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Case G 3/08

Referral under Art 112(1)(b) EPC by the President of the European Patent Office to the Enlarged Board of Appeals - Patentability of Programs for Computers

On behalf of

Apple Inc.

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We submit this written statement in accordance with Article 10 of the Rules of Procedure of the Enlarged Board of Appeal (OJ EPO 2007, 303 ff) to address the points of law referred to by the President of the European Patent Office (hereafter: the Referral). This statement first summarizes Apple's position (Section I) and explains Apple's interest in the outcome of the Re-

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ferral (Section II), followed by Apple's views on the questions raised by the Referral (Section III). This brief does not address the admissibility of the Referral to the Enlarged Board of Appeals.

I.   Summary

1.   Apple's position is that the patent-eligibility of computer-related inventions should be judged based on the substance and technical merits of the invention, using the same standards that apply to other inventions, rather than using a formalistic approach that exalts the precise format or wording of the claims over the substance of the invention. Consistent with this position, Apple's basic response to the questions is as follows.

2.   The first question asks whether a computer program can only be excluded as a "computer program as such" if it is explicitly claimed as a computer program. Apple's position is that the patent-eligibility of a computer-related invention should be judged based on the merits of the invention (*e.g.*, its overall technical effect and/or technical features), rather than on whether the claims are or are not worded to explicitly claim a computer program.

3.   The second question asks about the significance of mentioning the use of a computer or computer-readable data storage medium in the claims. Apple's view is that inventions in the field of computer programs — as with inventions in other fields — should be judged based on whether they demonstrate a technical effect sufficient to avoid exclusion, not on whether the claims are worded to explicitly mention or not mention the use of a computer or a computer-readable data storage medium.

4. The third question asks whether a claimed feature must cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim. Apple's view is that the answer is "yes," provided that "*physical entity in the real world*" is understood broadly to encompass both hardware and digital structures. If the phrase is not understood to include digital structures, then the answer should be "no," because technical effects should not be limited to technical effects on hardware alone.

5. The fourth question asks whether the activity of computer programming involves technical considerations. Apple's view is that the activity of programming generally involves technical considerations, and can also produce features that contribute to technical character by solving technical problems.

II. Apple's Interest in the Outcome of the Referral

1. Apple designs, manufactures, and markets personal computers, portable digital music players, and mobile communication devices and sells a variety of related software, services, peripherals, and networking solutions.[1] The company has approximately 32.000 full-time equivalent employees. Its sales quadrupled within the last five years, amounting to about US $32 billion in 2008. Although headquartered in California, Apple has a strong presence in Europe. Final assembly of Apple products is performed in Apple's manufacturing facility in Ireland, and by

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[1] Further information about Apple is available in its Annual Report 2008, available at http://idea.sec.gov/Archives/edgar/data/320193/000119312508224958/0001193125-08-224958-index.idea.htm

external vendors in the Czech Republic. Europe accounted for 23% of Apple's total net sales in 2008.

2.   Apple believes it is unique in that it designs and develops nearly the entire solution for its personal computers, consumer electronics, and mobile communication devices, including the hardware, operating system, and several software applications. As a result, the company must make significant investments in research and development, with expenditures totalling US $1.1 billion in 2008. Apple regularly files patent applications to protect inventions arising from its research and development, and holds rights to patents relating to certain aspects of its computer systems, media players, mobile communication devices, peripherals, and software.

3.   In recent years, Apple has focused on various handheld products including the iPod and the iPhone, which enjoy great popularity among European consumers. Their success is based on innovative functions and a remarkably high degree of user friendliness, which are made possible by various novel hardware and software features. Apple faces competition from numerous companies that have quickly attempted to imitate some of the iPod's and iPhone's functions and applications within their own media players and smart phones. Many of these companies seek to compete primarily through aggressive pricing and very low cost structures, rather than by investing in the development of new products and features. Therefore, Apple's ability to maintain a competitive advantage and to continue to develop and sell innovative new products depends in part on the availability of patent protection for its inventions in the field of computing.

