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OPINION OF ADVOCATE GENERAL
BOT
delivered on 29 November 2011 [1]

Case C-406/10

SAS Institute Inc.
v
World Programming Ltd

(Reference for a preliminary ruling from the High Court of Justice of England and Wales (Chancery Division))

(Intellectual property – Directive 91/250/EEC – Directive 2001/29/EC – Legal protection of computer programs – Creation of various programs including the functionalities of another computer program without access to the latter's source code)

[1] – Original language: French.

1. By this reference for a preliminary ruling, the Court is asked to define the scope of the legal protection conferred by copyright on computer programs under Directive 91/250/EEC, [2] and that conferred on works by Directive 2001/29/EC. [3]

2. In particular, the High Court of Justice of England and Wales (Chancery Division) asks, in substance, whether the functionalities of a computer program and the programming language are protected by copyright under Article 1(2) of Directive 91/250. That provision stipulates that such protection is to apply to the expression in any form of a computer program and points out that ideas and principles which underlie any element of a computer program are not protected under that directive.

3. The Court is also asked to give a ruling on whether Articles 1(2) and 6 of Directive 91/250 are to be interpreted as meaning that it is not regarded as an act subject to authorisation for a licensee to reproduce a code or to translate the form of the code of a data file format so as to be able to write, in his own computer program, a source code which reads and writes that file format.

4. Moreover, the referring court asks the Court to define the scope of the exception to the author's exclusive copyright in a computer program, provided for in Article 5(3) of Directive 91/250, which states that a person having a right to use a copy of a computer program is to be entitled, without the authorisation of the rightholder, to observe, study or test the functioning of the program in order to determine the ideas and principles which underlie any element of the program if he does so while performing any of the acts of loading, displaying, running, transmitting or storing the program which he is entitled to do.

5. Finally, the Court is invited to consider the scope of the protection provided for in Article 2(a) of Directive 2001/29, which grants authors the exclusive right to authorise or prohibit direct or indirect, temporary or permanent, reproduction by any means and in any form, in whole or in part, of their works. More specifically, the question is whether the reproduction, in a computer program or a user manual, of certain elements described in the user manual for another computer program constitutes, under that provision, an infringement of the copyright in the latter manual.

6. In this Opinion, I shall explain the reasons why I consider that Article 1(2) of Directive 91/250 is to be interpreted as meaning that the functionalities of a computer program and the programming language are not capable, as such, of being protected by copyright. On the other hand, it will be for the national court to

2 – Council Directive of 14 May 1991 on the legal protection of computer programs (OJ L 122, p. 42).

3 – Directive of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society (OJ 2001 L 167, p. 10).

examine whether, in reproducing those functionalities in his computer program, the author of the program reproduced a substantial part of the elements of the first program which are the expression of the author's own intellectual creation.

7. Moreover, I shall propose that the Court give a ruling to the effect that Articles 1(2) and 6 of Directive 91/250 are to be interpreted as meaning that it is not regarded as an act subject to authorisation for a licensee to reproduce a code or to translate the form of the code of a data file format so as to be able to write, in his own computer program, a source code which reads and writes that file format, provided that that operation is absolutely indispensable for the purposes of obtaining the information necessary to ensure interoperability between the elements of different programs. That operation must not have the effect of enabling the licensee to recopy the code of the computer program in his own program, a question which will be for the national court to determine.

8. Next, I shall set out the reasons why I consider that Article 5(3) of Directive 91/250, read in conjunction with Articles 4(a) and (b) and 5(1) thereof, is to be interpreted as meaning that the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' relates to the acts for which that person obtained an authorisation from the rightholder and to the acts of loading and running necessary in order to use the computer program in accordance with its intended purpose. Acts of observing, studying or testing the functioning of a computer program which are performed in accordance with that provision must not have the effect of enabling the person having a right to use a copy of the program to gain access to information which is protected by copyright, such as the source code or the object code.

9. Finally, I shall suggest that the Court give a ruling to the effect that Article 2(a) of Directive 2001/29 is to be interpreted as meaning that the reproduction, in a computer program or a user manual, of certain elements described in the manual for another computer program is liable to constitute an infringement of the copyright in the latter manual if – a question which will be for the national court to determine – the elements reproduced in this way are the expression of the author's own intellectual creation.

I – The legal context

A – *European Union law*

1. Directive 91/250

10. Directive 91/250 seeks to harmonise Member States' legislation in the field of legal protection of computer programs by defining a minimum level of protection. [4]

11. The eighth recital in the preamble to the directive provides that, in respect of the criteria to be applied in determining whether or not a computer program is an original work, no tests as to the qualitative or aesthetic merits of the program should be applied.

12. The thirteenth recital in the preamble to Directive 91/250 provides that, for the avoidance of doubt, it has to be made clear that only the expression of a computer program is protected and that ideas and principles which underlie any element of a program, including those which underlie its interfaces, are not protected by copyright under that directive. In accordance with this principle of copyright, to the extent that logic, algorithms and programming languages comprise ideas and principles, those ideas and principles are not protected under that directive. [5]

13. Article 1 of that Directive 91/250 is worded as follows:

'1. In accordance with the provisions of this Directive, Member States shall protect computer programs, by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works. For the purposes of this Directive, the term "computer programs" shall include their preparatory design material.

2. Protection in accordance with this Directive shall apply to the expression in any form of a computer program. Ideas and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright under this Directive.

3. A computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. No other criteria shall be applied to determine its eligibility for protection'.

14. Article 4 of that directive provides:

[4] – See the first, fourth and fifth recitals in the preamble to the directive.

[5] – See the fourteenth recital in the preamble to the directive.

