact that they may be essential to the functioning of a computer program) and thus not authored by the person in control of the making of the program.

4   The authorship problem

It follows that where a set of instructions is fixed or stored *by a human author* to be used in or by a computer and causes a reaction,[90] it would be a computer program eligible for the *sui generis* copyright protection under section 2 of the Act. It is therefore necessary to examine the Amendment Act more closely, in order to understand why the Act contains an entirely different definition of author in the case of computer programs.

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[84] *Anton Charl Haupt t/a Softcopy v Brewers Marketing Intelligence (Pty) Limited* [2006] JOL 17063 (SCA), also reported as 2006 (4) SA 458 (SCA); For a discussion of the facts of the High Court decision see; Tong L "Authorship of computer programs under South African copyright law" *SALJ* (2005) 122(3) 513; For a discussion of the facts of the Supreme Court of Appeal decision see: Dean O H "Computer programmes and databases in the copyright mangle" *Without Prejudice* (2006) 6(24); Tong L "Copyright and computer programs, computer generated works and databases in South Africa" *European Intellectual Property Review (EIPR)* (2006) 28(12) 625; Simon I "South African Supreme Court rules on copyright in software and computer-generated works" *Journal of Intellectual Property and Practice* (2006) 1(11) 696.

[85] The Copyright, Designs and Patents Act of 1998.

[86] *Haupt v BMI* (SCA) 31.

[87] *Payen Components* 450 D – G.

[88] *Haupt v BMI (SCA)* 32.

[89] 13.

[90] See the definition of a computer program in section 1 of the Act.

The Act states that the author of a computer program is the person who *exercises control* over the making of the program,[91] but then fails to give any indication of what exercising control would be. Furthermore, where such a program "is made in the course of the author's employment by another person under a contract of service or apprenticeship, that other person shall be the owner of any copyright subsisting in the work".[92] Therefore, the authorship problem involves two related questions: one, what is the intent (and extent) of control required to qualify as the author and, two, where does the control question resort (if at all) where the program was authored by an employee.[93]

Once again the legislator's intention is clear, and should be instructive. Before the Amendment Act, computer programs, as a species of literary work, was authored by the "person who first makes or creates the work".[94] However, the Amendment Act introduced a new kind of author – a computer program, as a *sui generis* type of work, is created by the person "who exercised control over the making"[95] of such a program. Therefore, it is clear that the legislature considered the complexity of software development when drafting the Amendment Act. It should also be clear that this new definition *must* be applied differently when read with section 21(1)(d). If the control

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[91] Section 1 definition of author.

[92] Section 21(1)(d).

[93] For the purpose of this note the exact nature of a computer program need not be defined more closely than the Act's definition, since the focus is on the author and not the work. It should, however, be pointed out that much has been said about the possible copyrightability of the materials created in preparation of a computer program. The authorship and potential copyright of such material will have to be determined with reference to the established principles regulating literary, artistic, computer generated or entrepreneurial works depending on the type of material prepared. At some point however a threshold is passed where some of these materials (especially where the source code was prepared in parts) will become part and parcel of the computer program itself. It is submitted that where these parts of the final program shows sufficient functionality that is relatable to the intended function of the completed program, such prepared programs will be authored in the same manner as the final computer program, and therefore subject to the control test. It is also possible that some preparatory materials (such as the collection of images prepared for a computer game or the range of standard algorithms for an accounting program) may be protected as a database, whether it is eventually incorporated with the computer program or not, sporadically accessed by computer or simply stored. See further De Villiers *SALJ* 319, Dean *Stell LR* 87, Tong *SALJ* 519 – 522.

[94] Section 1 definition of author; The *Nintendo* judgments therefore had to consider the question of first fixation for two reasons – to determine whether the work (as a film) has been reduced to an expression in material form, and to determine the rightful author.

[95] Section 1 definition of author.

requirement is not considered as part of the authorship/ownership enquiry, the court will fail in its duty to give effect to the legislator's intention.

De Villiers[96] quite aptly distinguishes between three scenarios under which programs are written: firstly, the obvious case where a programmer is writing a program independent of any obligation to do so, secondly where the programmer is executing his duty in terms of an employment contract (in most cases with a software house or in the technical department of a company), and, finally, where the program is created on commission. The latter two cases are known in contract law as the *locatio conductio operis* and *locatio conductio operarum*.

