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Patenting of Computer Implemented Inventions

US West Coast, Oct 2010



Introduction

- Who am I?
- What is the purpose of this presentation?
- Legal disclaimer

Topics

- Computer Implemented Inventions
- Legal Basis
- Case Law Evolution
- Examination Practice
- Impact on applicants
- Q & A

Computer-implemented Inventions

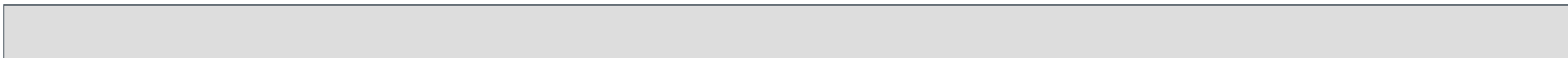
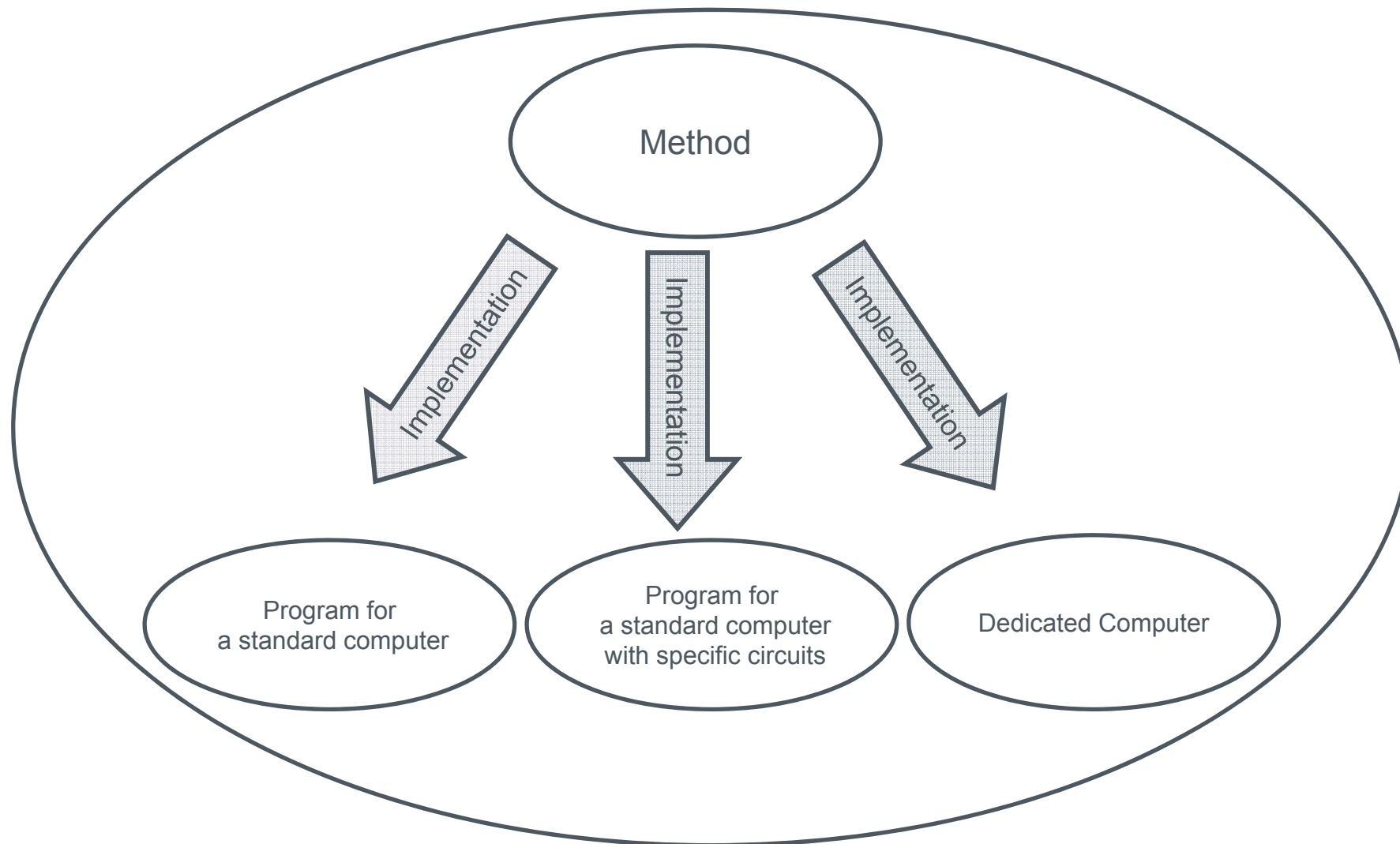
method for determining the
maximum of a number series



