

# **An Empirical Investigation into Patent Enforcement in Australian Courts**

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## **Abstract**

The effectiveness of patent protection depends not only on the existence of patent laws "on the books", but also on the ability to enforce the rights granted by those laws. In recent years, there has been concern expressed in Australia that courts are providing inadequate protection for patent owners: that they are "anti-patent". We argue that there are two fundamental problems with this line of argument. The first is that although it is essentially an empirical issue, the debate has largely been based on anecdotal evidence provided by vested interest groups. Second, many existing studies are critical of the observed low levels of success in patent litigation disputes without properly recognizing that a patent does not provide any guarantee of validity if challenged in a court of law. Given the selection bias, only those cases where validity is highly questionable may actually make it to court. To incorporate these issues into the debate, we have created and analysed a database of all patent enforcement decisions (on both validity and infringement) of Australian courts for the period 1997-2003. We report descriptive statistics on patent litigation including detailed information on the duration of such litigation. Our analysis indicates that, in line with theoretical predictions, patent owners are more likely to have at least some of their claims upheld in both validity and infringement determinations than they are to lose all of their claims.

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# An Empirical Investigation into Patent Enforcement in Australian Courts<sup>‡</sup>

Kimberlee G. Weatherall<sup>†</sup> and Paul H. Jensen<sup>\*</sup>

## 1 Introduction

Patents are growing in importance. Patenting rates worldwide have increased significantly in recent years: between 1992 and 2002, the number of patent applications in Europe, Japan and the US increased by more than 40 per cent.<sup>1</sup> Patent coverage has also been extended to include new kinds of inventions, like genetic technologies,<sup>2</sup> software,<sup>3</sup> and business methods.<sup>4</sup> A wider range of participants are also using patents, with universities being encouraged to increase their patenting activity.<sup>5</sup> And there has been a dramatic increase in patent litigation, at least in the US.<sup>6</sup> These facts have given

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<sup>‡</sup> This paper presents results from the IP Enforcement Project at the Intellectual Property Research Institute of Australia (IPRIA), at the University of Melbourne. This project was commenced in 2003 by Ms Glenys Fraser, and both this paper, and the research which it reports, owes much to the work she did in establishing the project. It also owes much to Mr Paul Bernath, formerly a researcher at IPRIA and now a solicitor at Allens Arthur Robinson, who set up the Database. We thank them both – this project would not have happened without them. Thanks also to our researchers: Ms Nitsa Karahalios, Ms Sarah Moritz, Ms Sally Pryor and Mr Edward Sexton. Reading hundreds of cases, and coding them, is highly skilled, and not easy work. More general thanks to the many from bar and profession who were consulted in setting up the project, and to the Federal Court for its assistance on various matters. We also owe a particular debt to the researchers who really created the database on which this paper rests. We also thank those who attended seminars at ANU, and at IP Australia, where presentations on this research were given, for their feedback. Two anonymous referees also provided extensive and useful suggestions. All errors remain the authors' own.

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<sup>1</sup> OECD, *Patents and Innovation: Trends and Policy Challenges* (2004).

<sup>2</sup> *Diamond v Chakrabarty* 447 US 303 (1980); IP Australia, *Australian Patents for: Microorganisms; Cell Lines; Hybridomas; Related Biological Materials and their Use; & Genetically Manipulated Organisms*, <[www.ipaustralia.gov.au/pdfs/patents/specific/biotech.pdf](http://www.ipaustralia.gov.au/pdfs/patents/specific/biotech.pdf)> at 16 June 2004; *Kiren-Amgen Inc v Board of Regents of University of Washington* (1995) 33 IPR 557.

<sup>3</sup> *Diamond v Diehr* 450 US 175 (1981); *CCom v Jiejing* (1994) 28 IPR 481.

<sup>4</sup> *State St. Bank & Trust Co v Signature Fin Group* 149 F.3d 1368 (Fed. Cir. 1998); see also *Welcome Real-Time SA v Catuity Inc* (2001) 51 IPR 327; *Re Innovation Patent by Steven John Grant*, [2004] APO 11.

<sup>5</sup> See, for example, *Bayh-Dole Patent and Trademark Amendments Act of 1980*, 35 U.S.C. §200ff.

<sup>6</sup> James Bessen and Michael J. Meurer, 'The Patent Litigation Explosion' (2005) unpublished mimeo, Boston University School of Law. At this stage, there is little evidence to suggest that a similar trend has occurred in other countries.

rise to international debate on the costs and benefits of the patent system, and how its effectiveness in encouraging innovation might be improved.<sup>7</sup>

To inform these debates, policymakers have called for more hard data on how the system is actually working in practice.<sup>8</sup> Enforcement forms an important part of how the patent system ‘works’. Patents are designed to encourage innovation by providing innovators with legal protection against expropriation of their innovative products and processes by third parties. The effectiveness of this legal protection depends not only on the existence of patent laws ‘on the books’, but on the ability to enforce the rights granted in the courts. Historically, however, there has been a relative dearth of information on how the enforcement ‘side’ of the patent equation is working.