‘Subject to the provisions of Articles 5 and 6, the exclusive rights of the rightholder within the meaning of Article 2, shall include the right to do or to authorise:

(a) the permanent or temporary reproduction of a computer program by any means and in any form, in part or in whole. Insofar as loading, displaying, running, transmission or storage of the computer program necessitate such reproduction, such acts shall be subject to authorisation by the rightholder;

(b) the translation, adaptation, arrangement and any other alteration of a computer program and the reproduction of the results thereof, without prejudice to the rights of the person who alters the program;

(c) any form of distribution to the public, including the rental, of the original computer program or of copies thereof. The first sale in the Community of a copy of a program by the rightholder or with his consent shall exhaust the distribution right within the Community of that copy, with the exception of the right to control further rental of the program or a copy thereof.’

15. Article 5 of Directive 91/250 provides as follows:

‘1. In the absence of specific contractual provisions, the acts referred to in Article 4 (a) and (b) shall not require authorisation by the rightholder where they are necessary for the use of the computer program by the lawful acquirer in accordance with its intended purpose, including for error correction.

2. The making of a back-up copy by a person having a right to use the computer program may not be prevented by contract in so far as it is necessary for that use.

3. The person having a right to use a copy of a computer program shall be entitled, without the authorisation of the rightholder, to observe, study or test the functioning of the program in order to determine the ideas and principles which underlie any element of the program if he does so while performing any of the acts of loading, displaying, running, transmitting or storing the program which he is entitled to do’.

16. Article 6 of that directive is worded as follows:

‘1. The authorisation of the rightholder shall not be required where reproduction of the code and translation of its form within the meaning of Article 4(a) and (b) are indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs, provided that the following conditions are met:

(a) these acts are performed by the licensee or by another person having a right to use a copy of a program, or on their behalf by a person authorised to do so;

(b) the information necessary to achieve interoperability has not previously been readily available to the persons referred to in subparagraph (a);

and

(c) these acts are confined to the parts of the original program which are necessary to achieve interoperability.

2. The provisions of paragraph 1 shall not permit the information obtained through its application:

(a) to be used for goals other than to achieve the interoperability of the independently created computer program;

…

3. In accordance with the provisions of the Berne Convention for the Protection of Literary and Artistic Works, the provisions of this Article may not be interpreted in such a way as to allow its application to be used in a manner which unreasonably prejudices the right holder's legitimate interests or conflicts with a normal exploitation of the computer program'.

17. Moreover, according to the second sentence of Article 9(1) of Directive 91/250, any contractual provisions contrary to Article 6 thereof or to the exceptions provided for in Article 5(2) and (3) of that directive are to be null and void.

2. Directive 2001/29

18. Directive 2001/29 concerns the legal protection of copyright and related rights in the framework of the internal market, with particular emphasis on the information society. [6]

19. That directive applies without prejudice to the existing provisions relating, inter alia, to legal protection of computer programs. [7]

20. Article 2(a) of Directive 2001/29 states that Member States are to provide authors with the exclusive right to authorise or prohibit direct or indirect, temporary or permanent reproduction by any means and in any form, in whole or in part, of their works.

[6] – See Article 1(1) of the directive.

[7] – See Article 1(2)(a) of Directive 2001/29.

B – *National law*

21. Directives 91/250 and 2001/29 were transposed into national law by the Copyright, Designs and Patents Act 1988, as amended by the Copyright (Computer Programs) Regulations 1992 and by the Copyright and Related Rights Regulations 2003 ('the 1988 Act').

22. Section 1(1)(a) of the 1988 Act provides that copyright is a property right which subsists in original literary, dramatic, musical or artistic works. According to section 3(1)(a) to (d) of the Act, 'literary work' means any work, other than a dramatic or musical work, which is written, spoken or sung and includes in particular a table or compilation other than a database, a computer program, preparatory design material for a computer program, and a database.

23. Section 16(1)(a) of the Act provides that the owner of the copyright in a work has the exclusive right to copy the work.

24. According to section 16(3)(a) and (b) of the 1988 Act, restrictions imposed by copyright in respect of acts performed on a work apply in relation to the work as a whole or any substantial part of it, either directly or indirectly.

25. Under section 17(2) of the Act, copying in relation to a literary, dramatic, musical or artistic work means reproducing the work in any material form. This includes storing the work in any medium by electronic means.

26. Section 50BA(1) of the 1988 Act, however, states that it is not an infringement of copyright for a lawful user of a copy of a computer program to observe, study or test the functioning of the program in order to determine the ideas and principles which underlie any element of the program if he does so while performing any of the acts of loading, displaying, running, transmitting or storing the program which he is entitled to do. Section 50BA(2) of the Act states that, where an act is permitted under subsection (1), it is irrelevant whether or not there exists any term or condition in an agreement which purports to prohibit or restrict the act in question.

II – Facts and main proceedings

27. SAS Institute Inc. ('SAS Institute') has developed analytical software known as SAS ('the SAS System'). The SAS System is an integrated set of programs which enables users to carry out data processing and analysis tasks, and in particular statistical analysis. The core component of the SAS System is known as Base SAS. It enables users to write and run application programs to manipulate data. Such applications are written in a language known as SAS Language.

28. The functionality of Base SAS may be extended by the use of additional components. Three of those components are of particular relevance to the main

proceedings. They are SAS/ACCESS, SAS/GRAPH and SAS/STAT (referred to together with Base SAS as ‘the SAS components’).

29. The referring court explains that, prior to the events giving rise to this dispute, the SAS Institute’s customers had no alternative but to continue to acquire a licence to use the SAS components in order to be able to run their existing application programs in SAS language, and to create new ones. A customer wishing to change software supplier would need to re-write its existing application programs in a different language, which requires a considerable investment.

30. It was for that reason that World Programming Limited (‘WPL’) had the idea of creating an alternative computer program, the World Programming System (‘the WPL System’), which enables users to run application programs written in SAS language.

