Overbreadth in Canadian Patent Law: Part I

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Under the overbreadth doctrine, a claim that exceeds the scope of the invention disclosed in the specification is invalid. While the doctrine is well-established, it is redundant in the great majority of cases in which it is invoked, as an overbroad claim typically encompasses subject-matter that is not new, lacks utility or is obvious. When overbreadth is not redundant, a puzzle arises: what is the principled justification for striking down a claim to an invention that is in fact new, useful, non-obvious and sufficiently disclosed? In such a case, how can it be said that the claim is broader than the invention? Part I of this article argues that overbreadth properly arises as an independent ground of invalidity in the context of the "roads to Brighton" problem, in which the question is whether the first inventor to achieve a result known to be desirable may claim the result itself or only their particular method of achieving it, but current Canadian law on this point does not require or invoke an independent overbreadth doctrine.

En vertu de la doctrine de la portée excessive, une demande qui excède la portée d'une invention divulguée dans un mémoire descriptif n'est pas valide. Bien que la doctrine soit bien établie, elle est redondante dans la grande majorité des affaires où elle est invoquée, alors que les réclamations de portée excessive soulèvent généralement des objets qui ne sont pas nouveaux, sont dépourvus d'utilité ou sont évidents. Dans les cas où la portée excessive n'est pas redondante, un casse-tête survient : quelle est la justification de principe permettant de radier une réclamation à l'égard d'une invention qui est véritablement nouvelle, utile, pas évidente et suffisamment divulguée? Dans une telle situation, comment est-il possible d'affirmer que la réclamation est plus large que l'invention? Dans la première partie de cet article, l'auteur fait valoir que la question de la

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portée excessive est soulevée à juste titre en tant que motif indépendant d'invalidité dans le contexte d'un problème dit de « la route menant à Brighton », dans lequel la question est de savoir si le premier inventeur à parvenir à un résultat reconnu comme étant désirable peut réclamer le résultat lui-même ou uniquement la principale méthode d'y parvenir, mais le droit canadien actuel sur cette question ne requiert pas ou ne repose pas sur une doctrine de la portée excessive indépendante.

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1. INTRODUCTION

It is well-established in Canadian law that the scope of the claims must not exceed the invention described in the specification.[1] It is equally well-established in U.K. and European law that "the extent of the patent monopoly, as defined by the claims, should correspond to the technical contribution to the art made by the disclosure"[2]; U.S. law similarly ensures "that the public knowledge is enriched by the patent specification to a degree at least commensurate with the scope of the claims."[3] While this principle is sound and well accepted, it has proven remarkably difficult to implement. It has given rise to the controversial written description doctrine in U.S. law,[4] the rise and fall of "*Biogen* insufficiency" in U.K. law,[5] and the development of the concept of plausibility in

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1 See below note 16 and accompanying text.

2 *T 409/91 Fuel Oils/EXXON*, [1994] OJEPO 653 at 3.3 [*Exxon*], quoted with approval in *Biogen Inc. v. Medeva Plc*, [1996] UKHL 18 at para. 65, [1997] R.P.C. 1 [*Biogen*], aff'g [1995] R.P.C. 68 [*Biogen* EWCA], rev'g [1995] R.P.C. 25 [Biogen Pat.]; and see similarly *Biogen ibid.* at para. 80; *Generics (U.K.) Ltd. v. H. Lundbeck A/S*, [2009] UKHL 12 at paras. 36-37, 83 and 95, [2009] R.P.C. 13 [*Lundbeck*], aff'g [2008] EWCA Civ 311 at paras. 35, 59 [*Lundbeck* EWCA], rev'g [2007] EWHC 1040 (Pat.) [*Lundbeck* Pat.]; *Warner-Lambert Company LLC v. Generics (U.K.) Ltd. (t/a Mylan) & Anor*, [2018] UKSC 56 at paras. 23, 25 [*Warner-Lambert*]; *Regeneron Pharmaceuticals Inc. v. Kymab Ltd & Anor*, [2020] UKSC 27 at para. 56(i) [*Regeneron*]; *Regeneron Pharmaceuticals Inc. v. Genentech Inc.*, [2013] EWCA Civ. 93 at para. 96, [2013] R.P.C. 28; *Generics (U.K.) Ltd. (t/a Mylan) v. Yeda Research & Development Co. Ltd.*, [2013] EWCA Civ. 925 at para. 39, [2014] R.P.C. 4; *T 939/92 Triazoles/AGREVO*, [1996] E.P.O.R. 171 at 2.4.2 [*AgrEvo*]; *T 435/91 Detergents/UNILEVER*, [1995] E.P.O.R. 314 at 2.2.1.

3 *Nat'l Recovery Techs Inc. v. Magnetic Separation Sys Inc.*, 166 F.3d 1190 at 1196 (Fed. Cir., 1999) (describing the purpose of the enablement requirement), quoted with approval in *Promega Corp v. Life Technologies Corp*, 773 F.3d 1338 at 1347 (Fed. Cir., 2014); and see *Warner-Lambert Co. v. Teva Pharm USA Inc.*, 418 F.3d 1326 at 1336-1337 (Fed. Cir., 2005); *Sitrick v. Dreamworks LLC*, 516 F.3d 993 at 999 (Fed. Cir., 2008).

4 The leading case is *Ariad Pharm Inc. v. Eli Lilly & Co.*, 598 F.3d 1336 at 1353-1354 (Fed. Cir., 2010) (en banc) (describing the purpose of the written description requirement); and see *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956 at 977-779 (Fed. Cir., 2002), reviewing the history of the written description requirement.

5 See below Section 3.(b): Roads to Brighton: English Law.

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European and U.K. law,[6] with the recent decision of the U.K. Supreme Court in *Regeneron v. Kymab* overruling an expert panel of the Court of Appeal on this issue.[7]

The difficulty of implementing overbreadth reflects an underlying doctrinal puzzle. An invention is a new, useful and non-obvious art, process, machine, manufacture or composition of matter.[8] If the claim encompasses subject-matter that is, for example, not new, then it will be overbroad, as the old subject-matter is not an "invention" and the claim therefore exceeds the invention disclosed; but at the same time it will be invalid for lack of novelty. Similarly, a claim that encompasses obvious or useless subject-matter will be overbroad but also, and for the same reason, obvious or lacking utility. So, it is easy to see how the invention may be both overbroad and, at the same time, invalid on some other ground of invalidity. But if the invention claimed is new, useful and non-obvious across its full scope, and the specification sufficiently discloses how to make and use it, how can it be said that the patentee has claimed more than it has disclosed? Unless this is possible, then overbreadth is a redundant doctrine. A related point is that there is no clear basis in the Act for overbreadth as an independent ground of invalidity.[9] This is perhaps not a conclusive

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6 The seminal decision is *AgrEvo*, *supra* note 2; and see *Warner-Lambert*, *supra* note 2 at paras. 17-37 (reviewing the development of the concept).

7 *Regeneron*, *supra* note 2, rev'g [2018] EWCA Civ. 671 [*Regeneron* EWCA] with the Court of Appeal decision written by Kitchin L.J., Floyd and Arden LL.J., concurring.

8 *Patent Act*, R.S.C. 1985, c. P-4, s. 2 [*Patent Act*].

9 The courts typically do not link the overbreadth requirement directly to any specific statutory provision, but instead rely on case law as authority. An important decision in Canadian law is *Mullard Radio Valve Co. Ltd. v. Philco Radio and Television Corp.* (1936), 53 R.P.C. 323 (H.L.) [*Mullard Radio*], and in particular the speech of Lord Macmillan (in which all the other Lords concurred). *Mullard Radio* was the primary authority relied on by Thorson P. in *Radio Corporation of America v. Raytheon Manufacturing Co.* (1957), [1956-60] Ex. C.R. 98 at 117, 27 C.P.R. 1 [*RCA v. Raytheon*]; and see *Pfizer Canada Inc. v. Pharmascience Inc.*, 2013 FC 120 at para. 85, *per* Hughes J., describing *Mullard Radio* as being the "genesis of the law" on overbreadth. This genesis highlights the uncertain statutory basis of overbreadth doctrine. Under the U.K. statute in effect at the time of *Mullard Radio*, the *Patents and Designs Act 1907*, 7 Edw. 7, c. 29, s. 25(2)(a), a patent might be revoked on every ground on which it might have been revoked prior to codification on a writ of *scire facias*; that is, the Act at the time expressly preserved the common law grounds of revocation. This is in contrast with the Canadian legislation, based originally on the U.S. statute,

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objection, as various aspects of the law have been developed through the cases.[10] Nonetheless, it sits uneasily with the principle that the law of patents is "wholly statutory."[11] The doctrinal puzzle gives rise to a corresponding policy puzzle: if overbreadth is not redundant, what is the principled justification for striking down, without any statutory justification, a claim to an invention that is in fact new, useful, non-obvious and sufficiently disclosed?

This article reviews the Canadian law of overbreadth with these questions in mind. Three categories of cases are dealt with in turn. Section 2 of this Part shows that in the great majority of cases in which overbreadth is invoked, it is not an independent ground of invalidity but is simply a compendious way of saying that the claim at issue does not satisfy the usual statutory requirements. This is not to say merely that overbreadth is redundant on the facts, in the way that a claim that is anticipated may be obvious as well; it is a stronger point, that factual basis and legal reasoning for holding a claim to be too broad is exactly the same as the factual basis and legal reasoning for holding it to be invalid on a standard statutory

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which has always provided a statutory basis for the patent system, and which has never allowed for repeal on the basis of *scire facias* or any other common law writ. The pattern of relying solely on the case law has continued since *RCA v. Raythoeon*: the leading decision of Thurlow J. in *Farbwerke Hoechst AG v. Commissioner of Patents*, [1966] Ex. C.R. 91 [*Farbwerke Hoechst*], aff'd [1966] S.C.R. 604, [*Farbwerke Hoechst* SCC], cited no authority at all; for a recent example, see *AbbVie Corporation v. Janssen Inc.*, 2014 FC 55 at paras. 141, 148, 154 and 182 [*AbbVie v. Janssen*], relying on "covetousness" without citing a statutory basis.Rule 60 of the *Patent Rules*, SOR/96-423, requires that the claims shall be "fully supported by the description," and in *RCA v. Raytheon* at 108, Thorson P. described the relevant principle by saying "[i]n the patent law jargon it is said that the disclosures of the specification must support the claims." While Thorson P. did not cite any rule or statutory provision, this might be taken to suggest that Rule 60 embodies the overbreadth principle. However, Rule 60 is never cited by the courts in invalidating a claim for overbreadth and it would be a very weak basis for holding a claim to be invalid. The Rules are made pursuant to the authority given by the Act, and s 12 of the *Patent Act*, *supra* note 8, the primary provision authorizing the Governor in Council to make the Rules is addressed to administrative matters, such as the form of applications or fees; it is very doubtful that s. 12 of the Act authorizes the making of regulations introducing a ground of invalidity that is not found in the Act itself.

[10] Most prominently, obviousness was well-established as a ground of invalidity before it was codified in s. 28.3 of the new *Patent Act*, *supra* note 8.

[11] *Apotex Inc. v. Sanofi-Synthelabo Canada Inc.*, 2008 SCC 61 at para. 12 [*Sanofi*].