This historical lack of information is being addressed overseas, particularly in the United States, by a burgeoning empirical literature.<sup>9</sup> However to date there has been only limited empirical work in Australia. The purpose of our study is to begin to plug that gap, by examining the use of the Australian court system as a mechanism for enforcing patent rights. We have conducted an empirical study of patent enforcement outcomes<sup>10</sup> in Australian courts during the period 1997-2003. In this paper, we provide some results of that study, giving a broad picture of what is happening in patent disputes before the

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<sup>7</sup> In Australia, the Advisory Council on Industrial Property – now renamed the Advisory Council on Intellectual Property (ACIP) – which is a specialist independent body constituted to advise the Federal government on IP matters, has conducted three recent reviews of IP enforcement: *Review of Enforcement of Industrial Property Rights* (March 1999); *Review of Trade Mark Enforcement* (April 2004), and *Should the Jurisdiction of the Federal Magistrates Service be Extended to Include Patent, Trade Mark and Design Matters?* (November 2003). See also House of Representatives Standing Committee on Legal and Constitutional Affairs, *Cracking Down on Copycats: Enforcement of Copyright in Australia* (2000). At the international level, the World Intellectual Property Organization (WIPO) has also developed cooperative mechanisms to address enforcement issues: see the WIPO IP Enforcement website, at <<http://www.wipo.int/enforcement/en/index.html>>. The OECD has also become interested in the issue: OECD, *Patents and Innovation: Trends and Policy Challenges* (2004). In the US, the Federal Trade Commission (FTC) and the National Research Council are both evaluating the patent system: see Federal Trade Commission, *Report: To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy* (October 2003), available at <<http://www.ftc.gov/opa/2003/10/cpreport.htm>>; National Research Council Committee on Intellectual Property Rights in the Knowledge-Based Economy, *A Patent System for the 21<sup>st</sup> Century* (2004) available at <<http://books.nap.edu/catalog/10976.html>>

<sup>8</sup> OECD, *Patents and Innovation* above n1, at 26; National Research Council Committee on Intellectual Property Rights in the Knowledge-Based Economy, above n7, at 1-2.

<sup>9</sup> See further below Part 2.4

<sup>10</sup> That is, judgments rather than court filings (or other measures of litigation) which occur earlier in the dispute resolution process.

courts. We intend that this study will provide a solid factual foundation for policy debates and serve as a basis for further research.

There is at present an ongoing debate in IP circles in Australia with regard to the performance of Australia's IP system. One common perception often voiced in this debate is that patent owners have received inadequate protection in the Australian courts.<sup>11</sup> We argue that there are two fundamental problems with the debate as it currently stands. The first problem is that although it is essentially an empirical issue, there is little objective data on the outcomes of the patent litigation process – the debate has largely been based on anecdotal evidence provided by groups with a vested interest in the issue. Empirical research on litigation outcomes is relatively rare in legal research in Australia.<sup>12</sup> This paper makes an important contribution to the development of empirical research on patent litigation outcomes. Second, there is a poor understanding of what actually constitutes the optimal level of enforcement. Many existing studies are critical of the observed low levels of success for patent owners in patent litigation disputes without properly recognizing that patent rights are probabilistic in nature – a patent does not provide any guarantee of validity if challenged in a court of law – and that this has implications for what an appropriate 'win rate' for patent owners might be.

To remedy these two problems, we present this paper in two parts. In the first part, we review the literature on litigation, with particular reference to patent litigation. We examine the rationale for the creation of patents, discuss some recent criticisms of the Australian courts with regard to patent protection and analyse in more detail why we need a framework for evaluating the optimal level of enforcement in the courts. Our aim is to highlight the extreme care with which *any* statistics in this area must be treated.<sup>13</sup> In the

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<sup>11</sup> National Innovation Summit, Working Group on Managing Intellectual Property, Framework Paper, 10 December 1999, available at <<http://www1.industry.gov.au/archive/summit/scwg/IP/mipwgFullReport.pdf>>.

<sup>12</sup> One exception is the work of Ian Ramsay in relation to litigation in corporate law: see eg Paul James, Ian Ramsay, and Polat Siva, *Insolvent Trading: An Empirical Report* (Clayton Utz and the Centre for Corporate Law and Securities Regulation 2004), available at <<http://www.claytonutz.com/downloads/InsolventTradingReport.pdf>>

<sup>13</sup> Justice Drummond's paper also addresses this issue: see The Honourable Mr Justice D. Drummond 'Are the Courts Down Under Properly Handling Patent Disputes' (2000) 42 *Intellectual Property Forum* 10. Since Justice Drummond was writing in 2000, there have been considerable advances in the literature, especially in the United States. An update on the debate is therefore timely.

second part, we undertake a broad empirical study of patent litigation outcomes in Australia using a newly-created database which contains data on all judgments in civil IP enforcement actions in courts of superior jurisdiction over the period 1997-2003.<sup>14</sup> We set out the methodology used in the construction of the database and the analysis of the data and then we report the results of recent patent enforcement cases in Australia in terms of both validity and infringement. Finally, some conclusions are drawn and consideration is given to the use of this data set in other research projects.

