Learning path for patent examiners

Unit of invention:
Entry level

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Introduction

This publication, "Unit of invention, Entry level", is part of the "Learning path for patent examiners" series edited and published by the European Patent Academy. The series is intended for patent examiners at national patent offices who are taking part in training organised by the European Patent Office (EPO). It is also freely available to the public for independent learning.

Topics covered include novelty, inventive step, clarity, unity of invention, sufficiency of disclosure, amendments and search. Also addressed are patenting issues specific to certain technical fields:
- patentability exceptions and exclusions in biotechnology
- assessment of novelty, inventive step, clarity, sufficiency of disclosure and unity of invention for chemical inventions
- the patentability of computer-implemented inventions, business methods, game rules, mathematics and its applications, presentations of information, graphical user interfaces and programs for computers
- claim formulation for computer-implemented inventions

Each publication focuses on one topic at entry, intermediate or advanced level. The explanations and examples are based on the European Patent Convention, the Guidelines for Examination in the EPO and selected decisions of the EPO's boards of appeal. References are made to the Patent Cooperation Treaty and its Regulations whenever appropriate.

The series will be revised annually to ensure it remains up to date.

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All references to natural persons are to be understood as applying to all genders.
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1. Learning objectives

Participants to this course will learn:
▪ The principle and the importance of unity of invention
▪ The legal framework governing the application of unity at the EPO
▪ The differences between a priori and a posteriori lack of unity
▪ What is meant with a contribution over the prior art
▪ What is a single inventive concept
▪ The minimum reasoning
▪ The examiner's approach to unity
▪ The definition of cascading non unity, its meaning and importance
▪ How to learn more about unity at the EPO,

2. Fair balance – one fee, one search

The requirement of unity of invention is firstly a question of logic and common sense, and ultimately one of fairness too. Without this requirement, the same application could potentially contain completely different inventions, such as an electronic circuit and a device to measure blood pressure.

At the same time, the requirement ensures the balance and fairness that one search fee is applied and paid for each invention – this is fair for both applicants and the public at large.

Nevertheless, a group of inventions can be contained in the same application as long as the inventions are linked by a single inventive concept.

Examples

An application claims a plug and a socket. Is this allowable?

In general, no. Two separate applications must be filed, one for the plug and one for the socket.

However, if the plug and the socket comprise a special mechanism, with components in both parts, that makes the coupling between the two particularly safe or mechanically stable or child-proof, etc., then there is a single inventive concept and both plug and socket can form the subject-matter of a single application.

Legal references:
Art. 82 EPC
R. 44 EPC

3. Legal basis

Article 82 EPC states that a European patent application must relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.

Rule 44 EPC stipulates that the conditions set in Article 82 EPC regarding a single general inventive concept are fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features.
The expression "special technical features" means those features which define a contribution that each of the claimed inventions, considered as a whole, makes over the prior art.

Rule 44 EPC also states that when assessing unity it makes no difference if the different inventions are recited in different claims or as alternatives in the same claim.

Legal references:
Art. 82 EPC
R. 44 EPC

4. Lack of unity a priori or a posteriori

Lack of unity in a patent application can manifest itself a priori or a posteriori. The sense of before or after is in relation to the prior art, i.e. lack of unity can be ascertained without considering the prior art (lack of unity a priori) or after considering the prior art (lack of unity a posteriori).

The first case refers to situations where the same invention claims clearly unrelated subject-matter; the second refers to when there is common subject-matter that links the two inventions but which, in the light of the available prior art, is not novel or not inventive.

Examples

First invention in claim 1 claims features A+B+C; second invention in claim 2 claims features D+E+F. No connection whatsoever between claims 1 and 2. Non-unity a priori – no need to look at the prior art.

First invention in claim 1 claims features A+B+C; second invention in claim 2 claims features D+F+C.

Unity?

C is a feature common to claim 1 and claim 2, so no non-unity a priori. However, is the application unitary?

Case 1: C is a genuinely inventive feature not known or rendered obvious by the available prior art, linking the two inventions by a common inventive concept. Therefore: yes, unity of invention.

Case 2: C is a feature known or made obvious by the available prior art. No common single inventive concept: the application lacks unity.

An application claims:

Invention 1: a fork with a handle and three prongs, covered with a special alloy with low thermal conductivity so that the food is not cooled when the fork contacts it.

Invention 2: a knife with a handle and a blade covered with the same alloy.

Unity?

