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Case **G 3/08** President's Referral relating to
Patentability in the Field of Computing

Dear Sirs:

I hereby submit an *amicus curiae* brief with respect to the above-captioned Referral. I would appreciate if the following considerations are taken into account in the process of finding appropriate answers to the President's questions raised in the Referral.

1. General remarks

1.1 The legal provisions and the existing case law relevant for the above Referral are well known and have been discussed extensively in other documents submitted for the case. No further comments are deemed to be necessary.

1.2 Unfortunately, the Referral defines the context of the questions with a main focus on *computer programs*. In particular, it refers to "the law regarding the patentability of

computer programs according to the EPC" (Summary of the Referral, page 2, final paragraph). Questions 1 and 2 explicitly mention a "claim directed to a computer program" and a "claim in the area of computer programs", respectively. In contrast, questions 3 and 4 are drafted more generally, i.e. without an explicit reference to a *computer program*.

While patentability of a claim directed to a *computer program* is certainly of high interest in view of the well-known exclusion in Art. 52(2)(c) EPC, limiting the discussion to *computer programs* would blind out important issues which are not literally related to a *computer program*. This would be in contrast to the President's intention to achieve more clarity in the field.

I would therefore suggest to use the term *Computer Implemented Invention* (CII), which is already used by the EPO in official statements, in order to more properly define the dimension of the field addressed by the Referral. In particular, questions 3 and 4 and the respective answers will have an effect not only on claims mentioning a *computer program*, but on any kind of claim directed to a CII, as will be seen from the following.

1.3 In section 2, the Referral defines a computer program as a series of steps (instructions) which will be carried out by the computer when the program is executed. A computer is understood to include any programmable apparatus, not only devices which are generally thought of as a computer. The term computer program is considered synonymous with the terms "software" and "program for a computer". I agree with these definitions.

However, a method which can be implemented partly or wholly by a computer and/or by an apparatus configured to execute a computer program can be claimed without literal reference to a computer program, such as in the form of an appropriate method and/or apparatus claim just citing method steps or apparatus features. Therefore and with respect to the more general nature of question 3, it is desirable to discuss patentability of a CII instead of patentability of a computer program. The discussion with respect to a CII encompasses the issue of patenting computer programs.

A CII is considered any invention that is typically or will typically be implemented using a programmable computer and an appropriate software (computer program). A patent or patent application directed to a CII might comprise a claim directed to a computer program in accordance with T 1173/97, but it will typically comprise method and/or apparatus claims, too. A claim directed to a computer program often refers to preceding method claims, so that the criteria of novelty and inventive step are primarily assessed on the basis of method claims.

1.4 Patentability of CIIs has found an enormous public interest, as evidenced by the Boards own invitation to submit *amicus curiae* briefs. There is a considerable amount of criticism, and in many cases critics refer to "trivial patents" in their reasoning why patents on CIIs should be denied. It should be observed, however, that the problem of trivial patents is not limited to CIIs. Patents on inventions which may be considered trivial can also occur in other fields of technology. According to my opinion, triviality should be handled by an appropriate assessment of the inventive step, because it is the core question in the inventive step assessment, regardless of the field of technology, whether or not a subject matter claimed was obvious for the skilled person. A clear distinction between the different requirements for patentability as identified by T 154/04, namely the fundamental requirement of an invention in addition to the further requirements of novelty, inventive step and industrial applicability, is desirable from a practitioner's point of view in order to facilitate predictable results.

2. Computer programs as such

2.1 A core issue in the discussion of patentability of CIIs is the exclusion of "computer programs as such" defined in Art. 52(2)(c), (3) EPC. There is a lot of case law of the Boards of Appeal addressing this exclusion. Prof. Sterckx provided a readable overview of the existing case law in section 3 of her *amicus curiae* brief of March 30, 2009. Three basic approaches were identified, namely the *contribution* approach, the *strictly literal* approach and the *technical character* approach. The *technical effect* approach, which seems to be the most recent

one in the case law of the Boards of Appeal, focuses on the question of whether or not the subject matter claimed has a technical effect or technical character. If this is answered in the positive, the subject matter is considered patentable, provided that the additional requirements of novelty, inventive step and industrial applicability are also fulfilled. According to T 1173/97, this also applies to a claim directed to a computer program or a claim directed to a computer program product comprising a computer program stored on a data carrier. Accordingly, the exclusion of "computer programs as such" is primarily examined with respect to a technical effect of the subject matter claimed.