computer program

```
FindArrayMax (t[ ])  
{  
    max = t[1]  
    for (l = 2; l<=t.length; l++) if (max < t[ l ]) max = t [ l ];  
    return (max);  
}
```

Computer-Implemented Inventions



Computer-Implemented Inventions

"Computer-implemented invention":

- - An invention whose implementation involves the use of a computer, computer network or other programmable apparatus
- - with features realised wholly or partly by means of a computer program

Legal Basis

What is an Invention?

Patentable Inventions

European patents shall be granted for

- any inventions, in all fields of technology,
provided that they

- are new

→ A.54

- involve an inventive step and

→ A.56

- are susceptible of industrial application

→ A.57

Art. 52(1)

Legal Basis

Exclusions

The following, in particular,
shall not be regarded as inventions:

- a) discoveries, scientific theories, mathematical methods;
- b) aesthetic creations;
- c) schemes, rules and methods for performing mental acts, playing games or doing **business**, and **programs for computers**;
- d) presentations of information;

A.52(2)

...excluded only to the extent to which a European patent application relates to such subject matter or activities
as such.

A.52(3)

Case Law

Koch & Sterzel T26/86

technical effect
required

Vicom T208/84

running a
program
introduces
technical effect

IBM T1173/97

programs claims may be
patentable if there is a
further technical effect

Philips T1194/97

structural digital data
may be patentable

Hitachi T258/03

any technical means in
claim avoids exclusion of
patentability

Duns T154/04

non-technical features
cannot confer novelty

Comvik T641/04

all claim features
contributing to technical
character are taken into
account

Case Law

G3/08 Enlarged Board of Appeal

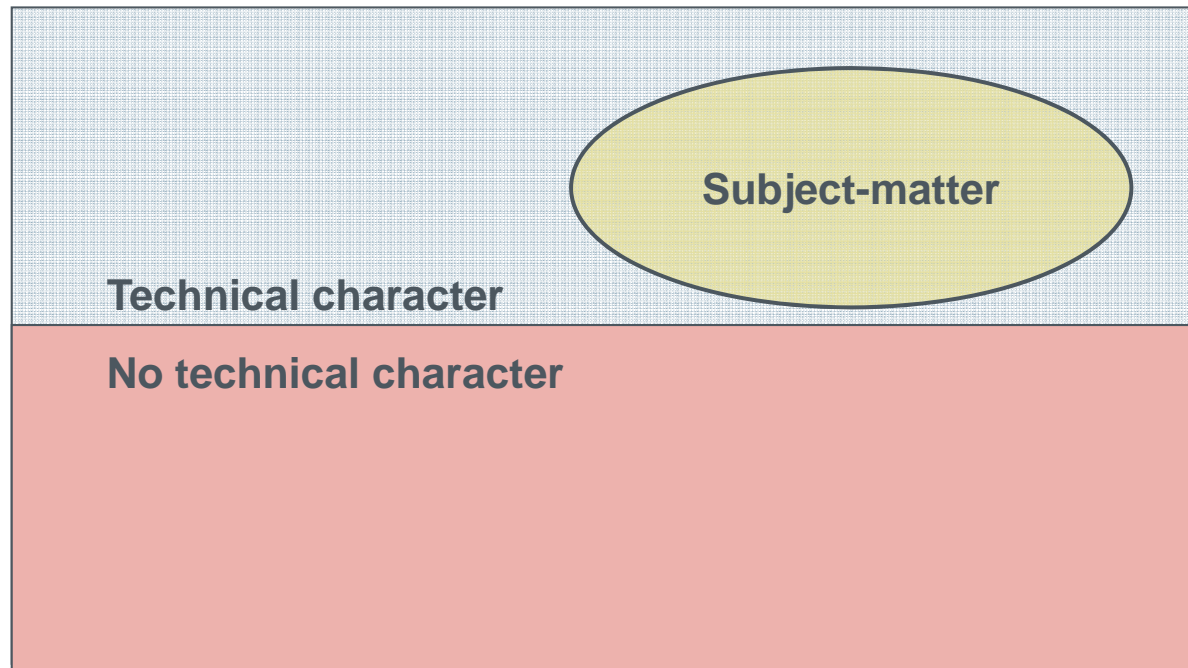
1. Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program ?
2. Can a claim in the area of computer programs avoid exclusion under Art. 52(2)(c) and (3) merely by explicitly mentioning the use of a computer or a computer-readable storage medium ?
3. 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 a claim ?
4. Does the activity of programming a computer necessarily involve technical considerations ?

