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European Patent Office
Enlarged Board of Appeal
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Dear Sirs,

We hereby enclose Ericsson's amicus curiae brief on the questions asked by the President of the EPO.

Yours faithfully,

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Amicus Curiae

G 3 / 08

Referral under Art. 112(1)b) EPC

by the President of the EPO

(Patentability of programs for computers)

ERICSSON

TAKING YOU FORWARD

1 Interest

Telefonaktiebolaget LM Ericsson is one of the leading telecommunication suppliers having a 131 year old tradition. Today Ericsson holds around 24000 patents all over the world and a larger number of pending patent applications. Ericsson is one of the most frequent filers of patent applications in the field of telecommunications technology.

Telecommunication is one of the biggest drivers of innovation. This is reflected in the filing figures and work power related to this field.

In 2008, 12492 international patent applications were filed in the field of telecommunications. Within electronics and electronic communication techniques classes H03-H04 - classes to which telecommunication contributes - 16901 European patent applications were filed or entering European regional phase in 2008. An ever increasing portion of these applications is computer-implemented.

The associated workload is handled, according to the Annual Report of the EPO 2008, by 324 of 3864 Examiners, which were working in the telecommunication sector.

Interoperable telecommunications relies on open standards, developed through the collaboration of numerous companies. The patent system ensures a willingness to contribute technical solutions to these standards.

Depriving applicants of their rights to a patent in changing technological environments would result in a world of business secrets and scattered isolated and incompatible solutions because this would be the only remaining solution available to protect their investment in R&D.

Open standards success stories like the GSM system, the UMTS system and the evolving LTE system which allow for usage of these systems around the world would then no longer be possible for future technologies.

Technology changes and patent law is directed to the granting of patents - in all fields of technology.

It is therefore clear that as technology evolves, the understanding of what is within all fields of technology changes as well, and consequently the legal basis has to be re-interpreted.

Currently, there is a shift in telecommunications technology, where the same type of technical problems that were previously solved purely in hardware, are now to an increasing extent solved in software. There is therefore no reason to restrict the patentability of software based solutions to these technical problems.

Furthermore, in the past years an increasing uncertainty in the general field of computer-implemented inventions has been detected; be it based on national court decisions applying different standards when judging invalidity, be it based on Boards of Appeal decisions, be it based on granted trivial patents which are often confused with computer-implemented inventions, or be it based on reports aim at resolving certain capability issues at some patent offices.

Legal uncertainty is a substantial threat to the European Patent System.

It is therefore in the vital interests of Applicants and Patent Holders to have a clear understanding of the basis for granting patents and the respective Guideline for Examination to be applied in the field of Computer-Implemented Inventions.

2 Admissibility

Admissibility of the referral has been discussed by some stakeholders in some countries. It is our understanding that the admissibility is given since Art. 112 (1)(a) EPC explicitly mentions that "the President of the EPO may refer a point of law to the Enlarged Board of Appeal where two Boards of Appeal have given different decisions on that question."

Furthermore, according to Art. 22 (1)(b) EPC it is within the responsibility of the Enlarged Board of Appeal to give "opinions on points of law referred to it by the President of the European Patent Office under Article 112 EPC".

In the referral several questions are raised towards certain points of law, reasoning that decisions of Board of Appeals appear to the President of the European Patent Organization as being diverging. Hence, in our opinion, the standard of being "admissible" is met.

Furthermore Art. 112 (1)b) EPC, which is directed at opinions in contrast to Art. 112 (1) (a) EPC which is directed at decisions, does not provide for a rejection of the request. Hence, said referral can not be rejected.

3 Background

The concept of patents is to grant a limited monopoly to those having ideas in all fields of technology - as it is termed today - for disclosing their ideas and thereby enabling others to further develop ideas; thereby promoting innovation. It is therefore the general task of the EPO to grant patents (Art. 4(3) EPC).

3.1 Articles 52-57 EPC

Article 52(1) EPC defines an entitlement to patent protection for any invention which meets certain, distinct requirements.

These distinct requirements are further defined in Articles 52-57 EPC, and limit the number of inventions which are entitled to protection by means of a patent.