## 2 Why an Empirical Study of Patent Enforcement in Australia?

### 2.1 *Why enforcement matters: the role of enforcement in the economic rationales for patents*

Although the existence of IP rights – in particular, patents – has been questioned in the economics literature at various times, it is generally considered that, on balance, a system of providing limited monopoly rights to inventors is socially beneficial.<sup>15</sup> Moreover, while various economic rationales are used to justify the existence of patent rights, it is clear that whichever is chosen, enforcement is central to the whole system's effectiveness.<sup>16</sup>

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<sup>14</sup> In this paper, we are only presenting analysis on the outcomes of patent litigation disputes, but the database also includes data on the resolution of all copyright, trade mark and design disputes over the same period. This includes: 108 copyright judgments; 87 trade mark judgments; and 15 design judgments. In the near future, we will be publishing further papers on outcomes in both copyright and trade mark litigation.

<sup>15</sup> Although it is conceivable that the costs of providing monopoly rights may outweigh the benefits, the issue of the desirability of having a patent system is outside the scope of this study. Given that we already have a patent system, we simply consider issues regarding the effective operation of the system.

<sup>16</sup> The focus of this paper is on the economic justifications for the patent system. It should be noted that other rationales are also used to justify the patent system. Machlup and Penrose identify four general justifications: the (1) 'natural property right argument' (a man has a natural property right in his own ideas), (2) the 'just reward' argument (justice requires that a man receive reward for his services in proportion as those services are useful to society); (3) the incentive argument, and (4) the disclosure argument: Fritz Machlup and Edith Penrose, 'The Patent Controversy in the Nineteenth Century' (1950) 10 *Journal of Economic History* 1, 10-11. (3) and (4) being the more 'economic' (or instrumentalist) are considered further here; (1) and (2) are beyond the scope of this paper. As Drahos has noted, patents have a long association with an instrumentalist approach, being conceived of, from the start, as economic tools: Peter Drahos, *A Philosophy of Intellectual Property* (1996), 32; but see Patricia Louglan, 'Patents: Breaking the Loop' (1998) 20 *Sydney Law Review* 553 (criticising the tendency to discuss patents in only economic terms).

According to one school of thought, patents are justified because they provide an ‘incentive to invent’.<sup>17</sup> The basic argument is that patents correct the failure of unfettered markets to provide the socially optimal level of innovation. The reason that this failure occurs is that in order to innovate, firms must invest in research, development and commercialization of products. However, once created, inventions are often easy and inexpensive to copy. In an unregulated market, anyone could ‘free ride’ on the inventor’s investment and expropriate the invention, with the result that inventors will not be able to recoup their costs – leading firms to under-invest in innovation *ex ante*.<sup>18</sup> To prevent this outcome, most governments have intervened in the operation of the free market by creating a system of patents. Patents provide monopoly rights for a limited time, giving the creator a limited period of exclusivity in which to recoup their investment, but allowing competitors to enter the market thereafter.

In this framework, enforcement is crucial: patents can only be effective in preventing free-riding if it can be demonstrated in a court that a third party has infringed the patent. If third parties know that it is difficult to establish patent infringement in the courts, their disincentive to avoid infringing is reduced and the likelihood of infringement increases. The result may be to destroy *ex ante* investment in innovation.

A second economic rationale for the existence of patents is the contract or bargain theory of patents, which argues that patents offer inventors a limited monopoly right in exchange for public disclosure of the invention and how to make it.<sup>19</sup> Patents can thus increase the benefits of innovative activity, both by promoting the diffusion of knowledge, and indirectly by promoting innovation: while people cannot make the patented invention,

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<sup>17</sup> W. Gordon, “Intellectual Property”, in P. Cane and M. Tushnet, *The Oxford Handbook of Legal Studies* (OUP 2003), 617, 632. For a recent article challenging the incentive theory of patent protection, see: J.M. Barnett ‘Private Protection of Patentable Goods’ (2004) 25 *Cardozo Law Review* 1251.

<sup>18</sup> Survey evidence of Australian firms in the late 1970s suggested that loss of patent protection would cause a decline in research and development expenditure by 7-12 per cent, and that the patent system represented a stimulus to private innovation equivalent to a 10-30 per cent research and development cash subsidy: M. Rogers, ‘The Economic Value of the Intellectual Property System. A Review of Empirical Studies on the Costs and Benefits of the Intellectual Property System’ Paper for IP Australia, May 1999, 3-4.