The first (and more complicated) authorship question relates to the third scenario, where the program was created in fulfilment of a contractual (or other non-employment related) obligation. Identifying the owner of commissioned software presents a problem because there is no existing structure for transmission of first ownership to the commissioner under the Act. This means that unless the parties have contracted in writing (as is required by the Act for transmission of copyright and very seldom done), first ownership can only be determined with reference to the controlling author.[97]

The second authorship question (and the instance of misapplication) arises between the first and second scenarios, where the programmer was acting *of his own volition* when he created the program and not in execution of a duty toward his employer. In other words, will the employer be vested with ownership of the program by operation of section 21(1)(d), or is a further element of control over the creative process required?

4 1   The commissioner-author

In the first *Softcopy*[98] case the court dealt with the control question with reference to the Act and held that the commissioner would be exercising control when he "has the power of regulation of the *manner* in which the [maker] is to do his […] work".[99] However, Erasmus J further stated that this control does not require any actual involvement

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[96] De Villiers *SALJ* 320.

[97] 320.

[98] *Haupt t/a Softcopy v Brewers Marketing Intelligence (Pty) Ltd* 2004 BIP 207 (C), also reported as [2004] 4 All SA 67 (C); [2004] JOL 12874 (C); 2005 (1) SA 398 (C).

[99] *Haupt v BMI* (C) 221 – 222 (emphasis added)

(intellectual or otherwise) in the creative process of programming,[100] which suggests that the person in control need only exercise a measure of management over the *person* of the maker since "authorship [is said to arise] simply from control over the persons concerned".[101]

On appeal, Streicher JA described the High Court's finding as requiring "overriding control"[102] of the creation (as opposed to creative) process. In an attempt to give content to the required control the court then referred to section 21 of the Act, which provides for works made in the course of an employment contract. Since the Act differentiates between control in the definition of author and control by an employer, the court opined that the Act necessitates a wider interpretation of control when the author of a computer program is established.[103] This means that the principal need not fulfil all the traditional requirements of an employer to nevertheless exercise sufficient control to qualify as the author of the program. Consequently, one is led to conclude that control denotes something akin to, but not as encompassing as, a master-servant relationship, and that the subject matter of the control is the person of the programmer *and* the project during development.[104]

The court finds further support for this supposition in the *Shorter Oxford Dictionary* and concludes that control should include elements of direction and checking so as to exercise a degree of restraint over the free action of the maker.[105]

When applied to the facts, the court finds the requisite control elements present in the following facts. Firstly, Haupt had given Coetzee instructions (of no particular detail) regarding the *final product* and while Coetzee effected what the court calls purely technical work (the actual writing of the code) Haupt remained in a position to give further and more detailed instructions.

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[100] 221.

[101] 221.

[102] *Haupt v BMI (SCA)* 9.

[103] 17.

[104] However, after the *King v SA Weather Service* judgment, it seems the opposite is true. An employer will automatically become the owner of software created by his employee if the work was done as an employee, i.e. while the programmer was acting in the scope of his employment (even if he is not employed as a programmer).

[105] 17.

It seems the fact that Haupt and Coetzee were in frequent contact with each other played a somewhat important role in the court's reasoning.[106] It is in any event doubtful if exercising control of any kind is possible in the absence of at least periodical communication between the commissioner and the maker.

Furthermore, the court emphasised the fact that Haupt retained the power to terminate the project at any moment and could decide the "direction the development of the program should take"[107]. This leads the court to conclude that a sufficient number of factors were present to find that Haupt was in a position of authority over Coetzee so that he could control the project and so "author" the program.[108]

From the above extracts it is possible to distil a series of elements that would have to be present in fact before a commissioner would be vested with the copyright of a computer program by virtue of the control he exercised over the making of the program – the control elements.

4 1 1   Authority

Since the control is to be interpreted more loosely than the traditional employer control test, the first element of control would be a position of *uncontracted* authority. The commissioner should be so positioned in relation to the maker that their relationship manifests itself as one of consensual subordination for a select purpose, namely the creation of the computer program.[109] Then the authority would relate to more than just the initial order yet not extend to the point where the independent contractor finds himself in the employ of (as opposed to purely contractually bound to) the commissioner.

To exactly define this position the law as it relates to labour relations need some attention. In the matter of *Colonial Mutual Life Assurance v Macdonald*[110] the court created a

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[106] 17.