2.2 According to my opinion, the *technical effect* approach generally leads to reasonable and largely predictable results (not considered any triviality issues, which should be dealt with under Art. 56 EPC). Nevertheless, I propose a different approach, which seems more convincing to me in view of the existing legal framework. The practical results, i.e. the outcome of the decisions would likely be the same as with the *technical effect* approach, provided that the inventive step requirement is appropriately applied in both cases. However, there might be differences that I do not overlook at the moment.

2.3 Art. 10 of the TRIPS Agreement, which does not directly apply to the EPO but is practically considered in the discussion of CIIs by the Boards of Appeal, provides that computer programs shall be protected as literary works under the Berne Convention. As far as I can see, this kind of protection for computer programs is undisputed and even referred to by critics of patent protection for CIIs. The Berne Convention suggests copyright protection for computer programs. That means that a computer program is protected under the same rationale as other literary works, such as a poem or a novel. Protection is granted for and based on the individual creativity that characterizes a specific literary work. While the protected creativity can only be perceived when the work is embodied in a specific realization, protection is nevertheless granted for the immaterial creativity, which is only expressed by the specific embodiment. Not less, not more.

Copyright protection does not extend to the general concept or the general idea behind a specific creative embodiment. In contrast, it is independent from any underlying general concept, as can be seen from the fact that "an old story" can still be written in a creative way that confers copyright protection. The same applies to computer programs. A long known method or a well-known algorithm can still be implemented in a new program that enjoys the benefit of copyright protection.

A certain algorithm or, more general, a method can be practically implemented on a computer by a plurality of different computer programs, such as the old story of love can be pictured in a plurality of different poems. The respective programs might differ by the programming language used, but they certainly differ by individual characteristics resulting from the individual creativity of the respective programmer. Just as two poets writing about love, two programmers requested to write a computer program for implementing a certain method will write different programs, provided that the method is large or complex enough to leave room for individual creativity in the programming process. Even if the two programmers use the same programming language, the outcome will be different depending on the individual preferences and experiences of the programmers.

This latter "complexity requirement" is inherently taken into account in the copyright protection, because a program that is too short and too easy will hardly be considered as possessing the level of creativity required for enjoying copyright protection. There must be room for individual creativity, and what is protected is just that individual creativity.

2.4 If copyright protection for a computer program is granted for the individual creativity, as explained above, and protection is independent from the general underlying concept, I suggest that the exclusion of "computer programs as such" in Art. 52 (2)(c),(3) EPC excludes from patent protection exactly those characteristics of a computer program that represent the individual creativity. Not less, not more. The general method behind a specific computer program is not excluded as a "computer program as such", even if the method is claimed

in the form of a CII. This must also apply to a claim directed to a computer program, provided that the scope of protection granted by the claim is not defined by just those characteristics which are merely the result of the programmer's individual creativity. In other words, the "beauty" of a specific computer program resulting from a programmer's creativity cannot be protected by a patent, but the general method and a corresponding apparatus for which the specific computer program might be a means for practical implementation can. The immaterial individual creativity defines the computer program *as such*.

2.5 This proposed interpretation of the exclusion of computer programs as such conforms with the other exclusions defined in Art. 52(2) EPC, in particular aesthetic creations. An aesthetic creation is likewise protected by copyright, provided it achieves the required level in order to qualify as a work of art. If this level is not reached, it might be protected as an industrial design in accordance with Art. 25 of the TRIPS Agreement. In both cases, again, protection is granted for the immaterial creativity embodied in the aesthetic object. The object itself is a technical item, just as a book containing a poem or a data carrier containing a computer program, because the object itself obeys all natural forces, such as gravity. Nevertheless, the protection conferred by copyright or industrial design is immaterial or intangible.

2.6 The other items listed in Art. 52 (2) EPC are likewise immaterial or intangible. Therefore, it is my opinion that the general concept linking the exclusions in Art. 52(2) EPC is not so much the assumed lack of a technical effect, but lack of tangibility.[1] Accordingly, the scope of the exclusion defined by Art. 52 (2),(3) EPC should be determined on the basis of tangibility, and this leads to the above understanding of computer programs as such.