4. Apple's general policy is to promote a fair and modern patent system. Apple generally supports the balanced approach taken by the European Patent Convention (EPC) relative to modern technologies: patents should only be granted for inventions that have a technical character. Under the present examination practice in the European Patent Office, based on the case law of the Boards of Appeal, patent protection is available for most inventions in the field of computing provided that they make a technical contribution to the art. Apple supports this current, reasonable approach of the European Patent Office.

5. The questions posed by the Referral relate to the availability of patent protection for computer implemented inventions. In light of its extensive investment and inventive activity in this area, and its substantial presence in Europe, Apple has a strong and direct interest in the outcome of this Referral.

III. Apple's Substantive Comments on the Referred Questions

III.1 Apple's Comments on Question 1

Question 1: *Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?*

Brief Answer: The patent eligibility of a computer-related invention under Art. 52(2) and 52 (3) EPC should be judged based on the merits of the invention (*e.g.*, its overall technical effect and/or technical features), rather than on whether the claims are or are not worded to explicitly claim a computer program.

Reasoning:

1. It is the established case law in the European Patent Office that the claimed invention as a whole must have a technical character to be patentable. Technical character is demonstrated when a technical problem has been solved and/or the claim comprises technical means.[2]

2. In the case of a computer implemented invention, it has been held that "normal" technical interactions between the program and the computer are not sufficient to establish the technical character; instead, it is required that the computer-implemented invention produces a "further technical effect."[3]

3. For an invention causing a further technical effect, the exclusion of Article 52(2), (3) EPC does not apply, since the exclusion relates to non-technical subject matter only and should be construed narrowly in view of the "as such" constraint. This "as such" constraint has been maintained in EPC 2000 by the Diplomatic Conference, and, therefore, clearly seems to indicate that it has definitely <u>not</u> been and <u>still is not</u> the intention of the legislator to <u>exclude all computer programs</u> from patentability.

4. Therefore, if such a further technical effect can be identified – which defines a corresponding objective technical problem – the invention has

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[2] For a recent comprehensive summary, see. *e.g.*, T 154/04 Estimating sales activity/DUNS. The German Federal Court of Justice has adopted the same basic approach and requires the solution of a concrete technical problem, e.g. BGH GRUR 2004, 667 - Elektronischer Zahlungsverkehr

[3] This brief does not address whether a "further technical effect" should be required to determine the patentability of computer-implemented inventions.

the required technical character and is entitled to patent protection. Of course, further requirements for patentability (novelty, inventive step) should be met as well.

5.   The legal term *"computer program as such"* in Article 52(2)(c) and (3) EPC must be construed in accordance with the purpose of the European patent system, which requires a technical character[4] for an invention to be eligible for patent protection. The legal term *"computer program as such"* cannot be treated as identical to the technical term *"computer program"* (for example, a series of instructions for a computer to bring about a defined result), because that would imply the **"as such"** language in Article 52 (3) EPC has no purpose.

6.   The Referral defines a *"computer program"* in accordance with the technical understanding,[5] disregarding its legal context and established interpretation by the EPO Boards of Appeal and the national courts.

7.   If the excluded category of *"computer programs as such"* were treated as encompassing claims tied to any *"computer program"* or on a medium, this would unduly limit the enforcement of patents on computer related inventions by excluding enforcement for direct infringement. For example, this approach could prevent enforcement of a program that implements an invention with a technical character and that is comparable in function to a hardware implementation, such as with Application Specific Integrated Circuits (ASIC's).

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[4] T 1173/97 Computer program product/IBM; BGH GRUR 2002, 143 - Fehlerhafte Zeichen-ketten

8.   Therefore, if a computer-implemented invention is found to be patentable, the applicant should have the right to claim the computer implemented invention in all its aspects, as a method, a system, a computer program comprising means to execute the method,[6] using formats such as the computer program by itself, a computer program product or a computer program stored on a computer-readable medium.[7] Without a technical character, none of these claim formats will be allowed and in particular a claim directed to a method will equally be rejected.