31. WPL does not hide the fact that its intention was to emulate much of the functionality of the SAS components as closely as possible. It thus ensured that the same inputs [8] would produce the same outputs. [9] WPL wanted its customers’ application programs to run in the same way on the WPL system as on the SAS components.

32. The referring court indicates that it is not established that, in doing so, WPL had access to the source code [10] of the SAS components, copied any of the text of the source code or copied any of the structural design of the source code.

33. SAS Institute seeks an order that WPL’s actions represent an infringement of its copyright in its computer programs. In two separate decisions, courts in the United Kingdom have ruled that it was not an infringement of the copyright in the source code of a computer program for a competitor of the right owner to study how the program functions and then to write its own program to emulate that functionality.

34. SAS Institute, challenging that approach, has brought an action before the referring court. Its principal claims are that WPL:

– copied the manuals for the SAS System (‘the SAS Manuals’) published by SAS Institute when creating the WPL System, thereby infringing its copyright in the SAS Manuals;

[8] – Inputs are the data entered by users.

[9] – Outputs are the results of the inputs processed by the computer program.

[10] – Underlying a computer program is the source code written by the programmer. That code, composed of words, is intelligible to the human mind. However, it is not executable by the computer. To become so, it needs to be compiled so that it can be translated it into binary-form computer language, usually the figures 0 and 1. This is known as the object code.

– in so doing, indirectly copied the computer programs comprising the SAS components, thereby infringing its copyright in those components;

– used a version of the SAS system known as the 'Learning Edition', in breach of the terms of the licence relating to that version and the commitments made under that licence, and its copyright in that version; and

– infringed the copyright in the SAS Manuals by creating its own manual ('the WPL Manual').

III – The questions referred for a preliminary ruling

35. The High Court of Justice of England and Wales (Chancery Division), having doubts as to the interpretation to be given to the provisions of European Union Law, decided to stay the proceedings and to refer the following questions to the Court for a preliminary ruling:

'1. Where a computer program ("the First Program") is protected by copyright as a literary work, is Article 1(2) [of Directive 91/250] to be interpreted as meaning that it is not an infringement of the copyright in the First Program for a competitor of the rightholder without access to the source code of the First Program, either directly or via a process such as decompilation of the object code, to create another program ("the Second Program") which replicates the functions of the First Program?

2. Is the answer to question 1 affected by any of the following factors:

(a) the nature and/or extent of the functionality of the First Program;

(b) the nature and/or extent of the skill, judgment and labour which has been expended by the author of the First Program in devising the functionality of the First Program;

(c) the level of detail to which the functionality of the First Program has been reproduced in the Second Program;

(d) if the source code for the Second Program reproduces aspects of the source code of the First Program to an extent which goes beyond that which was strictly necessary in order to produce the same functionality as the First Program?

3. Where the First Program interprets and executes application programs written by users of the First Program in a programming language devised by the author of the First Program which comprises keywords devised or selected by the author of the First Program and a syntax devised by the author of the First Program, is Article 1(2) [of Directive 91/250] to be interpreted as meaning that it is not an infringement of the copyright in the

First Program for the Second Program to be written so as to interpret and execute such application programs using the same keywords and the same syntax?

4. Where the First Program reads from and writes to data files in a particular format devised by the author of the First Program, is Article 1(2) [of Directive 91/250] to be interpreted as meaning that it is not an infringement of the copyright in the First Program for the Second Program to be written so as to read from and write to data files in the same format?

5. Does it make any difference to the answer to questions 1, 3 and 4 if the author of the Second Program created the Second Program by:

   (a) observing, studying and testing the functioning of the First Program; or

   (b) reading a manual created and published by the author of the First Program which describes the functions of the First Program ('the Manual'); or

   (c) both (a) and (b)?

6. Where a person has the right to use a copy of the First Program under a licence, is Article 5(3) [of Directive 91/250] to be interpreted as meaning that the licensee is entitled, without the authorisation of the rightholder, to perform acts of loading, running and storing the program in order to observe, test or study the functioning of the First Program so as to determine the ideas and principles which underlie any element of the program, if the licence permits the licensee to perform acts of loading, running and storing the First Program when using it for the particular purpose permitted by the licence, but the acts done in order to observe, study or test the First Program extend outside the scope of the purpose permitted by the licence?

7. Is Article 5(3) [of Directive 91/250] to be interpreted as meaning that acts of observing, testing or studying of the functioning of the First Program are to be regarded as being done in order to determine the ideas or principles which underlie any element of the First Program where they are done:

   (a) to ascertain the way in which the First Program functions, in particular details which are not described in the Manual, for the purpose of writing the Second Program in the manner referred to in question 1 …;

   (b) to ascertain how the First Program interprets and executes statements written in the programming language which it interprets and executes (see question 3 …);

(c) to ascertain the formats of data files which are written to or read by the First Program (see question 4 …);

(d) to compare the performance of the Second Program with the First Program for the purpose of investigating reasons why their performances differ and to improve the performance of the Second Program;

(e) to conduct parallel tests of the First Program and the Second Program in order to compare their outputs in the course of developing the Second Program, in particular by running the same test scripts through both the First Program and the Second Program;

(f) to ascertain the output of the log file generated by the First Program in order to produce a log file which is identical or similar in appearance;

(g) to cause the First Program to output data (in fact, data correlating zip codes to States of the United States of America) for the purpose of ascertaining whether or not it corresponds with official databases of such data, and if it does not so correspond, to program the Second Program so that it will respond in the same way as the First Program to the same input data.