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ground, such as anticipation, or, most commonly, lack of utility. In these cases, a claim is not merely overbroad and, at the same time, anticipated; it is overbroad *because* it is anticipated. In such cases, the puzzle disappears, as overbreadth is not being used to strike down a claim to an invention that is in fact new, useful, non-obvious and sufficiently disclosed.

Section 3 of this Part deals with a second classes of cases, raising what I will refer to as the "roads to Brighton" problem. When an inventor has invented one way of achieving an outcome that is already known to be desirable, but that had never been achieved before, "the ingenuity of the patent lies not in the identification of a desirable result but in teaching one particular means to achieve it."[12] It is therefore intuitively appealing to say that the inventor should not be able to claim the end result itself, but only the particular method. If the claim to the end result were invalid, this would raise overbreadth as an independent ground of invalidity; indeed, this is the genesis of "*Biogen* insufficiency."[13] Nonetheless, on the current state of the law the inventor is permitted to claim the end result itself. Again, the puzzle disappears, as overbreadth is not raised as independent ground of invalidity given the current state of the law, though the issue is more difficult as a matter of principle than in the first class of cases.

Part II of this article turns to an outlier, namely the decision of the Court of Appeal in *Amfac Foods Inc. v. Irving Pulp & Paper Ltd.*[14] While *Amfac* was almost entirely neglected for 30 years after it was decided, it has recently been resurrected and applied in two Federal Court decisions.[15] *Amfac* does apply overbreadth as an independent ground of invalidity, but I will argue that it does not provide any solution to our puzzle, as the decision cannot be justified in law or policy. I will argue that *Amfac* was wrongly decided on the facts, and, more importantly, in its approach to overbreadth. Unless the *Amfac* approach is repudiated, Canadian law runs the risk that overbreadth will turn into a new version of the promise doctrine—under which an invention's actual utility was

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[12] *Free World Trust v. Électro Santé Inc.*, 2000 SCC 66 at para. 32, [2000] 2 S.C.R. 1024 [*Free World*].

[13] See below Section 3.(b): Roads to Brighton: English Law.

[14] *Amfac Foods Inc. v. Irving Pulp & Paper Ltd.* (1986), 12 C.P.R. (3d) 193 (F.C.A.) [*Amfac*], aff'g (1984), 80 C.P.R. (2d) 59 (F.C.T.D.) [*Amfac* FCTD].

[15] See generally Overbreadth in Canadian Law: Part II, discussing *Amfac*.

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required to match the utility promised by the specification—and perfectly good inventions will be invalidated based on an idiosyncratic parsing of the disclosure, as happened in *Amfac* itself.

I will therefore argue that there is no compelling basis in current Canadian case law for treating overbreadth as an independent ground of invalidity. With that said, I will *not* argue that there can never be any basis for invoking an independent overbreadth doctrine. The principle that the scope of the claims must be commensurate with the patent's technical contribution is attractive and well-established, and there are difficult scenarios which have not yet been squarely faced in the Canadian cases, which may properly require overbreadth to be applied as an independent ground of invalidity. This article does not attempt to suggest the appropriate doctrinal mechanism for dealing with such cases, except to say that whatever approach the law does take, it should not be based on *Amfac*.

I will, however, suggest that the overbreadth doctrine should be avoided. When overbreadth is redundant in the sense that the same factual basis that supports its application also justifies invalidating the patent on statutory grounds, the statutory ground alone should be invoked. In cases where overbreadth appears to be applicable, and yet the patent is not invalid on any other ground, the courts should be very cautious. It is not enough to apply the doctrine and declare the claim invalid. Before invalidating a claim solely for overbreadth, the court should satisfy itself that there is some principled reason for invalidating a claim to an invention that is new, useful, non-obvious and sufficiently disclosed.

2. CLAIM MUST NOT EXCEED THE INVENTION

(a) Introduction

The most prominent statement of the law of overbreadth is found in Thurlow J.'s Exchequer Court decision in *Farbwerke Hoechst AG v. Commissioner of Patents*:

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> There are two fundamental limitations on the extent of the monopoly which an inventor may validly claim. One is that it must not exceed the invention which he has made, the other is that it must not exceed the invention he has described in his specification.[16]

The first branch of the test is largely redundant under the modern first-to-file system, as it is difficult to see how an invention could be adequately disclosed without having been made.[17] Consequently, it is sometimes simply said that the claims should not be broader than the invention disclosed.[18] The key point, in any event, is that the claims should not be broader than "the invention."[19] A claim that claims more than what was invented or disclosed is invalid for

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[16] *Farbwerke Hoechst*, *supra* note 9 at 106; and see *Leithiser v. Pengo Hydra-Pull of Canada Ltd.* (1974), 17 C.P.R. (2d) 110 at 118 (F.C.A.), [1974] 2 F.C. 954 [*Leithiser*], also *per* Thurlow J., making the same statement in very similar terms. Conversely, "[i]f the claims read fairly on what has been disclosed and illustrated in the specification and drawings . . . they are not wider than the invention": *Lovell Manufacturing Co. v. Beatty Bros Ltd.* (1962), 41 C.P.R. 18 at 66, 23 Fox Pat. C. 112 (Ex. Ct.) [*Lovell*], quoted by *Pfizer Canada Inc. v. Apotex Inc.*, 2007 FCA 209 at para. 115 as a correct statement of the law (note that the claims at issue were held not to be overbroad in either of these cases).

[17] Under the first-to-invent regime of the old Act, the first branch could operate independently in the context of inventorship disputes or conflict proceedings: see *RCA v. Raytheon*, *supra* note 9, discussed below at note 59 and accompanying text. The first branch was also raised in the trial decision in *Apotex Inc. v. Wellcome Foundation Ltd./AZT*, 2002 SCC 77, [2002] 4 S.C.R. 153, 21 C.P.R. (4th) 499 [*Wellcome/AZT*], aff'g (2000), [2001] 1 F.C. 495, 10 C.P.R. (4th) 65 (F.C.A.) [*Wellcome/AZT* FCA], rev'g in part (1998), 79 C.P.R. (3d) 193 (F.C.T.D.) [*Wellcome/AZT* FCTD] in which a central dispute was as to inventorship, but the matter was resolved on the ground of inventorship alone at the Supreme Court: see the discussion of *AZT* below note 49 and accompanying text. There do not appear to be any cases under the new Act in which it was held that the claims at issue were not broader than what was disclosed, and yet were invalid as going beyond what was made. In *Farbwerke Hoechst*, *supra* note 9, itself the first branch did not have independent effect, as the claim at issue was also broader than what was disclosed, as Thurlow J. emphasized *ibid.* at 106-07; see also *Leithiser*, *supra* note 16 at 118 stating the two questions, and concluding, *ibid.* at 121, that the patent was invalid under both branches for the same reasons.

[18] See *e.g.*, *Amfac*, *supra* note 14 at 194, 198, 203, 204 (referring to the principle that the claim should not be broader "than the invention disclosed").

[19] See *ibid.* at 197, 201, 203.

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overbreadth or "covetous" claiming.[20] As discussed in more detail below, the law to this effect has since been affirmed and applied in many cases.

In view of this body of case law, it is perhaps surprising that some recent Federal Court decisions have suggested that overbreadth does not constitute an independent validity attack, but is merely an overarching term for a finding of invalidity based on some other ground of invalidity.[21] This Section reviews the cases and shows that this view is essentially correct. In the vast majority of cases, to say that a claim is overbroad is simply a way of saying that it does not satisfy the usual statutory requirements.

This view of overbreadth is consistent with the Act. Under the statutory definition, an "invention" means any new, useful and non-obvious subject-matter.[22] When a claim extends beyond the "invention," as statutorily defined, it will therefore encompass subject-matter that is old, obvious or lacking utility. On this view, to say that a valid claim "must not exceed the invention" is merely to say that the claim must not encompass subject matter that is old, obvious or lacking in utility. By the same token, the Act also requires that the invention be sufficiently disclosed,[23] and to say that the claim must not exceed the invention disclosed is simply a way of saying that the disclosure must be enabling.

This view of overbreadth is also consistent with the great majority of the case law, as is illustrated by the decision of the Supreme Court in *BVD Co. v. Canadian Celanese Ltd.*, the earliest

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[20] The term "covetous" claiming stems from the speech of Lord Alness in *Mullard Radio*, *supra* note 9 at 349.

[21] See *Eurocopter v. Bell Helicopter Textron Canada Limitée*, 2012 FC 113 at para. 69 [*Eurocopter* FC], aff'd 2013 FCA 219 [*Eurocopter* FCA], *per* Martineau J., remarking that "[i]nvalidity of a patent for overbreadth is not mentioned specifically in the Act; it is merely a particular application of the arguments of utility or anticipation." Martineau J.'s holding that the claim was not overbroad was affirmed on appeal (*Eurocopter* FCA, *ibid.* at para. 140), on the basis of the close relationship between that argument and the utility argument, at least on the facts of the case, though without specifically affirming this observation. See also *Gilead Sciences Inc. v. Idenix Pharmaceuticals Inc.*, 2015 FC 1156 at para. 784, *per* Annis J., agreeing, as a matter of law, with the submission that "[i]f the claims are soundly predicted and there has been sufficient disclosure of how to make the invention, then there can be no overbreadth of claims."

[22] See *Patent Act*, *supra* note 8, s. 2, s. 28.2, s. 28.3.

[23] See *ibid.* s. 27(3).

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Supreme Court decision cited as authority for the law of overbreadth.[24] The patent at issue in *BVD* disclosed a method of making a semi-permeable fabric by taking a woven or knitted fabric made of yarn composed of fibres of a thermoplastic, associating it with an ordinary fabric, and then uniting the two fabrics by the use of heat and pressure, thereby melting or softening the thermoplastic.[25] The use of thermoplastic spread upon or embedded in ordinary cloth and bonded to it by heat was old and well-known;[26] it was the use of the thermoplastic in the form of yarns, filaments or fibres that was "the very essence of the invention."[27] The claims, however, specified a fabric that "contains" such a thermoplastic, with no mention that it be in the form of yarn.[28]

Overbreadth was not raised at trial; the attack was based on anticipation. The trial judge had held that the patent was not anticipated because the use of thermoplastic in the form of yarn was not disclosed in the prior art; but this holding was without reference to the claims. It was the holding on anticipation that was reversed on appeal, primarily as a matter of claim construction: "[u]nless the claims . . . can properly be narrowed by the introduction of a limitation to the use of the cellulose derivative in the form of yarns, filaments or fibres, they are, we think, clearly anticipated [by two prior art patents],"[29] and "[i]f they cannot, the claims remain so broad as to be invalid because of the prior art."[30] Saying the claims were too broad was simply another way of saying they were anticipated. As the Supreme Court explained with reference to prior art in which a thermoplastic solution was spread on ordinary cloth:

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[24] *BVD Company Limited v. Canadian Celanese Limited*, [1937] S.C.R. 221 at 237 [*BVD*], rev'g [1936] Ex. C.R. 139 [*BVD* Ex. Ct.].

[25] *Ibid.* at 225-26 (quoting the specification); specifically, the patent referred to a thermoplastic cellulose derivative, but nothing turns on the precise nature of the thermoplastic.