III. 2 Apple's Comments on Question 2

Question 2:   *(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?

Brief Answer: As with inventions in other fields, inventions in the field of computer programs should be judged based on whether they demonstrate a technical effect sufficient to avoid exclusion, not on whether the claims are worded to explicitly mention or not mention the use of a computer or a computer-readable data storage medium.   Thus, a claim in the computer pro-

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[5] It should be noted that the Referral's technical definition of "computer program" is also incomplete because it does not include the purpose or functionality that a "sequence of instructions" is intended to perform.

[6] According to national law, e.g. German Federal Court of Justice decision BGH GRUR 2006, 748 - Mikroprozessor the applicant is entitled to claim all formats that adequately protect his invention; otherwise the scope of protection in enforcement is limited accordingly.

[7] Cf. Guidelines C-IV 2.3.6

gramming field *can* avoid exclusion under Art. 52(2)(c) and (3) EPC by explicitly mentioning the use of a computer or a computer-readable data storage medium, provided that the claimant demonstrates a technical effect. That said, question 2(b) should also be answered in the positive, since a further technical effect must be demonstrated later in the examination to establish the inventive activity in the field of technology.

Reasoning:

1.   Apple believes that the second question should be answered in the same vein as the first question. The claimed invention as a whole must have a technical character. The format of claiming thus becomes irrelevant for the assessment of patentability.

2.   Method claims and claims directed to a computer program relate to different aspects of a computer-implemented invention but (contrary to the Referral's statements) do not have identical scope. Whereas method claims relate to the actual performance of steps, claims directed to a computer program relate to software adapted to perform those steps.[8] A claim to a computer program (as well as a claim directed to a medium with a stored program) is thus properly categorized as an apparatus claim, whose scope of protection includes direct infringement by distribution of the program implementing the invention.

3.   The issue raised in the second question is essentially procedural in nature. Recitation of a technical means in both method and apparatus claims should be enough to allow examination to proceed to the merits for a determination of whether the invention solves a technical problem to achieve a further technical effect. The question of whether the invention achieves a further technical effect is more efficiently consid-

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[8] T 424/03 Clipboard formats/MICROSOFT reason 5.1

ered simultaneously with the inventive step criteria, since both criteria can only be assessed based on knowledge of the relevant state of the art.[9]

4. The simultaneous consideration of further technical effect with inventive step avoids the conundrum with the former so-called "contribution approach."[10] The "contribution approach" required an inventive technical contribution to the state of the art to overcome an exclusion based on Article 52 (2) EPC; but assessment of this technical contribution required knowledge of the prior art, which was not considered during examination of the technical character. Assessing the required technical problem was therefore shifted to and combined with the assessment of inventive step, except where the technical character is evident *prima facie*, although not known to a skilled person.

5. Thus, the recitation of a technical element such as a computer should avoid *prima facie* exclusion under Article 52(2)(c) EPC so that the examination is allowed to proceed to the merits.[11] This is only a preliminary finding for patentability that must be corroborated in the later examination by demonstrating — during the analysis of inventive step — that a technical problem has been solved by the invention.

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[9] T 1173/97 Computer program product/IBM; BGH GRUR 2002, 143 - Fehlerhafte Zeichenketten

[10] The contribution approach was abandoned in T 1173/97; an equivalent modification in the examination process was introduced by the German Federal Court of Justice in BGH GRUR 2002,143 - Fehlerhafte Zeichenketten

[11] Rule 63 EPC, which allows to refuse a search, should therefore be applied narrowly and only when the non-technical character is obvious – T 690/06

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6. Question 2(b) has no straightforward answer because it assumes a false dilemma. Regardless of whether question 2(a) is answered in the affirmative, the *further* technical effect recited in question 2(b) may need to be demonstrated during examination to show inventive activity in the field of technology. An inquiry into further technical effect should not be undertaken when considering patent-eligibility, because at this stage the relevant inquiry is the technical character of the claimed invention as a whole.