The two inventions have a common feature – the alloy – so no lack of unity a priori.
Is the alloy known from the prior art and its use for cutlery standard? If so, then no common inventive concept. Application is non-unitary.

Legal references:
Art. 82 EPC
R. 44 EPC

5. Minimum Reasoning

An objection of lack of unity must consist of logically presented, technical reasoning containing the basic considerations behind the finding of lack of unity. If necessary, it must comprise considerations relating to the number and grouping of the claimed separate inventions.

When raising a non-unity objection, the division must back it up with a minimum reasoning outlining at least the following elements:

- the common matter, if any, between the groups of inventions. The common matter is based on the same or corresponding technical features. It is not confined to individual features but also includes synergistic effects being the result of a combination of features, see G-VII, 7;
- the reasons why this common matter cannot provide a single general inventive concept based on the same or corresponding special technical features. This includes prior art or general knowledge or the teaching of the application itself which anticipates or renders obvious the common matter (and the general problem if applicable). If prior art is relied upon, it must be identified, indicating any relevant passages and the reasons why they are considered relevant;
- the reasons why there is no technical relationship between the remaining technical features of the different groups of claims, including:
  a. an identification of any remaining technical features of the different groups and the respective claims of each group, with an explicit statement that these technical features are different;
  b. for each group, an identification, in the light of the description, of the objective technical problem(s) solved by these remaining technical features;
  c. why the problem(s) solved are either known from the prior art or are different so that the different technical features cannot be considered to be “corresponding special technical features”;

- in all cases, the minimum reasoning comprises a concluding statement that, because neither the same nor corresponding special technical features are present in the claims, there is no single general inventive concept and the requirements for unity of invention are not met;
- in special cases, point (iii), parts (a) to (c), which prove that there is no technical relationship involving the same or corresponding special technical features, will be automatically covered if it is explained:
  a. why grouped alternatives of chemical compounds are not of a similar nature;
  b. in case of lack of unity between intermediate and final products, why the intermediate and final products do not have the same essential structural elements and are not technically closely interrelated;
  c. why a process is not specially adapted to the production of a product;
  d. why a product itself does not provide a single general inventive concept linking different uses as defined in the claims;
e. why a use in itself does not provide a single general inventive concept linking the subject-matter of the claims.

In the above minimum reasoning, the concepts of "common matter", "prior art" and "technical problem" are defined and used. Further elements of definition of these concepts are:

- The "common matter" represents a potential single general inventive concept amongst the claims. It can be present in features that are identical or analogous (corresponding). Analogous features may be identified by checking which features provide, alone or in combination, a common technical effect or a solution to a common technical problem.

Common matter may also be embodied in features of claims of different categories, if they fulfil the above criteria. For example, in the case of a product, a process specially adapted for the manufacture of that product and the use of that product, the product may be the common matter which is present in the use and in the process as the effect or result of the process.

Common matter may also be embodied in interrelated product features (e.g. a plug and a socket). Although analogous (corresponding) features in interrelated products may be formulated quite differently, if in their interaction they contribute to the same technical effect or to the solution of the same technical problem, they may be part of the common matter.

- The prior art at hand, i.e. the prior art relied upon in the non-unity assessment may vary depending on the stage of proceedings. For example, if the assessment is carried out before the search, the only "prior art at hand" may be common general knowledge and/or the background art provided by the applicant in the description. It is also possible that no prior art at all is at hand at this stage of the proceedings.

When the assessment is carried out during the search, other prior art may be revealed and may form the prior art at hand for the non-unity assessment.

Therefore, the "prior art at hand" may range from nothing at all to the prior art found during a search and may change during the course of the proceedings.

- The technical problem: when analysing the technical problem for the purposes of the non-unity assessment, the overall objective is to find out what the claims have in common. The starting point is usually what is considered in the description to have been achieved but the technical problem may need gradual refinement as and when prior art is revealed.

The technical problem solved should not be too narrow or too general. If the technical problem is so broadly formulated that it is itself already known or could be recognised as generally desirable or obvious, unity usually cannot be established on the basis of this common problem.

Examples

Example:

Claim 1
Washing machine comprising a touchscreen display

Claim 2
Mechanical springs

Claim 3
Rubber dampers

Claim 4
In line valve
Claims 2, 3 and 4 depend directly on claim 1.

D2 (prior art at hand) discloses a washing machine having a touch screen.