8. Where the Manual is protected by copyright as a literary work, is Article 2(a) [of Directive 2001/29] to be interpreted as meaning that it is an infringement of the copyright in the Manual for the author of the Second Program to reproduce or substantially reproduce in the Second Program any of the following matters described in the Manual:

(a) the selection of statistical operations which have been implemented in the First Program;

(b) the mathematical formulae used in the Manual to describe those operations;

(c) the particular commands or combinations of commands by which those operations may be invoked;

(d) the options which the author of the First Program has provided in respect of various commands;

(e) the keywords and syntax recognised by the First Program;

(f) the defaults which the author of the First Program has chosen to implement in the event that a particular command or option is not specified by the user;

(g) the number of iterations which the First Program will perform in certain circumstances?

9. Is Article 2(a) [of Directive 2001/29] to be interpreted as meaning that it is an infringement of the copyright in the Manual for the author of the Second Program to reproduce or substantially reproduce in a manual describing the Second Program the keywords and syntax recognised by the First Program?'

IV – My analysis

36. In my view, the questions referred by the High Court can be dealt with in the following way.

37. First, by questions 1 to 3, the referring court asks, in essence, whether Article 1(2) of Directive 91/250 is to be interpreted as meaning that the functionalities of a computer program and the programming language are regarded as the expression of that program and thus qualify for the copyright protection provided for by that directive.

38. Secondly, as I understand it, by question 4, the referring court seeks to ascertain whether, in reality, Articles 1(2) and (6) of that directive are to be interpreted as meaning that it is not regarded as an act subject to authorisation for a licensee to reproduce a code or to translate the form of the code of a data file format so as to be able to write, in his own computer program, a source code which reads and writes that file format.

39. Thirdly, by questions 5 to 7, the referring court asks the Court, in essence, to define the scope of the exception to the requirement to obtain authorisation from the rightholder which is provided for in Article 5(3) of Directive 91/250. In particular, it seeks to ascertain whether the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' covers only the acts which the holder of the licence to use a computer program is authorised to perform under that licence and whether the purpose for which those acts are performed has an impact on the licensee's ability to rely on that exception.

40. Finally, by questions 8 and 9, the referring court seeks to ascertain, in essence, whether Article 2(a) of Directive 2001/29 is to be interpreted as meaning that the reproduction, in a computer program or a user manual, of certain elements described in the user manual for another computer program constitutes an infringement of the copyright in the latter manual.

A – *Protection of the functionalities of a computer program and the programming language under Article 1(2) of Directive 91/250*

41. The questions raised by the referring court are in fact concerned with the object and scope of the protection conferred by Directive 91/250. In particular, the question here is whether the functionalities, [11] the programming language and the formats of data files in a computer program constitute the expression of that program and may, as such, be protected by copyright under that directive.

42. I would point out that Article 1(1) of Directive 91/250 provides that Member States are to protect computer programs as literary works. Protection by copyright applies to the expression in any form of a computer program and not to the ideas and principles which underlie any element of a computer program. [12] The fourteenth recital in the preamble to that directive also states that, in accordance with that principle of copyright, to the extent that logic, algorithms and programming languages comprise ideas and principles, those ideas and principles are not protected under the directive.

43. That principle can also be found in the international texts. In particular, Article 2 of the World Intellectual Property Organisation (WIPO) Copyright Treaty [13] provides that copyright protection extends to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.

44. The reason for this is that the originality of a work, which gives access to legal protection, lies not in an idea, which may be freely used, but in its expression.

45. With regard to computer programs, Directive 91/250 does not define the phrase ‘expression in any form of a computer program’.

46. That lack of definition results from an express choice by the European Union legislature. In its proposal for the directive, [14] the European Commission states that ‘[i]t has been recommended by experts in the field that any definition in

[11] – The referring court appears to use the terms ‘function’ and ‘functionality’ indiscriminately in its questions and within the text of its order for reference. For reasons of clarity, I shall only use the term ‘functionality’ in this Opinion.

[12] – See Article 1(2) of Directive 91/250.

[13] – The Treaty, adopted in Geneva on 20 December 1996, was approved on behalf of the Community by Council Decision 2000/278/EC of 16 March 2000 (OJ 2000 L 89, p. 6).

[14] – Proposal for a Council Directive on the legal protection of computer programs [COM (1988) 816 final, ‘the Proposal for a Directive’].

a directive of what constitutes a program would of necessity become obsolete as future technology changes the nature of programs as they are known today'. [15]

47. However, the European Union legislature did indicate that the elements of creativity, skill and inventiveness manifest themselves in the way in which the program is put together. The programmer defines the tasks to be performed by a computer program and carries out an analysis of the possible ways to achieve those results. The author of a computer program, like the author of a book, selects the steps to be taken and the way in which those steps are expressed gives the program its particular characteristics of speed, efficiency and even style. [16]

48. Consequently, protection for a computer program is conceivable only from the point at which the selection and compilation of those elements are indicative of the creativity and skill of the author and thus set his work apart from that of other authors. [17]

49. In *Bezpečnostní softwarová asociace*, [18] the Court stated that the object of the protection conferred by Directive 91/250 is the expression in any form of a computer program which permits reproduction of that program in different computer languages, such as the source code and the object code. [19] It also held that any form of expression of a computer program must be protected from the moment when its reproduction would engender the reproduction of the computer program itself, thus enabling the computer to perform its function. [20]

50. The protection of a computer program is not therefore confined to the literal elements of that program, that is to say, the source code and the object code, but extends to any other element expressing the creativity of its author.

51. In this context, it is now appropriate to consider in turn whether the functionality of a computer program and the programming language can be regarded as the expression of a program and thus qualify for the protection provided for by Directive 91/250.

[15] – See the first subparagraph of Article 1(1), in Part Two of the Proposal for a Directive, entitled 'Particular provisions'.

[16] – See point 2.3 of the Proposal for a Directive.

[17] – See point 2.5 of the Proposal for a Directive.