III. 3 Apple's Comments on Question 3

Question 3: *(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?

Brief Answer: The answer to question 3(a) should be "yes" provided that the phrase *"physical entity in the real world"* is understood broadly to encompass both hardware and digital structures. In fact, the claimed feature could not contribute to the solution of a technical problem if it did not cause a technical effect on a physical entity in the real world, so defined. If on the other hand the phrase is not understood to include digital structures, then the answer should be "no," because technical effects should not be limited to technical effects on hardware alone. Regardless of the answer to question 3(a), the answers to questions 3(b) and (c) should be "yes," a general purpose computer suitably programmed to produce a further technical effect is patentable technical subject matter. This answer should apply to any software related invention regardless of the particular hardware that may be used.

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Reasoning:

1. Apple considers this question to be of particular importance since it seems to rely on the assumption that computers and their internal functioning have no technical character. The assumption is based on a misconception of the concept of a *"physical entity."* The Referral in fact admits that digital structures, such as a TV signal or the digital images of real objects, are physical entities of the real world even though they are not tangible. Yet the Referral categorizes functional data structures or program structures within a computer of conventional hardware as *"bearing no relation to the hardware of the system in which they are used"* and, therefore, as non-physical entities.

2. This distinction is completely unwarranted. In the era of modern technology, the creation of new devices with enhanced functionality involves a design choice between hardware and software solutions (or mixtures thereof), as already implied by decision T 208/04,[12] which foreshadowed the mainstream case law of the Boards of Appeal of the European Patent Office in this field of technology. All software solutions can also be implemented as hardware solutions. Discriminating against software solutions due to the alleged absence of physical entities in the form of special hardware is unjustified and would severely limit the use of the patent system to foster innovation.

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3. Progress in the field of computer systems is largely carried on by sophisticated software solutions that implement new functions, increase performance, enhance interoperability, security and usability, provide

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[12] T 208/04 Computer related invention /VICOM

powerful user interfaces, or otherwise improve the function of the computer. Providing such solutions and enhancements is increasingly important as people come to rely more on computing devices. Even when the computing device consists merely of a standard universal computer, the computer implemented invention is a combination of hardware and software that results in a new, specialized machine.

4. This situation has long been recognized by the Boards of Appeal[13] and national supreme courts, such as the German Federal Court of Justice.[14] Inventions that relate to the internal functioning of the computer system itself are patentable, even if they are *"only"* implemented by programs (e.g. by the operating system). Undermining this case law would jeopardize the legal foundation that drives the entire computer industry.

5. Generally speaking, then, a claimed feature adds to the technical contribution if it supports the solution of a technical problem. The technical problem can be solved with new hardware but equally with software that operates on digital structures. Such functional features implemented in software are no less physical entities of the real world than technically equivalent hardware structures.

6. Therefore, question 3(a) can be answered in the positive if the *"physical entity in the real world"*[15] is understood as a broad concept that encompasses both hardware and digital structures. Without such a technical

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[13] T 6/83 Data processor/IBM

[14] BGH GRUR 1992, 33 - Seitenpuffer

[15] The term "physical entity" occurs prominently in T 208/04 Computer related invention /VICOM where it is used to differentiate objects that can be detected by technological means from purely abstract entities; c.f. also T 163/85 discussed supra.

effect on a physical entity in the real world, the claimed feature could not contribute to the solution of a technical problem.

7.   If, on the other hand, the *"physical entity in the real world"* is narrowly restricted to hardware and digital representations of non-digital objects, and is not understood to comprise stored digital control structures and functional software, question 3(a) would require a negative answer.

8.   Regardless of the answer to question 3(a), questions 3(b) and (c) should be answered in the positive. A general purpose computer suitably pro-grammed to produce a further technical effect is patentable, technical subject matter. This applies to any other software related invention even without comprising specific hardware.

III. 4 Apple's Comments on Question 4

Question 4:   *(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 char-acter of a claim only when they contribute to a further techni-cal effect when the program is executed?

