Non-overlapping Rights: A Patent Misconception

Andrew Christie[*] and Chris Dent[§]

1. INTRODUCTION

The quality of patents is the subject of much debate around the world. A great deal of work has been carried out by academics that has been aimed at assessing and improving the quality of patents granted by Patent Offices. The focus of this research has been on the quality of the end-product.[1] One of the criteria put forward by economists for a "quality" patent has been that patents provide 'non-overlapping rights'.[2] It is not clear, however, what is meant, from a legal standpoint at least, by the terms "overlapping patent rights".

This paper considers the problem of the potential overlap of patents by returning to the basic, legal, building blocks of patent rights – our goal is to investigate what may be meant by overlapping patent rights and to explore to what extent such overlap is allowed by law.[3] The law is clear on the matter; however, accessing the legal understanding is not necessarily easy. Legal textbooks, for example, effectively explain the limits and requirements of individual patents but do not offer detailed insight into the manner in which one patent relates to a previously granted patent (beyond the requirement that the later patent must evidence the requisite "novelty" and "inventive step" with respect to earlier inventions). This paper will

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[*] Director, Intellectual Property Research Institute of Australia
[§] Senior Research Fellow, Intellectual Property Research Institute of Australia

[1] Work has been started, however, into the consideration of patent quality in terms of the patent examination process. See, for example, J. Straus (2005) 'The Concept and Meaning of Quality in the European Patent System' Conference Proceedings, Quality in the European Patent System Conference, The Hague, November 2005 and C. Dent (2006) 'Decision-Making and Quality in Patents' 28 *European Intellectual Property Review* 381

[2] D. Harhoff (2005) 'The Demand for Patents and the Evolution of Patent Quality', paper presented to Advancing Knowledge and the Knowledge Economy Conference, National Academy of Sciences. Dominique Foray repeated this call in a paper, 'The Art of Designing Incentives Systems for 21st Century Innovations', presented at the Innovation Europe 2005 Summit.

[3] A distinction may be drawn between "validly granted patents" and patents that have been granted that would not stand up to judicial scrutiny. The focus of this paper is on the former class. We recognise that not all patents granted are valid; however, the purpose of this paper is to highlight the manner in which the patent system allows for the notion of overlapping patent claims – rather than to explore issues around the examination of patent applications by patent examiners.

provide a legal perspective on the issue of overlap and will demonstrate that, for the law at least, overlapping patent rights, in certain circumstances, are not problematic.

Clarification of core legal points will form the basis of the presentation.[4] A patent is best seen as a bundle of rights that is limited by the grant of a national Patent Office. These rights relate to the invention that is defined by the claims contained in the patent specification. Claims are also fundamental to the question of whether a given product or process infringes a granted patent – infringement is assessed by comparing the product or process with the claims of the patent. If the product or process is within the limits described by the claims, then there is infringement. The focus of this paper, then, will be the explanation of the function of patent claims and the how the concept of "overlapping patent rights" may be understood in terms of the claims of patents.[5]

2. NATURE, EFFECT AND VALIDITY OF PATENTS

The first step in this analysis is to emphasise the need to focus on patent claims. One potential disconnect between economic understandings and legal practicalities with respect to overlapping patents relates to assumptions about the nature of the "thing" protected by a patent. It is tempting, from a non-legal viewpoint, to consider that a physical product, or process, is synonymous with the patent that is seen to protect that product or process. It is important to recognise that there is a legal distinction between the product or process and the patent itself.[6] The difference arises from the fact that while a product or process may have a physical existence, the invention(s) defined by the claims of a patent exist *only* in words – and, therefore, *cannot* have a physical existence. This difference has been acknowledged judicially: the 'conversion of machine to words allows for unintended gaps which cannot be

[4] It may be noted that this paper is introductory. The goal is to detail the law as it relates to the potential for overlapping patents. Therefore, there will not be scope for an exploration of the impact of this understanding of overlap on notions of quality (or on the economy more broadly) – this work will form the basis of future research.

[5] There is also a potential disconnect between economists and lawyers in this area. Harhoff's call for non-overlapping patent *rights* is, arguably, misconceived. The right that a patent provides a patentee may be best seen as a capacity to commence an action for infringement in a court. It would, therefore, be more accurate to highlight a need for non-overlapping patent *claims*. Claims, then, and the potential for their overlap, are the focus of the rest of this paper.