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[1] With respect to the desire of harmonizing substantial patent laws in the world, it should be observed that "tangibility" is an important requirement for patentability in the U.S.A, while the technical effect is not in the primary focus.

2.7 Prof. Sterckx might have addressed this approach for assessing the scope of the exclusion of Art. 52(2)(c), (3) EPC in section 8 of her *amicus curiae* brief. She rules out this approach for two reasons, namely (a) as an alleged disservice to the public, and (b) for the reason that all potentially infringing items are specific embodiments. As an alternative, Prof. Sterckx proposes a *mixed media claim* approach for assessing the exclusion in Art. 52(2)(c),(3) EPC, which means that a claim directed to an excluded computer program should be regarded as not excluded, if the claim comprises an additional feature that does not fall under the exclusion. According to my opinion, the practical result for the determination of the Art. 52(2)(c) (3) EPC requirement would be largely the same as with the approach proposed here, because the addition of a non-excluded feature, such as a material data carrier, to the claim language would arguably change the scope of the claim such that it cannot be construed as being merely directed to a programmer's immaterial creativity. Consequently, the difference between the *copyright* approach proposed here and Prof. Sterckx' *mixed media claim* approach seems to be more of an academic nature with respect to the practical outcome. Nevertheless, I prefer the *copyright* approach because it is more consistent with the overall legal frame. Therefore, a short comment to Prof. Sterckx's arguments against the *copyright* approach should be given.

Regarding argument (a), it is not specific for a computer program that distribution, use or manufacture might infringe another one's patent. There is no disservice to the public, because the public is not only informed about the provision of Art. 52(2)(c) EPC, but also about the provision of Art. 52(3) EPC. Picking one and leaving the other is not an appropriate approach for addressing legal questions. Regarding argument (b), granting a claim to a computer program does not circumvent the exclusion provided that the claim is not only defined by the immaterial creativity of the literary work. While a potentially infringing computer program most likely has an individual creativity, it will not be accused as an infringing product for just this characteristic, but for another characteristic, if present, namely an unauthorized use of a general method or concept protected by a patent.

Apart from this difference, however, I would like to point out that I concur with Prof. Sterckx as regards the importance of the inventive step assessment in the examination of a patent application directed to a CII.

3. Proposed response to the questions

3.1 **Question 1** reads:

Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?

In view of the above, I propose to answer question 1 with **yes**. However, it is not the pure wording of a claim, but the subject matter defined by the claim language. Accordingly, a claim directed to a computer program avoids the exclusion if it is not defined by features that reflect nothing but the programmer's individual creativity. For example, a claim directed to a computer program defined only by a number of specific code lines should be excluded because the code lines are the typical representation of a specific embodiment of a computer program expressing the programmer's creativity. In contrast, a claim directed to a computer program for carrying out a method defined by general steps not reflecting a programmer's individual creativity would avoid the exclusion. Again, it should be emphasized that this does not mean that such a claim is patentable, because the other criteria for patentability including inventive step have also to be observed.

On the other hand, I cannot imagine that a claim that does not explicitly claim a computer program will be construed as defining nothing but the intangible creativity. Therefore, citing non-creative features, such as a data carrier, should generally be sufficient, but this is not a necessary condition.

In this connection, enforceability of a patent should not be completely disregarded, although enforceability is not addressed by Art. 52 EPC. However, if a recognized invention can wrongfully be exploited by third parties, because

the economically important product is a software on a data carrier, the value of the patent system would easily be annulled. For example, a new method of operating a known machine is often commercially exploited by selling a software update for the operating program of the machine. A claim directed to the new method and a claim directed to the new machine would not be infringed directly by producing and selling the software update.

3.2 Question 2 reads

a) Can a claim in the area of computer programs avoid exclusion under Art. 52(2)(c) and (3) merely by explicitly mentioning the use of a computer or a computer-readable data storage medium?

(b) If question 2(a) is answered in the negative, is a further technical effect necessary to avoid exclusion, said effect going beyond those effects inherent in the use of a computer or data storage medium to respectively execute or store a computer program?

Question 2 addresses "a claim in the area of computer programs", which might be interpreted as a claim directed to a CII instead of a claim directed to a computer program only. However, question 2(a) only addresses the exclusion under Art. 52(2)(c), (3) EPC. Accordingly, question 2 also seems to address the exclusion of computer programs as such, not the general issue of CIIs.