[18] – Case C-393/09 [2010] ECR I-0000.

[19] – Paragraph 35.

[20] – Paragraph 38.

1. Copyright protection for the functionalities of a computer program

52. The functionality of a computer program can be defined as the set of possibilities offered by a computer system, the actions specific to that program. In other words, the functionality of a computer program is the service which the user expects from it.

53. In my view, the functionalities of a computer program cannot, as such, form the object of copyright protection under Article 1(1) of Directive 91/250.

54. Let me give a specific example. Where a programmer decides to develop a computer program for airline ticket reservations, that software will contain a multitude of functionalities needed to make a booking. The computer program will have to be able, in turn, to find the flight requested by the user, check availability, book the seat, register the user's details, take online payment details and, finally, edit the user's electronic ticket. [21] All of those functionalities, those actions, are dictated by a specific and limited purpose. In this, therefore, they are similar to an idea. It is therefore legitimate for computer programs to exist which offer the same functionalities.

55. There are, however, many means of achieving the concrete expression of those functionalities and it is those means which will be eligible for copyright protection under Directive 91/250. As we have seen, creativity, skill and inventiveness manifest themselves in the way in which the program is drawn up, in its writing. The programmer uses formulae, algorithms which, as such, are excluded from copyright protection [22] because they are the equivalent of the words by which the poet or the novelist creates his work of literature. [23] However, the way in which all of these elements are arranged, like the style in which the computer program is written, will be likely to reflect the author's own intellectual creation and therefore be eligible for protection.

56. Moreover, this analysis appears to be confirmed by the preparatory work which led to Directive 91/250. In its Proposal for a Directive, the Commission explains that the main advantage of protecting computer programs by copyright is that such protection covers only the individual expression of the work and thus leaves other authors the desired latitude to create similar or even identical programs provided that they refrain from copying. [24] This is particularly important

[21] – See the judgment of the High Court of Justice of England and Wales of 30 July 2004 in *Navitaire Inc.* v *Easyjet* [2004] EWHC 1725 (Ch), paragraphs 116 and 117.

[22] – See the fourteenth recital and Article 1(2) of Directive 91/250.

[23] – See point 2.4 of the Proposal for a Directive.

[24] – See point 3.7 of the Proposal for a Directive.

because the number of available algorithms on which computer programs are based is considerable but not unlimited. [25]

57. To accept that a functionality of a computer program can be protected as such would amount to making it possible to monopolise ideas, to the detriment of technological progress and industrial development.

58. Moreover, it is my understanding that the referring court is asking whether the reproduction of aspects of the source code, which relate to the functionality of a computer program, in the source code of another computer program constitutes an infringement of the author's exclusive copyright in the first program.

59. In my view, as is the case with other works that may be protected by copyright, the fact of reproducing a substantial part of the expression of the functionalities of a computer program may constitute an infringement of copyright.

60. In *Infopaq International*, [26] the Court held that the various parts of a work enjoy protection under Article 2(a) of Directive 2001/29, provided that they contain some of the elements which are the expression of the intellectual creation of the author of the work. [27] Given that the computer program must be regarded as a literary work in its own right, [28] the same analysis must be adopted in relation to the elements that constitute the expression of its author's own intellectual creation.

61. In addition, the referring court asks whether the nature and extent of a functionality of a computer program reproduced in another computer program, or the level of detail to which that functionality has been reproduced, may have an impact on such an analysis.

62. I do not think that this is the case.

63. Let us return to the example of the computer program for the reservation of airline tickets. The structure of the program will define the program's functionalities and describe the combination of those functionalities. The very function of the program, that is to say, to enable the user to obtain an airline ticket, will dictate that combination. It will have to enable the user to check whether the flight exists and, if so, on what date and at what time, whether there are any seats left, and so on. Whatever its nature and scope may be, it is my view that the functionality, or indeed the combination of several functionalities, continues to be comparable to an idea and cannot therefore be protected, as such, by copyright.

[25] – *Idem*.

[26] – Case C-5/08 [2009] ECR I-6569.

[27] – Paragraph 39.

[28] – See Article 1(1) of Directive 91/250. See also Article 1(2) of the Proposal for a Directive.

64. Similarly, it is my opinion that the foregoing analysis cannot be called in question by the nature and extent of the skill, judgment and labour expended in devising the functionality of a computer program.

65. It should be recalled that Article 1(3) of Directive 91/250 provides that a computer program is to be protected if it is original in the sense that it is the author's own intellectual creation. That provision states that no other criteria are to be applied to determine its eligibility for protection. [29] In particular, the eighth recital in the preamble to that directive states that, in respect of the criteria to be applied in determining whether or not a computer program is an original work, no tests as to the qualitative or aesthetic merits of the program should be applied.

66. I take the view, therefore, that, in order to determine whether a computer program is eligible for legal protection under copyright, account should be taken not of the time and work devoted to devising the program nor of the level of skill of its author but of the degree of originality of its writing.

67. In this case, it will be for the national court to examine whether, in reproducing the functionalities of the SAS components, WPL reproduced, in its WPL System, a substantial part of the elements of those components which are the expression of the intellectual creation of the author of those components.

2. Copyright protection for the programming language

68. The referring court also asks whether the programming language of a computer program may be protected by copyright under Directive 91/250. [30] WPL has, after all, designed its WPL system in such a way that it is able to interpret and execute instructions written in SAS language.

69. As we have seen, a computer program is first compiled in the form of a source code. That code is written in a programming language which will act as a translator between the user and the computer. It enables the user to write instructions in a language that he himself understands. The referring court explains that SAS language consists of statements, expressions, options, formats and functions expressed in tokens, that is to say, strings of characters used in accordance with certain conventions. One of the main types of token in SAS language is names, for example, LOGISTIC and UNIVARIATE. The referring court adds that SAS language has its own syntax and keywords. [31]

70. According to Patrick Roussel, 'a programming language as such is similar to a scientific work, a theoretical construction the purpose of which is to organise,

[29] – See also Article 1(3) of the Proposal for a Directive.