<sup>19</sup> See R.S. Eisenberg ‘Patents and the Progress of Science: Exclusive Rights and Experimental Use’ (1989) 56 *University of Chicago Law Review* 1017, 1045 and V. Denicolo and L.A. Franzoni ‘The Contract Theory of Patents’ (2004) 23 *International Review of Law and Economics* 365.

they can use the information in the patent application to invent around it.<sup>20</sup> This ‘public disclosure’ role of patents also depends on their enforceability. Real (or perceived) weaknesses in the enforceability of patent rights increase the likelihood that inventors, where they are able, will choose to rely on laws that protect trade secrets.<sup>21</sup> This in turn reduces the diffusion of knowledge, thereby decreasing the social benefits from innovation.<sup>22</sup>

Finally, patents also facilitate market exchange, which is becoming increasingly important, particularly as firms become more specialised and as the expense of new technology requires significant investment from numerous sources. They provide inventive firms with something to sell or license, enabling them to attract necessary investment or partners to take products through to commercialisation. Patents can do this by solving the Arrow paradox: the idea that inventors may need to disclose their invention to sell or license it to others, but will hesitate to disclose for fear of copying.<sup>23</sup> By giving inventors legal recourse to protect their investment, patents allow disclosure without fear of expropriation by a potential partner, investor or customer.<sup>24</sup> While the effect of enforcement is less direct here, it is still important. Patents which are less enforceable are less valuable to partners or investors. Inventors who are less able to license or sell at the full value of the invention may fail to exploit their invention to the fullest extent.

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<sup>20</sup> W. M. Landes and R. A. Posner, *The Economic Structure of Intellectual Property Law* (Belknap Press, 2003), 295.

<sup>21</sup> It is arguable people do this anyway: the importance of other means of appropriating the economic rent generated by innovation has been repeatedly shown in the literature; see for example Cohen, W., Nelson, R. R. and J. P. Walsh (2000) ‘Protecting their Intellectual Assets: Appropriability Conditions and why US Manufacturing Firms Patent (or Not)’ NBER Working Paper 7552. In this study, the authors found that (a) firms typically protect profits due to invention using a range of mechanisms including patents, secrecy, lead time advantages, marketing and manufacturing capabilities, and (b) patents were the least effective of these mechanisms - secrecy and lead time were consistently rated as more effective, although the effect varied across industries. The point is that less enforceable patents may *increase* the tendency to rely on other means of protection.

<sup>22</sup> On the crucial role that diffusion plays in promoting further innovation, see B. Hall, ‘Innovation and Diffusion’, NBER Working Paper No. 10212 (Dec. 2003) at 2-3.

<sup>23</sup> Edmund Kitch, ‘The Nature and Function of the Patent System’ (1977) 20 *J. L. & Econ.* 265.

<sup>24</sup> Gans, J. Hsu, D. and S. Stern, ‘When does Start-up Innovation Spur the Gale of Creative Destruction?’ (2002) 33 *RAND Journal of Economics*.

In summary, the goals of the patent system – innovation and investment on the one hand, and knowledge dissemination on the other – cannot be achieved unless parties can effectively and efficiently enforce their patent rights. Furthermore, the *perception* about how effectively the enforcement system is operating is arguably as important as the reality. For inventors and investors at the margins, if the system is *seen* to be ineffective, they may avoid using the patent system altogether. In this context, the effectiveness of the system for patent enforcement in Australia is an important policy issue, and it is therefore essential to obtain a better understanding of how the system is working, in the interests of both the policy-makers who can improve it, and the patent owners who use it.

## **2.2 *Disquiet about the scope of patent enforcement in Australia***

So patent enforcement matters, and perceptions about patent enforcement also matter. This means that there is all the more reason to study patent enforcement outcomes in Australia in light of the negative publicity it has received in the recent past. For example, some IP practitioners have registered concern that ‘the courts give too little protection to the owners of IP rights’ and that ‘Australian business is shying away from using the IP system because of the costs of protection, the uncertainty and lack of support from the courts’.<sup>25</sup> There has also been debate about the performance of the courts in enforcing IP rights in the legal literature,<sup>26</sup> at gatherings of the IP community,<sup>27</sup> and in government reviews of the Australian IP enforcement system.<sup>28</sup> In 1999, the Working Group on Managing Intellectual Property, convened as part of the National Innovation Summit, concluded that while generally effective, the Australian IP system delivered less

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<sup>25</sup> Submission by Melbourne IP law firm, McDonald & Associates, to the ACIP Working Group on Managing Intellectual Property.

<sup>26</sup> M. Duigan and M. Dowling, ‘Threshold Test of Manner of Manufacture in Australia – What Next?’ (1998) *Patent World* 26; The Honourable Mr Justice D. Drummond ‘Are the Courts Down Under Properly Handling Patent Disputes’ (2000) 42 *Intellectual Property Forum* 10; D. Eliades, ‘Intellectual Property – What Went Wrong?’ (2001) 14 *Australian Intellectual Property Bulletin* 49.

<sup>27</sup> At a symposium of Federal and Supreme Court judges in 2000, Professor Adrienne Clark, the former Chairman of CSIRO, expressed concern on behalf of Australia’s scientific community at the low rate at which Australian courts upheld the validity of patents compared to their overseas counterparts.

