

DOCTRINE OF EQUIVALENTS: FOOD FOR THOUGHT

Gaetano Barbaro*

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ABSTRACT

The doctrine of equivalents allows to broaden the scope of claims to encompass products or processes that do not fall within the literal scope of a patent claim but are nevertheless equivalent to the claimed ones. It is proposed that a test to evaluate whether a disputed item (product or process) falls within the scope of a claim by the application of the doctrine of equivalents should be construed such that its outcome is known to the parties *a priori* (i.e., prior to the trial), wherein the claims determine the extent of protection, but the description and drawings of the patent can be used to interpret the claims beyond their literal scope. The fact that the outcome of the application of the doctrine of equivalents is known *a priori* would ensure fair protection for the patent proprietor and a reasonable degree of legal certainty for third parties. It is demonstrated that this paradigm leads to the conclusion that if a claim satisfies the requirement of inventive step with respect to (i) the presumed pre-disclosure of the disputed item, (ii) the prior art discussed in the patent, and (iii) the common general knowledge, then the disputed item is not within the scope of the claim, even under the doctrine of equivalents.

Keywords: infringement, equivalents, foreseeability, validity.

1 INTRODUCTION

The doctrine of equivalents allows patent proprietors to succeed in a patent infringement trial even if a disputed item (apparatus or process) does not fall within the literal scope of the claims. The purpose of the doctrine of equivalents is to promote fair patent coverage so that trivial departures from the claim language cannot be used to avoid infringement. Unfortunately, the doctrine of equivalents makes the scope of protection ambiguous causing a conflict between the protection of a patent holder on the one side and the legal certainty of third parties on the other side. Over the years, tests have been developed to evaluate whether the disputed item falls within the scope of a claim through the application of the doctrine of equivalents, such as for example the Function-Way-Result test and of the Obviousness test. In certain countries there are similar criteria to find infringement when an accused device or process is not literally covered by a valid claim of a patent. For example, it may be

required that the attacked embodiment with modified means achieve the same result as the patented invention (the “triple identity” test in the United States, the first question of “same result” in the United Kingdom), in other words, that the attacked embodiment solves the problem underlying the patented invention (the first principle of “equal effect” in Germany, the second requirement of “interchangeability” in Japan). In addition, it may be required that the same result is obtained by the same function (the United States, Japan), by the same effect (Germany, Japan) or in the same way (the United States, the United Kingdom).

However, there is not yet a single criterion for all European countries for applying the doctrine of equivalents, thus the scope of validation patents stemming from a same European patent may be determined differently from different national Courts. It is also unclear whether the doctrine of equivalents applies also to utility models or to patents only.

Moreover, there is no common position concerning whether the modified means is to be considered equivalent to the claimed means based on the knowledge of the skilled person at the priority date or at the time of infringement. According to an opinion, this difference does not play a huge practical role¹, but this is open to discussion.

It will be shown that, at least in certain cases, the outcome of the Function-Way-Result test and of the Obviousness test may not be known by the parties prior to the trial, which would lead to a legal uncertainty and may even cause paradoxes if it is found at the trial that the disputed item was publicly available.

The present paper explores the logical implications of certain requirements that a test should have to assert or deny the presence of infringement in cases where the doctrine of equivalents is applied, and it derives criteria from these requirements to suggest a new test that can be used at trial. It is shown that the Function-Way-Result test and the Obviousness test do not satisfy these requirements and that, conversely, the outcome of the new test is compliant with the requirements and is known by the parties prior to the trial.

2 THE TEST

We are looking for a test that determines whether a disputed item infringes a claim through the application of the doctrine of equivalents. The desired ideal test (“Test X”) should meet the following REQUIREMENTS:

* M.D. in Electronic Engineering, University of Naples; Italian and European Patent and Trademark Attorney; European Patent Litigator - Società Italiana Brevetti S.p.A.