[107] 17 – 18.

[108] 17 – 18.

[109] This element does not mean that no contract should exist between the commissioner and the programmer. It simply requires that the authority (as in indication of control) should be present regardless of the existence of a contract. Therefore, it is necessary that the programmer understood his role as one of subordination, not because the contract dictated such, but because the commissioner is assuming the role of project leader.

[110] *Colonial Mutual Life Assurance Society Ltd v Macdonald* 1931 AD 412.

test to distinguish between employees and independent contractors. This control test required only that the employer possess the right of "supervising and controlling the workman",[111] which included the right to prescribe the type of work and the "manner in which such work has to be done".[112] It follows that, where the commissioner is positioned in such a way toward the maker that the former may prescribe both technical and logistical details, the authority element would be present and the foundation laid for control as intended by the Amendment Act.

In determining whether a person is an employee or independent contractor for the purposes of vicarious liability a similar control test has often been applied. Some authors here equate the employer's ability to control the worker with that of authority and opine that "control (or authority) [...] does not mean factual control but the *capacity* (power) or *right* of control".[113] In *Midway Two Engineering v Transnet*[114] Nienaber JA, however, discredited the control test as the only test to distinguish an employee from an independent contractor and remarked that it is outdated, simplistic and fictitious.[115] In light of the dominant impression or multi-faceted test (discussed infra) the authority/control test has become an "important but no longer decisive factor to be taken into account",[116] which leads to the conclusion that authority is and should remain an essential element of control for purposes of the Act, but is not determinative. It follows that in the absence of authority, control was not exercised over the making of the program because the court has explicitly required the commissioner to be "in command"[117] and that the maker be subject to this command.

4 1 2   Giving instructions

During the *Softcopy* appeal, Streicher JA held that an element of Haupt's control is found in the actual giving of instructions "as to the end result that was to be achieved".[118] De Villiers is however of the view that a commissioner needs to give *more* instructions which

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[111] 434 – 435.

[112] 434 – 435.

[113] Neethling *Law of Delict* 5ed (2006) 339 – 340.

[114] *Midway Two Engineering and Construction Services v Transnet Bpk* 1998 3 SA 17 (SCA).

[115] 21 – 22.

[116] Neethling *Delict* 340.

[117] *Haupt v BMI (SCA)* 17.

[118] 17.

detail how the program is to be written[119] and that simply describing the desired result would not be enough because (so the argument goes) the court also requires continuous involvement from the commissioner and "an element of control over the actual physical arrangements for the writing of the program"[120] arising from the position of authority. It is submitted that this approach is absolutely correct and accords with the above discussion of the authority element.

Authority would lead to control only when such authority is asserted initially *and* exercised at intervals during the project when the guidance of a controlling force can be expected. While it is clear that the commissioner has to give instructions about more than just the desired result of the project, both of the *Softcopy* judgments make it clear that the commissioner need not give instructions about the "technical detail"[121] of the program or possess any programming ability.[122] It seems, thus, that Streicher JA agreed with Erasmus J when he held that the commissioner has to give instructions relating to the "purpose and functionality of the program"[123] as well as set a series of "requirements that the program […] must satisfy"[124] but need not require any specific coding or other technical methods to be used.

4 1 3   Evaluate progress and result

The appeal court found a further manifestation of control in the fact that Coetzee "submitted his work to Haupt […] to be checked and approved",[125] while the court *a quo* argued along the same lines when defining control as (including) the ability to "evaluate the work of the person that 'makes' the program".[126] In light of the clearly established principle that the commissioner need not be involved in the technical execution of the commission to exercise control, it is apparent that he only has to check *that* the program is being created and not *how* it is done.

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[119] De Villiers *SALJ* 323 – 324.

[120] 323.

[121] *Haupt v BMI (C)* 226.

[122] *Haupt v BMI (SCA)* 18.

[123] *Haupt v BMI (C)* 226.

[124] 226.

[125] *Haupt v BMI (SCA)* 17.

[126] *Haupt v BMI (C)* 226.