<sup>28</sup> See: Advisory Council on Industrial Property, *Review of Enforcement of Industrial Property Rights* (March 1999), available at [http://www.ipaustralia.gov.au/pdf/general/acip\\_report.pdf](http://www.ipaustralia.gov.au/pdf/general/acip_report.pdf). The Australian Law Reform Commission also noted criticisms concerning the narrowness of the courts’ interpretation of what constitutes design infringement, and the rarity of successful design infringement actions: Australian Law Reform Commission, *Designs*, Report No 74 (1995).

favourable protection for innovation than comparable systems overseas because, among other things, the system was less certain in relation to patent validity determinations by the courts.<sup>29</sup> At around the same time, the Advisory Council on Industrial Property wrote a report which posited that ‘[a] major problem facing Australian patent owners is the difficulty in effectively enforcing their rights against infringement’, and that *the* major concern was ‘substantial uncertainty regarding the outcomes of enforcement action.’<sup>30</sup>

Such concerns have been reinforced by the small amount of existing empirical analysis of patent litigation in Australia. One such article, by Duigan and Dowling, suggested that Australian patent owners won overall in only one instance (or 2 per cent) of 56 patent cases which they had examined in the period 30 April 1991 – 31 December 1997.<sup>31</sup> However, their research was not intended as a rigorous, empirical study of patent enforcement: rather, the paragraph which reported these results was one small part of an extended article about High Court patent decisions and the tests for validity. The method by which they reached the 2 per cent figure is therefore unclear.<sup>32</sup>

Alerted by his scepticism of the results reported by Duigan and Dowling – since he had in fact presided over one case where a patent owner was successful and suspected that there were others – the Hon. Mr Justice Drummond conducted his own, more extensive review of the Australian situation for patent enforcement. Justice Drummond examined a total of 59 judgments in the Federal, Supreme and High Courts, constituting all the infringement judgments reported in the *Intellectual Property Reports* over the period 1990-2000. He found that patent validity was upheld in 34 per cent of cases, and patents were found to be valid and infringed in 20 per cent of cases. The difference between these studies suggests at the very least that there is further scope for analyzing the outcomes of patent litigation in Australia.

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<sup>29</sup> Working Group on Managing Intellectual Property *Framework Paper* above n11, 5.

<sup>30</sup> Advisory Council on Industrial Property, above n28, 2.

<sup>31</sup> See Duigan and Dowling (1998) above n26.

<sup>32</sup> It is not clear, for example, whether the authors were looking at results on individual patents or overall results of each case, whether validity and infringement determinations were counted separately or how appeal judgments were counted.

We believe that there are two fundamental problems with the current debate. First, the failure to adopt a rigorous and scientific method of collecting, coding and analyzing the data on judgments has led to markedly different estimates of patent owners' win-rates.<sup>33</sup> This makes it difficult, if not impossible, to resolve the contentious issue about whether existing levels of protection for patent owners are too low. There is also a dearth of data following from the debate that occurred in around 1999-2000. The second problem is that some commentators seem to implicitly assume that the optimal rate of enforcement in the courts is that the patent owner should win every time. This contentious assumption needs to be examined. Both of these issues are addressed by the present study.

### **2.3 *What is the optimal rate of enforcement?***

We have already argued that effective enforcement plays a crucial role in generating benefits from the patent system. As we have seen, this argument is easy to develop at a conceptual level, but what does 'effective enforcement' imply in practice? Does it, for example, mean that once a patent has been granted, the owner of the patent should be expected to win every case that goes to court? In 50 per cent of cases? Those who have criticised the patent determinations made by the courts have notably *not* sought to specify any particular optimal rate of enforcement. The attempt to specify any appropriate 'win rate' is complicated by least two important factors: the intrinsic nature of IP rights, and selection biases in dispute resolution processes.

#### *2.3.1 The uncertainty of patent rights*

In any given set of proceedings, the patent owner may have to prove two things: that the patent is valid, and that it is infringed. To put the matter diagrammatically, there are four possible outcomes in patent litigation, but only one (the shaded box below) is good for the patent owner:

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<sup>33</sup> The Working Group on Managing Intellectual Property acknowledged there was little hard data to support the popular perception of weakness in IP enforcement by the courts, and that an investigation of all reported patent validity and infringement decisions of the courts may be desirable: above n11, 65-66.

### Patent Validity

		Valid	Invalid
<b>Patent Infringement</b>	Infringed	Patent Valid Patent Infringed	Patent Invalid Patent Infringed <sup>34</sup>
	Not infringed	Patent Valid Patent Not Infringed	Patent Invalid Patent Not Infringed

This is true of most property rights: in order to enforce your rights, you have to show both that you have rights, and that they cover the alleged infringing acts. However, unlike physical property rights, IP rights are highly uncertain along both dimensions: so much so that they have been referred to as ‘very expensive lottery tickets’.<sup>35</sup> Most importantly, some degree of uncertainty is *inevitable* due to the nature of these rights.