¹ Tobias Wuttke, *“The Doctrine of Equivalents in the UPC”*, EPLP - European Patent Litigation in Practice, Vol. 2-2024, pages 61-66, March 2024.

A) The outcome of the test is known by the parties *a priori* (i.e., prior to the trial).²

B) The claims determine the extent of protection; nevertheless, the description and drawings of the patent may be used to interpret the claims beyond their literal scope. The interpretation of the claims should ensure fair protection for the patent proprietor and provide a reasonable degree of legal certainty for third parties.

REQUIREMENT A) has been chosen because “*uncertainty as to whether a patent’s claims cover an improvement can chill innovation by exposing the would-be improver to potential liability for infringement under a claim of equivalency*”³. Moreover, “*patents play a major role in competition, and the need for predictability and legal certainty is particularly great. Investment decisions cannot wait for years for judgments concerning the extent of protection*”⁴. Regarding REQUIREMENT B), it merges Art. 69(1) EPC⁵ with Art. 1 of the Protocol on the Interpretation of Article 69 EPC⁶.

3 APPLICATION OF THE TEST

1. An exemplary instance where Test X is adopted can be described as follows:

Suppose that in a first instance trial, it was decided that the disputed, potentially infringing item

$$[a \text{ AND } b1] \quad \text{i.e.,} \quad a \cdot b1^7$$

is comprised in a non-literal way within the scope of a claim

$$[a \text{ AND } b2] \quad \text{i.e.,} \quad a \cdot b2$$

because technical feature b1, although different from technical feature b2, is considered equivalent to technical feature b2 based on Test X.

Further assume that there is no relevant prior art, i.e., the patent claim is valid, and that the alleged infringer failed to prove, at the first instance trial, that the disputed item [a AND b1] was previously available or disclosed to the public. It follows that the disputed item [a AND b1] is infringing the claim because the following properties of VALIDITY⁸ and BELONGING are simultaneously true:

- VALIDITY: The claim encompassing [a AND b2] is valid.

² This also implies that all evidence and information relevant to determine the outcome of the test are known to the parties prior to the trial

³ Jeremy T. Marr, Foreseeability as a Bar to the Doctrine of Equivalents, SSRN Electronic Journal, 31 October, 2003.

⁴ Jan Brinkhof, Is There a European Doctrine of Equivalence? IIC, Vol. 33, 8/2002, 911–923.

⁵ <https://www.epo.org/en/legal/epc/2020/a69.html>

⁶ <https://www.epo.org/en/legal/epc/2020/protinta69.html>

⁷ A claim encompassing the technical features “a” and “b1” is represented with the notation [a AND b1], which corresponds to the notation $a \cdot b1$ in Boolean algebra, rather than the notation $a+b1$, which is more commonly used. A claim is a semantic definition of a set of items for which the patent proprietor wants exclusive rights; thus, a claim defining an item that has the features “a” and “b1” is essentially a description of the intersection between the set of items that comprise the feature “a” and the set of items that comprise the feature “b1.” From this point of view, the notation $a \cdot b1$ seems more proper.

⁸⁸ Where VALIDITY is intended to mean novel, inventive (or non-obvious), and industrially applicable.

- BELONGING: The disputed item [a AND b1] is within the claim scope encompassing [a AND b2] through the application of the doctrine of equivalents.⁹

2. On appeal, the alleged infringer succeeds in proving that the disputed item [a AND b1] was publicly available before the effective filing date of the patent (“pre-disclosed”) by submitting an invoice and a delivery note related to the item. It is concluded that the disputed item [a AND b1] does not infringe the patent claim encompassing [a AND b2], as there can be no infringement if the disputed item is found to be pre-disclosed (as established in the “Formstein” decision in Germany¹⁰, the “Gillette” decision in the UK¹¹, and the “Wilson” decision in the USA¹²).

3. In the first instance, it was decided that infringement was present because the two properties were simultaneously true: VALIDITY of the claim and BELONGING of the item to the claimed scope. However, as the absence of infringement was decided on appeal, at least one of the two properties, VALIDITY or BELONGING, must be false.