[6] Patents are 'legally defined by the language of the patent's claims, not by what the patent owner has actually invented or built': M. Lemley, 'The Economics of Improvement in Intellectual Property Law' (1997) 75 *Texas Law Review* 989, 1000; or as phrased judicially, it is 'claims, not commercial embodiments, that are infringed': *Datascope Corp v SMEC Inc* 879 F.2d 820, 824 (Fed. Cir. 1989).

satisfactorily filled'.[7] The fundamental point of this paper is that it is the claims, the words, that define the patent and, therefore, the invention – any physical product or process becomes meaningless for the purposes of assessing the infringement of the patent. To test for overlap of such rights, a thorough understanding of the claims – the words – is necessary. This is addressed next.

2.1 NATURE OF THE PATENT SPECIFICATION

Patent laws around the world have been substantially harmonised. Specifically, the detail of the law relating to the validity, and infringement, of patents are very similar. The legal analysis contained in this paper, then, is applicable to virtually all countries. The examples used here are, therefore, chosen on the basis of the greatest clarity of expression – regardless of whether the example stems from the US, European, or even Australian, patent regimes.

The requirements for the application for, and validity of, patents are straightforward.[8] This section will deal with the key part of the application for the patent: the specification. The detail of the legal requirements for the validity of patents will be considered below.

Patent applications must be in writing and contain a specification and at least one claim. The specification shall contain a written description of the invention such that a person skilled in the relevant art could reproduce the invention.[9] This fulfils the public interest in expanding the body of knowledge – for some, the *quid pro quo* of the patent grant;[10] or, for economists, the "knowledge spill-over".

The claims contained in the application (which may either be independent or dependent[11]) must define the 'subject matter which the applicant regards as the invention'.[12] Further, 'each

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[7] *Autogiro v United States* 384 F. 2d 391, 397 (Ct. Cl. 1967) quoted in J. Miller, 'Enhancing Patent Disclosure for Faithful Claim Construction' (2005) 9 *Lewis and Clark Law Review* 188, 184n40. This process of translation can be seen as one of the bases of apparent uncertainty in the patent system; see, C. Dent, 'To See Patents As Devices Of Uncertain (But Contingent) Quality: A Foucaultian Perspective' (2007) *Intellectual Property Quarterly* 148.

[8] In the US, the requirements are included in 35 USC Chapters 10 and 11; in Europe, in the European Patent Convention; and in Australia, the *Patents Act 1990* (Cth).

[9] 35 USC 112 states that the application 'shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention'.

[10] *Dana Corp v IPC Ltd* 860 F.2d 415, 418 (Fed. Cir. 1988).

[11] 'A claim may be written in independent or, if the nature of the case admits, in dependent or multiple dependent form … a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers': 35 USC 112.

claim of a patent is treated as if it was a separate patent'[13] – each has to meet the requirements for patent validity and each give rise to rights.[14] Therefore, from a legal perspective, all that matters is the claims contained in the granted patent – as it is the claims that underlie the defence of the rights granted to the patentee.

2.2 EFFECT OF PATENTS

(a) Exclusive Rights of a Patentee

Patents are deemed to have the 'attributes of personal property'.[15] The rights accorded to a patentee are set out in the patent legislation; for example, in the US, a patentee gains the 'right to obtain a reasonable royalty from any person who … makes, uses, offers for sale, or sells in the United States the invention as claimed in the patent application'.[16] When the grounds for infringement are considered (detailed below), the rights that attach to patents are rights to exclude others from using the subject matter of the patent.[17] These rights are, therefore, based on the claims of the patent. The US Supreme Court has 'likened patent claims to the description of real property in a deed',[18] therefore, it is to the 'claims of every patent … that we must turn when we are seeking to determine what the invention is'.[19]

For the purposes of overlapping rights, it is important to note that the

> existence of one's own patent does not constitute a defence to infringement of someone else's patent. It is elementary that a patent grants only the right to exclude others and confers no right on its holder to make, use or sell.[20]

Further, 'most lay people believe that once they receive a patent, their invention has been held unique and non-infringing. Lay persons are often surprised by the idea that they can still be responsible for infringing another dominating patent'.[21] To explain this possibility, a clearer