First, validity is uncertain. The grant of a patent by IP Australia does not provide a guarantee that it will be held valid if challenged in court.<sup>36</sup> Economists therefore refer to patent rights as *probabilistic*: in other words, a granted patent represents only a

<sup>34</sup> At one level it does not make much sense to say that an ‘invalid’ patent may be infringed. However, it is possible for a court to find that a patent is not valid, say, as being anticipated, but that *if* the patent were valid, it would be infringed. This combination is sometimes found by a trial court seeking to make findings on all issues for the purpose of future appeals: see, for example, in the *Losec* litigation, Justice Lehane found that the patent was invalid as lacking an inventive step (*Aktiebolaget Hassle v Alphapharm Pty Ltd* (1999) 44 IPR 593). However, had it been valid, it would have been infringed (*Aktiebolaget Hassle v Alphapharm Pty Ltd* [1999] FCA 1394).

<sup>35</sup> Jonathan A. Barney, “A Study of Patent Mortality Rates: Using Statistical Survival Analysis to Rate and Value Patent Assets” (2002) 30 *AIPLA Q. J.* 317, 328; see also Kimberley Moore, “Worthless Patents”, above n58, at 2.

<sup>36</sup> See *Patents Act* 1990 (Cth) s.20(1), which specifically provides that “Nothing done under this Act or the PCT guarantees ... that a patent is valid, in Australia or anywhere else.” ACIP, in their 1999 review of patent enforcement, recommended a change of the “settings” of the patent system: they recommended that the threshold at examination be raised, by amending s.49 of the Act so that patent applicants would no longer get the “benefit of the doubt” on questions of novelty and obviousness (recommendation 2), and, as a corollary, that since patents granted would be more likely valid, a presumption of validity of granted patents in any subsequent challenge (Recommendation 3): *Review of Enforcement of Industrial Property Rights*, above n7. However, the Intellectual Property and Competition Review Committee in 2000, while agreeing that the threshold at examination be raised (p 167), recommended *against* a stronger presumption that granted patents were valid: Intellectual Property and Competition Review Committee, *Review of Intellectual Property Legislation under the Competition Principles Agreement* (2000), p176. In its response, the Federal Government preferred the IPCRC’s view: Attorney-General’s Department, *Government Response to the Advisory Council on Intellectual Property Recommendations*, 2001.

*probability* that the owner has a right to exclude competitors.<sup>37</sup> The proportion of issued patents which are valid will depend on the standard of proof applied by the court, and on factors such as the quality of the examination process (which may depend on many factors, including the experience of the patent examiners with the area of technology), and the complexity of the patent.<sup>38</sup>

Most importantly, some level of uncertainty here is inevitable, regardless of the resources available to examine patents. Even with a thorough examination of patent applications, some ‘bad patents’<sup>39</sup> will be granted. There are a number of reasons why the validity of patents cannot be finally determined at the time of grant. First, some patents are filed in new areas of technology and the patentability and scope of patentability of those technologies may not be known until considered by a court. The infamous ‘business method patents’ are one recent example of an area of technology new to patenting. Second, it is impossible for patent examiners to determine *ex ante* whether a patent application fulfils all of the necessary criteria for patentability.<sup>40</sup> Some prior art may have been overlooked in the examination process, for example, which will only be uncovered after a party – the alleged infringer – with very focused incentives spends substantial resources to locate it. Thus we would expect that a proportion of patents will be found invalid if challenged in court.

The second dimension of uncertainty relates to a patent’s scope. The scope of a patent is determined by the claims – the statements, drafted by the patent applicant, which state the boundaries of the legal monopoly claimed by the patent owner.<sup>41</sup> Unlike the boundaries

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<sup>37</sup> This characteristic of patents is well-established in the economics literature (see, for example, C. Shapiro ‘Antitrust Limits to Patent Settlements’ (2003) 34 *RAND Journal of Economics*, 391; and Lemley, M.A and Shapiro, C. ‘Probabilistic Patents’ (2004) Competition Policy Center Working Paper, University of California, Berkeley) but has made less impact in the legal literature.

<sup>38</sup> See Paul H. Jensen and E. Webster ‘Achieving the optimal power of patent rights’ (2004) *Australian Economic Review* (forthcoming) for more on the effects of these factors on the quality of patents.

<sup>39</sup> That is, patents that are granted although they do not meet the requirements of the patent threshold, or patent with claims which are drafted more broadly than the requirements of patent law require.

<sup>40</sup> J. R. Allison, M. A. Lemley, K. A. Moore and R. D. Trunkey, ‘Valuable Patents’ (Working Paper 2003) (available at <<http://papers.ssrn.com/abstract=426020>>), at 3. It is also arguably inefficient to even try to reach perfection at the stage of examination: see Mark Lemley, ‘Rational Ignorance at the Patent Office’ (2001) 95 *Northwestern University Law Review* 1497.

<sup>41</sup> See *Patents Act* 1990 (Cth) s 40.

of a piece of real property, which can at least be seen in the real world, the boundaries of a patent claim are written in words that attempt to predict or cover the future. It is hard to write a perfect application for a patent that details all of the characteristics which embody the invention. The full meaning and scope of these claims cannot be known in advance, but will be determined by the court's eventual construction.<sup>42</sup> In many cases it is not self-evident whether the alleged infringement falls within the meaning of the words of the claims. As a result, it is impossible to articulate precisely the boundary of patent rights and therefore difficult to prove that someone else has infringed on a patent owners' property. Thus, there is a reasonable expectation that even in the cases where a patent is held to be valid, not all patent owners will win infringement cases, and the result on infringement will not be completely predictable.