Examination Practice - What is technical?

- Processing **physical data** parameters or control values of an industrial process, e.g. location, time
- Processing which **affects the way a computer operates**
 - ✓ saving memory, increasing speed
- The **physical features of an entity**
 - ✓ memory, port etc.
- Control of the working of **physical machinery**

Examination Practice

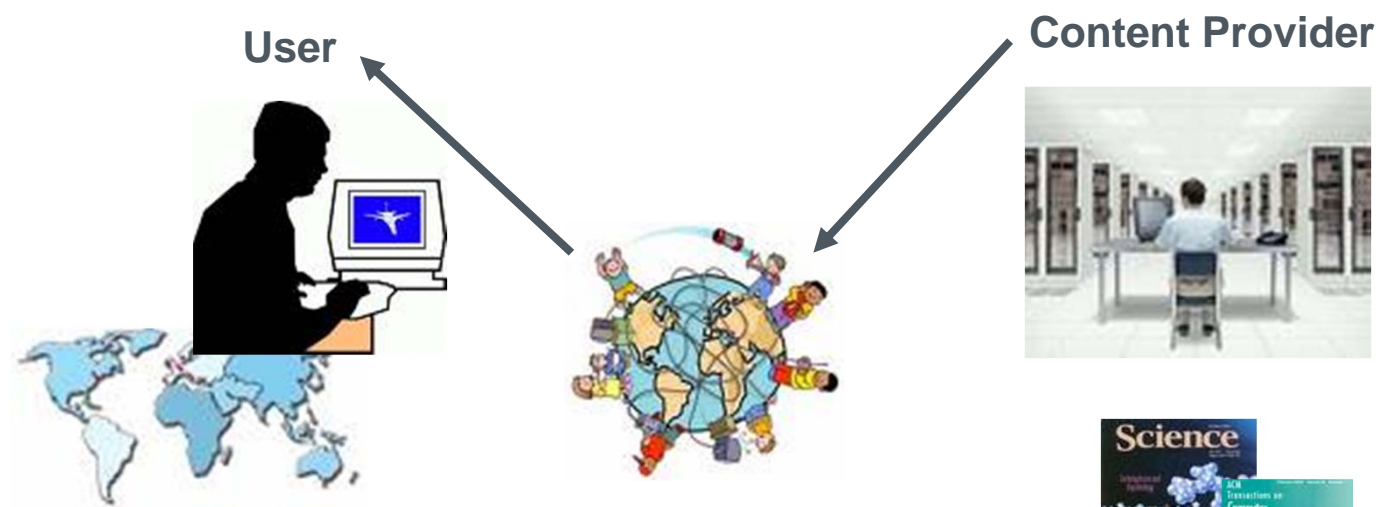
- ✓ Subject-matter *is not* excluded from patentability
Exclusion of patentability
- × Subject-matter *is* excluded from patentability



At least one feature has technical character →
Subject-matter has technical character.

Example from the Field of Business Methods

"A method of controlling payment and delivery of content"



Regulation: Access to content is free

- if user is from a country with GDP < limit value AND
- if the requested content is scientific content



Example I: Exclusion

- CLAIM:** A method of controlling payment and delivery of content, the method comprising:
- a provider receiving a request for content from a user;
 - the provider accessing content information describing the requested content;
 - the provider accessing regulation information describing at least one regulation that is related to the payment and the content information of the requested content and to geographical information of the user;
 - determining the geographic location of the user;
 - the provider determining whether the requested content satisfies the at least one regulation;
 - if so, delivering the requested content to the user for free;
 - if not, transmitting a payment request to the user.