**Two Examples of assessment of unity**

When assessing unity, the first step is to determine the common matter between all claims. If there is only a single independent claim from which a number of claims depend, the subject-matter of the independent claim is usually the common matter.

If several independent claims are present, the examiner determines which features are the same in all independent claims and if there are any features that are corresponding.

If a single independent claim relates to several alternatives, a similar approach should be taken by the examiner.

**Example 1:**

For example, an application contains four claims:

Claim 1: A

Claim 2: Claim 1 + B1 + C

Claim 3: Claim 1 + B2 + C

Claim 4: Claim 1 + B3 + D

In a first step (i), the examiner determines that the common matter is the subject-matter of the independent claim, namely feature A.

However, upon reading the application, it is noted that the prior art cited by the applicant already discloses this feature A.

Therefore, a priori, without carrying out a prior art search, in step (ii) it is determined that the common matter cannot represent a single general inventive concept since it is not novel over the prior art at hand, i.e. the document cited in the description. In this particular situation the dependent claims must be considered and analysed, with respect to each other, as if they were independent claims:

In step (iii), the examiner needs to identify, in the light of the description, which potential objective technical problem is solved by each of the remaining features B1+C, B2+C and B3+D. In this respect, it may be enough to look at these features in an isolated form or they may have to be analysed in the context of the features of the independent claim to determine the technical problem solved.

The outcome of this analysis may lead to the following results:

Each of the three feature combinations relates to a different technical problem and consequently the application relates to three potential inventions; or

Upon a closer look, features B1, B2 and B3 contribute to the same technical problem and consequently are corresponding features. In this case, the analysis under point (iii) leads to the result that features have been overlooked when the common matter was determined. If this is the case,
the examiner has to return to step (ii) to repeat the comparison of this adapted common matter with the prior art at hand. If these features are non-obvious over the prior art at hand, unity is established between the dependent claims.

It may also happen that feature combinations B1+C and B2+C contribute to the same technical problem and are corresponding features while B3+D contributes to a different technical problem. Consequently, the application contains two potential inventions.

It is important to keep in mind that at this stage, the examiner is only concerned with the assessment of unity but not yet with the assessment of patentability. To emphasize this difference, it is only referred to potential inventions.

If the finding of lack of unity of the application takes place in the search phase, a mere existence of lack of unity does not necessarily mean that the examiner has to raise this objection or that he / she is obliged to invite the applicant to pay a further search fee for all the groups of potential inventions identified (see F-V, 3, B-VII, 2.2).

The technical problem will normally be considered in two instances in the non-unity assessment, namely, in the determination of the common matter and in the analysis of the remaining technical features.

When assessing the remaining technical features in step (iii), the technical problem needs to be considered to establish how the claims should be grouped. In this respect, the technical problem has to be chosen carefully, i.e. not too narrow and not too broad, see example below.

Example 2:

The following example concerns an a-posteriori lack of unity, where the subject-matter of the single independent claim lacks novelty over the prior art at hand revealed during the search (adapted from WO6/07):

Claim 1 relates to a positron emission tomography (PET) system for the examination of human body parts, the system comprising

at least two detecting plates;

an electronics system composed of front-end electronics and a trigger and data acquisition system located off-detector in an

electronic crate and

a motorized mechanical means for moving the detecting plates.

The dependent claims define additional features relating to the structure of the detector array, the scintillating crystals, the photosensors, the motorised mechanical means and the uses of the PET system. They all depend directly on claim 1.

Claim 2 relates to the structure of the detector array; claims 3 to 4 to that of the scintillating crystals and claim 5 to the photosensors.

Claim 6 relates to the motorised mechanical means.
Claims 7-10 relate to the uses of the PET system.

Claims 10-11 relate to additional features for the subdivision of the electronics into front-end and data-acquisition systems.

Claims 12-15 relate to details of the image processing, visualisation and analysis.

In step (iii) the examiner analyses the remaining technical features in order to decide upon a reasonable grouping. In this analysis, he / she analyses which of the dependent claims, if any, can be grouped together in view of the technical problems they are associated with.

In the current case, the examiner decides to group the claims as follows:

A first group of claims (claims 2-7) include claims directed to details of the detector arrays (claims 2 to 5) but also includes claims directed to details of the motorised mechanical means (claim 6) and claims directed to the uses of the PET system (claims 7 to 9).

Similarly, a second group (claims 10-11) includes claims which concern the front-end electronic architecture (claim 10) but also claims concerning the separate data acquisition electronics (claim 11).