[30] – See paragraphs 67 to 69 of the order for reference.

[31] – See paragraph 11 of the order for reference.

define and convey knowledge with the aim of writing software sources in a wording which can be understood by human beings and can be easily transformed into instructions performed by a computer. The programming language devises specific methods to be used and facilitates the thinking necessary in order to write and formalise computer source programs. Its purpose, unlike that of a program, is not to get a computer to produce a particular result but to set the rules for formulating a program which will enable a result to be achieved'. [32]

71. It seems to me, therefore, that programming language is a functional element which allows instructions to be given to the computer. As we have seen with SAS language, programming language is made up of words and characters known to everyone and lacking any originality. In my opinion, programming language must be regarded as comparable to the language used by the author of a novel. It is therefore the means which permits expression to be given, not the expression itself.

72. Accordingly, I do not think that it can, as such, be regarded as the expression of a computer program and thus be eligible for copyright protection under Directive 91/250.

73. In my view, the foregoing analysis is not called into question by the fact that the fourteenth recital in the preamble to that directive states that, to the extent that logic, algorithms and programming languages comprise ideas and principles, those ideas and principles are not protected under the directive. SAS Institute considers that, if interpreted *a contrario*, that recital shows that the programming language is not excluded from copyright protection on computer programs.

74. As I see it, in reality, that recital simply restates the principle that copyright protects the expression of ideas rather than the ideas themselves. Programming language cannot therefore be protected as such. On the other hand, given that the source code of a computer program is written in a programming language, it is that expression by the programming language that will be eligible for protection under Article 1 of Directive 91/250.

75. In the light of the foregoing, I consider that programming language as such does not constitute a form of expression of the computer program which is eligible for copyright protection under that provision.

76. In the light of all the foregoing considerations, I take the view that Article 1(2) of Directive 91/250 is to be interpreted as meaning that the functionalities of a computer program and the programming language are not eligible, as such, for copyright protection. It will be for the national court to examine whether, in reproducing those functionalities in his computer program,

[32] – See Roussel, P., 'La maîtrise d'un langage de programmation s'acquiert par la pratique', *Revue Communication Commerce électronique* No. 4, April 2005, study 15.

the author of the program has reproduced a substantial part of the elements of the first program which are the expression of its author's own intellectual creation.

B – *Protection for the formats of data files by Article 1(2) of Directive 91/250*

77. By its question, the referring court asks whether, in essence, WPL has committed an infringement of copyright by deciphering enough of the format of the SAS data files to be able to write a source code, in its own computer program, which reads and writes data files in the same format.

78. That question prompts me to consider in turn the questions whether, as a logic interface, [33] the format of data files is an expression of the computer program eligible for protection under Directive 91/250 and whether, in that capacity, it may be subjected, under Article 6 of the directive, to an act of decompilation with a view to achieving interoperability between the elements of different computer programs.

79. SAS Institute describes the formats of data files as follows. The SAS System stores data in files and retrieves data from them. To do so, the system uses a number of data formats, formats which have been devised by SAS Institute. Those formats may be regarded as blank forms which are to be filled with the customer's data by the SAS System and which contain specific locations in which particular information must be written in order for the system to read and write the file correctly. [34]

80. To enable its program to access the user data stored in the SAS data file format, WPL has designed its program in such a way that it can understand and interpret that format.

81. As I see it, Directive 91/250 does not exclude interfaces from copyright protection. It merely states, in the thirteenth recital, that ideas and principles which underlie the various elements of a program, including those which underlie its interfaces, are not protected by copyright under the directive.

82. Like SAS Institute, I take the view that the format of SAS data files is an integral part of its computer program. Furthermore, the eleventh recital in the preamble to Directive 91/250 states that the parts of the program which provide for interconnection and interaction between elements of software and hardware are generally known as 'interfaces'. As part of the computer program, the interface – here, the elements which create, write and read the format of SAS data files – is therefore expressed in source code in the program. Consequently, if the expression of the interface constitutes a substantial part of the expression of the

[33] – The parties and the referring court appear to accept that the format of SAS data files is a logic interface.

[34] – See paragraph 96 of SAS Institute's written observations.

computer program, as we have seen in points 59 and 60 of this Opinion, it is eligible for copyright protection under Directive 91/250.

83. That said, the question now is whether, under Article 6 of Directive 91/250, WPL was entitled to perform an act of decompilation in order to achieve interoperability between the SAS System and its WPL System.

84. The interface allows there to be interoperability – that is to say, the ability to exchange information and mutually to use that information [35] – between elements of different computer programs.[36] Article 6(1) of Directive 91/250 provides, subject to certain conditions, that the authorisation of the holder of copyright in a computer program is not to be required where reproduction of the code and translation of its form within the meaning of Article 4(a) and (b) of the directive are indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs. This is known as decompilation.

85. Article 6(1) of Directive 91/250 constitutes an exception to the exclusive copyright held by the author of a computer program and, in my view, is to be interpreted strictly. In this regard, the European Union legislature was at pains to specify, in the twenty-first and twenty-third recitals in the preamble to the directive, that decompilation may be contemplated in very specific circumstances only and may not be used in such a way as to prejudice the legitimate interests of the rightholder or to conflict with a normal exploitation of the program.

86. Consequently, decompilation may be considered where it is performed by the licensee, where the information necessary to achieve interoperability has not previously been made readily and promptly accessible to the licensee and where it is confined to the parts of the original program which are necessary to achieve interoperability. [37]

87. In my view, the use of the terms ‘indispensable’ and ‘necessary’ illustrates the desire of the European Union legislature to make decompilation an exceptional act. To my mind, the licensee will have to demonstrate the absolute necessity of reproducing the code or of translating the form of the code for the purposes of interoperability with the elements of his own program.