Non-technical process/ aspects

Clearly Technical Aspects

None

Example I: Exclusion

The subject matter of the claim defines purely a business or administrative method and does **not** have a **technical character**.



Objection under Art. 52(1) EPC
because the claim constitutes subject-matter in the
sense of Art. 52(2) & (3) EPC

Example II: Computer-Implemented Business Method

CLAIM: A **computer-implemented** method of controlling payment and delivery of content within a **computer system** comprising a **user terminal**, a provider **server** and a **database which are connected via a communication network**, the method comprising:

- the provider **server** receiving a request for content from the **user terminal**;
- the provider **server** accessing **in the database** content information describing the requested content;
- the provider **server** accessing regulation information **in the database** describing at least one regulation that is related to the payment and the content information of the requested content and to geographical information of the user;
- determining the geographic location of the user;
- the provider **server** determining whether the requested content satisfies the at least one regulation;
 - if so, delivering the requested content to the **user terminal**
 - if not, transmitting a payment request to the **user terminal**.

Example II: Computer-Implemented Business Method

Clearly Technical Aspects

A computer implemented method comprising:

- a server receiving data from a terminal over a communication network;
- the server accessing data in a database;
- the server processing the accessed and received data;
- the server transmitting the processing result to the terminal;

Non-Technical Aspects/ Process

Same business process as in Example I

No technical interaction
No contribution to technical character

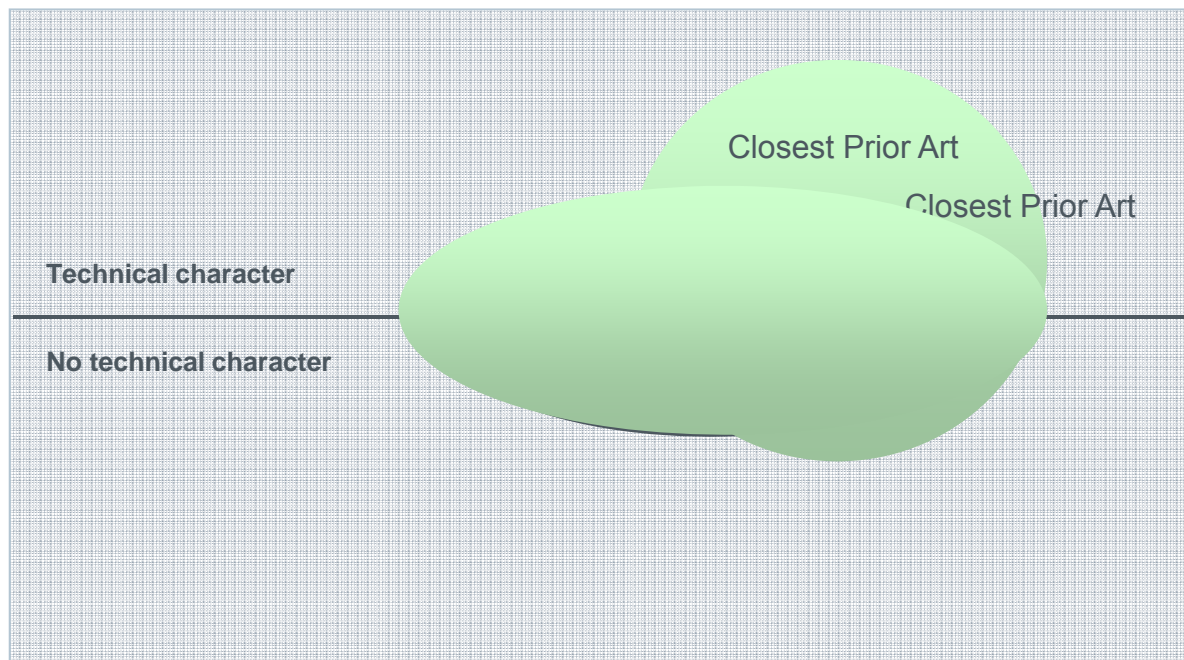
The subject matter of the claim defines technical and non-technical aspects and thus has **technical character**.