One of these requirements is that the patentable subject-matter should be an invention within a field of technology. Another requirement is that the invention needs to be novel. A further requirement is that the invention should involve an inventive step. And as a final requirement, the invention should be susceptible of industrial application.

These requirements can be summarized as follows, indicating that in fact the number of entitled inventions shrinks from requirement to requirement.

Art. 52	Susceptible to patentability	Not susceptible to patentability
Art. 53	Grant possible	Grant impossible
Art. 57	Industrial applicable	Not industrial applicable
Art. 54	Novel	Anticipated
Art. 56	Inventive	Obvious

A set of inventions was excluded from this general concept by virtue of a legal fiction.

Looking at the history of patents, there has always been an understanding that the terms "invention" and "technology" need to be interpreted because of their generality. These terms were chosen to enable quick adaptation to changing technological environments by case law.

The individual requirements in Articles 52-57 EPC have been subject to numerous decisions by the national courts, the Opposition Divisions, the Boards of Appeal and the Enlarged Board of Appeal.

Furthermore, numerous decisions reminded applicants and opponents that the requirements as set out in Articles 52-57 are related to different grounds of opposition which to some extent are related, but nevertheless they are to be challenged individually (see e.g. G 1/95).

3.2 Not susceptible to patentability

As indicated, a set of inventions was excluded from patentability by means of a legal fiction.

It is noted that the terminology of the EPC used in this context in the three different official languages is slightly different.

The French text refers to "...l'un de ces éléments..." whereas the English text refers to "...such subject-matter or activities..." and the German text refers to "...diese Gegenstände oder Tätigkeiten...".

This issue might lead to an interpretation that only these particular elements enumerated in Article (52) 2 EPC are excluded; i.e. within the scope of the referral "... and programs for computers;...".

Then it would be necessary to qualify the exclusion of a program for a computer either as related to a subject-matter/device, or as related to an activity/method.

Irrespective of which of the differing texts is to be used as a basis for further interpretation, said legal fiction is always to be interpreted in a narrow manner, as will be shown below.

The excluded set includes areas which were held to be protected in other ways or which were held to be otherwise "unprotectable".

For example in the area of rules for performing mental acts it would be hard work to detect infringement or to stop someone from infringing. Meanwhile other areas are subject to certain positive rights, e.g. discoveries, scientific theories and mathematical methods could be understood as protected by freedom of science, whereas still other excluded areas are subject to other, negative rights.

These negative rights include design patents for aesthetic creations and copyrights for the display of information and - in today's more clearly defined copyrights - programs for computers as such.

Obviously, for any of the above, the legislator did not want to exclude more than the areas which are either not enforceable or covered by other laws.

This is also supported by reviewing the legislative history of Article 52 (2) EPC, then Article 50. There was the clear intention of the contracting states that this list of "excluded" subject matter should not be given too broad a scope of application. (see the Historical Documentation (Travaux préparatoires) relating to the European Patent Convention, Munich 1999, document M/11 of March 1973, Vol. 35E, No. 21 and document M/PR/I, Vol. 42E, No. 42).

Furthermore, looking back at the numerous documents in the course of the revision of EPC2000, it is clear that not only the Committee on Patent Law and the Administrative Council (MR/2/00, page 43), but also a number of delegations were in favour of a deletion of "programs for computer" from Article 52(2)c) EPC. It was only the concern that the removal might be seen as a broadening which lead to "programs for computer" remaining within the Article; although its removal was held not to imply any significant change in the legal position (MR/16/00).

Hence, the removal of this provision was held - if at all - as an insignificant change in the legal position which clearly implies that this exclusion is to be construed narrowly.

However, not only are there the above considerations of the legislative background which lead to a narrow interpretation of the exclusion, but also the EPC itself allows for only a narrow interpretation.

This can be deduced from Article 52(3) EPC which clarifies that the legal fiction excludes only those inventions from patentability which relate to such subject-matter or activities as such.

"As such" may also to be understood as "intrinsically considered" or "in itself" ((2009) - Merriam-Webster Online Dictionary, Retrieved April 17, 2009, from http://www.merriam-webster.com/dictionary/such) - or in German as "schlechthin".

Hence, the limitation "as such" itself focuses on an extremely narrow scope.

Therefore, even if the subject-matter / activity is a program for a computer but it is not a program for computer as such, then the subject-matter / activity, i.e. the program itself, is susceptible to patentability.