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[12] 35 USC 112.
[13] *Dollar Elec. Co v Syndevco Inc* 205 USPQ 949, 959 (E.D. Mich. 1979); alternatively, a patent may comprise of many 'individual claims, each of which is a separate invention': *Rutgers University v United States* 51 USPQ 2d 1642, 1643 n.1 (Ct. Fed. Cl. 1998).
[14] The requirements and the rights of patents and patent claims will be discussed below.
[15] 35 USC 261.
[16] 35 USC 154(d)(1)(A). It is also a requirement that the infringer had 'actual notice of the published patent application': 35 USC 154(d)(1)(B).
[17] *Kewanee Oil Co v Bicron Corp* 416 US 470, 477-78 (1973). Further, the patent does not grant the patentee an affirmative right to use the invention – though previous US patent acts did provide for such a right: see Chisum, §16.02[1].
[18] *General Foods Corp v Studiengesellschaft Köhle mbh* 972 F.2d 1272, 1274 (Fed. Cir 1991).
[19] *Motion Picture Patents Co v Universal Films Mfg Co* 243 US 502, 510 (1917).
[20] *Bio-Technology General Corp v Genentech Inc* 80 F.3d 1553, 1559 (Fed. Cir. 1996) citing *Vaupel Textilmaschinin KG v Meccanica Euro Italia SPA* 944 F. 2d 870, 879 n.4 (Fed. Cir, 1991).
[21] *Union Carbide Corp v Tarancon Corp* 742 F. Supp. 1565, 1577 (N.D. Ga. 1990).

understanding of how patents, or more particularly the claims within the patents, are infringed is needed.

(b) Infringement of Claims

According to the US Code, 'whoever without authority makes, uses, offers to sell, or sells any patented invention … or imports … any patented invention during the term of the patent therefor, infringes the patent'.[22] The case law indicates that it is a 'two-step process' to determine infringement: the first requires the interpretation of the claims 'in the light of the claim language, the other claims, the prior art, the prosecution history and the specification';[23] and second, it must be assessed whether the allegedly infringing product falls within the claims as interpreted.[24] In terms of the second step, 'what is crucial is that the structures must do the same work, in substantially the same way, and accomplish substantially the same result to constitute infringement'.[25] The importance of claims, and the content of the patent file that supports the claims, to the determination of infringement is reflected in our focus on claims in the exploration of overlapping patent rights.

2.3 VALIDITY OF PATENTS

(a) Validity Requirements

There are a number of requirements that must be met for a patent to be held to be valid. These include that the claimed subject matter is patentable, that the clamed subject matter is novel and that the claimed subject matter involves an inventive step, or in US terms, is non-obvious.[26] The latter two are of most relevance to this paper. The first is, however, worth noting in brief. Certain innovations are explicitly excluded from being awarded patents. Article 52(2) of the European Patent Convention (EPC) states, for example, that *inter alia* 'discoveries, scientific theories and mathematical methods; (b) aesthetic creations; [and] (c)

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[22] 35 USC 271(a). The provisions relating to the infringement of process patents are included in 35 USC 271(g).
[23] *SRI International v Matsushita Electric Corp* 775 F.2d 1107, 1118 (Fed. Cir. 1985).
[24] A point on terminology may usefully be made here. In the US, it is said that if an allegedly infringing product incorporates all the claims of that patent, then, "reads on" to the patent – that is, it infringes the patent. 'If the alleged infringer's apparatus, process or product "reads on", i.e. copies or duplicates, the claimed invention, "literal infringement" is established': *Johns-Manville Corp v Guardian Industries Corp* 586 F. Supp 1034, 1051 (E.D. Mich. 1983). Courts elsewhere use the phrase "falls within the scope" of the claims of the allegedly infringed patent.
[25] *Autogiro v United States* 384 F. 2d 391, 401 (Ct. Cl. 1967).
[26] The terms 'non-obvious' and 'inventive step' are deemed synonymous by Article 27n5 of the Agreement of Trade-Related Aspects of Intellectual Property Rights (the TRIPs Agreement).

schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers' are not patentable.

To be patentable, an invention must be novel; that is, 'an invention shall be considered to be new if it does not form part of the state of the art'.[27] Each claim in a patent application must be shown to be novel when compared with the prior art.[28] The prior art includes any publicly available descriptions of the state of the technical art (whether written or oral), such as previously granted patents or literature, available anywhere in the world before the priority date of the application under examination.[29] Therefore, if a claim can be found in the prior art, then the claim is not novel and, therefore, not valid.