[26] *Ibid.* at 227.

[27] *Ibid.* at 230.

[28] *Ibid.* at 226.

[29] *Ibid.* at 230.

[30] *Ibid.* at 233.

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> the [patentee] is on the horns of a dilemma—if it asserts that its process is different from [the prior art] because [the prior art] did not adopt yarns, filaments or fibres of the cellulose derivative in the intermediate layer then the respondent's claims are too broad in that the claims are not confined and limited to the use of the cellulose in yarns, filaments or fibres woven, knitted or worked into the intermediate material; whereas on the other hand if the respondent relies on the claims as they stand without reference to the use of the cellulose in the form of yarns, filaments or fibres, the process was anticipated by [the prior art].[31]

Again, in saying the claims are "too broad," the court was expressly saying that the claims would be anticipated. After reviewing the law related to claim construction,[32] the court concluded that "The Court cannot limit the claims by simply saying that the inventor must have meant that which he has described. The claims in fact go far beyond the invention. Upon that ground the patent is invalid."[33] Read in context, "that ground" is invalidity based on anticipation.

Thus, in *BVD*, the claims at issue exceeded the invention the patentee had described in his specification, because the new, useful and inventive subject-matter described in the specification used thermoplastic in the form of yarn, and the claims extended beyond that to thermoplastic in any form. The legal and factual basis for the holding of anticipation and overbreadth were the same: the claims were overbroad because they were anticipated, and they were anticipated because they were overbroad.[34]

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[31] *Ibid.* at 231-32, referring to the Van Heusen patent; while the court in this passage was describing counsel's argument, the court ultimately accepted this argument. It would appear that the claims at issue were similarly anticipated by the Green and British Dreyfus patents, mentioned by the court *ibid.* at 233, but the Van Heusen patent was the prior art primarily relied on by the court.

[32] *Ibid.* at 233-37.

[33] *Ibid.* at 237.

[34] Contrast this with a case in which a claim is anticipated by prior art that is part of the common general knowledge. In such a case, the claim will also be obvious, in the sense that the claimed invention would have been arrived at without difficulty by a skilled person in light of the common general knowledge. The finding of anticipation and overbreadth therefore overlap on the facts, but the legal analysis is different in respect of each. (Strictly, the factual basis for the decisions is also different in such a case, because a finding of anticipation does not turn on the characteristics of a skilled person.)

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BVD is typical of cases in which overbreadth is expressly cited as a ground of invalidity. The particular ground of invalidity varies:[35] an overbroad claim may also be invalid for anticipation, as in *BVD*,[36] for obviousness,[37] for ambiguity,[38] or, most commonly lack of utility, and lack of sound prediction of utility in particular.

There are many cases in which the court either expressly treats overbreadth and lack of utility as addressing the same argument,[39]

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[35] In principle, a claim might be overbroad because it encompasses non-statutory subject-matter, or for insufficient disclosure of how to make the invention, but there do not appear to be any cases so holding on the facts.

[36] *BVD*, *supra* note 24; and see *Apotex Inc. v. Hoffmann-La Roche Ltd.* (1989), 24 C.P.R. (3d) 289 at 299 (F.C.A.) (noting that if interpreted broadly, the claim at issue would encompass all uses of a known combination); *Apotex Inc. v. Sanofi-Aventis*, 2011 FC 1486 at paras. 296-302 (dealing with an allegation that the claim at issue "is overbroad because it encompasses processes that were not invented." The substance of the allegation described at para. 300, was that if interpreted broadly, the claimed invention would be anticipated: the attack failed on the basis that the claim should not be construed broadly); *Eli Lilly Canada Inc. v. Apotex Inc.*, 2009 FC 320, addressed overbreadth at paras. 52-59, holding at para. 59 that "the claims are broader than the invention," in light of the fact that "the product as claimed is not different from that disclosed and enabled by [the prior art]" (para. 58).

[37] See also *Woodrow v. Long Humphreys & Co., Ltd.*, (1934), 51 R.P.C. 25 (C.A.) especially at 30, *per* Lord Hanworth MR, stating that "If a claim is so wide that it includes something that is made in accordance with public general knowledge and has required no inventive step to justify it being so produced, it is too wide, and therefore bad, within the codifying Section which tabulates the [obviousness] grounds of revocation."

[38] See *Unilever PLC v. Procter & Gamble Inc.* (1995), 61 C.P.R. (3d) 499 at 512-519 (F.C.A.) [*Unilever*], aff'g (1993), 47 C.P.R. (3d) 479, 60 F.T.R. 241 (F.C.T.D.), in which the attack was couched in terms of covetousness. The validity of the claims was upheld on appeal, on the basis that the patentee was indeed entitled to broad claims, and the main substantive issue was whether functional claims were sufficiently definite to give proper notice. See also *AstraZeneca Canada Inc. v. Apotex Inc.*, 2015 FC 322 at paras. 274, 278, noting that the argument was that the claim at issue "is overbroad and ambiguous," and holding that the fact that some testing would still be required to know whether a formulation with the claimed structure actually worked "does not mean the claim is overbroad or unclear"; *Mobil Oil Corp. v. Hercules Canada Inc.* (1994), 57 C.P.R. (3d) 488 at 507 (F.C.T.D.) [*Mobil Oil* FCTD], rev'd in part (1995), 63 C.P.R. (3d) 473 at 483 (F.C.A.) [*Mobil* Oil FCA], holding the claims were not overbroad because a skilled person would know whether they were infringing.

[39] See *Lubrizol Corp. v. Imperial Oil Ltd.* (1990), 33 C.P.R. (3d) 1 at 27-28 (F.C.T.D.) [*Lubrizol*], rev'd on other grounds (1992), 45 C.P.R. (3d) 449 (F.C.A.) (treating the issue of "lack of utility or claim broader than invention"

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or where the overbreadth argument turns on whether utility has been established.[40] *Farbwerke Hoechst* itself was such a case. While the procedural history was somewhat complicated, when Thurlow J. stated that "the inventors had made no invention whatever of the class of substances,"[41] this was because there was no sound prediction of utility across the breadth of the claim.[42] Another

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under the heading "Claims Broader than the Invention Described/Utility," and holding that the defendant had failed to establish lack of sound prediction); *Wellcome Foundation Ltd. v. Apotex Inc.* (1991), 39 C.P.R. (3d) 289 at 333 (F.C.T.D.), rev'd in part (1995), 60 C.P.R. (3d) 135 at 153-157 (F.C.A.) (noting the overbreadth argument "was directed in the main to issues of operability and utility"); *Merck & Co. Inc. v. Apotex Inc.*, 2010 FC 1265 at para. 475 [*Lovastatin*] (noting that the claim of overbreadth "is more properly a question of sound prediction"); *Eurocopter* FC 113, *supra* note 21 at paras. 333-76, aff'd *Eurocopter* FCA, *ibid.* (dealing with "Utility and overbreadth" under a single heading, and finding certain claims invalid on the basis of "lack of demonstrated utility (or sound prediction) and/or overbreadth" and others to be valid despite the attack based on "demonstrated lack of utility or overbreadth").

40 See *Leithiser*, *supra* note 16 at 121-23 (regarding claims encompassing a single capstan wheel, noting at 123 that "that such a device if made would not be workable"); *Cabot Corp. v. 318602 Ontario Corp.* (1988), 20 C.P.R. (3d) 132 at 162 (F.C.T.D.) [*Cabot Corp.*] (dismissing the overbreadth attack on the basis that "[t]here is no evidence that any embodiment of the claims in suit would not work"); *Illinois Tool Works Inc. v. Cobra Fixations Cie Ltée — Cobra Anchors Co. Ltd.* (2002), 20 C.P.R. (4th) 402 at paras. 93-95 [*Illinois Tool Works*], aff'd 2003 FCA 358 (claims not overbroad because not lacking utility); *Fournier Pharma Inc. v. Sandoz Canada Inc.*, 2012 FC 741 at paras. 117-22 (allegation of overbreadth not justified as lack of sound prediction not established); *Pfizer Canada Inc. v. Pharmascience Inc.*, 2013 FC 120 at paras. 83-95 (claim to the use of pregabalin to treat pain held to be overbroad because it was not shown to be useful in treating acute pain, and effectiveness for such use could not be soundly predicted); *NOVA Chemicals Corp. v. The Dow Chemical Co.*, 2016 FCA 216 at paras. 45-51, aff'g 2014 FC 844 (the overbreadth attack was essentially an argument that the putative promised utility was not met, and failed on the facts on the basis that the promised utility was more modest: see especially para. 47); *Apotex Inc. v. Pfizer Canada Inc.*, 2017 FC 951 at para. 58 (an amendment alleging overbreadth allowed on the basis that "to the extent that a claimed use is unsubstantiated, an allegation of an overly broad claim may succeed"); *MIPS AB v. Bauer Hockey Ltd.*, 2018 FC 485 at paras. 245-256 [*MIPS AB*] (attack failed as utility was established even in the absence of putative essential element).

41 *Farbwerke Hoechst*, *supra* note 9 at 106.

42 The patent at issue in *Farbwerke Hoechst* had been held invalid in *Hoechst Pharmaceuticals of Canada Ltd. v. Gilbert & Co.* (1964), [1965] 1 Ex. C.R. 710 at

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example to the same effect is *CH Boehringer Sohn v. Bell-Craig Ltd.*[43] in which the Supreme Court upheld Thurlow J.'s holding that the claims at issue were invalid, specifically approving his statement that a patent "which claims more than the inventor has invented purports to grant an exclusive property in more than the inventor has invented."[44] Again, while couched in terms of overbreadth, the claim was overbroad because of a lack of sound prediction of utility.[45]

726-29, 50 C.P.R. 26, aff'd (1965), [1966] S.C.R. 189, expressly on the basis of lack of sound prediction of utility, relying extensively on the seminal sound prediction case, *Re May & Baker* (1948), 65 R.P.C. 255 (Ch.) [*Re May & Baker*], aff'd (1948), 66 R.P.C. 8 (C.A.), aff'd (1950), 67 R.P.C. 23 (H.L.); see also *Farbwerke Hoechst*, *supra* note 9 at 102 discussing *Hoechst v. Gilbert*. *Farbwerke Hoechst* itself was an application for reissue, brought by the patentee after its patent had been held invalid in *Hoechst v. Gilbert*. The basis for the application for reissue was that the applicant had wrongly understood the law; in effect, the argument was that *Hoechst v. Gilbert* had established new law and the applicant should be entitled to recast its claims accordingly: *Farbwerke Hoechst* at 104 (appellant's petition for reissue, point 4). In *Farbwerke Hoechst*, Thurlow J. refused the application for reissue because he interpreted the section as requiring a valid invention in the original patent. Thurlow J.'s statements at 106 that "the inventors had made no invention whatever of the class of substances," and regarding the "two fundamental limitations on the extent of the monopoly which an inventor may validly claim," were both directed at the claims as originally granted, which had been found to be invalid for lack of a sound prediction of utility in *Hoechst v. Gilbert*. (Note that the Supreme Court affirmed primarily on the basis that a mistaken understanding of the law was not the kind of mistake falling within the section: *Farbwerke Hoechst* SCC, *supra* note 9 at 617-18.)