3a. If we (incorrectly) assume that the BELONGING element is false, then Test X would not meet all the REQUIREMENTS. To evaluate that, the following comparison table can be drafted:

Judicial Instance	Evidence	Assumption	Claim Scope
First instance	No invoice, no delivery note	BELONGING = TRUE	[a AND b1] is encompassed by the doctrine of equivalents in the claim [a AND b2].
Appeal	With invoice and delivery note	BELONGING = FALSE	[a AND b1] is not encompassed by the doctrine of equivalents in the claim [a AND b2].

In such a case, however, Test X would not meet all the REQUIREMENTS. Specifically:

* REQUIREMENT A) would be contravened, as one of the evidentiary components of Test X (whether the patent proprietor knew about the invoice and delivery note) would not be known by the parties *a priori*.

⁹ Throughout the present paper it will be assumed that VALIDITY and BELONGING are two defining properties or elements of Test X.

¹⁰ Moulded Curbstone (Formstein), Judgment of Federal Supreme Court of Germany, April 29, 1986, 18IIC 795 (1987).

¹¹ IPPT1913, UK House of Lords, Gillette Safety Razor v. Anglo-American Trading.

¹² Wilson Sporting Goods Co. v. David Geoffrey & Assoc., 904 F.2d 677, 14 U.S.P.Q.2d 1942 (1990), paragraph 53.

* REQUIREMENT B) would be contravened, as the above table would incorrectly imply that the scope of the patent is determined by an invoice or a delivery note.

Therefore, given that the BELONGING element cannot be false, it must be considered true.

3b. Turning now to the VALIDITY element of Test X, it should be proven false to avoid a paradox. Generally, validity encompasses three main components: novelty, inventive step (non-obviousness), and industrial applicability.

If the claim encompassing [a AND b2] is NOT valid, then at least one of the validity components must not be met. In the present case:

* [a AND b2] may be applied in an industry.

* [a AND b2] is novel: this requirement is verified because the pre-disclosure of the disputed item [a AND b1] would not destroy the novelty of the claim given that feature b2 is different from feature b1.

* Two of the three validity requirements are verified. To avoid what we term a “*Pre-disclosure Paradox*,” the inventive step or non-obviousness component (“Third Validity Requirement”) must necessarily be false.

Therefore, for the VALIDITY component of Test X to be false, the claim encompassing [a AND b2] must be obvious in light of the state of the art formed by the pre-disclosed item [a AND b1].

4 THE CRITERION IN ITS BROAD FORM

The above reasoning leads to the formulation of a criterion for excluding a disputed item from being considered within a claim scope through the application of the doctrine of equivalents if we cannot rule out prior to trial that the disputed item was pre-disclosed.

Test X = Criterion of Presumed Pre-Disclosure (Broad Form)

*IF it cannot be ruled out a priori that the disputed item [a AND b1] was pre-disclosed
AND IF the claim [a AND b2] satisfies the Third Validity Requirement (e.g., implies an inventive step)
with respect to a Presumed Pre-disclosure of the disputed item [a AND b1],
THEN the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2] under the
doctrine of equivalents.*

The Criterion of Presumed Pre-Disclosure differs from the “Formstein” (“Gillette”; “Wilson”) decision because the latter applies only if it is shown at trial that the disputed item was pre-disclosed. Conversely, the present Criterion applies whenever it cannot be ruled out *a priori* (i.e., prior to trial)

that the disputed item was pre-disclosed even in cases where evidence of pre-disclosure has not yet been provided. If it is later shown at trial that the pre-disclosure of the disputed item occurred, the “Formstein” (“Gillette”; “Wilson”) decision and the Criterion would be in harmony. This harmony may not happen with the tests currently in use (e.g., Triple Test (FWR) and Obviousness Test)^{13, 14} which could lead to paradoxes if, during the trial, it is found that the disputed item was indeed pre-disclosed. Two of such paradoxes are discussed below.