This narrow interpretation of exclusions is confirmed in G 1/04.

Summarizing, the above findings, the exclusion was held to be narrow from the beginning.

3.3 In all fields of technology

In particular the requirement of being an invention in a field of technology has been challenged by the evolution of technologies in the past, today (as in the present referral) and will be challenged in the future.

The German Federal Court of Justice Decision Rote Taube, X ZB 15/67 (cited in the referral, see footnote 38) indicated that for understanding of the requirement of "being in a field of technology" it is necessary to understand what technology is (See Gründe II 1. Ende and Gründe II 2. Ende).

The interpretation which was given in the decision is that it is up to science to judge whether certain phenomena are within the scope of technology or not, and thereby fulfil the requirement of being an invention within a field of technology.

The understanding of what is held to be comprised in technology may change. Today's society has a rather broad understanding of technology, as is reflected in wikipedia, see e.g. http://en.wikipedia.org/wiki/Technology.

"In general technology is the relationship that society has with its tools and crafts, and to what extent society can control its environment. The Merriam-Webster dictionary offers a definition of the term: "the practical application of knowledge especially in a particular area" and "a capability given by the

practical application of knowledge".[1] Ursula Franklin, in her 1989 "Real World of Technology" lecture, gave another definition of the concept; it is "practice, the way we do things around here".[2] The term is often used to imply a specific field of technology, or to refer to high technology or just consumer electronics, rather than technology as a whole.[3] Bernard Stiegler, in Technics and Time, 1, defines technology in two ways: as "the pursuit of life by means other than life", and as "organized inorganic matter."[4]

Technology can be most broadly defined as the entities, both material and immaterial, created by the application of mental and physical effort in order to achieve some value. In this usage, technology refers to tools and machines that may be used to solve real-world problems. It is a far-reaching term that may include simple tools, such as a crowbar or wooden spoon, or more complex machines, such as a space station or particle accelerator. Tools and machines need not be material; virtual technology, such as computer software and business methods, fall under this definition of technology.[5]

The word "technology" can also be used to refer to a collection of techniques. In this context, it is the current state of humanity's knowledge of how to combine resources to produce desired products, to solve problems, fulfill needs, or satisfy wants; it includes technical methods, skills, processes, techniques, tools and raw materials. When combined with another term, such as "medical technology" or "space technology", it refers to the state of the respective field's knowledge and tools. "State-of-the-art technology" refers to the high technology available to humanity in any field.

Technology can be viewed as an activity that forms or changes culture.[6] Additionally, technology is the application of math, science, and the arts for the benefit of life as it is known. A modern example is the rise of communication technology, which has lessened barriers to human interaction and, as a result, has helped spawn new subcultures; the rise of cyberculture has, at its basis, the development of the Internet and the computer.[7] Not all technology enhances culture in a creative way; technology can also help facilitate political oppression and war via tools such as guns. As a cultural activity, technology predates both science and engineering, each of which formalize some aspects of technological endeavor."

Hence, under this understanding technology embraces any kind of application of knowledge, material and immaterial, irrespective of whether this application creates a real-world effect or not.

3.4 Novelty & Inventive Step

Article 52(1) states as a further requirement that the invention needs to be novel. Novelty is further detailed in Article 54 EPC.

Article 52(1) states a further requirement that the invention needs to involve an inventive step. An inventive step is further detailed in Article 56 EPC.

In particular within the analysis of inventive step, it is noted that the well-known problem-solution-approach is directed to distinguishing features over the closest prior art and the development of a respective objective problem to be solved (T 24/81).

In the context of said Articles it is clear that each and every feature has to be compared to the prior art. However, non-technical features to the extent that they do not interact with technical features to produce a technical effect cannot establish novelty or inventive step.

A claimed invention lacks novelty unless it includes at least one essential technical feature which distinguishes it from the state of the art. When deciding upon the novelty of a claim, a basic initial consideration is therefore to construe the claim in order to determine its technical features. (see G 2/88 Reason 7).

It can not be inferred from the EPC that in the field of Computer-implemented inventions a different standard with respect to novelty (or non-obviousness) could be applied.