The requirement for inventive step is that an invention must be not obvious to a person skilled in the art.[30] This test requires that the advance defined in the claims is something that would not have been straightforward for someone who worked in the field. Again, this is assessed against the prior art available. Each claim has to "pass" both the novelty and inventive step tests in order to be valid claim in the granted patent.

(b) Priority Dates

The final detail of patentability that needs to be considered relates to the "priority date". This date is important because the tests for inventive step and novelty relate to the prior art available before the priority of an application. The priority date, in most circumstances, is the date on which an application was filed with the patent office or the date on which an application for the same invention was filed in another patent office.[31]

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[27] European Patent Convention, Article 54(1). The equivalent US provision is in 35 USC 102.
[28] One of the major purposes of patent claims is to distinguish the invention from the prior art: *Solomon v Kimberly-Clark Corp* 216 F. 3d 1372, 1380 (Fed. Cir. 2000).
[29] See, for example, European Patent Convention, Article 54(2).
[30] European Patent Convention, Article 56. The equivalent US provision is in 35 USC 103.
[31] See, for example, 35 USC 111(b)(4) and, with respect to foreign filings, 35 USC 119(a). It is said that the US has a "first-to-invent" patent system (as opposed to the "first-to-file" process found in the rest of the world), both systems, however, are used to establish the priority date for an application. Under the US system, the filing date is the provisional priority date, though the applicant may seek to establish that the invention took place earlier. In such a case, the applicant has the onus to prove the earlier date. In most cases, however, the issue of first-to-invent goes to matters of inventorship rather than validity and, therefore, is not relevant here.

3. OVERLAPPING PATENT RIGHTS

3.1 CONCEPT OF OVERLAPPING PATENT RIGHTS

(a) Meaning of Overlapping Rights

It is now possible to address the issue of what, exactly, it means to say that the rights of two patents "overlap". Given what was said above about claims, it follows that the issue of overlapping patent rights is, in practice, the issue of overlapping claims. We define claim overlap as follows. Two claims will be said to overlap if an embodiment falls within two separate claims. Put another way, two claims will overlap if there could exist one product or process that would constitute an infringement of both claims.[32]

(b) Possibilities for Claim Overlap

Consider two claims, A and B. Logically, there are four possibilities for "overlap" of these claims:

(i) the scope of claim A subsumes the scope of claim B ("Type I: A subsumes B");

(ii) the scope of claim B subsumes the scope of claim A ("Type II: B subsumes A");

(iii) part of the scope of claim A is common to part of the scope of claim B ("Type III: partial overlap"); and

[32] As such, we focus here on 'literal infringement' rather than infringement under the doctrine of equivalents. Literal infringement covers the circumstances 'when an accused product or process falls within a patent's claims': Chisum §16.02[1][a][ii]. The doctrine of equivalents has a degree of controversy surrounding it. Commentators consider the doctrine has the capacity to 'expand patent scope beyond the rights literally claimed in the patent': M. Meurer and C. Nard, 'Invention, Refinement and Patent Scope: A New Perspective on the Doctrine of Equivalents' (2004) Boston University School of Law, Law and Economics Working Paper 04-03, 2. Further, Burk and Lemley appear to consider that under the doctrine 'patents are frequently broader than the products the inventors actually make': D. Burk and M. Lemley, 'Policy Levers in Patent Law' (2003) 89 *Virginia Law Review* 1575, 1614 – though as our paper is detailing, patents delimit the invention contained in the patent and may have nothing to do with what is actually made by the patentee. No evidence is provided as to the extent of the "problem" caused by this doctrine. Meurer and Nard, however, consider that the doctrine reflects the situation where 'inventors fail to obtain the full claim breadth they are entitled to because they fail to refine their claims sufficiently during patent prosecution': 'Invention, Refinement and Patent Scope' (2004) Boston University School of Law, Law and Economics Working Paper 04-03, 5. In other words, the doctrine protects the full extent of the inventive step taken by the inventor rather than just the extent of the claims contained in the patent application. A 'patentee should not be able to obtain, under the doctrine of equivalents, coverage which he could not lawfully have obtained from the PTO by literal claims': *Wilson Sporting Goods Co v David Geoffrey & Associates* 904 F.2d 677 (Fed. Cir. 1990). That is, the purpose of the doctrine is to minimise the risk of patentees losing out on a return on their investment through competitors producing a product virtually identical to the patented invention. The doctrine, therefore, may be seen to provide greater certainty to patent holders – balancing any greater uncertainty perceived by competitors or other inventors.