Mentioning the use of a computer or a computer-readable data storage medium could be sufficient in order to overcome the exclusion in accordance with the interpretation proposed here, because the computer or the data storage medium do not define an immaterial creativity. But there might be situations where just mentioning a computer or a computer-readable data storage medium is not sufficient in order to define more than an individual creativity of a computer program. Again, the true scope of the respective claim has to be determined. Consequently, my proposed answer to **question 2(a) is no.**

In view of the above, the answer to **question 2(b)** is also **no**, although a further technical effect as defined by the case law of the Boards of Appeal is most likely sufficient in order to avoid the exclusion. However, the further technical effect is not a necessary condition, because all that matters is whether or not the claimed subject matter is directed to the individual creativity as characterization for a computer program.

3.3 **Question 3** reads

a) Must a claimed feature cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim?

(b) If question 3 (a) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?

(c) If question 3 (a) is answered in the negative, can features contribute to the technical character of the claim if the only effects to which they contribute are independent of any particular hardware that may be used?

Question 3 relates to CIIs in general regardless of the claim category or claim language. My proposed answer to **question 3(a)** is **no**. The invention as a whole has to fulfill the requirements for patentability including the requirement of Art. 52(1), which expressively cites the "all fields of technology" restriction since the amendment of the EPC 2000. A single feature mentioned in a claim might not cause a technical effect on a physical entity in the real world if taken alone, but it can nevertheless contribute to the technical character of the claim as a whole as a result of a relationship or interdependency with other claim features. For example, a claim feature might be "providing a database having more than one million data entries". If taken alone, one could argue that this feature does not contribute to a technical character or technical effect, because it is simply providing unspecified data. But in the context of the claim as a whole, the feature might relate to a method for processing huge amounts of data in an efficient manner, which allows the use of

low cost processors instead of highly sophisticated special purpose hardware. The feature might be required in order to quantify the "huge amount of data", and it can therefore contribute to the technical character of the claim as a whole. Attributing the technical effect to any claimed feature individually would bear the risk of forgetting the functional interdependencies of several claim features.

Following the answer to question 3(a), only **question 3(c)** has to be answered, and the proposed answer is **no**. If the only effect to which a claim feature contributes is independent of any particular hardware, such a feature has no effect in the real world, which is the world where natural forces apply. If no effect in the real world can be accorded to a specific claim feature, even in combination with other features, it does not contribute to the technical character of the claim as a whole.

3.4 **Question 4** reads

(a) Does the activity of programming a computer necessarily involve technical considerations?

(b) If question 4 (a) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?

(c) If question 4 (a) is answered in the negative, can features resulting from programming contribute to the technical character of a claim only when they contribute to a further technical effect when the program is executed?

My proposed answer to **question 4(a)** is **no**. Computer programming can take place on different levels in terms of knowledge and consideration of the computer hardware where the computer program is run. There are low level computer languages, such as assembler languages, which require a considerable amount of knowledge about the computer hardware where the program

should run. On the other hand, there are high level programming languages, which are largely independent of the hardware. Programming a computer in a high level programming language without any other technical considerations is possible, for example if the program does nothing else but calculating a mathematical formula. Writing such a program in a high level language does not require special hardware knowledge or any other knowledge relating to real world of natural forces. Accordingly, the activity of programming itself does not necessarily involve technical considerations, although it might involve some.

Question 4(b) is moot in view of the answer to question 4(a). My proposed answer to **question 4(c)** is also **no**, because Art. 52(1) EPC does not provide a basis for a distinction between a (primary) technical effect and a further technical effect. If a claim defines subject matter that has a technical effect, the requirement of Art. 52(1) EPC is fulfilled. The question whether or not the technical effect also deserves patent protection is a question of novelty, inventive step and industrial applicability.

I would be glad if the above thoughts find favorable consideration in the decision process. In view of the high political importance of the Referral in the public discussion of CIIs, I would like to emphasize that it is <u>not</u> my intention to extend patentability beyond the limits defined by the EPC, nor is it my intention to promote trivial patents in any way. Rather, it is my professional desire to arrive at a coherent interpretation of the existing legal provisions, thereby facilitating patent protection for those inventions that should actually be rewarded.

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