→ Assessment of **Novelty** and **Inventive Step**

2. Assessment of Novelty (Art. 54 EPC)

✓ Subject-matter *is* novel

× **Subject-matter *is not*** novel



All features of the claim known from a single prior art document.

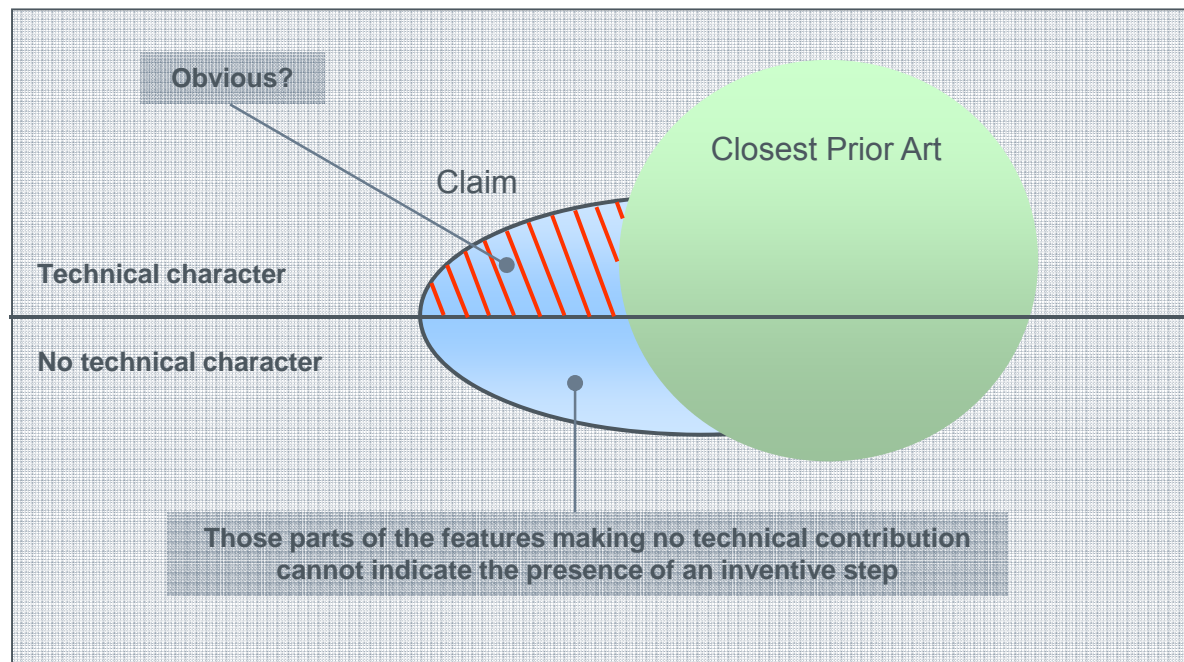
Non-Technical Aspects

Non-technical aspects are aspects that do **not** interact with the clearly technical aspects of the claim in a way such as to provide a resulting combination that has a different technical character to that defined by the clearly technical aspects alone.

Where any (alleged) non-technical aspect contributes to technical character, it is included in the assessment of inventive step

Inventive?

A non-obvious technical contribution over the prior art in the technical field is necessary