(iv) the scope of claims A and B are, or are effectively, identical ("Type IV: complete overlap").

These four possibilities are illustrated in Figure 1.

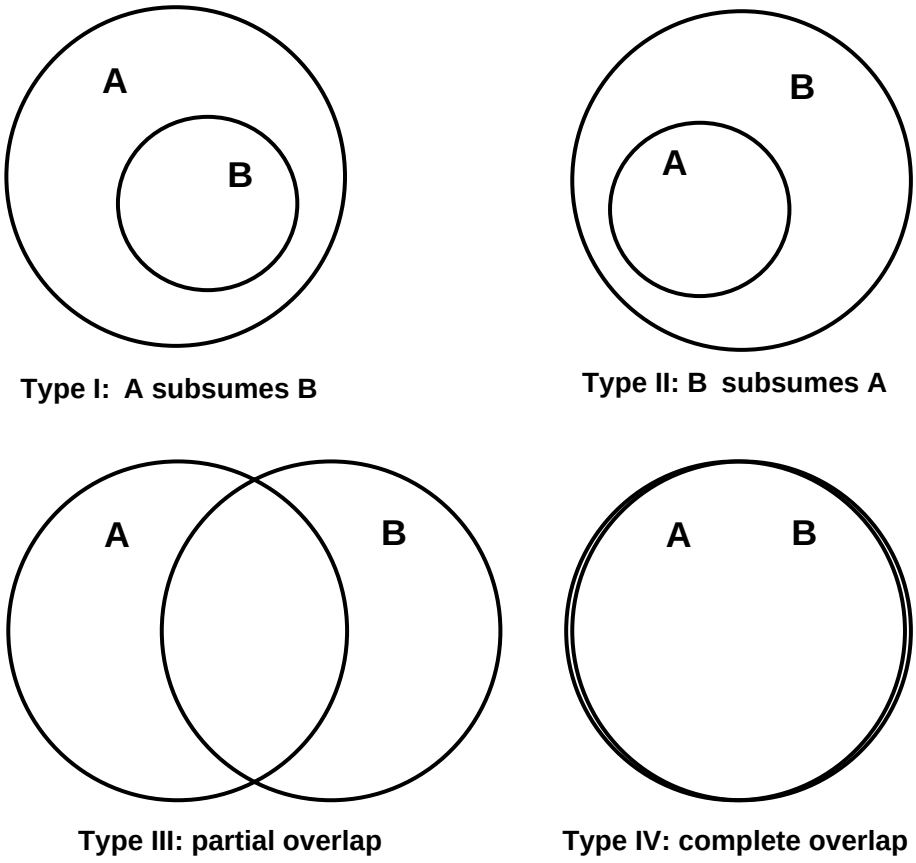

Figure 1: Possibilities of overlapping rights

(c) Hypothetical Overlapping Claims

Consider the following four hypothetical claims:[33]

Claim 1. A mixture X comprising substances Y and Z.

Claim 2. A mixture according to claim 1 wherein the proportion of X that is Z is in the range of 6-14%.

[33] We acknowledge that, often, real claims are not this straightforward. Where claims are more complex, 'claim interpretation is not always an exact science': *Q-Pharma Inc v Andrew Jergens Co* 360 F.3d 1295, 1301 (Fed. Cir. 2004); and even when they are simple, 'it is not unusual for parties to offer competing definitions of even the simplest claim language': ibid? Simple claims, however, are sufficient to demonstrate the possibilities of overlap.

Claim 3. A mixture according to claim 1 wherein the proportion of X that is Z is no less than 12%.

Claim 4. A mixture X comprising substances Y and Z in any proportion.

It will be observed that:

(i) the relationship between claims 1 and 2 is an example of Type I overlap, wherein claim 1 is claim A and claim 2 is claim B.

(ii) the relationship between claims 2 and 4 is an example of Type II overlap, wherein claim 2 is claim A and claim 4 is claim B.

(iii) the relationship between claims 2 and 3 is an example of Type III overlap, wherein claim 2 is claim A and claim 3 is claim B (or *vice versa*); and

(iv) the relationship between claims 1 and 4 is an example of Type IV overlap, wherein claim 1 is claim A and claim 2 is claim B (or *vice versa*).