De Villiers refers to "periodic reviewing of the progress make by the developers",[127] but agrees that this is not sufficient to satisfy the control test. It is submitted that for purposes of the control test, the commissioner has to evaluate the *tactical* progress of the program during and throughout the various development stages as well as test the *result* against the initial instructions to ensure that it meets the requirements and performs satisfactorily. This would entail a very wide range of tests such as hardware and network compatibility, performance or bench tests and greater system integrity at least, depending on the facts. It is submitted that where these requirements formed part of the initial or later instructions, the commissioner has to ensure that they are met before it can be said that the program has been evaluated. Of course not every program would have such rigid requirements, nor would most commissioners be able to properly evaluate the execution of a completed program and the discovery of program errors and incompatibility often arise only after the program has been in use by the commissioner for a period of time. As a result, if the evaluation element is to be applied so widely as to incorporate all errors, the vesting of authorship would effectively be suspended until an indeterminate future point (after the completion of the actual program) has been reached when the program can be said to function properly.

Such a consequence would be clearly unsatisfactory, which is why the evaluation element should be satisfied once the commissioner is to his *non-technical* knowledge satisfied that the program is being created to meet the requirements set and that (on completion) it is functioning correctly and performing the desired tasks. In practice establishing this element in the manner described should meet with little resistance where the facts can show that the programmer performed specific technical tasks to give effect to the commissioner's orders and that the program has at some point functioned properly to the impression of the commissioner.

4 1 4   Direct the project

All of the above elements presuppose a fundamental supposition, and Streicher JA touched upon this when he noted the fact that throughout the project the parties were "in constant contact".[128] It is trite that communication is essential to exercising control,

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[127] De Villiers *SALJ* 324.

[128] *Haupt v BMI (SCA)* 17.

for the commissioner need not only inform the programmer of the requirements for the program but also be able to call upon the maker to deliver progress reports – all of which are necessary manifestations of a controlling authority. It follows that if control requires an (at least more than sporadic) pattern of communication between the parties that the controller should also be in a position to *direct the project* by adding to, and even altering, the instructions given to the maker.

It would however be folly to require such additional amendments in every case, for some commissioners would choose to deliver fully detailed instructions initially and thereafter only oversee its execution. Consequently, the communication element does not require daily or even frequent direction of the project but merely asks that a *channel* of communication between the commissioner and the maker be established. This is affirmed by the court as it held that the commissioner *could* decide the direction of the project.[129] Thus on the facts of each case once it is clear that for example a chosen medium or pattern of communication has been accepted by the parties, whether and how often during the project the parties communicated is of little relevance, apart from being indicative of the degree and amount of control exercised in the particular case. Once again, the absence of communication is rather a *factum probandum* toward establishing a lack of control.

4 1 5   Terminate further development

This is not a control element in the same sense as those discussed above, but it requires attention nonetheless since the court saw it fit to include the commissioner's power to terminate further developments in the list of abilities indicative of a controlling mind. It is important to note that the court is referring to Haupt's discretion when it states that he "could" terminate the project at any time.[130]

At first blush this seems to require that the controller must be able to cancel the commission at will, but requiring a *lex comissioria* could hardly have been the court's intention. The court must, thus, have had something else in mind that would accord with the control elements so far discussed. It is submitted that to establish control the commissioner should be able to demonstrate that he *remained* in control throughout the project by retaining the power to cancel the contract on any of the established grounds.

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[129] 17.

[130] 17.

In addition, it can be read to mean that the commissioner also controlled the date and time of completion and could either extend or even remove it temporarily depending on what he finds during a routine checkup on the project. Another possibility is that the court was referring to the commissioner's power to interject and either replace the programmer with another party (as far as the contract allows), add or require additional programmers to be charged with the project or terminate supporting projects or upgrades to the current program that will not affect the conclusion of the main project itself.

It is however most likely that the court was simply referring to the inherent power of an employer to direct and terminate any current project occupying an employee and direct him toward another, in which case it has nothing to do with a commissioner's controlling power. If the court's remark is intended to apply to the period after the employment contract between Haupt and Coetzee was terminated and a commission contract established, it is nothing more than a careless remark inconsistent with the law as it stands.