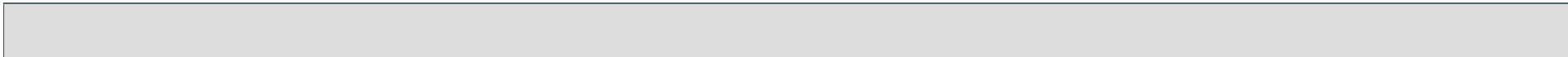
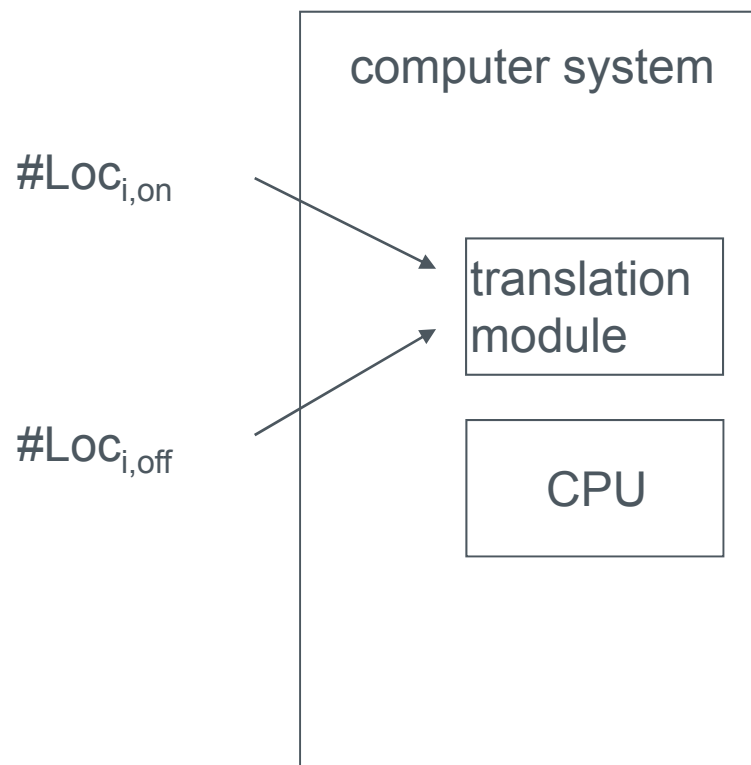


Examples - US2010/0185486

A method for **forecasting demand for transportation services**, comprising:

- running a count-to-demand translation module with a processor on a computer system;
- at the computer system, receiving
 - a set of count data for at least one vehicle operating to transport passengers along a route with multiple stops, wherein the count data comprises a count of passengers getting on each vehicle at each of the stops and a count of passengers getting off each vehicle at each of the stops; and
- operating the translation module to determine **a demand for pairs of the stops on the route** based on the on and the off counts for the at least one vehicle.

Examples - US2010/0185486



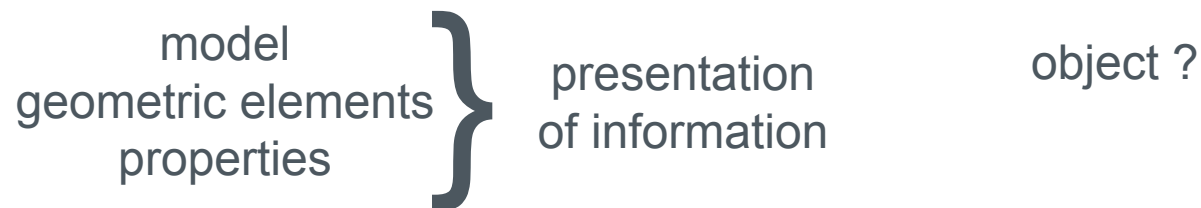
Examples - US2010/0185486

A method for **allocating required vehicle transportation capacity along a transportation trajectory**, comprising:

- running a count-to-**transportation capacity** translation module with a processor on a computer system;
- at the computer system, receiving
 - a set of count data indicating the number of transportation units loaded and the number of transportation units off-loaded from at least one vehicle at respective stops along said transportation trajectory; and
- operating the translation module to predict the required vehicle transportation capacity between stops along the trajectory based on said count data;
- allocating vehicles in accordance with said predicted vehicle transportation capacity.

Example US2006/0274076

- A method for a **computer system** comprises:
 - opening a model of an object, wherein the model comprises a plurality of geometric elements;
 - determining a subset of geometric elements from the plurality of geometric elements of the model;
 - modifying properties of one or more of the geometric elements in the subset of geometric elements to form a modified subset of geometric elements; and
 - using the modified subset of geometric elements to represent the model of the object in the computer system.



Example US2006/0274076

- A method for a computer system comprises:
 - opening a model of an object **to be visually rendered on a display**, wherein the model comprises a plurality of geometric elements **describing the object in multiple dimensions**;
 - determining a subset of geometric elements from the plurality of geometric elements of the model;
 - modifying properties of one or more of the geometric elements in the subset of geometric elements to form a modified subset of geometric elements; and
 - using the modified subset of geometric elements to represent the model of the object in the computer system.