[43] [1963] S.C.R. 410, 41 C.P.R. 1 (S.C.C.) [*Boehringer*], aff'g [1962] Ex. C.R. 201, 39 C.P.R. 201 [*Boehringer* Ex. Ct., cited to Ex. C.R.].

[44] *Boehringer*, *ibid.* at 412, quoting with approval *Boehringer* Ex. Ct., at 241; see also Thurlow J.'s statement in *Boehringer* Ex. Ct., *ibid.* at 241 that "a claim which is invalid because it claims more than the inventor invented is an outlaw and its existence as defining the grant of a property right is not to be recognized as having any validity or effect," quoted in *Boehringer*, *ibid.* at 413.

[45] The quoted statement regarding overbreadth referred to Claim 8, which was to a pharmaceutical compound produced by the process of Claim 1: *Boehringer*, *ibid.* at 411. Under the then existing section 41(1) of the Act, a claim to a pharmaceutical was valid only when claimed as a product-by-process claim. While Claim 8 was accordingly in the form of a product-by-process claim, the Supreme Court upheld Thurlow J.'s holding that such a claim was valid only if the claim it depended on (Claim 1) was also valid: *ibid.* at 414-15. This was the key point at issue in the Supreme Court. In *Boehringer* Ex. Ct. *ibid.* at 243, Thurlow J. had held Claim 1 invalid on the basis that it claimed, "an almost

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There is more generally a close relationship between overbreadth and lack of utility. In addition to the cases just noted, where overbreadth is expressly raised as a ground of invalidity and is then addressed in terms of utility, there are cases in which the validity attack is expressly based on utility, but overbreadth language is prominently invoked. For example, the doctrine of sound prediction was received into Canadian law by the Supreme Court in *Monsanto Co. v. Commissioner of Patents*.[46] The Patent Appeal Board had rejected one of the claims at issue on the basis that "the rejected claims are too broad in the sense that they cover more than the invention made."[47] This is on its face an objection of overbreadth, in very similar terms to Thurlow J.'s statement in *Farbewerke Hoechst* that the claim "must not exceed the invention which [the inventor] has made." The Supreme Court reversed on the basis that utility could be soundly predicted across the scope of the claim.[48]

An example illustrating the intimate relationship between overbreadth and utility is *Wellcome/AZT*, in which the Supreme Court upheld claims to the use of AZT for the treatment of HIV/AIDS.[49] While *Wellcome/AZT* is famous for having definitively established the doctrine of sound prediction in Canadian law, the validity arguments at trial were framed primarily in terms of overbreadth, with specific reference to both

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infinite number of end products of which only one has been described from the point of view of pharmacology and the remainder are not useful and so the process as claimed lacks utility." This was clearly a finding of lack of sound prediction of utility across the full scope of the claim, both on its face and as can be seen by Thurlow J.'s extensive reliance, *ibid.* at 210-14, on *Re May & Baker Ltd.*, *supra* note 42, the seminal sound prediction case. The finding that Claim 1 was invalid was not challenged on appeal, with the Supreme Court noting in *Boehringer* at 413 that "it was conceded, by counsel for the appellant, that claim 1 was too broad in its terms and was invalid for the reasons given by the learned trial judge."

46 *Monsanto Co. v. Commissioner of Patents*, [1979] 2 S.C.R. 1108 [*Monsanto*]; and see *Wellcome/AZT*, *supra* note 17 at para. 61 (affirming that sound prediction was received into Canadian law in *Monsanto*).

47 *Monsanto*, *supra* note 46 at 1114, quoting the reasons of the Patent Appeal Board for refusing Claim 16, which was the claim in respect of which the doctrine of sound prediction was accepted. The other claim at issue, Claim 9, was dealt with much more briefly: *ibid.* at 1118-19.

48 *Monsanto*, *ibid.* at 1115-18.

49 *Wellcome/AZT* FCTD, *supra* note 17 at para. 44.

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branches of the test, namely whether the claims "exceeded the invention that had been made," and whether the claims "exceeded the invention that is described in the specification."[50] The first branch was primarily at issue in relation to the claims to the use of AZT for the treatment of HIV/AIDS.[51] The link between overbreadth and utility was explicit from the outset,[52] and Wetston J.'s analysis at trial turned entirely on whether utility had been established as of the relevant date.[53] While the Supreme Court's analysis was framed entirely in terms of a sound prediction of utility, it noted the link to overbreadth when drawing on Wetston J.'s findings to uphold the claims at issue: "Although the trial judge did not consider the doctrine of 'sound prediction' to be applicable in this sort of case, he seems to have applied it nevertheless when he decided that the claims did not exceed the invention."[54] The second branch of overbreadth was at issue in relation to the claims to the treatment of all human retroviral

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[50] *Ibid*. at para. 110; and see *ibid*. at para. 28, statement of the issues, points 2 and 6. Note that Wetston J. considered whether the invention had been made as of two different dates, namely February 6, 1985 and March 16, 1985. This is ultimately related to the fact that the patent at issue was governed by the old Act, with a first-to-invent rule regarding entitlement, and inventorship, and therefore date of inventorship, was one of the central issues. This did not affect the nature of his analysis; his discussion as of the second date simply considered the evidence that became available in the ensuing month, cumulatively with the other evidence.

[51] The key valid claim was Claim 22, to the use of AZT for the treatment or prophylaxis of AIDS: *ibid*. at para. 44.

[52] See *ibid*. at para. 78, describing the defendants' invalidity attack in words that echo those of Thurlow J. in *Farbwerke Hoechst* almost exactly, and then going on in the same paragraph to expressly state that utility must be demonstrated or soundly predicted as of the claim date.

[53] See generally *ibid*. at paras. 108-86, and especially paras. 109, 159 161 and 179.

[54] *Wellcome/AZT*, *supra* note 17 at para. 58. The Supreme Court, *ibid*. at para. 73, reviewed the evidence considered by Wetston J. and, *ibid*. at paras. 73(v) and 74, quoted his conclusions that the evidence "moves the invention out of the sphere of belief and into the realm of the inventors having deduced the complete invention," and consequently the patent "does not exceed the invention claimed." The quoted passages were taken from Wetston J.'s final conclusions, *Wellcome/AZT* FCTD, *supra* note 17 at paras. 185-86, and the end of his discussion, *ibid*. at paras. 108-86, of whether the claims exceeded the invention that was made. The Supreme Court, *Wellcome/AZT*, *supra* note 17 at para. 75, stated that "[t]hese conclusions support a finding of sound prediction." This shows that the evidence and conclusions that Wetston J. considered relevant to

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infections, without limitation to HIV/AIDS.[55] Wetston J. held these claims to be "overbroad,"[56] but again, this holding was based on a utility analysis.[57] Thus, on both these points the overbreadth arguments were coextensive with utility.[58]

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the first branch of overbreadth were considered by the Supreme Court to be relevant to a sound prediction of utility.

The Court of Appeal's discussion was also focused on utility. It addressed the issue under the rubric of "completion" of the invention, but the analysis was entirely in terms of utility: see *Wellcome/AZT* FCA, *supra* note 17 at paras. 49-54, especially at para. 51. The Court of Appeal, *ibid.* at paras. 51-52, held that utility could be established by post-filing evidence, and the Supreme Court, *Wellcome/AZT*, *supra* note 17 at para. 46, reversed on this point; nonetheless, this difference between the Court of Appeal and the Supreme Court was entirely in terms of the specifics of the utility doctrine — in particular whether post-filing evidence could be used to establish utility — and not considerations of a distinct overbreadth doctrine.

[55] The key independent claim to the use for the treatment or prophylaxis of all human retrovirus infections was Claim 21: *Wellcome/AZT* FCTD, *supra* note 17 at para. 294.

[56] *Wellcome/AZT* FCTD, *supra* note 17 at para. 303.

[57] Wetston J. held that there was insufficient evidence to establish that AZT would be useful for treating retroviral infections other than HIV/AIDS: see generally *ibid.* at paras. 294-303, especially at paras. 297, 300-02, all noting the lack of evidence of usefulness beyond HIV/AIDS. This holding was upheld by the Court of Appeal at *Wellcome/AZT* FCA, *supra* note 17 at paras. 103-06 and was not appealed to the Supreme Court. It is not entirely clear why this issue was discussed under the second branch and not the first.

[58] Wetston J. also addressed a variety of other attacks under the second branch of overbreadth, but again, none of them raised an independent ground of attack. The first issue touched on by Wetston J. was whether the use of AZT for the treatment of HIV/AIDS has been "invented" as of the relevant date: *Wellcome/AZT* FCTD, *supra* note 17 at para. 272. This was a repetition of the attack that had been dismissed under the first branch. This repetition illustrates the uncertain nature of the relationship between the first and second branches, as does the question of the validity of the claim to the use of AZT against all human retroviral infections, discussed immediately above. A third attack concerned Claim 1, which claimed the compound AZT as such, without restriction to its use in treating AZT. Wetston J. held, *ibid.* at paras. 273-84, that this claim was not overbroad, but he was overruled on this point by the Court of Appeal on the basis that this the compound as such was not new: *Wellcome/AZT* FCA, *supra* note 17 at para. 81. In respect of that claim, overbreadth was coextensive with anticipation, as in BVD. The final attack under this head of overbreadth was directly against the claims to the use of AZT for prophylaxis. While this attack was also framed in terms of overbreadth, it was essentially a classical

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An important case that departs from this pattern is the decision of Thorson P. in *Radio Corporation of America v. Raytheon Manufacturing Co.*,[59] in which overbreadth was used to police a priority competition in a conflict proceeding under the first-to-invent system of the old Act. The inventions at issue related to mass-producing vacuum tubes with minimal defects. A vacuum tube has two main glass parts, the stem and the bulb. The electronics wiring is encased in the stem, and the stem and bulb are then sealed together by heating the glass so the parts fuse. The problem faced by the inventors was that stresses in the cooling glass would often result in cracking and defective tubes.[60] The inventors whose patents were in conflict had solved the problem in very different ways. Horn used a novel stem with a thickened central portion and a thinned edge, which when fused to the bulb made a smooth seal that avoided cracking,[61] while Seelen implemented a differential cooling method by artificially cooling the central portion of the stem to control the strains in the seal region.[62] In order to establish a conflict, the Horn application copied from the Seelen application the claims specifying the particular method invented by Seelen, which was not disclosed anywhere in the Horn application, except in the claims that had been copied.[63] Thorson P. held that Horn was not entitled to the claims in conflict because they were "wider than the invention disclosed in the specification."[64] The defect was clearly unrelated to anticipation, utility or obviousness.

If Horn's disclosure did not enable a skilled person to practice Seelen's method without undue effort, the claims would be invalid for insufficiency, and any overbreadth argument would be

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insufficiency attack and was rejected by Wetston J.: *Wellcome/AZT* FCTD, *supra* note 17 at paras. 285-93.

59 *RCA v. Raytheon*, *supra* note 9.

60 See generally *ibid.* at 106-08.

61 *Ibid.* at 114-16.

62 *Ibid.* at 135-36.