4 1 6   The arrangements

After the Amendment Act, many were perplexed by the new definition of authorship for computer programs, and in an attempt to extract the legislature's intention opined that the definition of a computer program author "is comparable to the definition of the 'author' of a cinematograph film".[131] Dean argues further that as a result of the savings provision inserted to cover programs completed before the current definition was imported in 1992, the original makers of such works (protected as literary works) are deemed to be the authors. As a result (the argument continues), the authors of post Amendment Act programs *could* be a different person than the maker of arrangements but an ostensible copyright holder should still be able to prove his title as if the program had been authored by the publisher of the program who would also be the controlling force.[132]

The fact that this argument is somewhat of a *non sequitur* was not immediately recognised by all. Joubert shared the view that authorship would vest once it can be shown that control has been exercised over the person(s) involved in the making of the

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[131] Dean *Stell LR* 89.

[132] 89 – 90.

program.[133] Indeed so great was the confusion that Erasmus J found support for his finding on authorship in the first *Softcopy* case with Joubert's argument when he held that "actual involvement in the creative work [...] is not critical"[134] and indeed quite beside the point.

Tong touched upon the fallacy in the above supposition when she remarked that if the Amendment Act did not require something more than just making arrangements from the controlling author of computer programs, "it would presumably have been [more] logical [...] to have simply echoed the definition of authorship"[135] of film and sound recordings.

It is submitted that this is correct and indeed the statutory definition of a controlling author postulates a closer nexus between the commissioner/principal and the actual creation of the program than the Act requires between, for example, the maker of a computer-generated program and its arranging author.[136]

Tong formulated a guiding principle that will, if properly heeded, avoid further confusion arising from the very important distinction between computer programs and computer-generated works. To this end she points out that to exercise control "over the *making* of the program is quite distinct from a general exercise of control over the *maker* of the program".[137] Ultimately the question is one of degree, as will be argued in due course, but Tong suggests that the further removed a controlling author is from the making of the program the less likely it is that a sufficient exercise of control will be found.[138]

It is possible to identify a rather long list of factors which would distinguish a party making arrangements for a work from one that controls the making of a work, but since the control elements have already been identified it would suffice to discuss only two threshold requirements. In isolation, these factors will not be sufficient to establish control but are indicative of the intention to control the creation process.

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[133] Joubert *LAWSA* 2004 5(2) 2ed par 4.

[134] *Haupt v BMI (C)* 221.

[135] Tong *SALJ* 523.

[136] 523.

[137] 523 (emphasis added).

[138] 524.

Firstly, a party who wishes to argue that he did more than merely arrange for the making of the program would need to show that he, at least, determined the functionality of the program. Tong once again points out that the court does not require actual involvement in the execution of the program's technical specifications, but finds that contrary to an arranging author a controlling one would at the very least "understand the nature of the task" being performed.[139] It is submitted that to establish an intention to control, the principal will have to show that he was mindful of the fact that a computer program will be created, followed its progress with as much interest as a reasonable commissioner can be expected to have and provided some input of more than a "cursory nature".[140]

Secondly, an arranging author will not care to check how the work is being done, while a controlling author is expected to exercise a rather substantial degree of evaluation and assessment of the program during and after its production. It follows that to show at least a *prima facie* case of control the potential author must have used his reserved evaluation ability by requiring detailed progress reports, attempting to execute trial versions of the program, and, upon its completion, done more than just accept delivery. This is evident in the fact that Tong also requires that, to exercise control, the party must have done more than merely elect whether to exercise a veto power or not.[141]

4 2   The employer-author

Then, in the matter of *King v South African Weather Service*[142] the court again had to consider the ownership question in the case of computer programs. The facts of this case, however, must be distinguished from the *Softcopy* case. Because the respondent employed King as a meteorologist, the case turned on the meaning of section 21(1)(d) and not the definition of author in section 1. For this reason it is cited as an instance of the misapplication of the Amendment Act and included as part of the broader authorship problem. However, both cases illustrate the difficulty our courts have faced when determining the extent to which the control requirement should be applied to determine *ownership* (as opposed to authorship) of copyright.

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[139] 527.

[140] 527.

[141] 527.

[142] *King v SA Weather Service* 2009 2 All SA 31 (SCA).

Before Harms ADP considered this question he held that King should be assumed to be the controlling author of the programs. His judgment, therefore, contains very little information about the meaning of control in terms of the definitions clause. The case is, however, instructive regarding the interaction between the control test in section 1 and the ownership clause in section 21(1)(d), while the *Softcopy* cases illustrate the content of the control test and its application to commissioned software.