These examples will be used to assess the validity of overlapping patent claims.

3.2 Validity of Overlapping Patent Claims

Now, let us determine which, if any, of the four logical possibilities for claim overlap may occur in practice and in law, and with what consequences. There are multiple scenarios to consider, given that, first, claims A and B can be claims either within the same patent or within different patents; and, secondly, where claims A and B are in different patents, those patents can be granted to either the same patentee or to different patentees.

(a) Claims within the Same Patent

For the sake of simplicity, in this scenario it will be assumed that every claim in the patent has the *same priority date*. It is, of course, possible, that some claims within the one patent will not have the same priority dates. This will happen where the source from which a claim derives priority is different from the source from which another claim derives priority and those sources do not themselves give rise to same priority date. Where the priority dates of two claims in the one patent are *different*, that scenario is, for legal purposes, the same as the scenario discussed in section 4.2(b), below.

(i) Type I: A subsumes B

Type I overlap (the scenario of one claim in a patent subsuming another claim within the same patent) is very common: it is the scenario where the second claim is drafted as being

"dependent" on the first claim. Thus, where claim B is drafted in the form 'product/process according to claim A wherein …', claim B is subsumed by claim A and so it may be said that claim A overlaps claim B. As noted previously, this type of overlap is illustrated by the relationship between hypothetical claims 1 and 2.

It is clear that this scenario is legally permissible. Claim B is not redundant in light of claim A. Rather, claim B is a more refined form of claim A, in that claim B has at least one defining characteristic that makes it a sub-set of claim A. The legal consequence of this type of overlap is that claim A will read onto everything that claim B reads onto, but claim B will not read onto everything that claim A reads onto (claim B will not read onto a product/process within claim A that does not have the refining feature of claim B).

(ii) Type II: B subsumes A

Type II overlap is the converse of type I overlap. This scenario is possible, although unlikely, in practice. It is possible in that a patent could contain a subsequently-numbered claim that subsumes a previously-numbered claim (in the way that hypothetical claim 4 subsumes hypothetical claim 2). It is unlikely, however, in that this constitute an inefficient style of claim drafting. The efficient way for one claim to subsume another is to make the subsumed claim 'dependent' on the subsuming claim, by using the drafting form "according to claim A wherein …" (as is the style hypothetical claim 2 adopts in relation to hypothetical claim 1).

Although inefficient and inelegant as a mater of drafting style, this overlap scenario is legally permissible. There is nothing in patent law that precludes a subsequently-numbered claim from subsuming a previously-numbered claim.[34] The legal consequence of this type of overlap is the converse of type I overlap: claim B will read onto everything that claim A reads onto, but claim A will not read onto everything that claim B reads onto (claim A will not read onto a product/ process within claim B that does not have the refining feature of claim A).

(iii) Type III: Partial overlap

Type III overlap occurs in practice when both claims A and B refine another claim by way of a common feature, and the refinement of that feature in each claim is not mutually exclusive of the other. An example of this type of overlap is the relationship between hypothetical

[34] In the US, though, s. 112 of the Code stipulates that an independent claim must be set out before any claims dependent upon it. If a dependent claim refers to a subsequent independent claim, the examiner may object to it or may renumber the claims in order that the dependent claim is subsequent to the independent claim at the time the application is allowed: USPTO, *Manual of Patent Examining Procedure* §608.01(n).

claims 2 and 3. Both claims 2 and 3 define a mixture of Y and Z wherein the proportion of Z is in the range of 12-14%.

This type of overlap is legally permissible. As we know from the legal permissibility of overlap types I and II, there is nothing in patent law that requires claims to be mutually exclusive. The legal consequence of this type of overlap is that claim A and claim B will read onto the same embodiment in some, but not all, situations.

(iv) Type IV: Complete overlap

The scenario of two claims in the one patent being identical is not found in practice, for the simple reason that it would be redundant to do so. Having multiple claims with the same scope achieves nothing beyond that achieved by having one claim of that scope.