Brief Answer: The activity of programming *generally* involves technical con-siderations. While not all features resulting from programming activities contribute to the technical character of a claim, sev-eral may. Moreover, programming (even if it is non-technical) can produce features that contribute to the technical character by solving a technical problem.

Reasoning:

1. Apple also considers the fourth question to be of particular importance, since it implies that *"programming"* — a term that is not further defined in the Referral — could not impart a technical character to an invention resulting from such programming, in particular when programming internal functions of the computer.

2. This assumption would lead to far reaching exclusions for any activity considered to involve *"programming."* The term *"programming"* can apply both to the implementation of a technical solution and the writing of code for purely non-technical applications. Given the different areas to which the term applies, *"programming"* and *"computer program"* are not helpful in distinguishing technical from non-technical inventions and their consequent patentability.

3. Even assuming that *"programming"* merely refers to writing code, the yardstick for patent-eligibility should be the claimed invention as a whole, which must have a technical character. This technical character may consist not only in the effects caused by the program when executed, but also in the characteristics of the program itself, such as its portability or ease of maintenance, which provide technical advantages in using the program. The technical character of the program can further be based on technical considerations that are required when the programming effort is closely linked to the technical characteristics and constraints of the overall system in which the program will be used (*e.g.* such as in programs for embedded controllers in technical devices).[16]

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[16] Cf. e .g. T 1277/03 Schaltkreissimulation/INFINEON; BGH GRUR 2000, 273 - Logikverifikation

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4.   In general, the technical character of a computer-implemented inven-
tion should be assessed for the claimed invention as a whole, taking
into account all features that support the solution of the technical prob-
lem. It is not relevant whether such features are non-technical if consid-
ered in isolation. Equally irrelevant is whether such features originate in
the specific act of writing program code or whether they stem from the
analysis of the underlying problem and the concepts of the overall sys-
tem design.[17] The yardstick here should be the overall development
process for a computer-implemented invention, with contributions from
system design all the way down to programming instructions.

5.   Specifically with respect to question 4(a), the activity of programming
generally involves technical considerations, but this may not be the case
if the scope is narrowly limited (*e.g.*, programming for non-technical
applications with very high-level languages that shield the programmer
from all technical aspects of the executing computer). With respect to
question 4(b), not all features originating in non-technical programming
activities need to contribute to the technical character of the invention,
although some may. Finally with respect to Question 4(c), program-
ming can produce features that contribute to the technical character by
solving a technical problem, even if such programming is not by itself
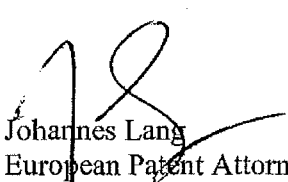of a technical character.

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[17] As in T 769/92 discussed supra

IV. Conclusion

1. The current law with respect to Article 52(2)(c) and (3) EPC is adequate. Clarification of remaining issues in this field, such as the contribution of non-technical features in mixed-type claims, concerns specific types of inventions only and should be left to the further development of the case law. Thus, Apple recommends maintaining the current practice of the European Patent Office with respect to assessing the patentability of computer-implemented inventions. Any change in the EPO criteria for patentability of computer-implemented inventions would create divergences from the established case law in many national European jurisdictions.

2. The questions raised in the Referral should not be answered in a manner that would undermine the patent-eligibility of computer-implemented inventions. In particular:

   • The invention as claimed should be assessed as a whole, considering all features that contribute to the solution of an objective technical problem.

   • The objective technical problem is to be defined relative to the prior art from which the computer-implemented invention is distinguished by a technical effect.

   • The objective technical problem can relate to any parameter that improves the characteristic of the underlying technical system, which can also be a conventional computer system. Examples of technical effects include improvements in functionality, performance, security, interoperability, usability, ergonomics and others.

- For efficiency of the examination procedure the objective technical problem can be examined together with the examination of inventive activity.

- Patentability of a claim as a whole must be assessed by its technical merits and not by formal criteria, such as claim format, implementation of the invention in special hardware or in software, profession of skilled persons, etc.

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