5 TRIPLE TEST (FWR) AND OBVIOUSNESS TEST ¹⁵: A FIRST PARADOX

Consider the case in which:

- feature b1 has a function F1 and a technical effect E1 and
- feature b2 has a main function F1 and a main technical effect E1, as well as an additional function F2 and an additional technical effect E2.

For the purposes of the Triple Test, the disputed item [a AND b1] has the same main function F1 and the same main effect E1 as the claimed invention [a AND b2]; thus, it can be considered an equivalent. For the purposes of the Obviousness Test, the disputed item [a AND b1] is not inventive compared with the claimed invention [a AND b2] because it has the same F1 function and the same E1 effect; hence, it is an equivalent of the claimed invention.

Consequently, the two tests agree that equivalence is present.

However, during the trial, it turns out that the disputed item [a AND b1] was pre-disclosed. Therefore, if Test X is adopted, at least one of its properties must be false:

- VALIDITY: the claim defining [a AND b2] is valid.
- BELONGING: item [a AND b1] belongs to the claim [a AND b2].

If the BELONGING property is false, then both Tests are invalidated by the trial’s findings, meaning that their outcome cannot be known *a priori*. Consequently, the VALIDITY property must necessarily be false.

However, the claim encompassing [a AND b2] could be valid if the claim:

- * has an industrial application;
- * is novel because feature b2 is different from feature b1, making [a AND b2] novel with respect to [a AND b1]; and
- * has an inventive step or non-obviousness, given that feature b2 has an additional function F2 and an additional technical effect E2 with respect to feature b1.

¹³ Sandro Hassan, Patent Equivalence — Some Italian Court Decisions from an International Perspective, IIC Vol. 43, 6/2012, 661–678.

¹⁴ Alan L. Durham, Patent Symmetry, Alabama School of Law, 87B.U.L. December 2007, 1–42.

¹⁵ Also referred to as the test of the obviousness of the solution in some sources.

In this case, the two Tests could be exposed to the *Pre-disclosure Paradox*: a valid claim includes within its scope a pre-disclosed item.

6 TRIPLE TEST (FWR) AND OBVIOUSNESS TEST: A SECOND PARADOX

Consider the case where there is a prior art document D1, unknown to the parties, published after the relevant date of the patent¹⁶ and written in a foreign language, which discloses that feature b2 can be used instead of feature b1. The following situation could arise at trial:

First instance: prior art document D1 is not cited because it has not yet been published¹⁷. By applying the Triple Test and the Obviousness Test, it could be concluded that the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2] through the doctrine of equivalents.

Appeal: document D1, which has since been published, is now entered as evidence. Application of both the Triple Test and the Obviousness Test can now lead to the conclusion that the disputed item [a AND b1] is within the scope of the claim [a AND b2] through the doctrine of equivalents.

It can be inferred from this example that the scope of a claim encompassing [a AND b2] can also depend on “unknown prior art” (document D1), even if that art is in a foreign language, which seems to be in contrast with REQUIREMENT B) and with REQUIREMENT A) of Test X.

Furthermore, it should be noted that the disputed item [a AND b1] was NOT within the scope of the claim [a AND b2] in the first instance trial, but was in the appeal. Hence, it can be concluded that the scope of the claim [a AND b2] was broadened after the grant of the patent.

7 OBSERVATIONS ON THE CRITERION

The Criterion of Presumed Pre-Disclosure can have an outcome known *a priori* if, in evaluating the Third Validity Requirement, only the prior art discussed in the patent description and common general knowledge are used. This is because only this kind of evidence can be known *with certainty* prior to a trial. Common general knowledge is known prior to a trial because “... *a patent is to be understood according to the expert’s understanding: in fact, the claim is addressed to the expert and not to an undifferentiated audience. The expert is the one who is gifted with the common general knowledge, i.e., the practical knowledge (experience) of the skillful technician having a practical interest in the technology considered by the patent.*”¹⁸

For instance, assume again that there is a prior art document D1, unknown to the parties, which shows that feature b2 can be used instead of feature b1. The following situation could occur:

¹⁶ We refer here to the effective filing date of the patent application on which the patent is based.