It is beyond dispute that the Amendment Act did not import the control test from labour law. For this reason the *Softcopy* judgments conceded that the control test in the Act must refer to control in a wider sense. Therefore, the person in control of the making of a computer program does not have to exercise the same amount of control over the programmer as an employer normally would over his employee. However, where the programmer is employed, the question arises whether or not the employment relationship constitutes sufficient control to vest the employer with ownership. To avoid this problem, the Act determines that ownership will automatically pass to the employer if the work was completed "in the course of the author's employment". In the *King* case, however, the question was whether the control test (in section 1) should be used to discover whether the program was authored in the course of his employment, or if this "stock concept in employment law"[143] remains unaffected by the Amendment Act?

At this point it is necessary to outline three questions a court must consider before it can find that ownership will pass to the employer by virtue of section 21(1)(d). One, who is the author of the disputed program? Here the control test in section 1 must be applied. If either party to the dispute commissioned the software, the control elements discussed above may be considered. Two, is there an employment relationship between the parties? This is a question of labour law, and determined with aid of the dominant impression test, of which employer control is an element. Three, was the work made in the course of employment? It is submitted that here too the control test should be considered *in addition* to the principles of labour law. However, Visser argues that "one would be hard-pressed to give a special meaning to 'control'" if it was applied to question three. Therefore, it is "best not to go there".[144]

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[143] 36 para 13.

[144] Visser *SA Merc LJ* 596.

It is submitted that Visser is mistaken, and that the court in *King* failed to attach enough weight to the control test by misreading the legislature's intention when it specifically deviated from the standard authorship test. In light of the fact that section 21(1)(d) is a residual provision applicable to all types of work not listed in subsections (b) and (c), it follows that the course of employment requirement *must* be read alongside the authorship definition. Section 21 provides detailed regulations for the passing of ownership to the employer or commissioner in the case of literary and artistic works; specifically newspaper, magazine and journal articles, photographs, paintings, drawings, portraits, engravings, cinematograph film and sound recordings made under specific, narrowly defined circumstances with a specific intention.[145] Therefore, copyright in these works will only belong to the employer if it was made for the exclusive purpose of publication or fulfilment of a commission. Only in the event that a work does not meet these requirements, will the secondary ownership provision (section 21(1)(d)) come into operation. However, in the case of computer programs, there is no primary ownership clause outlining the case for employer ownership apart from the general provision in subsection (d).

Obviously, the legislator has not considered the need for a more specific primary ownership clause to deal with software made on commission or under employment. However, it is submitted that the Amendment Act obviates such a provision by referring to a controlling author.

The case of misapplication lies in the court's finding that the phrase "in the course of employment" is self-explanatory and does not "require anything by way of extensive […] interpretation".[146] In the case of computer programs, the Amendment Act was drafted to provide for its inimitability in *every* way, including (specifically) the way this type of work is produced. Therefore, a "common sense approach" is not sufficient; although it is not necessary to formulate a closed list of generally applicable rules for the scope of employment test either.[147] It would suffice it the court considered that computer programs are authored by the person *in control of the making* of such a work, and that ownership will pass to the employer if the work was made in the course of employment and *under the control* of the employer.

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[145] Section 21(1)(b) and (c).

[146] King 36 para 13.

[147] On this point the court was correct; King 37 para 18.

This is supported by the fact that the control element is *wider* than employer control, and therefore the control an employer normally exercises over his employees is *not sufficient* to vest ownership of a computer program made by the employee. However, if the employee was specifically instructed to create such a program, or programming is part of his normal (contractual) obligations, copyright in these programs will belong to the employer by operation of section 21(1)(d) alone.

The court in *King* observed that the employee's (King's) duties did "not ordinarily include computer programming",[148] but that the programs were nevertheless authored in the scope of his employment. Harms ADP arrived at this conclusion by considering four factors, all of which are part of the dominant impression test. These factors are; one, the nature of the employer's business and the fact that King's programs advanced the operations of his employer;[149] two, the fact that King's programs were designed to perform a function associated with his duties as meteorologist;[150] three, the fact that the programs were intended for use at several of the employer's offices;[151] four, the fact that King created (at least part of) the programs after hours and at home.[152]

Finally, the court considered it important that the Bureau "prescribed the format of the programs and had to approve *of* them before they could be implemented".[153] This suggests that by dictating the requirements for interoperability with their existing system and ensuring that this requirement is met, are the only elements of control necessary to indicate that the programs were made in the course of employment. Clearly, the court considered these control factors as indicative of employer control for purposes of the dominant impression test (however incorrectly this test has been applied), and not as the level of control required by operation of the definitions clause. Visser opines that this statement by the court does not indicate that employer control is part of the "scope of employement" enquiry.[154] Clearly the law is at odds with his view, and the *King* judgment

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[148] King 38 para 20.