63 *Ibid.* at 101. Horn claimed to have been the prior inventor, so that if the claims were valid, Horn, and not Seelen, was entitled to them: *ibid.* at 102, 103.

64 *Ibid.* at 117; and see *ibid.* at 108, stating "It is a cardinal principle of patent law that an inventor may not validly claim what he has not described," and *ibid.* at 117, stating the inventor "is not entitled to claim a monopoly more extensive than is necessary to protect that which he has invented."

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redundant, in the same way as overbreadth was redundant with anticipation in *BVD*. The problem is more interesting if we assume that a skilled person could practice Seelen's method on the basis of the claims alone, which might be the case if the inventive ingenuity lay in conceiving of the differential cooling method as a solution to the problem, and not in its implementation. On the facts in *RCA v. Raytheon*, it seems clearly correct to deny the claims to Horn, even if a skilled person could implement the differential cooling method without additional instruction in the disclosure. In this respect, it is important that *RCA v. Raytheon* was a conflict proceeding under the old Act; the reason that Horn should not be entitled to the claims is not that Horn had not met his end of the patent bargain with the public, it is that Seelen, and not Horn, was the true inventor.

The problem cannot arise in the same manner under the new Act. If Horn filed his application before Seelen, but without the contentious claim, he would not be able to add the claim to Seelen's method during prosecution, as it could not reasonably be inferred from his specification.[65] If Horn filed his application after Seelen, and then added the claim during prosecution, that claim would be anticipated by Seelen's application.[66] If Horn had filed before Seelen, and had copied the idea from Seelen outside the patent system, Seelen would be a co-inventor who had been wrongly excluded, the remedy would not be to invalidate the claim, but rather to add Seelen as an inventor.[67]

The use of overbreadth to control priority under the old Act is different from its use to invalidate a granted patent under the new Act, because its use in controlling priority would never result in denying a patent to an invention that is new, useful, non-obvious and sufficiently disclosed; it is only a matter of who would be entitled to that patent.[68] The use of overbreadth to control priority

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[65] See *Patent Act*, *supra* note 8, s. 38.2. This assumes that Seelen's method is inventive, either in its concept or its implementation.

[66] See *Patent Act*, *ibid.*, s. 28.2(1)(c).

[67] See *Corlac Inc. v. Weatherford Canada Ltd.*, 2011 FCA 228 at para. 123, and *Wellcome/AZT* FCA, *supra* note 17 at para. 48, both noting the illogicality of invalidating a patent for failure to name an inventor, thereby entirely depriving the inventor of their interest.

[68] Even under the old Act, it is arguable that the matter should have been resolved as a matter of priority of inventorship, rather than overbreadth.

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under the old Act is not good authority for invalidating claims under the new Act.

(b) Summary

The cases discussed in this section constitute the great majority of cases in which overbreadth is invoked as a ground of invalidity. In these cases, overbreadth does not constitute an independent validity attack; it is merely an overarching term for a finding of invalidity based on some other ground. To say the claim must not exceed the invention is only to say that the claim must be restricted to subject-matter that is new, useful, non-obvious and sufficiently disclosed. When used in this way, overbreadth presents no doctrinal or policy puzzles. This, of course, also addresses the problem of the uncertain statutory basis of overbreadth as an independent doctrine; it does not need a statutory basis, as it is not an independent doctrine.

3. ROADS TO BRIGHTON

(a) Overview

In the previous section, I showed that in the great majority of Canadian cases, overbreadth does not serve as an independent ground of invalidity. There is, however, one category of cases which presents a *prima facie* case for using overbreadth as a truly independent ground of invalidity. The point was made in picturesque terms over 150 years ago:

> It is extremely desirable that when a beneficial idea has been started by one man, he should have the benefit of his invention, and that it should not be curtailed or destroyed by another man simply improving upon that idea; but if the idea be nothing in the world more than the discovery of a road to attain a particular end, it does not at all interfere with another man discovering another road to attain that end, any more than it would be reasonable to say that if one man has a road to go to Brighton by Croydon another man shall not have a road to go to Brighton by Dorking.[69]

More recently the Supreme Court in *Free World Trust v. Électro Santé Inc.*, made the same point in slightly different terms:

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[69] *Curtis v. Platt* (1863), 3 Ch. D. 135n [*Curtis v. Platt*], quoted in *Unilever PLC v. Procter & Gamble Inc.* (1995), 61 C.P.R. (3d) 499 at 515 (F.C.A.).

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> [T]he ingenuity of the patent lies not in the identification of a desirable result but in teaching one particular means to achieve it. The claims cannot be stretched to allow the patentee to monopolize anything that achieves the desirable result. It is not legitimate, for example, to obtain a patent for a particular method that grows hair on bald men and thereafter claim that anything that grows hair on bald men infringes.[70]

More prosaically, the "roads to Brighton" problem arises when the inventor has invented one way of achieving an outcome that is already known to be desirable, but that had never been achieved before. Can the inventor who develops a new and non-obvious method for achieving that known desideratum claim the end result itself?

If the inventor is restricted to claiming the method, overbreadth would be raised as a truly independent ground of invalidity. The end result—growing hair on a bald man—was known to be desirable, but had never been done before, so the first person to achieve it, by whatever means, will have done something both new and useful. The particular method used to arrive at the end result is, by hypothesis, both inventive and fully disclosed. Thus, the claimed invention is new, useful and achieving it was not obvious, but it is nonetheless arguable that a claim to the end result itself, rather than the specific method of achieving it, is too broad.

Notwithstanding the passages quoted above, it is now reasonably well-settled in Anglo-Canadian law that the inventor is entitled to claim the end result itself, at least when that end result is a single novel product. Thus, as the law currently stands, the roads to Brighton problem does not raise overbreadth as an independent ground of invalidity. The point is nonetheless worth exploring, as the issue is a difficult one and the full extent and implications of the rule are by no means settled.

Before turning to the cases, we should note that the issue is only controversial when the outcome is known to be desirable. Otherwise, it is well-established that the inventor may obtain a patent that effectively covers all aspects of the invention.[71] So, if an

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[70] *Free World*, *supra* note 12 at para. 32.

[71] See *Lundbeck* EWCA, *supra* note 2 at paras. 43-46 (describing the history of product claims); and see *Unilever*, *supra* note 69 at 514, referring to a line of cases holding that "a patentee who has discovered a new principle is entitled to a [sic] claim all modes of carrying it into effect." The Supreme Court in *Free World*, *supra* note 12 at para. 32 confined its remark to a situation in which "the

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inventor develops a new chemical compound and identifies at least one use and at least one way of making it, it is very well-established that she may claim the compound as such.[72] The claim to the compound effectively gives the inventor a monopoly over the compound, however it might be made, and for all uses of the compound, even for those uses and methods of synthesis she did not discover. Another inventor who discovers a non-obvious new process for making the compound, or a non-obvious second use, may obtain a patent for the new process or use, but will nonetheless infringe the original patent for the compound itself. Nor does the roads to Brighton problem arise when it is obvious how to make the end product; even if the inventor discovers a clever way of making the end product, perhaps at a much lower cost, it cannot claim the end product itself, but only the method.

We must also be wary of the false form of the roads to Brighton problem. A claim to a broad range of ways of achieving a desirable objective is valid if all the methods falling within the claim rely on the inventive concept disclosed by the patent. This point is illustrated by *AbbVie Corporation v. Janssen Inc*.[73] The invention related to human antibodies that bind to human interleukin 12 ("IL-12"), thereby interfering with its function. IL-12 was known to be implicated in immune system function, so methods for inhibiting its activity were likely candidates for treating diseases related to immune system disorders.[74] AbbVie, the patentee, had developed a specific anti-IL-12 antibody, discovered that it was useful in treating psoriasis (an autoimmune disorder), and claimed the use of any anti-IL-12 antibody to treat psoriasis.[75] This might appear to raise the roads to Brighton problem, as the claims were not restricted to the particular antibody identified by AbbVie.

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ingenuity of the patent lies not in the identification of a desirable result but in teaching one particular means to achieve it."

[72] Until 1987, chemical compounds intended for food or medicine could only be claimed by the process by which they were made: see *Patent Act*, R.S.C. 1952, c. 203, s. 41. This restriction was removed in 1987 by *An Act to Amend the Patent Act and to Provide for Certain Matters in Relation Thereto*, R.S.C. 1985, c. 33 (3rd Supp.).

[73] *AbbVie v. Janssen*, *supra* note 9, discussing overbreadth at paras. 141-68.

[74] *Ibid*. at para. 14.

[75] *Ibid*. at paras. 45-47 (setting out Claims 143 and 222 and noting that these were the only claims in issue).

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However, on the facts, there was an inventive step in discovering that anti-IL-12 antibodies would treat psoriasis.[76] Thus, this was not a case in which the claimed result — the use of anti-IL-12 antibodies to treat psoriasis — was a known desideratum, as it was not obvious that anti-IL-12 antibodies would be useful in treating psoriasis; discovering that fact was the inventor's contribution. Despite the broad functional nature of the claim, the claims did not go beyond the patentee's inventive contribution, and the claims at issue were upheld on that basis.[77]

(b) English Law

The roads to Brighton problem has never been squarely addressed by the Supreme Court of Canada,[78] but it has twice been addressed by the House of Lords. The first case was *Biogen Inc v. Medeva Plc*,[79] where the invention related to a recombinant DNA molecule capable of expressing Hepatitis B virus (HBV) antigens.[80] HBV antigens could be used in preparing vaccines,[81] and making Hepatitis B vaccines by recombinant DNA technology was widely known to be desirable.[82] The patentee, Biogen, had invented one method of expressing HBV antigens. The defendant, Medeva, used an entirely different method which "owe[d] nothing"

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[76] This discovery had been made, apparently fortuitously, when one of the subjects in a study looking at the effects on arthritis and related disorders had noticed that their psoriasis had disappeared: *ibid.* at paras. 73, 136. While this effect was understandable *ex post*, at least in general terms, given that psoriasis is an immune-mediated disorder, it could not have been predicted or expected *ex ante*, given the number and variety of cytokines which might be implicated in any particular immune disorder: *ibid.* at paras. 133-37.

[77] *Ibid.* at para. 168. Note that Claim 1 of the same patent, CA2365281, to "[a]n isolated human antibody . . . that binds to human IL-12," would raise the roads to Brighton problem, but it was not asserted in this action. Note also that claims at issue might be objectionable under the U.S. "written description" doctrine, which adopts a different approach to overbreadth: see *Ariad*, *supra* note 4.

[78] The statement from *Free World*, *supra* note 12 at para. 32, quoted above in the text accompanying note 70, was *obiter*, as validity was not at issue and the case was decided on the basis that the claims at issue were not infringed.

[79] *Biogen*, *supra* note 2 (respecting European patent (U.K.) No. 0182442).

[80] *Ibid.* at para. 9.

[81] *Biogen* EWCA, *supra* note 2 at 33.

[82] *Biogen*, *supra* note 2 at paras. 49-50.