¹⁷ And is therefore not yet known at the time of trial.

¹⁸ Franzosi, Claim Interpretation, Festschrift fuer Gert Kolle und Dieter Stauder, Heymans 2005.

First instance: document D1 is not cited; thus, by applying the Criterion, it is decided that the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2] through the doctrine of equivalents.

Appeal: document D1 is found through a search. If publication of D1 occurs after the relevant date of the patent, then D1 is ignored, and it is decided that the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2] through the doctrine of equivalents. If, however, publication of D1 occurs before the relevant date of the patent, then D1 is considered, and by applying the Criterion of Presumed Pre-Disclosure in the broad form, BELONGING is neither excluded nor asserted. Consequently, the outcome of the Criterion of Presumed Pre-Disclosure in the broad form also depends on “unknown prior art” (the prior document D1), which seems to conflict with REQUIREMENT B).

8 THE CRITERION IN ITS SPECIAL FORM

Thus, the Criterion of Presumed Pre-Disclosure should be limited to prior art knowable *a priori*, i.e., the common general knowledge and the prior art discussed in the patent, thus bringing to the following formulation.

Test X = Criterion of Presumed Pre-Disclosure (Special Form):

*IF it cannot be ruled out a priori that the disputed item [a AND b1] has been pre-disclosed
AND IF the claim [a AND b2] satisfies the Third Validity Requirement with respect to i) the presumed pre-disclosure of the disputed item [a AND b1], ii) the prior art discussed in the patent, and iii) the common general knowledge,
THEN the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2], even under the doctrine of equivalents.*

The Criterion of Presumed Pre-Disclosure, whether in its broad or special forms, does not fall into the “*Pre-disclosure Paradox*,” even if it is later discovered at trial that the disputed item [a AND b1] was pre-disclosed, because the properties of VALIDITY and of BELONGING are never simultaneously verified.

Assume again that there is a prior art document D1, initially unknown to the parties, which shows that feature b2 can be used instead of feature b1. The following situation could occur:

First instance: document D1 is NOT found, and the alleged infringer does not prove that the disputed item [a AND b1] was pre-disclosed. Using the Criterion in both its broad and special forms, it is concluded that the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2], either literally or through equivalents. Thus, there is no infringement.

Appeal: document D1 is introduced, and the alleged infringer succeeds in showing that the disputed item [a AND b1] was pre-disclosed. Applying the Criterion in its special form, it is concluded that the disputed item [a AND b1] is NOT within the scope of the claim [a AND b2]. Hence, there is no infringement. Note that applying the Criterion in its broad form neither excludes nor asserts BELONGING because it is concluded that the claim [a AND b2] is NOT valid (due to lack of inventive step; obviousness)¹⁹.

In this case, the final decision on infringement did not change because of using one form of the Criterion over the other. However, a reason for preferring the special form is that the scope defined by a claim cannot also depend on prior art that is unknown *a priori*, as this would contravene REQUIREMENT B). However, this would mean asserting that the Triple Test and the Obviousness Test, which have been used extensively and supported by doctrine in many countries, would conflict with that requirement and, more specifically, would conflict with the Protocol on the Interpretation of Art. 69 EPC, which is accepted in European countries and allegedly not violated by the Triple Test and the Obviousness Test.