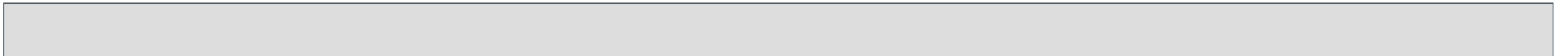
Impact on Applicants

- Enlarge technical contribution by referring to physical properties (capacity, distance, delay, latency)
- Solution of a non-technical problem often involves a technical abstraction which may be exploitable
- Above considerations are only useful when drafting (cannot be added later, added subject-matter)

Thank you for your attention

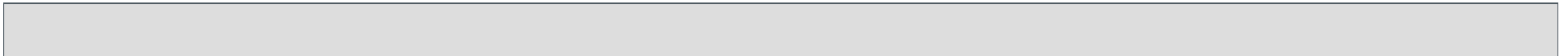
Acknowledgements:

Dai Rees, Jens Ernst, Fritz Seytter



Computer Implemented Inventions

Q & A



T 208/84, VICOM

- Description related to a method of improving image quality (e.g. sharpness of edges) by applying a matrix multiplication to digital image data.
- Claims rejected by examining division merely specified applying the mathematical method to unspecified data in a computer. The board agreed.
- **But**, once the claims specified that it was **image** data, the board allowed the claims.
- The apparatus claim was also novel (and inventive). A computer loaded with a new program is a new device.

T 26/86, Koch & Sterzel

- A computer-controlled X-ray machine - only difference to the prior art was a change in the control program which prolonged the life of the X-ray tubes.
- Whole claim taken into account, no weighting of features, no "Kerntheorie".
- The invention must have a "technical effect".
- In contrast to VICOM there was no discussion of the prior art in coming to the conclusion that the invention was not excluded under Article 52(2) and (3) EPC.

Modern case law

- T 1173/97, Computer program product / IBM
 - program claims are potentially patentable ...
 - ... if there is a "further technical effect" (an effect going beyond that which any program causes, when run),
 - the contribution approach is abandoned, i.e. the further technical effect is not required to be relative to the state of the art,
 - the technical contribution is to be considered in the assessment of inventive step.
- T 1194/97, Philips
 - structural digital data is potentially patentable.

Modern case law (cont.)

- T 931/95, Pension Benefit Systems
- T 258/03, Hitachi, and
- T 424/03, Microsoft
 - step by step to the conclusion that any technical means in a claim is sufficient to avoid exclusion under Article 52(2), (3) EPC, including the carrier in a "program on a carrier" claim.
- T 641/00, COMVIK
- T 258/03, Hitachi, and
- T 154/04, Duns
 - modification of the "problem-and-solution approach" to determine whether there is an "inventive contribution in a field not excluded from patentability".

T 641/00, COMVIK

- Allowing a SIM-card (in GSM mobile telephony) to contain two "identities" so that e.g. business and private calls can be billed separately.
- "An invention consisting of a mixture of technical and non-technical features and having technical character as a whole is to be assessed with respect to the requirement of inventive step by taking account of all those features which contribute to said technical character [and not the rest]."
- "Where the claim refers to an aim to be achieved in a non-technical field, this aim may legitimately appear in the formulation ... of the technical problem that is to be solved."

T 258/03, Hitachi

- "Method steps consisting of modifications to a business scheme and aimed at circumventing a technical problem rather than solving it by technical means cannot contribute to the technical character of the subject-matter claimed."

Businessman: "I want to do Dutch Auctions on the Web."

Techie: "Sorry guv, can't do it. It's the sync'ing, you see."

Businessman (after long pause and scratching of head):

"Well, could you do me an auction if I change the rules like this ?" (explains new rules).

Techie: "No problem."

T 154/04, Duns

- A legal-theoretical justification of the COMVIK/Hitachi approach, in response to sniping from across the Channel, in particular Aerotel/Macrossan.
- The board turned down a request to submit questions (including questions proposed by the judge in Aerotel/Macrossan) to the Enlarged Board of Appeal.
- As part of its theoretical analysis (i.e. only *obiter*), comes to the conclusion that "non-technical" features (features not contributing the technical character of the claimed subject-matter) cannot confer **novelty**.