A third group (claims 12-15) includes claims directed to the image reconstruction (claim 12), the visualisation of the image (claims 13) and the analysis of the image (claims 14-15).

At a first glance the dependent claims may appear to be rather inhomogeneous. In order to decide on the grouping, usually, one starts with what is considered in the description as having been achieved by the technical features.

In the current case, the description explains that the detector dimensions and the crystal properties (claims 2-4) have a direct impact on the detector sensitivity. The use of a specific type of photodetector (claim 5) enables a higher quantum efficiency whilst permitting a very compact construction. The movement of the plates (claim 6) enables integration with other imaging systems. Thus, the description itself recognizes that the claims within the first group solve each a different distinct problem.

However, when assessing if technical features are corresponding, the aim of the exercise is to see whether any commonality may be established. It is therefore necessary to redefine the very specific problems associated with each of the dependent claims, to arrive at a more general problem. In doing, the search examiner managed in the current example to group together a number of aspects which, when taking a very narrow approach are apparently unconnected both in terms of structural features and in terms of problems solved.

Thus in group 1, despite a first impression that the technical features of the various claims actually solve very distinct problems, it may be seen that the more generalized problem of an improvement of sensitivity, efficiency and uniformity is achieved by the detector heads, the photosensors and the motorised movement means.

Similarly, although each of the claims in group 2 concerns a different specific problem, the more general problem of providing fast processing whilst maintaining a compact system could be identified.
Likewise, the claims in group 3 are each directed to distinct problems but the examiner has nevertheless identified the more general problem of providing flexible image formation and enabling a wide range of information from the acquired data to be obtained.

As this example teaches, the distinct problems given in the description for the claims of the first group were too narrow. Basing the grouping of the claims on these too narrow approach would be unfair to the applicant.

However, the technical problem should also not be too general: The technical problem could be further abstracted to how to improve the compact PET system to achieve a high performance. Based on this technical problem, the features of all dependent claims would have to be regarded as corresponding features contributing to the solution of that problem. This would mean that these features should contribute to the common matter. However, the technical problem would in this case be formulated so broadly that it would be recognized as either known or generally desirable. High performance is a fundamental requirement that the skilled person will always strive for in PET systems. This problem therefore could not be considered to endow unity upon the three inventions identified by the search examiner.

Hence, the specific problems solved by the technical features of the claims in different groups may need gradual refinement, in particular generalization starting from the problems directly solved, to find out whether or not there is a common denominator.

The above example teaches that the grouping of the claims should be done carefully. Although it may be possible to define many groups of inventions, potentially defining a group of invention for each dependent or independent claim, such an approach will be too academic in most cases. For this reason, claims should be grouped together based on a technical commonality shared by the group of claims as outlined above. Alternatively, the examiner may also consider not to ask for an additional search fee for some or all of the defined groups of inventions depending on the case, see B.VII, 2.2.

When analysing the remaining technical features which are not part of the common matter, the content of the description as well as the knowledge of the skilled person has to be taken into account. With its help, the effects associated with the feature of the claims can be established. Often the effects of the technical features and consequently the problems to be solved are not derivable from the claims, e.g. when dealing with compounds per se. In such cases the effects, activity or other properties disclosed by the application are taken into account when formulating the problem to be solved.

In such cases of compounds per se, where the structure as a whole is often responsible for the specific properties or effects, whereas individual structural elements (such as side chains, substituents, etc.) taken in isolation cannot be associated with the properties or effects, the principles of alternative in a single claim are adhered to. Also in the case of "Markush" claims, see F.V, 3.2.5.

Examples of minimum reasoning

NB: These practical examples are simplified and theoretical illustrations of how all the elements of minimum reasoning might be applied in practice. Correspondence with the points in the minimum reasoning is indicated in square brackets for purposes of illustration.
Example 1: A POSTERIORI NON-UNITY BETWEEN DEPENDENT CLAIMS

The application contains three claims:

Claim 1: A system for inspecting cargo containers, the system comprising a processing unit, a vehicle and a sensor mounted on the vehicle, wherein the processing unit is configured to cause the vehicle to move along the cargo container and to collect data from the sensor.

Claim 2: A system according to claim 1, wherein the sensor is a radiation detector.

Claim 3: A system according to claim 1, wherein the vehicle is a drone.

The prior art at hand discloses all the features of claim 1.

Reasoning for lack of unity of invention

The application lacks unity (Article 82 EPC).