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to the technique disclosed in the patent.[83] Biogen had nonetheless cast its claims broadly enough to capture Medeva's method.[84] In the House of Lords, Lord Hoffmann endorsed the principle that the claims cannot exceed the technical contribution disclosed by the patent,[85] and he concluded that the claim at issue was invalid on the basis that it exceeded the patent's technical contribution.[86] In so holding, he was evidently of the view that the technical contribution was the inventive concept; the inventive step was the process by which the antigen was made, and the claims should be correspondingly limited.[87]

Biogen was widely interpreted as holding that the inventor in such a case could only claim the end product in terms of the particular process that the inventor had discovered.[88] However, the law was subsequently clarified in what is now the leading House of Lords decision on this issue, *Generics (U.K.) Ltd. v. H. Lundbeck A/S*.[89] The nature of the invention at issue in *Lundbeck* was much simpler than in *Biogen*, and it provides a particularly clear example

[83] *Ibid*. at para. 74. A succinct summary of the invention is found in *Lundbeck* Pat., *supra* note 2 at paras. 253-57.

[84] *Medeva* was found to have infringed at trial: *Biogen* Pat., *supra* note 2 at 66-68. This finding was affirmed by the Court of Appeal (*Biogen* EWCA, *supra* note 2 at 115), and not raised before the House of Lords.

[85] *Biogen*, *supra* note 2 at paras. 65, 71. The other Lords all concurred in Lord Hoffmann's reasons.

[86] *Ibid*. at paras. 75-76. The patent was attacked on several grounds at trial, all of which were dismissed by Aldous J., who held the claims at issue to be valid: *ibid*. at para. 13. In the House of Lords, Lord Hoffmann assumed, without deciding, that the invention was not obvious: *ibid*. at para. 55. Lord Hoffmann also held that the disclosure was insufficient, but this followed directly from his holding on overbreadth: see *ibid*. at para. 78.

[87] Lord Hoffmann in *Biogen*, *ibid*., did not offer a precise definition of the "technical contribution," but, *ibid*. at para. 74, he identified the technical contribution with the same inventive step he had identified in the discussion of obviousness, *ibid*. at para. 53. In *Lundbeck*, *supra* note 2 at paras. 29-30, Lord Walker explained that "inventive concept" and "technical contribution" do not normally have precisely the same meaning; that is no doubt true enough, but they had the same practical meaning in *Biogen*. In any event, given that *Biogen* has been confined to its facts, it is not necessary to explore exactly what the term "technical contribution" meant in that case; the principle that the claims should be limited to the inventive concept is attractive enough to stand on its own, with *Biogen* as an illustration.

[88] See *Lundbeck*, *supra* note 2 at paras. 77-78, 100.

[89] *Lundbeck*, *supra* note 2.

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of the roads to Brighton problem. *Lundbeck* concerned escitalopram, the (+) enantiomer of citalopram. Citalopram was a well-known anti-depressant.[90] It was known to be a racemate, and it was also known that the enantiomers might have different properties, with one being more effective or less toxic, so it was obvious to try to separate them.[91] But actually separating them was quite difficult.[92] After "seven years of hard work," the patentee discovered how to do so, discovered that the escitalopram was the effective enantiomer, and claimed escitalopram as such.[93] The was a clear example of the roads to Brighton problem; the particular method of separating the racemate was inventive,[94] but the desirability of doing so was well-known.[95]

At first instance, Kitchen J. held the claim to escitalopram invalid for the sole reason that "[t]he first person to find a way of achieving an obviously desirable goal is not permitted to monopolise every other way of doing so," relying solely on *Biogen* as authority.[96] The unanimous Court of Appeal reversed, with Lord Hoffmann himself, who had descended to the Court of Appeal to hear the appeal, explaining that for "an ordinary product claim, the product is the invention,"[97] and "the technical contribution to the art is the *product* and not the process by which it was made, even if that process was the only inventive step."[98] The House of Lords affirmed Lord Hoffmann's decision. The House of Lords, like Lord Hoffmann, affirmed the principle that the claims must not exceed the technical contribution made by

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90 *Ibid.* at paras. 9, 59.

91 *Ibid.* at paras. 60-62.

92 *Ibid.* at para. 62.

93 *Ibid.* at paras. 62-63.

94 *Ibid.* at para. 65.

95 See *Lundbeck* Pat., *supra* note 2 at para. 266, noting that the inventive step in the invention "was not deciding to separate the enantiomers of citalopram but finding a way it could be done." Discovering that the (+) enantiomer was more effective was routine: *ibid.* at para. 33.

96 *Ibid.* at para. 267. The Court of Appeal and Kitchen J. at trial had rejected novelty and obviousness attacks and established that the separation of escitalopram involved an inventive step: *Lundbeck*, *supra* note 2 at para. 43. Utility had never been in issue, nor was it disputed that the description sufficiently disclosed how to make escitalopram.

97 *Lundbeck* EWCA, *ibid.* at para. 27.

98 *Ibid.* at para. 36 (original emphasis).

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the patent,[99] and their Lordships agreed that the technical contribution, in this context at least, was not the inventive concept — the method by which the product was made — but rather the product itself.[100] On this view, the claims to escitalopram did not exceed the technical contribution.

In affirming Lord Hoffmann's decision for the Court of Appeal, the House of Lords expressly repudiated Kitchen J.'s statement of the law.[101] Lord Neuberger noted that "I appreciate that this means that, by finding one method of making a product, a person can obtain a monopoly for that product," but he pointed out that this "applies to any product claim."[102] He rejected the idea that there is a distinction between a compound that had never been thought of and one known to be desirable.[103] Lord Mance provided a succinct summary of the House of Lords' position in *Lundbeck*: "a patent claim to a single novel product embraces all methods of producing that product, even if the description and specification cover only one such method and others emerge owing nothing to it."[104]

Biogen was effectively confined to its facts due to the technical complexity of the invention and the consequently unusual form of the claims.[105] Thus, while *Biogen* appeared to raise overbreadth as

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[99] *Ibid.* at paras. 14, 19, 29-34, 95-98; and see similarly *Lundbeck* EWCA, *supra* note 2 at paras. 35-36, 59.

[100] See the reasons of Lord Walker in *Lundbeck*, *supra* note 2 at paras. 29-31; and see the reasons of Lord Neuberger *ibid.* at para. 101, concurring in those remarks.

[101] See *Lundbeck*, *supra* note 2 at para. 78 (quoting Kitchin J.'s statement); and see *ibid.* at para. 90 (holding there was no support for this statement apart from *Biogen*); *ibid.* at para. 100 (describing Kitchin J.'s interpretation of *Biogen* as "mistaken"). The only issue before the House of Lords was whether the inventor was entitled to a patent to escitalopram as such: *ibid.* at paras. 11, 66. The House of Lords was unanimous: Lord Scott, *ibid.* at para. 5, 8 concurred in the reasons of Lord Neuberger on the issue, adding only a few points regarding novelty, while the reasons of Lords Walker, Neuberger and Mance, were all to the same effect: *ibid.* at paras. 40, 102. Lord Philips concurred: *ibid.* at para. 1.

[102] *Ibid.* at para. 90.

[103] *Ibid.*, observing that "where (as here) the product is a known desideratum, it can be said . . . that the invention is all the more creditable, as it is likely that there has been more competition than where the product has not been thought of."

[104] *Ibid.* at para. 44 (describing the position of the Court of Appeal, which was affirmed).

[105] The invention at issue in *Biogen*, *supra* note 2 related to an early development in

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an independent ground of invalidity, which, indeed, became known as "*Biogen* insufficiency,"[106] *Lundbeck*, while not explicitly reversing *Biogen*, dramatically limited its scope.

With that said, the *Biogen* principle, that the claims should not extend beyond the patent's inventive concept, remains intuitively attractive, and it is not clear how far the *Lundbeck* principle extends. *Lundbeck* concerned a claim to a single chemical compound, and the decisions in the House of Lords, as well as that of Lord Hoffmann in the Court of Appeal, all indicate that the analysis might be restricted to a claim to "a simple product claim,"[107] as opposed to a claim to a class of compounds or a process.[108] This is not to say that the *Lundbeck* analysis does not apply more broadly; the point has simply been left open.

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genetic engineering and was claimed as "a molecule identified partly by the way in which it has been made. . .and partly by what it does": *Lundbeck*, *supra* note 2 at para. 40. This unusual claim type was the formal basis on which *Biogen* was distinguished in *Lundbeck*. So, Lord Hoffmann in the Court of Appeal in *Lundbeck* EWCA, *supra* note 2 at paras. 33-35, held that the principle in *Biogen* is limited to the "hybrid" or "product-by-process" form of claim at issue, "and cannot be extended to an ordinary product claim in which the product is not defined by a class of processes of manufacture." Lord Neuberger in the House of Lords described *Biogen* even more narrowly, saying that in *Lundbeck*, *supra* note 2 at para. 99, "the claim was to a product identified in part by how it was made and in part by what it did — almost a process-by-product-by-process claim." See also Lord Walker's speech *ibid.* at paras. 26-28, stressing the very unusual nature of the claim at issue in *Biogen*. Regardless of exactly how one characterizes the claims, it is therefore clear that the holding in *Biogen* is limited to the type of claim at issue there, which is no longer used because advances in genetic technology now enable patentees to describe similar inventions more directly.

[106] See *Warner-Lambert*, *supra* note 2 at para. 25.

[107] *Lundbeck*, *supra* note 2 at para. 101, *per* Lord Neuberger; and see *ibid.* at para. 27 *per* Lord Walker, emphasizing that the claim at issue was to "a single chemical compound"; *ibid.* at para. 44, *per* Lord Mance, summarizing the holding as relating to "a single novel product"; *Lundbeck* EWCA, *supra* note 2 at para. 27, *per* Lord Hoffman, saying that in "an ordinary product claim," the product is the invention. See also *Regeneron* EWCA, *supra* note 7 at para. 244, interpreting *Lundbeck* as applying to "a simple product claim."

[108] See *Lundbeck*, *supra* note 2 at para. 101, *per* Lord Neuberger saying that the inventive concept might be more relevant where the claim is for, or includes, a process; *ibid.* at paras. 22, 25, 27 *per* Lord Walker, indicating that different considerations would arise where the claim is to a class of compounds.

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(c) Canadian Law

In Canada, the Federal Court of Appeal has addressed the roads to Brighton problem twice. The first discussion, in *Unilever PLC v. Procter & Gamble Inc.*,[109] was tangential and inconclusive. The court in *Unilever* noted the roads to Brighton problem, but rejected its application on the facts, without expressing any firm view as to how is should be resolved in cases in which it did arise.[110]

The Court of Appeal addressed the point more comprehensively in *Apotex v. AstraZeneca* which, like *Lundbeck*, concerned a simple compound claim, namely a formulation of omeprazole.[111] Omeprazole was a known compound which was known to be a powerful inhibitor of gastric acid secretion and therefore useful for treating ulcers. It was obviously desirable to formulate omeprazole in a form suitable for commercialization, but this turned out to be surprisingly difficult.[112] The omeprazole had to be enteric coated to prevent contact with acidic gastric juice, but a conventional enteric coating would react with omeprazole and cause degradation, particularly in storage.[113] The patentee, AstraZeneca, solved this problem with an inert subcoating between the omeprazole core and the enteric coating, and a formulation comprising "an inert subcoating" was claimed.[114] The disclosure contemplated that the subcoating would be applied "by conventional coating procedures."[115] In Apotex's product, in contrast, the inert subcoating was the end product of an *in situ* chemical reaction that occurred when the enteric coat was applied to the pellet

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[109] *Unilever*, *supra* note 69.