Furthermore, this scenario is not legally valid in the US. Identical claims are contrary to Rule 1.75(b) which states that 'more than one claim may be presented [in an application] provided they differ substantially from each other and are not unduly multiplied'. Duplicate claims have been considered invalid on the grounds that they are 'indefinite for failing to point out and distinctly claim the subject matter which [the patent applicants] regard as the invention'.[35] If an examiner rejects a duplicate claim,[36] however, the applicant has the opportunity to amend the application to remove the duplication.

(b) Claims within Different Patents

In this scenario, the patent in which claim A is contained is different from the patent in which claim B is contained. For the sake of simplicity, it will be assumed in this scenario that claims A and B have *different priority dates*, and that the priority date of claim A is *earlier* than the priority date of claim B. It is, of course, possible that claims A and B have the same as the priority date. Such a situation is not uncommon where the patentee of both patents is the same. This will be the case where one of the patents is a "divisional" application of the other – that is, where one patent application has divided off from another application, but maintains the priority date of the original application.[37] Where the patentees of the two patents are

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[35] *Ex parte Nesbit* 25 USPQ 2.d 1817, 1818 (Bd. Pat. App. & Int'f 1992).
[36] USPTO, *Manual of Patent Examining Procedure* §706.03(k).
[37] In the United States, an example of such an application is the so-called 'continuation in part' under s. 120 of the US Code. A 'continuation application is a second application that contains the same disclosure as the original application [and is used to] introduce into the application a new set of claims and to establish a right to further examination by the primary examiner': Chisum §13.03[1]. Importantly, a continuing application is 'entitled to the benefit of the filing date of [the] earlier application [but] only as to common subject matter': *Transco*

different, the situation of claim A having the same priority date as claim B is not common, but is not impossible.

Where the priority dates of the claims A and B are the *same*, that scenario is the same, for legal purposes, as the scenario discussed in section 4.2(a), above. This is so irrespective of whether the patentee of the two patents is the same or different. This is unlikely in practice. If it were to happen, though, both sets of claims may be valid (assuming they passed the tests such as novelty and inventive step) as the claims are judged against the prior art; and the prior art includes patents published before the priority date of the claims. A patent application with the same priority date does not fall within the definition of prior art. Therefore, both sets of claims would be valid.

(i) Type I: A subsumes B

The scenario of one claim in one patent subsuming another claim within another patent granted to the same patentee is possible in practice: it is the scenario where a later claim in one patent is drafted as being 'dependent' on an earlier claim in the same patent, and that earlier claim is the same as a claim in another patent. Thus, where claim B in one patent is drafted in the form 'product/process according to claim P wherein …', and claim P is the same as claim A in another patent, then claim B is subsumed by claim A.[38] Claim B is novel compared to claim A, because claim A does not include the specific (restricted) features in claim B.

A further example of this scenario is where claim B is considered to be a "selection" claim. A selection claim is a claim within a selection patent. A selection patent is a patent that has, as its independent claim, a segment of claim that was from an earlier patent.[39] A common area for this type of claim is the chemical industry where the priority claim covers a class of chemicals and the later claim covers a particular chemical from within that class.[40] To satisfy

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Products Inc v Performance Contracting Inc 38 F.3d 551, 556 (Fed. Cir. 1994). For a discussion of continuations see M. Lemley and K. Moore, 'Ending Abuse of Patent Continuations' (2004) 84 *Boston University Law Review* 63. See also C. Quillen and O. Webster, 'Continuing Patent Applications and Performance of the US Patent and Trademark Office' (2002) 11 *Federal Circuit Bar Journal* 1.

[38] This may, however, mean that Claim A is not valid due to lack of novelty with respect to Claim P. Claim B may not infringe even though Claim A does infringe because Claim B is narrower than Claim A.

[39] The term "selection patent" is relatively well-known outside the US (the 1930 case *IG Farbeninsdustrie AG's Patents* 47 RPC 289 includes a detailed description of the category), however, it is only recently gaining recognition in that country. There is, for example, no listing for "selection patent" in the Index of Chisum. The situation is, nonetheless, known in that country.

[40] With respect to novelty, the court found that a chemical described in a selection patent could be novel as long as it had not been made.

the requirements of patentability, the later claim must still have a 'substantial advantage'[41] that demonstrates that the claim is inventive when compared to the priority claim.[42]

(ii) Type II: B subsumes A

This scenario is the same as the immediately preceding scenario, except that the subsuming claim (B) has a later priority date than the subsumed claim (A). As claim B has a priority date later than claim A, claim A forms part of the prior art for the purposes of judging the novelty of claim B. In this instance, claim B covers subject matter that is distinct from claim A; therefore, claim B is novel and, potentially, evidences an inventive step. This form of overlap, then, may be valid.