9 INCONSISTENT EMBODIMENTS SHOULD BE KEPT

Sometimes, the EPO requests the removal from the patent description of any references to embodiments that are found to be unpatentable during examination or not included in the allowed claim scope (Guidelines F-IV, 4.3, “*The applicant must remove any inconsistencies by amending the description either by deleting the inconsistent embodiments or by marking them appropriately so that it is clear that they do not fall within the subject-matter for which protection is sought.*”) ²⁰. It has been noted that the requirements of full adaptation of the description may “... *have ramifications on how the doctrine of equivalents could be applied during national infringement proceedings.*” ²¹

The fact that the Criterion of Presumed Pre-Disclosure, in both its special and broad forms, considers the description when testing the Third Validity Requirement suggests that we should not delete references to embodiments not included in the allowed claim scope from the patent description. In the context of the present paper, where infringement by the doctrine of equivalents is analyzed through the Criterion of Presumed Pre-Disclosure, removing so-called inconsistent embodiments from the description might yield different results than leaving them in the patent text, even if the applicant amends the description to state that these embodiments are not within the claim scope. Similarly, drafting the specification to include possible alternatives to the technical features disclosed

¹⁹ Which means that the AND IF prong of the Criterion in its broad form is not satisfied.

²⁰ These embodiments in the description are, somehow harshly, defined as “inconsistent” by the EPO.

²¹ C. Lopez Mosquera, “*Bringing the description in line with the scope of claims? The potential end of the “Angora cat paradox and other stories for sleepless nights,”* EPI Information 2|23, June 2023.

and to state synonyms for the terms used in the claims would be highly beneficial when discussing infringement by the doctrine of equivalents at trial.

10 DISCLOSED BUT UNCLAIMED SUBJECT MATTER

A test also adopted is the “Criterion of Disclosed but Unclaimed Subject Matter,”^{22 23 24} also called the “Dedication Rule.”²⁵ This criterion stipulates that embodiments described in the patent specification but not literally claimed are considered not to be within the claim scope, even when applying the doctrine of equivalents. This criterion was initially proposed in the US, where patent proprietors can request a “broadening reissue” of their patent, providing a statutory remedy to broaden their protection if the claims are too narrow²⁶. Indeed, *“the cost of drafting a claim to cover material the inventor has already described in the specification must be quite low. A mistake by the prosecutor serves as the most plausible reason to oppose the [dedication] rule. But the argument of mistake is not very appealing, given that the reissue proceeding provides an opportunity for the patent owner to correct the mistake and broaden the claim language during the first two years after the patent issues”*²⁷. There is no worldwide agreement to exclude “*categorically*” unclaimed alternative embodiments disclosed in the specification from infringement by equivalence²⁸. A generally agreed position is that *“equivalent infringement should not necessarily exclude embodiments disclosed in the patent specification as possible alternatives to the corresponding element literally mentioned in the granted claims, unless the patentee expressly and unambiguously excluded them from the claims in order to overcome a prior art objection,”*²⁹ which would mean that exclusion should not be “*categorical*,” but it should instead be evaluated whether *“... the mentioned alternative in the patent specification was clearly not meant to be left unclaimed, e.g., where it is apparent from the patent itself that mentioning but not claiming the alternative was clearly unintentional.”*³⁰

²² Mark J. Abate and Michael J. Pospis, The “Disclosed But Unclaimed” Limitation of the Doctrine of Equivalents, NYIPLA Bulletin, August/September 2003.

²³ German Federal Supreme Court, decision of May 10, 2011 — Case X ZR 16/09, Okklusionvorrichtung/Occlusion Device — Reported by Stefan Bianchin in IP Report 2011/III — BARDEHLE PAGENBERG, pp. 9–10.

²⁴ William T. Ralston, Foreign equivalents of the U.S. doctrine of equivalents: we’re playing in the same key but it’s not quite harmony, Chicago-Kent Journal of Intellectual Property, Vol. 6, 2007, 177–197.

²⁵ Ashita Doshi, Johnson & Johnston Associates, Inc. v. R.E. Service Co., Berkeley Technology Law Journal & Berkeley Center for Law and Technology, Vol.18, 2003, pages 209–226.

²⁶ Faragi, Eric (2004) “A Proposal to Restrict the Patent Law Doctrine of Equivalents While a Statutory Remedy Is Available,” *Seton Hall Law Review*: Vol. 34: Iss. 4, Article 6. Available at: <https://scholarship.shu.edu/shlr/vol34/iss4/6>.