[110] The court in *Unilever*, *ibid.* at 515, noted that the appellants had argued at that "the patentee has in effect tried to monopolise all 'roads to Brighton,' and thereby has indulged in covetousness," but the court rejected this argument on the facts, saying that it was "not persuaded that this is so." The court made no further reference to the issue.

[111] *Apotex Inc. v. AstraZeneca Canada Inc.*, 2017 FCA 9 [*Apotex v. AstraZeneca* FCA], rev'd in part 2015 FC 322 [*Apotex v. AstraZeneca* FC], var'd 2015 FC 671.

[112] See *Apotex v. AstraZeneca* FCA, *supra* note 111 at paras. 5, 244.

[113] See *Apotex v. AstraZeneca* FCA, *ibid.* at para. 6.

[114] See *ibid.* at para. 10.

[115] *Ibid.* at para. 8.

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cores.[116] While the inert subcoating deposited by the *in situ* method fell within the claims,[117] the *in situ* method was not disclosed in the patent, and could not have been contemplated by the patentee, as that method had only been developed several years after the patent issued.[118]

On the facts, *Apotex v. AstraZeneca* was not truly a roads to Brighton case. In the roads to Brighton scenario, the claimed subject-matter is a known desideratum, and the inventive ingenuity lies in the method of attaining it. In *Apotex v. AstraZeneca*, the known desideratum was a stable formulation, and the claims at issue were not to a stable formulation, but rather to a non-obvious means of achieving that desideratum, namely by means of an inert subcoating.[119] Nonetheless, the roads to Brighton problem was directly raised, because *Apotex* relied on *Biogen* to argue that because the patent did not enable the *in situ* method, the disclosure was therefore insufficient. The Court of Appeal rejected this argument, adopting Lord Hoffmann's analysis in the Court of Appeal in *Lundbeck*.[120] The Court of Appeal held that the claim was sufficiently enabled, on the basis that "[i]t is well established in patent law that when one claims a new and inventive product, an inventor is only required to enable the person skilled in the art to work the invention. He or she need only describe one method or process for making it."[121] Thus, while the roads to Brighton problem was not directly raised on the facts, the Court of Appeal clearly adopted Lord Hoffmann's reasoning in *Lundbeck* in concluding that "the teachings of *Biogen* are simply not as wide as argued by *Apotex*,"[122] even though the court was quite aware

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[116] See *Apotex v. AstraZeneca* FC, *ibid.* at para. 303; *Apotex v. AstraZeneca* FCA, *ibid.* at para. 19.

[117] *Apotex v. AstraZeneca* FC, *ibid.* at paras. 168-89, aff'd *Apotex v. AstraZeneca* FCA, *ibid.* at para. 65.

[118] See *Apotex v. AstraZeneca* FC, *ibid.* at para. 179; *Apotex v. AstraZeneca* FCA, *ibid.* at para. 80.

[119] The inventive concept was the use of an inert subcoating to achieve stability: see *Apotex v. AstraZeneca* FC, *ibid.* at paras. 226-73. If the use of an inert subcoating had been an obvious solution to the problem, and the inventive step lay in implementing that solution, then the case would have raised the roads to Brighton problem directly.

[120] *Apotex v. AstraZeneca* FCA, *ibid.* at paras. 81-89.

[121] *Ibid.* at para. 79.

[122] *Ibid.* at para. 90.

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that the facts of the case were not exactly parallel with those in *Lundbeck*.[123] The Court of Appeal decision in *Apotex v. AstraZeneca* therefore establishes that Canadian law on the roads to Brighton problem is the same as the U.K. position post-*Lundbeck*, which is to say that a claim to a novel product embraces the product made by any method, even when the product itself is a known desideratum, and the inventive contribution is only one method of making the product.[124]

There is, however, a doctrinal fly in this ointment, in the form of the Court of Appeal decision in *Leithiser v. Pengo Hydra-Pull*.[125] The invention at issue related to an apparatus for tensioning electrical power cables as they are unwound from the cable reel and installed on a power pole.[126] The invention, as disclosed in the specification, comprised two capstan wheels mounted on a frame that would take up the cable from the reel on one end and deliver it to the pole on the other. A cable reel is quite wide, so that cable would move a considerable distance from one side of the reel to the other as it was unwound. It was obvious that in order to transfer the cable from the reel onto the capstan wheel with minimal damage to the cable, the capstan frame needed to be shifted from one side to the other to follow the cable in its path. This was the obvious desideratum. The inventive aspect of the apparatus was the particular means devised to provide that lateral movability, namely by mounting the capstan frame on a pivot.[127] However, the claims at issue were not limited to a capstan frame mounted on a pivot, but encompassed any means whatever for movably mounting the capstan frame.[128] The Court of Appeal held these claims were too

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[123] *Ibid.* at para. 83.

[124] See also *Lundbeck Canada Inc. v. Apotex Inc.*, 2009 FC 146, aff'd 2010 FCA 320 which concerned the Canadian patent corresponding to that at issue in *Lundbeck*, *supra* note 2. The same overbreadth argument was raised at trial in Canada as in the U.K. The decision of the English Court of Appeal in *Lundbeck* EWCA had been released by the time Harrington J. in the Federal Court delivered his reasons, and, at para. 144, he expressly accepted Lord Hoffmann's Court of Appeal decision in *Lundbeck*. (The appeal to the House of Lords was underway at the time.) Overbreadth was not raised on appeal.

[125] *Leithiser*, *supra* note 16.

[126] *Ibid.* at 116-17.

[127] *Ibid.* at 121; that is insofar as there was anything inventive at all: *ibid.*

[128] *Ibid.* at 119, 121, referring to claims 1, 2, 3, 4, 6, 7 and 8. A separate issue arose in respect of claims 2, 3, 4, 5, 7 and 8, which encompassed machines with a single

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broad, with Thurlow J. reiterating the same principles that he had previously stated in *Farbwerke Hoechst*.[129] This appears to be a roads to Brighton problem, in that the patentee had invented one way to achieve a known desideratum, and had claimed the desideratum itself, rather than the particular method. The reasoning in *Leithiser* was very similar to that in *Biogen*, and consequently *Leithiser* appears to be in tension with the Court of Appeal's holding in *Apotex v. AstraZeneca*.

This tension may be more apparent than real. The question of obviousness was very poorly developed in *Leithiser*, and it is quite likely that the invention was obvious.[130] If the inventor develops an obvious way to achieve a known desideratum, a claim to the known desideratum will certainly be overbroad, because nothing at all has been invented. In such a case, it is intuitively very appealing to say that the claims are overbroad, in the same way that the claims at issue in *BVD* were overbroad because they were anticipated. But such a case might equally be decided on the simpler basis that the invention was obvious, and consequently, it is a weak basis for establishing overbreadth as an independent ground of invalidity. The roads to Brighton problem presents itself very differently when the desideratum was known, but very difficult to achieve, as in *Lundbeck*. If the problem at issue in *Leithiser* had been attacked by various parties without success and solved by the inventor only after years of hard work, it is not as clear that the claim at issue should be considered too broad. The true test of overbreadth as an independent ground of invalidity is a case in which the invention is truly inventive.[131]

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capstan wheel instead of two; these claims were invalid for overbreadth based on lack of utility: *ibid.* at 123.

[129] *Ibid.* at 118, stating that "two questions arise. The first is whether the claims of the appellant's patent claim more than he invented. The second is whether the claims are broader than the invention which is described in the specification. If the answer to either question is in the affirmative, as I understand the law, the claims are invalid"; compare the principles stated in *Farbwerke Hoechst*, quoted above at note 9 and accompanying text.

[130] As emphasized by Jackett C.J. in his concurring reasons *ibid.* at 115-16. Thurlow J., *ibid.* at 121, similarly appeared to doubt whether there was anything inventive.

[131] The same point can be made regarding *Schering-Plough Canada Inc. v. Pharmascience Inc.*, 2009 FC 1128, which, at paras. 131-39, held two claims (16 and 23) to be invalid for overbreadth on a *Biogen*-type analysis, relying at para.

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A more serious tension with *Lundbeck* and the modern Canadian cases following it is found in a leading case on overbreadth in Canadian law, the 1936 decision of the House of Lords in *Mullard Radio Valve Co. Ltd. v. Philco Radio and Television Corp*.[132] The inventor in *Mullard Radio* had invented a new vacuum tube amplifier circuit incorporating a pentode tube with three auxiliary electrodes between the cathode and the anode, and with the auxiliary electrode nearest the anode directly connected to the cathode.[133] The circuit was an inventive solution to the problem of minimizing static in a radio amplifier, and the claim to the circuit was held to be valid.[134] But the inventor had also claimed the pentode tube itself, so that the claim would be infringed by anyone using a tube of that description, even for an entirely different purpose.[135]

The House of Lords held the claim to the tube to be invalid for overbreadth. Lord Macmillan, in the leading speech, stated that a claim to subject-matter that is new, useful and inventive, nonetheless "may be too wide a claim because it extends beyond

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137 on the Supreme Court's dictum in *Free World*, *supra* note 12 at para. 32, that discovery of one method of growing hair on bald men does not justify a claim to anything that grows hair on bald men. However, the same claims were also held to be obvious: *Schering-Plough*, *ibid.* at paras. 127-29. While the overbreadth and obviousness analyses were clearly distinct, *Schering-Plough* is weak authority for overbreadth as an independent ground of invalidity, for the reasons discussed in the text.

See also *Biovail Pharmaceuticals Inc. v. Novopharm Limited*, 2005 FC 9 at para. 60, in which Harrington J. held that if the claims had been construed broadly, they would have been invalid for covetous claiming. However, it seems likely that the broad claims would also have been obvious, since a variety of methods were used to achieve the subject-matter of the broader claims, as the method actually used by the patentee was different from that disclosed in the patent (*ibid.* at para. 59), and the method used by the generic, Novopharm, was different again (see *ibid.* at paras. 46, 61). In any event, the point was not well developed, as the patent was construed narrowly and the primary basis for the decision was that the patent was not infringed.

[132] *Mullard Radio*, *supra* note 9.

[133] *Mullard Radio*, *supra* note 9 at 343.

[134] *Ibid.* at 344.

[135] *Ibid.* at 345. Presumably this was for the familiar reason that it is easier to enforce a product claim than a use claim; the action in *Mullard* was brought against a competing tube manufacturer, and the claim to the circuit itself was not alleged to have been infringed (*ibid.* at 345).