An example of this scenario is an "improvement patent". This type of patent covers the case where the subject matter of the earlier patent (the "basic patent") is improved by the subject matter of the later patent. As such, the claims of the basic patent are included in the claims for the improvement patent. The claims of the improvement patent still have to reflect the requirements of patentability. In these circumstances, neither patentee can use the embodiments of the patents without infringing the patent of the other.[43] In other words, the 'original patent owner can prevent the improver from using his patented technology, but the improver can also prevent the original patent owner from using the improvement'.[44]

An example is found in *International Manufacturing Co v Landon*.[45] In that case, the first patent was for a 'fluid recirculation system especially adapted for use in swimming pools'. The second patent, 'embodies the basic combination' of the first and 'adds additional structure and function which makes it possible to vacuum the pool'.[46] The trial court found that 'no commercially feasible device could be manufactured under one of the patents without

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[41] *Boehringer Mannheim v Genzyme* [1993] FSR 716.
[42] An example from US law can be found in *In re Baird* 16 F3d 380 (Fed Cir. 1994) where the priority patent encompassed 'more than 100 million different diphenols' of which the later claim included 20.
[43] 'Two patents may be valid when the second is an improvement on the first, in which event, if the second includes the first, neither of the patentees can lawfully use the invention of the other with the other's consent': *Cantrell v Wallick* 117 US 689, 695 (1886). This is also known as a "blocking patent". For a discussion of bargaining between patentees with blocking patents, see R. Merges, 'Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents' (1994) 62 *Tennessee Law Review* 75.
[44] Lemley, 'The Economics of Improvement in Intellectual Property Law', above n 6, 1010.
[45] 33 F.2d 723 (9th Cir. 1964).
[46] 33 F.2d 723, 725 (9th Cir. 1964).

infringing the other'.[47] The solution approved by the court was the collective licensing of both patents.[48]

(iii) Type III: Partial overlap

In this scenario, claim B is novel when compared to claim A as it covers different subject matter to claim A (it may be noted that the invention, the claim, as a whole is considered by the examiner, or court, when assessing validity, therefore, as a whole, claim B covers different subject matter to claim A as a whole). As it covers different subject matter, claim B may also evidence sufficient inventive step. Therefore, claim B may be valid.

If claim B is valid, then if an allegedly infringing product falls in A′ (the area of A outside the shared area), then A is infringed; if an allegedly infringing product falls in B′, then B is infringed. If it falls within the overlapping area, then, both A and B are infringed. To this extent, A and B may be understood to be overlapping claims.

(iv) Type IV: Complete overlap

This scenario of identical claims in two different patents is, perhaps, the easiest of the scenarios to consider. Where the claims are the same, then, claim B (the later claim) cannot be novel; further, if the claim is identical to claim A, then it cannot evidence any inventive step. Therefore, claim B cannot be a valid claim – this form of overlap may not, legally, exist.

4. CONCLUSION

There are two contributions that this paper makes to the debate on the quality of patents. The first is that it this is the first analysis examining what could be meant by overlapping patent claims (as opposed to the more loose discussions of overlapping patents). This provides the basis for future discussions in this area.

Secondly, this paper suggests that there are a certain number of (restricted) circumstances where overlapping claims are legally valid, such as selection patents and improvement patents. Each of these, however, reflect a monopoly founded on the requirements of patentability – novelty and inventive step. For situations outside these three sets of circumstances, it is likely that a later claim that overlapped a prior claim would be invalid. That is, it is unlikely that the claims of the overlapping patents would be upheld in court. As

[47] 33 F.2d 723, 729 (9th Cir. 1964).
[48] 33 F.2d 723, 729 (9th Cir. 1964).

such, the claims will not be legally seen to overlap; that means, the *rights* that arise from the patents would not overlap.

It is possible that, despite the limited circumstances where overlap may exist, such overlap represents a problem for industry. If it does, and assuming there is empirical evidence to demonstrate it, then the problem would appear to be the result of the current test of inventive step. To fix any problem would require a reformulation of the test; though we are not sure how a more stringent test may be expressed in a way that can be efficiently and repeatedly applied by thousands of examiners around the world on a daily basis.