The following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Group I: claims 1 and 2
Group II: claims 1 and 3

The reasons are as follows:

[point i.]
The common matter linking these separate inventions together is the subject-matter of independent claim 1.

[point ii.]
This common matter is already known as D1 discloses these features, e.g. in fig. 1 and par. 10. The common matter can therefore not constitute a single general inventive concept linking together the claims.

[point iii.(a)]
Starting from this common matter, the potential invention 1 comprises the following additional features of the sensor being a radiation detector.

The potential invention 2, on the other hand, comprises the additional features of the vehicle being a drone.

Consequently, the features of potential invention 1 and potential invention 2 which make a technical contribution over the common matter are different.

[point iii.(b)]
The problems solved by these technical features can be construed as the wish to identify a hidden nuclear threat within a cargo container;
approach the cargo so closely so that the signal to noise ratio of the collected data can be improved.

[point iii.(c)]

As the technical problems are different, the different technical features cannot be considered as being "corresponding special technical features".

[point iv.]

As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 44 EPC is lacking and the claims are not so linked as to form a single general inventive concept. Therefore, the application does not fulfil the requirement for unity of invention in the sense of Article 82 EPC.

Example 2: TWO INDEPENDENT CLAIMS

Claim 1: A surgical light device comprising a lighthead wherein the lighthead is configured to emit light of variable colour.

Claim 2: A surgical light device comprising a mobile ground base, wherein the mobile ground base comprises a battery as power source for the surgical light device.

Description: The colour of the illumination unit may be adapted to a particular tissue type of interest for better recognition. The use of a battery avoids a cabled connection to the mobile ground base which constitutes a tripping hazard in an operating room.

Surgical light devices are considered to be part of the common general knowledge for the person skilled in the art.

Reasoning for lack of unity of invention

The application lacks unity (Article 82 EPC).

The following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Group I: claim 1
Group II: claim 2

The reasons are as follows:

[point i.]

The common matter linking these separate inventions together is the surgical light device.

[point ii.]

This common matter is already known from common general knowledge. The common matter can therefore not constitute a single general inventive concept linking together the claims.

[point iii.(a)]
Starting from this common matter, the potential invention 1 comprises the following additional features of a lighthead wherein the lighthead is configured to emit light of variable colour.

The potential invention 2, on the other hand, comprises the additional features of a mobile ground base, wherein the mobile ground base comprises a battery as power source for the surgical light device.

Consequently, the features of potential invention 1 and potential invention 2 which make a technical contribution over the common matter are different.

[point iii.(b)]

The problems solved by these technical features can be construed as the wish to increase recognition of particular details in the surgical field; reduce tripping hazards in the operating room.

[point iii.(c)]

As the technical problems are different, the different technical features cannot be considered as being "corresponding special technical features".

[point iv.]

As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 44 EPC is lacking and the claims are not so linked as to form a single general inventive concept. Therefore, the application does not fulfil the requirement for unity of invention in the sense of Article 82 EPC.

Example 3: A PRIORI NON-UNITY BETWEEN TWO INDEPENDENT CLAIMS

Claim 1: A headgear with features A+B for use in steering a wheelchair.

Claim 2: A hydraulic lifting mechanism with features C+D for use in a wheelchair.

Reasoning for lack of unity of invention

The application lacks unity (Article 82 EPC).

The following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Group I: claim 1

Group II: claim 2

The reasons are as follows:

[point i.]

There is no common matter present in the claims which is linking these separate inventions together.
[point ii.]
In the absence of common matter, there is no single general inventive concept linking together the claims.

[point iii.(a)]
The potential invention 1 comprises the features of
a headgear with features A+B.

The potential invention 2, on the other hand, comprises the features of a hydraulic lifting mechanism with features C+D.

Consequently, the features of potential invention 1 and potential invention 2 which make a technical contribution are different.

[point iii.(b)]
The problems solved by these technical features can be construed as the wish to
allow a person to steer a wheelchair merely by head movement;
support a person to stand up from a wheelchair.

[point iii.(c)]
As the technical problems are different, the different technical features cannot be considered as being "corresponding special technical features".

[point iv.]
As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 44 EPC is lacking and the claims are not so linked as to form a single general inventive concept. Therefore, the application does not fulfil the requirement for unity of invention in the sense of Article 82 EPC.