²⁷ Michael J. Meurer and Craig Allen Nard, “Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents,” Boston University School of Law, Working Paper Series, Law and Economics, Working paper No. 04-03, pp.1–58.

²⁸ AIPPI Summary Report, Q284-SR-P-2023, 08 August 2023, Questions 14a and 14b.

²⁹ AIPPI Q284 Adopted Resolution, 2023 AIPPI World Congress — Istanbul — 25 October 2023.

³⁰ <https://www.eisenfuhr.com/de/download/1471> — Findings of the AIPPI German working group on the study question: “Should (unclaimed) alternative embodiments disclosed in the specification be excluded from infringement by equivalence?,” 23 August 2023.

REQUIREMENT B) says nothing about embodiments that are literally described but not literally claimed; thus, it does not seem that the Criterion of the Disclosed but Unclaimed Subject Matter can be deduced from the REQUIREMENTS.

The EPO discusses this situation with reference to the clarity requirement (Art. 84 EPC). Specifically, according to the EPO, a lack of clarity is present whenever there is an inconsistency between the description and the claims, particularly when parts of the description give the impression of disclosing embodiments not encompassed by the wording of the claims (EPO Guidelines F-IV, 4.3, iii).

Therefore, if there is “Disclosed but Unclaimed Subject Matter” in a patent description, then clarity is lacking; this is the first problem to be addressed before deciding whether the disputed item is within the scope of a claim by the doctrine of equivalents. The fact that the EPO invites an applicant to cancel portions of the description relating to embodiments not literally encompassed by the claims leads us to consider all such embodiments, that are literally described in the patent text but not literally claimed, as excluded.

This “Criterion of Disclosed but Unclaimed Subject Matter” would thus find a basis not in the REQUIREMENTS but in the need to preliminarily address issues of clarity in the patent text, possibly in a manner consistent with what was done during the examination of the patent application.

This additional Criterion can be added to the Criterion of Presumed Pre-Disclosure without creating paradoxes. Both Criteria would serve only to exclude the BELONGING of a disputed item to the scope of a claim, not to affirm it. Consequently, they will never conflict with each other, even if used in any order.

Contrarily, the Triple Test and the Obviousness Test are used to affirm the BELONGING of a disputed item to the scope of a claim; thus, they may be at odds with the Criterion of Disclosed but Unclaimed Embodiments. When this happens, one must decide whether to give precedence to the latter or to the Triple and Obviousness Tests, which assert the opposite. It would seem that precedence is commonly given to the Criterion of Disclosed but Unclaimed Subject Matter, which is an agreeable outcome, as it is a criterion whose outcome can be known *a priori*. However, this is an arbitrary choice: indeed, giving precedence to the Triple Test or to the Obviousness Test seems equally possible.

11 THE TRIPLE AND OBVIOUSNESS TESTS DO NOT SATISFY THE REQUIREMENTS

It seems possible to conclude that:

IF the disputed item [a AND b1] cannot be ruled out *a priori*, THEN neither the Triple Test nor the Obviousness Test simultaneously satisfies the following REQUIREMENTS:

- A) The outcome of the tests is known by the parties *a priori* (i.e., prior to the trial).

B) The claims determine the extent of protection; nevertheless, the description and drawings of the patent may be used to interpret the claims beyond their literal scope. Interpretation of the claims should ensure fair protection for the patent proprietor and a reasonable degree of legal certainty for third parties.

12 ADVANTAGES OF THE PROPOSED TEST

The Criterion of Presumed Pre-Disclosure, preferably in its special form, provides the following advantages:

- It determines whether feature b2 is an equivalent of feature b1 on the relevant date of the patent, similar to the examination stage when the Third Validity Requirement (i.e., the inventive step) is considered.
- The claims are evaluated similarly to the examination stage of the application to consider the Third Validity Requirement according to the laws of the corresponding country.
- In all validation countries of a European patent, the Third Validity Requirement is established uniformly; thus, the Criterion should lead to the same conclusions across all European countries.
- The Criterion also applies in cases of national utility model infringement under the doctrine of equivalents, assessing the originality (Third Validity Requirement) of the national utility model in a manner similar to the examination of the utility model application in the corresponding country.