In summary, in thinking about patent enforcement, we need to remember that a patent is quite different from a property right in a tangible physical asset. A patent gives its owner the right to attempt to enforce the patent against a possible infringer, in circumstances where that infringer may, if the patented technology is valuable enough, spend vast sums of money attempting both to invalidate the patent, and to limit its scope. Given these features of the real world, we should not expect patent owners to win 100 per cent of the time or even close to that number. Even acknowledging this much, however, does not tell us what an appropriate rate would be.

### 2.3.2 *Selection biases in the cases which go to court*

The other factor that we need to take into account in considering what is an appropriate 'win rate' is that only a small number of patent disputes are pursued all the way through to the issue of a judgment by the court and, significantly, those which are so pursued may not be representative of the population of patents, nor even of the population of patent disputes.

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<sup>42</sup> The principles of claim construction are set out by Sheppard J in *Décor Corp Pty Ltd v Dart Industries Inc* (1988) 13 IPR 385; see also *Flexible Steel Lacing Co v Beltreco Ltd* (2000) 49 IPR 331 at 347-350; *Minnesota Mining & Manufacturing Company v Tyco Electronics Pty Ltd* (2001) 53 IPR 32 at 57-59.

We can think of the patent system as a big funnel. Of all patents that are applied for, some (significant proportion) are granted. Of the thousands of patents that are in force at any given time, only a small proportion will have infringement detected, and in only some cases will such detection lead to a dispute. Even where there is a dispute, it may begin and end with the exchange of letters and/or negotiations, without infringement proceedings ever being filed in court.<sup>43</sup> Moreover, filing legal proceedings is itself a stage in negotiations. Many of the disputes that end up being filed in the courts are resolved in out-of-court settlements, leaving only a tiny fraction that end up being resolved by a judge.

Consider the figures from the US. Lanjouw and Schankerman<sup>44</sup> in their study of patent enforcement found that:

- the rate of filing of patent cases across technology types for the period 1978-1999 was 19 case filings per thousand patents, which varied significantly across technology fields, and other factors like the size of the patent owner; and
- about 95 per cent of all patent suits filed are settled by the parties before the conclusion of trial,<sup>45</sup> 85 per cent of these settlements occurring very quickly: before even a pre-trial hearing is held.

More important for present purposes are the factors which determine whether a case will be litigated through to judgment, and whether these factors are likely to influence – skew – the outcomes. There is a vast theoretical literature, particularly in the field of economics, on this question. First, and most obviously, the stakes must be high. Patent

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<sup>43</sup> Data collected by ACIP in 1999 suggested that only 0.03-0.04 per cent of registered IP rights are the subject of a case filing in any given year. A small survey of patent attorneys done by ACIP for the same report also asked what percentage of patent disputes proceeded to litigation. Figures given by the patent attorneys ranged between 5 per cent and 40 per cent. Even this figure seems likely to overstate the number of infringement disputes, since it appears to include all cases filed under the *Patents Act* – thus including appeals from opposition proceedings, *inter alia*.

<sup>44</sup> J. O. Lanjouw and M. Schankerman, “Enforcing Intellectual Property Rights”, NBER Working Paper 8656, December 2001.

<sup>45</sup> See also K. A. Moore, “Judges, Juries and Patent Cases – An Empirical Peek Inside the Black Box” (2000) 99 *Michigan Law Review* 365 (“Empirical Peek”), 383 and Table 1 on 384. Moore studied 1411 patent cases in the period 1983 to 1999, and showed that 6.9 per cent of all patent suits filed in the period went to trial, with the vast majority the subject of summary disposal by the court or settlement by the parties.

litigation is expensive, and is unlikely to be undertaken unless the expected payoff is greater than the cost of the suit, taking into account the risk of losing.<sup>46</sup> High stakes alone are not likely to skew outcomes, if they are symmetrical – that is, equally high – for both parties. Economic analysis of the dispute resolution process by Priest and Klein suggests that, if we assume that parties to a dispute:

- are rational,
- are not behaving strategically,
- have equal stakes, and
- have symmetrical (equal) information

then litigation will occur when both the plaintiff and defendant are optimistic about their chance of success, which makes it difficult to find a mutually agreeable settlement.<sup>47</sup>

This is most likely to occur in cases which fall close to the decision standard – in other words, in the cases that are too close to call.<sup>48</sup> In cases where the legal rule clearly favours one side, rational parties will settle. Obviously, if both parties are optimistic about their chances, in any given case one side is wrong. But if we assume that errors are distributed normally – that plaintiffs are as likely as defendants to make errors about their chance of success, and likely to make errors of the same magnitude – then we would expect win-rates to gravitate towards 50 per cent.