Example 4: A POSTERIORI NON-UNITY BETWEEN TWO INDEPENDENT CLAIMS

Claim 1: A shopping basket comprising a body, two or more wheels and a foldable handle, wherein at least two of its bottom corners are internally provided with isolating walls forming a volume configured to receive wheels of a basket stacked above.

Claim 2: A shopping basket comprising a body, two or more wheels and a foldable handle, wherein said shopping basket comprises a second handle located on one of its sidewalls, the second handle being extendable.

Prior art: Document D1 discloses a shopping basket comprising a body, two or more wheels and a foldable handle.

Reasoning for lack of unity of invention
The application lacks unity (Article 82 EPC).
The following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Group I: claim 1

Group II: claim 2

The reasons are as follows:

[point i.]
The common matter linking these separate inventions together is a shopping basket comprising a body, two or more wheels and a foldable handle.

[point ii.]
This common matter is already known from D1, e.g. as disclosed in fig. 2 and par. 3. The common matter can therefore not constitute a single general inventive concept linking together the claims.

[point iii.(a)]
Starting from this common matter, the potential invention 1 comprises the following additional features of at least two of the baskets bottom corners are internally provided with isolating walls forming a volume configured to receive wheels of a basket stacked above.

The potential invention 2, on the other hand, comprises the additional features of

a second handle located on one of its sidewalls, the second handle being extendable.

Consequently, the features of potential invention 1 and potential invention 2 which make a technical contribution over the common matter are different.

[point iii.(b)]
The problems solved by these technical features can be construed as the wish to

isolating the floor of the basket from dirt carried by the wheels of a further basket stacked above;

facilitating the grip of the basket by users of different heights.

[point iii.(c)]
As the technical problems are different, the different technical features cannot be considered as being "corresponding special technical features".

[point iv.]
As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 44 EPC is lacking and the claims are not so linked as to form a single general inventive concept. Therefore, the application does not fulfil the requirement for unity of invention in the sense of Article 82 EPC.
Example 5: ALTERNATIVES WITHIN A SINGLE CLAIM

The application contains a single claim:

Claim 1: Method of diagnosing disease X by genotyping at least one of Single Nucleotide Polymorphisms (SNPs) SNP1, SNP2, SNP3 or SNP4.

Description: SNPs 1-4 are located in gene Y

Prior art: Method for diagnosing disease X by genotyping SNP5 in gene Y

Reasoning for lack of unity of invention

The application lacks unity (Article 82 EPC).

The following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Group I: claim 1 wherein the SNP is SNP1.

Group II: claim 1 wherein the SNP is SNP2.

Group III: claim 1 wherein the SNP is SNP3.

Group IV: claim 1 wherein the SNP is SNP4.

The reasons are as follows:

[point i.]

The common matter linking the alternatives within claim 1, i.e. the separate inventions together is a method of diagnosing disease X by genotyping at least one of SNPs.

[point ii.]

This common matter is already known from D1, e.g. as disclosed in the abstract. The common matter can therefore not constitute a single general inventive concept linking together the alternatives within claim 1.

[point v.(a) replacing points iii.(a), (b) and (c)]

The alternatives (SNP1, SNP2, SNP3 and SNP4) are structurally unrelated.

[point iv.]

As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 44 EPC is lacking and the claims are not so linked as to form a single general inventive concept. Therefore, the application does not fulfil the requirement for unity of invention in the sense of Article 82 EPC.
Example 6: ALTERNATIVE PRODUCTS

This example concerns alternative chemical compounds and provides an alternative reasoning to point iii parts (a) - (c). The reasoning under point v part (2) may be used in place of the three part reasoning under point iii.

Case description

An application has the following claims:
1. Composition comprising an anticancer agent for use in treating lung cancer by inhalation
2. Composition according to claim 1, wherein the anticancer agent is compound A.
3. Composition according to claim 1, wherein the anticancer agent is compound B.
4. Composition according to claim 1, wherein the anticancer agent is compound C.
5. Composition according to claim 1, wherein the anticancer agent is compound D.

The subjective problem to be solved by the present application is described on page 1 of the description, lines 10-15, as being the provision of an alternative medicament for the treatment of lung cancer. However, compounds A-D are structurally completely different, as is immediately evident from their chemical structure depicted on pages 2-3 of the description of the present application.

During the search, the examiner finds that the use of an anticancer agent X for treating lung cancer by inhalation is already known.

The examiner decides to raise an objection of lack of unity, to search the first invention (wherein the anticancer agent is compound A) and to invite the applicant to pay three additional search fees.