[149] 37 para 18.

[150] Visser *SA Merc LJ* 594 refers to the "close causal connection" while the court in *King* 38 para 20 finds that King's "employment was the *causa causans* of the programs".

[151] King 38 para 20.

[152] Which suggests that King used a software programming application (and/or home computer) that was not the property of the employer.

[153] King 38 para 20 (emphasis added).

[154] Visser *SA Merc LJ* 595 – 596.

did consider the Bureau's degree of control over King's activities as indicative of the fact that the programs were made in execution of his duty as employee.

It is submitted that the court was mistaken, and that the control elements above should have proved that the programs were *not* made in the course of employment, because the Bureau was never in control *of the making of the program*, and only in control of the author to the extent that he was performing as a meteorologist.

The court insisted that King's employment should be considered "broadly and not by dissecting the employee's task into its component activities".[155] Unfortunately, the court applies this argument to neutralise the fact that programming is not a part of King's employment duties. Instead, this observation should have led to court to reconsider whether those activities, which clearly fall outside the employment contract, may still resort under the employer's operations through another means. In that event, the court would have found it necessary to consider whether the Bureau exercised sufficient control over the programming activity to qualify such work as made in the course of employment. It is submitted that the Bureau's activity does not meet the requisite level of control as author, commissioner or even as controlling employer, even though the degree of control required from an employer may be lower than that of the commissioner. The Bureau was clearly aware of the fact that King was creating programs for use in the Bureau's business. The "common sense" approach would therefore dictate that the Bureau express (in the least) some interest in vesting ownership in these programs by, for example, offering to pay King overtime for the work he completed at home or a bonus upon completion of the project. Once again, the fact that the Bureau was not involved, in any way, during the making of the programs or thereafter illustrates the fact that the "scope of employment" requirement alone cannot fairly assess the ownership question of computer programs. The Amendment Act considered the amount of time, effort and skill required to produce this type of work and created a new type of author to provide for this. Unfortunately, the *King* decision has disregarded the legislator's intention and, by electing to determine the scope of employment through labour law principles, set a precedent that may be unfair.

Finally, it is submitted that the "scope of employment" test expounded by the *King* judgment is, for the largest part, correct. However, it has been shown that this test

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[155] King 38 para 19.

may deprive some authors of copyright in their work despite the fact that their employer did not require this work to be done, was not involved in its execution at all, did not provide any equipment for the task and never remunerated the employee for the work done. Therefore, it is submitted that the Amendment Act intended to create a unique type of author to accompany the introduction of a unique type of work, and that the court must consider the peculiarity of this provision (designed to support the inimitability of computer programs) before it applies legal principles that pre-date the Amendment.

5   Conclusion

Copyright is a creature of statute designed to protect the intellectual exertion of authors from unjustified exploitation. For many years, copyright law has achieved this goal by entrenching a mechanism that regulates the commercial exploitability of original works of various types. However, unlike the other types of copyrightable work, computer programs represent a type of work that is constantly evolving. As a result, the manner and extent of protection afforded to software should be developed more frequently than any other type of work.

Unfortunately, the fact that copyright "has to be found within the four corners of a statute"[156] has often (and unduly) prevented the court from considering the practical implications of its judgments. Similarly, very few cases include the purely technical aspects of software as part of the reasons for its finding and, as a result, has created general legal principles that cannot (and should not) be applied to all instances of software copyright.

Therefore, it is necessary to point out the mistakes our court has made and, by considering these mistakes against the practical, technical and economic elements of software, draft legal principles to guide the development of software copyright law. In light of the many factors considered above, it is most important that the protection of computer programs be applied with greater sensitivity for the nature of this type of work and the spirit in which it was introduced to the Act.   The Amendment Act has made it clear that software must be protected in a separate, unique and more encompassing fashion which, if nothing else, indicates that *sui generis* protection must be applied in a *sui generis* fashion.

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[156] *King v SA Weather Service* 2009 2 All SA 31 (SCA) 34 para 6.