88. Finally, it is my view that decompilation must not have the effect of enabling the licensee to recopy the code of the computer program in his own program. Article 6(1) of Directive 91/250 provides that such a process may be

35 – See the twelfth recital in the preamble to Directive 91/250.

36 – See the eleventh recital in the preamble to that directive.

37 – See Article 6(1)(a) to (c) of Directive 91/250.

used '*to obtain the information necessary to achieve ... interoperability*' [38] between elements of different computer programs. It does not provide for authorisation to recopy the code of the computer program.

89. In any event, it will be for the national court to examine whether the conditions listed in Article 6(1)(a) to (c) of that directive are met.

90. In the light of the foregoing, it is my view that Articles 1(2) and 6 of Directive 91/250 are to be interpreted as meaning that it is not regarded as an act subject to authorisation for a licensee to reproduce a code or to translate the form of the code of a data file format so as to be able to write, in his own computer program, a source code which reads and writes that file format, provided that that act is absolutely indispensable for the purposes of obtaining the information necessary to achieve interoperability between the elements of different programs. That act must not have the effect of enabling the licensee to recopy the code of the computer program in his own program, a question which will be for the national court to determine.

C – *Scope of Article 5(3) of Directive 91/250*

91. The referring court seeks to ascertain, in essence, whether the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' in Article 5(3) of Directive 91/250 covers only the acts which the holder of the licence to use a computer program is authorised to perform under that licence and whether the purpose for which these acts are performed has an impact on the licensee's ability to rely on that exception.

92. The purpose of that provision is clear. The acts of observing, studying or testing the functioning of a computer program serve to determine the ideas and principles which underlie any element of the program. That provision is an extension of the principle set out in Article 1(2) of the directive, which states that the ideas and principles which underlie any element of a computer program are not protected by copyright.

93. In my view, the effectiveness of Article 5(3) of Directive 91/250 lies in the fact that it ensures that the holder of rights in a computer program does not, by means of contractual clauses, indirectly protect the ideas and principles underlying that program. In this regard, the second sentence of Article 9(1) of Directive 91/250 states that any provisions contrary to Article 5(3) of the directive are to be null and void.

94. However, although the latter provision enables the person authorised to do so to determine the ideas and principles which underlie any element of a computer

[38] – My emphasis.

program, the fact remains that it circumscribes that possibility. [39] Thus, that person may observe, study or test the functioning of the program within the limits of *the acts which he is entitled to perform*. [40]

95. It is my view that the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' relates to the acts authorised under Articles 4(a) and (b) and 5(1) of Directive 91/250. The exclusive rights of the rightholder include the right to perform or to authorise certain acts. [41] The rightholder is the only person able to determine those acts in the licence that he grants. For example, he may authorise the reproduction of his computer program but not its translation or adaptation.

96. Moreover, Article 5(1) of Directive 91/250 provides that, in the absence of specific contractual provisions, certain acts do not require authorisation from the rightholder where they are necessary to enable the lawful acquirer to use the computer program in accordance with its intended purpose, including for the purposes of correcting errors. The European Union legislature was at pains to make clear, in the seventeenth recital in the preamble to Directive 91/250, that the acts of loading and running necessary for that use may not be prohibited by contract.

97. Consequently, in the light of the foregoing, I consider that the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' relates to the acts for which that person has obtained authorisation from the rightholder and to the acts of loading and running necessary in order to use the computer program in accordance with its intended purpose.

98. The referring court also asks whether the purposes for which the functioning of a computer program was observed, studied or tested [42] have any impact on the possibility of relying on the exception provided for in Article 5(3) of Directive 91/250.

99. As we have seen, the purpose of that provision is to make it possible to determine the ideas and principles which underlie any element of a computer program, but without the exclusive rights of the author of the program being prejudiced.

[39] – See also the eighteenth recital in the preamble to Directive 91/250.

[40] – My emphasis.

[41] – Article 4(a) and (b) of the directive.

[42] – Those purposes are listed in question 7(a) to (g).

100. To my mind, it is clear from the wording and scheme of that provision that it may not have the effect of enabling the person having a right to use a copy of a computer program to access information which is protected by copyright, such as the source code or the object code.

101. Consequently, in the light of the foregoing considerations, it is my view that Article 5(3) of Directive 91/250, read in conjunction with Articles 4(a) and (b) and 5(1) thereof, is to be interpreted as meaning that the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' relates to the acts for which that person has obtained authorisation from the rightholder and to the acts of loading and running necessary in order to use the computer program in accordance with its intended purpose. Acts of observing, studying or testing the functioning of a computer program which are performed in accordance with that provision must not have the effect of enabling the person having a right to use a copy of the program to access information which is protected by copyright, such as the source code or the object code.

D – *Protection for the user manual of a computer program under Article 2(a) of Directive 2001/29*

102. By its questions, the referring court seeks to ascertain, in essence, whether Article 2(a) of Directive 2001/29 is to be interpreted as meaning that the reproduction, in a computer program or a user manual, of certain elements described in the user manual for another computer program constitutes an infringement of the copyright in the latter manual.

103. The SAS Manuals are technical works which exhaustively document the functionality of each part of each SAS component, the necessary inputs and, where appropriate, the expected outputs. They serve a utilitarian purpose and are designed to give users a large amount of information about the external behaviour of the SAS System. They do not contain information about the internal behaviour of the system.

104. The referring court states that each SAS Manual is an original literary work which enjoys copyright protection under Directive 2001/29.