Typical reasoning

Invention 1: claims 1 and 2
Composition comprising an anticancer agent for use in treating lung cancer by inhalation, wherein the anticancer agent is compound A.

Invention 2: claims 1 and 3
Composition comprising an anticancer agent for use in treating lung cancer by inhalation, wherein the anticancer agent is compound B.

Invention 3: claims 1 and 4
Composition comprising an anticancer agent for use in treating lung cancer by inhalation, wherein the anticancer agent is compound C.

Invention 4: claims 1 and 5
Composition comprising an anticancer agent for use in treating lung cancer by inhalation, wherein the anticancer agent is compound D.

[point i] Common matter
The common matter is the use of a composition comprising an anticancer agent in treating lung cancer by inhalation as defined in claim 1. The remaining technical features of compounds A-D are not corresponding since the compounds are structurally completely different. The only technical effect compounds A-D share of being usable as an anticancer agent suitable for treating lung cancer is already defined in claim 1.

[point ii] Reasons why the common matter does not provide a single general inventive concept

The solution proposed by the applicant is the provision of alternative anticancer agents, in particular compounds A-D, for treatment by inhalation. However, the use of an anticancer agent for the treatment of lung cancer by inhalation is known e.g. from D1 (US123456), which discloses in column 2, lines 10-15, an anticancer agent X for the treatment of lung cancer. In a preferred embodiment, found in example 2, column 5, D1 discloses that compound X is administered by inhalation.

This means that the common concept of using an anticancer agent for the treatment of lung cancer by inhalation is not novel. As a consequence, the common matter does not involve the same or corresponding special technical features and therefore cannot be a single general inventive concept within the meaning of Article 82 EPC.

[point iii (a)] Remaining technical features

The four potential inventions are defined by compounds A-D, which are structurally different and not corresponding, see reasoning above. There are no further technical features.

[point iii (b)] Objective technical problem each invention solves

The four inventions solve the problem of providing alternative compounds as anticancer agent for treating lung cancer by inhalation.

[point iii (c)] Assessment of objective technical problem in view of the prior art at hand

The objective problem of providing alternative compounds as anticancer agent for treating lung cancer by inhalation is well known from the prior art, see D1 described above. Consequently, the mere provision of alternative compounds as anticancer agent for treating lung cancer by inhalation cannot be considered as constituting a corresponding special technical feature providing a contribution over the prior art, as required by Rule 44(1) EPC.

[point iv]

For the reasons outlined above, the same features as defined in claim 1 as well as the features as defined by compounds A-D do not represent special technical features and as a consequence there is no single general inventive concept present. As a result, the requirements of unity (Article 82 EPC) are not met.

[point v (1)]: Alternative reasoning to point iii (a) - (c) for alternative chemical compounds

As outlined above, compounds A-D defining the four inventions do not share any structural similarities, which could potentially represent a same or corresponding special technical feature.
Example 7: INVENTIONS SOLVING THE SAME PROBLEM

Claim 1: A washing machine comprising rubber dampers.

Claim 2: A washing machine comprising metal springs.

D1 discloses a washing machine comprising a rubber sling suspension.

In this case the features of rubber dampers, metal springs and of a rubber sling suspension provide the same technical effect of reducing vibrations of the washing machine during operation. Hence, these features solve the same technical problem of reducing vibrations in the washing machine and therefore they are corresponding.

Here the phrase in element iii.(c) of "why the problem(s) solved are ... known from the prior art" is of relevance. It predominantly concerns alternative solutions to the same known problem. Whether the technical problem itself is known or not is irrelevant. What is of relevance is if a solution to it is known. If multiple alternatives are provided, each alternative itself may be inventive but nevertheless, the alternatives may lack unity between them.

Generally said, the mere provision of alternatives does not qualify for a contribution over the prior art irrespective of whether the alternatives themselves are inventive or not, see F-V, 3.2.5 and F-V, 3.3.1 item (1) and W 19/89.

A minimum reasoning may look like as follows:

Invention 1: Claim 1

Invention 2: Claim 2

[point i] Common matter

Both inventions share the identical feature of a washing machine. The rubber dampers and metal springs provide the same technical effect of reducing vibrations of the washing machine during operation. Hence, these features solve the same technical problem of reducing vibrations in the washing machine and therefore they are corresponding. As consequence, the common matter between both inventions is a washing machine with means adapted to reduce any vibrations of the washing machine during operation.