3.5 Enforceability

A point which has so far not been raised is whether or not an applicant may enforce its patent. Today's computer-implemented inventions are embodied in software, software enabled hardware or customized hardware.

Excluding certain embodiments of the invention (e.g. the use of a computer or a computer-readable data storage medium) would deprive a patentee of any practical way to enforce rights conferred by a granted patent.

4 Evolution in Telecommunication

In the following, the evolution in Telecommunication as a field of technology will be outlined.

Today's electronic telecommunications and all services based thereon have their ancestors in Samuel Morse's telegraph (1837) and Graham Bell's telephone (1876). Since 1876, Ericsson has been actively developing telecommunications technologies.

Historically telecommunications technology used only a single line for a single communication.

Subsequently technology evolved and it was possible to allow for switching of lines, first manually, later-on automatically, e.g. by rotary switches (1919).

Multiplexing allowed a single cable pair to be used for a plurality of concurrent calls.

In the 1960s digital communication allowed for further improvements including the evolution of digital data communication. Based on these improvements technologies like ATM (Asynchronous Transfer Mode) were developed.

In the 1980s modems for the mass-market became available and allowed for data communication over voice channels on phone lines.

A big new step in this development was taken when mobile communication entered the scene. The whole world of communication started changing.

Analog Mobile communication expanded telecommunications and was subsequently followed by digital mobile telecommunications (GSM).

Within these digital telecommunications systems new voice coding algorithms were developed and applied. These algorithms allowed for improved speech quality while using less data by sophisticated compression algorithms.

Subsequently the use of data services at virtually any point in the world was introduced by virtue of new packet-switched technologies (GPRS, UMTS) allowing for new services, especially mobile data services.

In today's world, telecommunications is becoming digitized end-to-end and new technologies are evolving which allow for even faster data access to mobile communication networks and improved quality of services (LTE).

Furthermore, today's different telecommunications networks – be it wire-based or be it wireless – are merging together, as are their different services.

An end to this revolution in technology is not foreseeable.

Today's telecommunications technology is evolving with a tremendous speed and telecommunications is seen as key for the development of technology. It is for this reason that telecommunications is not only the subject of industrial research but also the subject of numerous scientific projects financed by different institutions (like the EU Framework projects).

There is no doubt that telecommunications is part of technology.

However, today telecommunications is more digital than it was in the beginning. New services are emerging necessitating inventive solutions to tackle associated problems. One of these new services is for example IPTV.

The ideas making up these services and the solutions allowing for their application are today's inventions.

The screws, gears and relays of yesterday's switches are gone and are superseded by bits and bytes. These inventions may be understood as computer-implemented but they are not programs for computer as such.

5 Answers to the Questions

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

Answer: As set out in detail above, the history of the EPC as well as the provisions in Article 52(3) EPC do not leave any room for a broad interpretation.

In particular, the terminology of Article 52(1) EPC suggests that there are programs for computers which can be regarded as inventions, namely those which are not excluded by the provision of Article 52(3) EPC.

Therefore, only those inventions which are programs for computers as such are to be regarded as excluded in a rather narrow sense. In essence, only claims termed as explicit computer programs, e.g. claims termed in a programming language known at the date of application, shall not be regarded as inventions.

Many computer programs nowadays are used to carry out technical functions and cannot therefore be regarded as computer programs as such.

For example a computer program may be used to compress video data using a new compression algorithm in order to improve the transmission of IPTV. Such a computer program is not an abstract entity but provides a useful technical function with a commercial value that should be capable of protection like any other commercially valuable technical innovation."

Therefore Question 1 is to be answered positively.

5.2 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?

Answer: The subject-matter (Computer-Readable Data-Storage medium) or Activity (Use of computer) is not excluded from patentability since it does not relate to programs for computers as such.

Even more, an exclusion of patent protection for a computer or computer program product embodying a computer-implemented invention would deprive a patentee of commercially valuable patent enforcement rights in practice.

It is noted that even if this provision is circumvented by creative wording – as the question suggests – then it is noted that the claimed subject-matter or activity still needs to meet the further, independent requirements of Article 52(1) EPC.

Therefore Question 2 (A) is to be answered positively.

5.3 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?

Answer: Question 3 (A) concerns the question of 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".