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the subject-matter of the invention."[136] He held explicitly that the scope of the claim should be "co-extensive with the 'inventive step'",[137] saying the disclosure entitles the patentee:

> to protection for all which embodies his inventive idea but not for an article which, while capable of being used to carry his inventive idea into effect, is described in terms which cover things quite unrelated to his inventive idea, and which do not embody it at all.[138]

This analysis is akin to that of Lord Hoffmann in *Biogen*, and by the same token it is in tension with the broad holding in *Lundbeck*, that at least in the case of a simple product claim (which the claim to the tube certainly was), the inventor can claim the product itself and is not confined to the inventive step. With that said, *Mullard Radio* is not precisely parallel to *Lundbeck*. In one way, the argument in favour of validity is perhaps even stronger than in *Lundbeck*, as the pentode tube was not a known desideratum. On the other hand, in *Mullard Radio* the contested claim was to a product with an inventive use, however used, while in *Lundbeck* it was to a product made by an inventive process, however made; to the extent that the principle of *Lundbeck* is that the product itself was the "technical contribution" because it was the product that has carried forward the state of the art,[139] it might be suggested that the tube in *Mullard Radio* was not a "technical contribution" because, as emphasized by Lord Macmillan, it was not inventive in its construction.[140] Certainly the cases might be formally reconciled on this basis, though it is not clear whether that distinction is principled; as noted above, the true extent of the holding in *Lundbeck* is unclear.

The claim at issue in *Mullard Radio* is perhaps even more closely analogous to a selection patent. In a selection patent, the prior art discloses a large class of chemical compounds which are related by a specified set of substitutions, of which only some are specifically described. A novel member of the class may be claimed as such,

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[136] *Ibid.* at 347.

[137] *Ibid.*

[138] *Ibid.*

[139] See *Lundbeck*, *supra* note 2 at para. 30, *per* Lord Walker, saying "The invention's technical contribution to the art is concerned with the evaluation of its inventive concept — how far forward has it carried the state of the art?"

[140] *Ibid.* at 346.

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even though it is of obvious manufacture, so long as it has some unexpected advantage over the known members of the class, for example an unexpected use.[141] In *Mullard Radio*, the prior art corresponds to the class of vacuum tubes with varying numbers of electrodes, and the pentode tube corresponds to a selection of one member of that class with an unexpected use, namely as part of the novel circuit. This analogy suggests that the novel pentode tube with an unexpected utility that was at issue in *Mullard Radio* should be patentable in the same way that a novel species with an unexpected use is patentable over the genus.

This is not to say that *Mullard Radio* was necessarily wrongly decided, but it is to say that it is by no means easy to reconcile it with the modern case law. *Mullard Radio* was decided in 1936, long before *Lundbeck*, and before the law of selection patents had been fully developed. To the extent that *Mullard Radio* is inconsistent with modern law, it is a shaky foundation for the law of overbreadth in Canada.[142] If *Mullard Radio* can be reconciled with the modern cases, it would be desirable to have a clear and principled explanation of how to do so; until then, considerable caution is needed in applying overbreadth doctrine based on *Mullard Radio*.

(d) Summary

In summary, the roads to Brighton problem arises when the inventor has invented one way of achieving an outcome that is already known to be desirable, but that had never been achieved before. If the inventor were restricted to claiming the method of achieving the outcome, overbreadth would be raised as a truly independent ground of invalidity. This problem raises a difficult issue of principle. The insight applied by Lord Hoffmann in *Biogen*, and captured by the Supreme Court's dictum in *Free World Trust*, that a person who discovers a method to grow hair on bald men should not be permitted to claim anything that grows hair on bald men, has considerable intuitive appeal. It directly reflects the

[141] See generally *Apotex Inc. v. Lundbeck Canada Inc.*, 2010 FCA 320, for a review of the law of selection patents. The seminal decision is that of Maugham J. in *In re I. G. Farbenindustrie A. G.'s Patents* (1930), 47 R.P.C. 289 (Ch. Div.) and the leading Canadian decision is *Apotex Inc v. Sanofi-Synthelabo Canada Inc.*, 2008 SCC 61.

[142] In light of the adoption of the U.K. *Patents Act 1977*, c. 37, *Mullard Radio* is no longer relied on in the U.K. law of overbreadth.

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principle that the claims must be commensurate with the technical contribution, provided that we understand the "technical contribution" to mean the inventive concept, which lies not in identifying the end result, but only in the particular method of achieving it. Nonetheless, it is now the law in both the U.K. and Canada that the inventor who has discovered one means of making a product that is known to be desirable may claim the product itself, at least when the claim is to a single novel product. Thus, the roads to Brighton problem has not given rise to the application of overbreadth as a truly independent ground of invalidity. However, the precise extent of the *Lundbeck* principle is uncertain, and it is possible that analogous cases might arise in which overbreadth is raised as an independent principle. An example may be found in *Mullard Radio*, to the extent that it was correctly decided.

4. CONCLUSION

In Part I of this article I have argued that there is no compelling basis in existing Canadian law for treating overbreadth as an independent ground of invalidity. Section 2 of this article showed that in the great majority of cases in which overbreadth is invoked, it is not an independent ground of invalidity, but is merely a way of saying that the claims are invalid on one of the standard grounds, with lack of sound prediction of utility being the most common reason for a finding of overbreadth. Section 3 then described the "roads to Brighton" problem, which arises when the inventor discovers one way of achieving a known desideratum and claims all ways of achieving it. Even though such claims are to subject-matter that is new, useful, non-obvious and fully disclosed, there is an intuitively reasonable argument for holding such claims to be invalid for overbreadth as a truly independent ground of invalidity. However, as the case law has developed, the inventor is permitted to claim the end result, with the consequence that overbreadth as an independent ground is not raised.

With that said, I am not arguing that overbreadth should never be raised as an independent ground of invalidity, as we have not yet seen the full range of cases that might raise the issue. For example, perhaps the most famous overly broad claim is Morse's eighth claim in the telegraph patent at issue in *O'Reilly v. Morse*.[143] Morse

[143] 56 U.S. 62, 15 How. 62 (1853).

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was the first person to discover a practical method of electric telegraphy and, in addition to claiming his particular method, his eighth claim was to "electro-magnetism, however developed, for making or printing intelligible characters, letters, or signs, at any distances."[144] While there is consensus that the claim was too broad, the precise doctrinal basis is not clear, and it is possible that an independent overbreadth doctrine might be required.[145] As another example, it is reasonably well-established that an inventor who has developed one method of purifying a compound to a certain threshold is not entitled to claim all compounds with an equal or greater purity.[146] The *Biogen* argument, that such claims extend beyond the patent's inventive concept, has considerable appeal as a rationale for invalidating such claims. While these claims have been invalidated for insufficiency in European law, or, correspondingly, lack of enablement in the U.S., there are significant doctrinal difficulties with those analyses, and overbreadth as an independent ground of invalidity might ultimately prove to be the appropriate basis for invalidating claims of this type.[147] Perhaps as a consequence of deficiencies in

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[144] *Ibid*. at 86.

[145] See Tun-Jen Chiang, The Levels of Abstraction Problem in Patent Law, 105 NW. U. L. Rev. 1097 (2011) at 1097 [Chiang, Levels of Abstraction], noting that the Morse Court did not give a clear doctrinal basis for invalidating the claim, and suggesting that in modern U.S. law it would be invalidated under the enablement doctrine. This proposal runs into the same difficulty noted below, note 147, regarding whether a claim must be enabled across its full scope. It is also said that the claim is invalid under the U.S. law of subject-matter eligibility (see *e.g*., *American Axle & Manufacturing, Inc. v. Neapco Holdings LLC*, 939 F.3d 1355 at 1364 (Fed. Cir., 2019), and Philip McGarrigle & Vern Norviel, Laws of Nature and the Business of Biotechnology, 24 Santa Clara Computer & High Tech. L.J. 275 (2008) at 279-81, argue that it would be invalid on the basis of the modern U.S. written description doctrine.

[146] See *In re Fisher*, 427 F.2d 833 (C.C.P.A., 1970) in which the patentee claimed all adrenocorticotrophic hormones (ACTH) preparations having an activity greater than 1.0 IU/mg, without teaching how to make ACTH with activity greater than 2.30 IU/mg); *Exxon*, *supra* note 2, in which the patentee claimed all distillate fuel oil with wax crystals impurities less than 4000nm, without teaching how to attain sizes less than 1000nm.

[147] In both *In re Fisher*, *supra* note 146 and *Exxon*, *supra* note 2, the claims to the range were held to be invalid, for failing to sufficiently disclose how to practice the invention across the full scope of the claim. However, the U.S. law of enablement is very confused as to whether and when enablement across the full scope is required: see Bernard Chao, Rethinking Enablement in the Predictable

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sufficiency as basis for invalidating overbroad claims, we have seen the development of novel doctrines, such as the controversial written description doctrine in U.S. law, and the recent development of the concept of plausibility in European law, as noted in the Introduction.

The outlier in the Canadian approach to overbreadth is *Amfac*, which did apply overbreadth as an independent ground of invalidity as the sole basis for striking down an otherwise valid claim. In Part II of this article [to be published in 33 I.P.J. No. 2, April 2021], I will argue that *Amfac* was wrongly decided, both on its facts, and in its approach to overbreadth. Consequently, while we should not rule out the need for a doctrine of overbreadth as an independent ground of invalidity, we should rule out any approach based on *Amfac*.

Arts: Fully Scoping the New Rule, 2009 Stan. Tech. L. Rev. 3 at ¶11-56; Kevin Emerson Collins, "Enabling After-Arising Technology," 34 Journal of Corporation Law 1083 (2009) at 1087-89; Robin C. Feldman, Rethinking Rights in Biospace, 79 S. Cal. L. Rev. 1 (2005) at 22-29; Chiang, The Levels of Abstraction, *supra* note 145 at 1111-16 [Chiang, Levels of Abstraction]; Jeffrey A. Lefstin, The Formal Structure of Patent Law and the Limits of Enablement, 23 Berkeley Tech. L.J. 1141, 1175 (2008); J. Rantanen, The Doctrinal Structure of Patent Law's Enablement Requirement, 69 Vand. L. Rev. 1679 (2016) at 1681-83 all describing a split in U.S. case law as to whether enablement across the full scope of the claim is required. There is a similar tension in U.K. and European law: see *Regeneron*, *supra* note 2 rev'g on this point *Regeneron* EWCA; *Anan Kasei Co Ltd & Anor v. Neo Chemicals And Oxides Ltd & Anor*, [2019] EWCA Civ. 1646 at paras. 37-38; *Biogen*, *supra* note 2 at paras. 62-63. The recent decision of the U.K. Supreme Court in *Regeneron* may bring clarity, but it will take some time before the implications of that decision are fully developed. Moreover, it is not clear whether such claims would be invalidated for insufficiency in Canadian law, as it is generally said that "when one claims a new and inventive product, an inventor . . . need only describe one method or process for making it": *Apotex Inc v. AstraZeneca Canada Inc*., 2017 FCA 9 at para. 79; and see *Idenix Pharmaceuticals, Inc. v. Gilead Pharmasset LLC*, 2017 FCA 161 at para. 19; *Bayer Inc. v. Cobalt Pharmaceuticals Co*., 2015 FCA 116 at para. 68, both to the same effect. If this principle is applicable in cases involving a range, then overbreadth might be required as an independent ground of invalidity, if such claims to a range are to be held invalid. This is not to say that overbreadth is necessarily required to deal adequately to claims to a range, as it is possible that the case law on sufficiency might be rationalized in a manner that would deal adequately with the issue. For present purposes it is enough to say that while there appears to be agreement that such claims should be invalid, the proper doctrinal basis for such a holding is not clear, and an independent overbreadth requirement might be necessary.

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