[point ii] Reasons why the common matter does not provide a single general inventive concept D1 discloses a washing machine comprising a rubber sling suspension, see claim 1 of D1. As outlined in D1 page 2 the rubber sling suspension serves the purpose of reducing vibrations of the washing machine during operation. Thus, D1 discloses a washing machine with means adapted to reduce any vibrations of the washing machine during operation. For this reason, the common matter between inventions 1 and 2 is known from the prior art document D1.

[point iii (a)] Remaining technical features
The remaining technical feature of invention 1 is a rubber damper and that of invention 2 is a metal spring.

[point iii (b)] Objective technical problem each invention solves

Both remaining features solve the same technical problem of reducing vibrations in the washing machine during operation.

[point iii (c)] Assessment of objective technical problem in view of the prior art at hand

D1 on the other hand discloses a washing machine comprising a rubber sling suspension, which represents a successful solution to the same problem. Since the problems solved by the two inventions has been successfully solved by D1, the different technical features of rubber dampers and metal springs cannot be considered to be "corresponding special technical features".

[point iv]

As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 44 EPC is lacking and the claims are not so linked as to form a single general inventive concept. Therefore, the application does not fulfil the requirement for unity of invention in the sense of Article 82 EPC.

Legal references:
Art. 82 EPC
R. 44 EPC
GL F-V, 3.3 and GL F-V, 3.3.1

6. Single inventive concept – different claims or alternatives in a single claim

Different inventions can be claimed either in different claims or as alternatives within a single claim.

When assessing unity, the two possible cases are treated in exactly the same way. The fact that different inventions are formulated as alternatives within a single claim adds nothing whatsoever to the unitary nature of the patent application.

Furthermore, the assessment of unity for the different inventions is subject to the same criteria in both cases.

Legal references:
Art. 82 EPC
R. 43 EPC; R. 44 EPC
GL F-V, 3

7. Examiner’s approach

The requirement of unity of invention is essentially one of fairness for both the applicant and the public. It also reflects the principle of "one search fee = one invention".
When checking unity, the approach at the EPO is a practical, common-sense one. Raising a non-unity objection purely with a narrow, academic approach should be avoided.

A good guiding principle is whether or not raising an objection of non-unity leads to a further search. In other words, if there would be no need for a further specific search if an objection of non-unity was not raised, this indicates that it would not be expedient to raise an objection.

Typically, this is the case when an application defines a main invention in a claim and subsequent claims define "minor" extra aspects not worth separate searches.

In essence, the EPO approach is founded on common sense while abiding by the "one fee = one search" principle.

It should also be noted that an objection of lack of unity can be raised at any time during the procedure.

If the examiner detects non-unity at the search stage, the first invention mentioned in the claims is searched and the applicant is invited to pay additional search fees for the other inventions.

The remaining inventions will be searched by the EPO only once the additional fees have been paid, and a further search report will be communicated to the applicant.

Examples

Application contains inventions A and B. A is the first one mentioned in the claims;

A and B are non-unitary.

The EPO only searches A and invites the applicant to pay a further search fee. Once this is paid, a search for invention B is performed and a further search report is communicated to the applicant.

Legal references:
Art. 82 EPC
R. 44 EPC
GL F-V, 2.2

8. Cascading non-unity

If a patent application contains two or more inventions, the examiner searches only the first invention and invites the applicant to pay the search fees for the other inventions. For example, if there are two inventions, A and B, that are non-unitary, only invention A is initially searched.

If the applicant then pays the additional search fee, a search for invention B is performed. In the light of this second search, invention B might also turn out to contain more than one invention and lack unity (in this case a lack of unity a posteriori), i.e. there might be invention B1, B2, B3, etc.

In this case, only invention B1 would be searched.

Subject-matter that is found to be non-unitary with the first invention recited in the claim can always be the subject of one or more divisional applications.
9. Review of board of appeal decisions

The boards of appeal are the courts of highest instance within the EPO and their decisions are crucial in relation to the principles guiding EPO examiners’ application of EPC articles and rules. In addition, rules are sometimes amended in the light of board decisions.

The same applies to unity, with the boards deciding on contentious cases of unity, i.e. where an applicant has filed an appeal. It is therefore extremely useful to regularly consult the boards’ decisions, which are always made available to the public. See for example:

[epo.org/links](http://epo.org/links/)

See also:

[epo.org/links](http://epo.org/links/)

where the decisions are continuously updated.

Legal references:
Caselaw of the BoA, 6.2.1
G 2/92