According to some sources ^{31 32}, it is easier to satisfy the requirement of originality for a national utility model than to meet the requirement of inventive step of a patent, once it is clear that the main claim defines novel subject matter. By applying the Criterion of Presumed Pre-Disclosure in its special form, one must conclude that it is equally easy to exclude a disputed item from the claimed scope of the utility model under the doctrine of equivalents.

Using the Criterion of Presumed Pre-Disclosure in its special form, patent owners could leverage what is described in the patent text to avoid excluding the BELONGING of a disputed item that is not literally encompassed by the claim. This might prompt owners to discuss in the patent description the truly relevant prior art rather than omitting it. Additionally, owners would have a good reason to object to the EPO when it forces them to cancel parts of the description, even if these parts are just “claim-like clauses” (EPO Guidelines F-IV, 4.4). Such clauses could also be useful in ensuring that

³¹ PCT Newsletter 04/2018: Practical Advice (https://www.wipo.int/pct/en/newslett/practical_advice/pa_042018.html).

³² WIPO — Utility models (https://www.wipo.int/patents/en/topics/utility_models.html).

the BELONGING of a disputed item is not excluded from the scope of a claim.

13 WHEN BELONGING CAN BE ASSERTED

The Criterion of Presumed Pre-Disclosure in its special form and the Criterion of Disclosed but Unclaimed Subject Matter do not allow for the assertion of BELONGING, but only for its exclusion.

It does not seem trivial to draft a patent text in such a way that neither the Criterion of Presumed Pre-Disclosure in its special form nor the Criterion of Disclosed but Unclaimed Subject Matter excludes the BELONGING of a disputed item that is not literally within the scope of a claim. However, if it were too difficult not to exclude BELONGING, infringement by the doctrine of equivalents would be verified very rarely in practice. Conversely, fair protection must be ensured for the owner, as well as reasonable legal certainty for third parties (REQUIREMENT B). These considerations, if agreed upon, could lead to the decision that BELONGING can be asserted if it cannot be denied under either the Criterion of Disclosed but Unclaimed Subject Matter or the Criterion of Presumed Pre-Disclosure in its special form. Otherwise, fair protection for the patent proprietor would not be ensured. Given that the outcome of both Criteria is known *a priori*, the treatment proposed by the present paper would represent a balancing solution between the opposing interests of the patent proprietor and third parties.

14 CONCLUSIONS

The Triple Test (FWR) and the Obviousness Test could lead to paradoxes if, during the trial, it is found that the disputed item was indeed pre-disclosed. In situations where it cannot be ruled out *a priori* that the disputed item has been pre-disclosed, the Criterion of Presumed Pre-Disclosure, preferably in its special form, may be adopted. This criterion is advantageous because its outcome is known to the parties *a priori* (i.e., prior to the trial) and it complies with Art. 69(1) EPC and with Art. 1 of the Protocol on the Interpretation of Article 69 EPC.

It has been demonstrated that the Criterion of Presumed Pre-Disclosure never contradicts the well-known Criterion of Disclosed but Unclaimed Subject Matter. The latter criterion is based on the need to preliminarily address issues of clarity in the patent text, possibly in a manner consistent with the examination of the patent application. The Criterion of Disclosed but Unclaimed Subject Matter can be added to the Criterion of Presumed Pre-Disclosure in its special form without creating paradoxes. A disputed item (product or process) could be considered encompassed under the doctrine of equivalents if this cannot be denied under either the Criterion of Disclosed but Unclaimed Subject Matter or the Criterion of Presumed Pre-Disclosure in its special form.

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