It is noted that a requirement of having "an effect on a physical entity in the real world" is not known from the EPC. Art. 52(1) refers to "in all fields of technology" and Rule 43 refers to the "technical features" of a claim.

Regarding the term "in all fields of technology", according to today's understanding of the term "technology" as set out in detail above, technology may embrace any kind of application of knowledge, material and immaterial, irrespective of whether its application creates a real-world effect or not.

It is instructive that the term "technical features" has been developed in case law (see T 154/04), wherein *"Non-technical features, to the extent that they do not interact with the technical subject matter of the claim for solving a technical problem, i.e. non-technical features "as such", do not provide a technical contribution to the prior art and are thus ignored in assessing novelty and inventive step."* (T 154/04, Reasons 5 (E)).

However a requirement for individual features to cause a technical effect on a physical entity in the real world can not be inferred from case law (see e.g. T 1227/05).

Accordingly, the criterion that decides whether a feature has to be regarded as a technical or a non-technical feature is "interaction with technical matter for solving a technical problem". The question of whether the feature causes a technical effect on a physical entity in the real world is of no importance in this regard.

Therefore, question 3 (A) is to be answered negatively.

Furthermore, since no requirement towards a physical entity can be deduced, it is irrelevant whether a particular hardware is used in connection with the feature. As long as the feature provides for an interaction with other technical subject-matter for solving a (partial) technical problem it has to be interpreted as a technical feature.

Therefore, question 3 (C) is to be answered negatively.

5.4 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 character of a claim only when they contribute to a further technical effect when the program is executed?

Answer: As already addressed in the referral, the term programming encompass numerous forms of programming, be it on a machine level on the one hand, be it on a high level programming language which is later on transformed in executable code on the other hand, be it an interpreter language or as the referral assumed also encompassing macro recording. Anyone of these forms may be used by a programmer to solve technical problems. Within programming a solution to a technical problem, a programmer may address technical considerations directed to the programming itself.

Suppose the following: When programming a computer certain steps are repeated until a condition is met. A decision step can be programmed in a positive manner (a certain value is reached, e.g. repeat until x is y) or in a negative manner (a certain condition is not met, e.g. while x not y do). The outcome of a positive decision may lead to fewer cycles than a negative decision. Then, it is of importance to consider whether the repetition step is time critical. Similar considerations may also apply to the subsequent steps following the completion of the repetition step after the condition is met. Such considerations are of a technical nature.

Therefore, question 4 (A) is to be answered negatively.

With respect to the question whether there is a necessity of a further technical effect, it is emphasized again that such a requirement can not be inferred from the EPC.

Therefore, question 4 (C) is also to be answered negatively.

6 Summary & Further Observations

In light of the questions raised by the President of the EPO and the underlying questions, it would be helpful if the Enlarged Board of Appeal could also clarify the underlying questions, i.e. those relating to the correct analysis of inventive step in the field of computer-implemented inventions.

In our view, it would be helpful – to the Applicant, the Examiners, the Board of Appeals, and the interested public – to have a clear indication of how examination should take place.

As outlined above, we are of the opinion that a consistent way to examine computer-implemented inventions can be given as follows:

- Only claims termed as explicit computer programs, e.g. claims having a programming language termed in a programming language known at the date of application, shall not be regarded as patentable inventions.
- Non-technical features are only those which are non-technical features as such, i.e. only those features are to be excluded to the extent that they do not interact with the technical subject matter of a claim for solving a technical problem, while all other features are technical features.
- A claim having at least one technical feature, meets the requirement "in all fields of technology".
- Any technical feature contributes to novelty and inventive step irrespective of any effect.
- Inventive step is analyzed with respect to distinguishing features determined by comparison to the closest prior art. Whether the solution is obvious or not is not a question of "a further technical effect" being present, but only a question of whether a person skilled in the art when combining Documents would (not just could) arrive at the claimed solution.

Yours faithfully,

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- A claim having at least one technical feature, meets the requirement "in all fields of technology".
- Any technical feature contributes to novelty and inventive step irrespective of any effect.
- Inventive step is analyzed with respect to distinguishing features determined by comparison to the closest prior art. Whether the solution is obvious or not is not a question of "a further technical effect" being present, but only a question of whether a person skilled in the art when combining Documents would (not just could) arrive at the claimed solution.