105. Article 2(a) of that directive grants authors the exclusive right to authorise or prohibit the reproduction of their works 'by any means and in any form'. In my view, the fact that the alleged infringement also concerns the reproduction of manuals to create a work taking a different form, such as a computer program, does not exclude such reproduction from the scope of that directive.

106. In *Infopaq International*, the Court has already had occasion to rule on the scope of the protection provided for in Article 2 of Directive 2001/29. It stated that, according to recital 21 of that directive, acts covered by the reproduction right must be understood in a broad sense. That requirement of a broad definition

of those acts is, moreover, also to be found in the wording of Article 2 of the directive, which uses expressions such as ‘direct or indirect’, ‘temporary or permanent’, ‘by any means’ and ‘in any form’. [43]

107. Consequently, the protection conferred by Article 2 of Directive 2001/29 must have a scope which, in my opinion, includes both the reproduction of certain elements in the manual for another computer program and that in the computer program itself.

108. The question now is whether, by including in the WPL Manual and the WPL System certain elements contained in the SAS Manuals, WPL infringed the copyright held by SAS institute in the latter manuals.

109. As we saw in point 43 of this Opinion, copyright is guided by the principle that copyright protection extends to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.

110. In this case, the referring court states that WPL has, in particular, taken the keywords, syntax, commands and combinations of commands, options, defaults and iterations from the SAS Manuals in order to reproduce them in its program, as well as in the WPL manual.

111. In my opinion, these elements, as such, do not qualify for the protection conferred by copyright.

112. With regard to the programming language, we saw in points 69 and 70 of this Opinion that it is made up of words and characters and that it has its own rules of syntax and uses its own keywords.

113. The options provided for in connection with various commands constitute a form of sub-behaviour in relation to a given command. Those sub-behaviours allow the details of the behaviour requested to be verified. This can be achieved by adding words after the command name.

114. The defaults implemented in the event that a particular command or option is not specified by the user enable the SAS System to allow command names, options or data names to be omitted in certain circumstances, the defaults filling the gaps so created.

115. With respect to the selection of statistical operations, it is clear from the observations submitted by WPL that the execution of statistical operations is prompted by the writing of instructions in SAS language. The SAS Manuals include a description of each statistical operation which is added to the successive versions of the SAS System. The WPL system offers the same selection of statistical operations to users writing application programs in SAS language. The

[43] – Paragraphs 41 and 42.

WPL System does not reproduce the description of those statistical operations but simply executes them.

116. WPL further submits that the mathematical formulae presented in the SAS Manuals describe the output to be calculated on the basis of the input. This is not the program code necessary in order to perform a series of calculations. A mathematical formula can be implemented in numerous ways. The WPL programmers have written a source code capable of performing the calculations as described in the mathematical formulae.

117. Finally, the SAS System contains a specific statistical operation terminating on eight iterations. Since that value has an impact, according to WPL, on the final outcome, the programmers, after reading the SAS Manuals, created a source code which is also capable of performing eight iterations.

118. In my view, it follows from the foregoing considerations that those various components correspond to ideas, procedures, methods of operation or mathematical concepts. Consequently, they are not, as such, eligible for the copyright protection conferred by Article 2(a) of Directive 2001/29.

119. The expression of these ideas, procedures, methods of operation or mathematical concepts, on the other hand, is eligible for protection under that provision if it is original in nature.

120. It is only through the choice, sequence and combination of such elements that the author may express his creativity in an original manner and achieve a result which is an intellectual creation. [44]

121. In any case, it will be for the national court to examine whether that is the case in these proceedings.

122. In the light of the foregoing, I propose that the Court rule that Article 2(a) of Directive 2001/29 is to be interpreted as meaning that the reproduction, in a computer program or a user manual, of certain elements described in the manual for another computer program may constitute an infringement of the copyright in the latter manual if – a question which will be for the national court to determine – the elements reproduced in this way are the expression of their author's own intellectual creation.

V – Conclusion

123. In the light of the foregoing considerations, I propose that the Court answer the questions referred by the High Court of Justice of England and Wales (Chancery Division) as follows:

[44] – See *Infopaq International* (paragraph 45).

(1) Article 1(2) of Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs is to be interpreted as meaning that the functionalities of a computer program and the programming language are not eligible, as such, for copyright protection. It will be for the national court to examine whether, in reproducing these functionalities in its computer program, the author of the program has reproduced a substantial part of the elements of the first program which are the expression of the author's own intellectual creation.

(2) Articles 1(2) and 6 of Directive 91/250 are to be interpreted as meaning that it is not regarded as an act subject to authorisation for a licensee to reproduce a code or to translate the form of the code of a data file format so as to be able to write, in his own computer program, a source code which reads and writes that file format, provided that that act is absolutely indispensable for the purposes of obtaining the information necessary to achieve interoperability between the elements of different programs. That act must not have the effect of enabling the licensee to recopy the code of the computer program in his own program, a question which will be for the national court to determine.

(3) Article 5(3) of Directive 91/250, read in conjunction with Articles 4(a) and (b) and 5(1) thereof, is to be interpreted as meaning that the expression 'any of the acts of loading, displaying, running, transmitting or storing the computer program [which the person having the right] is entitled to do' relates to the acts for which that person has obtained authorisation from the rightholder and to the acts of loading and running necessary in order to use the computer program in accordance with its intended purpose. Acts of observing, studying or testing the functioning of a computer program which are performed in accordance with that provision must not have the effect of enabling the person having a right to use a copy of the program to access information which is protected by copyright, such as the source code or the object code.

(4) Article 2(a) of Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society is to be interpreted as meaning that the reproduction, in a computer program or a user manual, of certain elements described in the manual for another computer program may constitute an infringement of the copyright in the latter manual if – a question which will be for the national court to determine – the elements reproduced in this way are the expression of their author's own intellectual creation.