However, the assumptions that underlie the Priest and Klein model are not necessarily true in patent litigation. First, the model is based on ‘single issue’ litigation.<sup>49</sup> Patent

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<sup>46</sup> See R.D. Cooter and D.L. Rubinfeld, ‘Economic Analysis of Legal Disputes and Their Resolution’ (1989) 27 *Journal of Economic Literature* 1067.

<sup>47</sup> This model of dispute resolution is known as the “divergent expectations” model. Factors such as the value of the patent, the complexity (or age) of the technology and the size of the two parties may play a role in determining each party’s expectation about the likelihood of winning. See Priest, G. and B. Klein, ‘The Selection of Disputes for Litigation’ (1984) 13 *Journal of Legal Studies*, 17. See discussion by J.O. Lanjouw and M. Schankerman ‘Enforcement of Patent Rights in the United States’ 162-163 and Table 8 - chapter from W. Cohen and S. Merrill (eds) *Patents in the Knowledge-Based Economy* (National Academy Press: Washington DC, 2003), 149-150, and 163; and R.D. Cooter and D.L. Rubinfeld, above n46.

<sup>48</sup> Priest and Klein, above n47, 16.

<sup>49</sup> The basic model set out by Priest and Klein uses automobile-pedestrian collisions, where the single issue in any potential dispute is the level of fault of the defendant-driver in the collision leading to the claim (Priest and Klein, above n47, 7-8). In legal terms: while the claim against the defendant-driver is a negligence claim (where there are theoretically several issues – duty, breach, and damage caused by the breach), in the set of disputes chosen in their basic model there is no doubt as to the existence of the duty and damage is assumed to be objectively ascertained, so that the only issue over which the estimations of the parties could differ is fault (in legal terms, breach of the duty).

litigation is generally more complex than that, as most cases involve the two issues outlined above: validity, and infringement.

Second, the stakes are typically asymmetric. Often, the patentee will have a lot more at stake in the litigation than the alleged infringer. Most defences in patent litigation involve some challenge to the validity of the patent or some claims in the patent. A patentee who loses their patent, or their most valuable claims, loses not only against the defendant, but will no longer be able to stop other competitors from copying their invention.<sup>50</sup> Theories of litigation suggest that if one party has higher stakes in the litigation, it will settle more cases where there is some doubt about the outcome,<sup>51</sup> and will spend more on litigation that is pursued through to trial, in order to increase its chances of winning.<sup>52</sup> On that basis, we might expect a win rate higher than the Priest and Klein 50 per cent expectation.<sup>53</sup> On the other side of the equation, a defendant may have less at stake. As Farrell and Merges have recently pointed out,<sup>54</sup> one key problem is that defendants cannot capture all the value of a successful challenge to validity: if a patent is revoked, or narrowed, all competitors in the field covered by the patent receive the benefit. This gives defendants strong incentives to settle.<sup>55</sup>

Other assumptions in the Priest and Klein model are also difficult to apply to patent litigation. For example, strategic behaviour by patentees cannot be ruled out. How all these factors will interact is difficult to predict. The strongest conclusion we can draw from this literature is that the question of what an ‘appropriate’ outcome is for patent owners is fraught with multiple difficulties. The economic theories outlined above suggest a range of possible pictures of how we might expect results to look for patent

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<sup>50</sup> See generally Moore, “Empirical Peek”, above n45, 377-78; Claude Crampes and Corinne Langinier, “Litigation and Settlement in Patent Infringement Cases” (2002) 33 *RAND Journal of Economics* 258, 261; Jean O. Lanjouw and Josh Lerner ‘The Enforcement of Intellectual Property Rights: A Survey of the Empirical Literature’ (Working Paper No. 6296 National Bureau of Economic Research 1997) 10-11.

<sup>51</sup> See Moore, “Empirical Peek”, above n45, at 377-78

<sup>52</sup> Joseph Farrell and Robert P. Merges, ‘Incentives to Challenge and Defend Patents: Why Litigation Won’t Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help’ (2004) 19 *Berkeley Tech L. J.* 943, 948-52.

<sup>53</sup> Moore, “Empirical Peek”, above n45, 377-78 (arguing that a rate higher than 50% is appropriate).

<sup>54</sup> Farrell and Merges, above n52, 952-60.

<sup>55</sup> Farrell and Merges, above n54.

owners. It is not our purpose to construct a model of how patent litigation should come out, or provide the definitive answer on what the optimal ‘win rate’ is. Rather, we aim to highlight the complexities involved in drawing any such conclusion, as a caveat to the analysis we present below.

#### **2.4 Existing empirical literature on patent enforcement**

If theory gives us only limited insights into what the optimal ‘win rate’ might be, can we gain more information by comparing the Australian systems to systems overseas? In the last four years there has been an explosion of studies, which are beginning to provide insights into the operation of the patent enforcement system in the United States. This explosion is due, in part, to the availability of large-scale databases of legal information in that country. According to these studies, the number of patent lawsuits settled in or disposed of by US federal district courts doubled between 1988 and 2001,<sup>56</sup> although it remained relatively constant as a proportion of patents granted.<sup>57</sup> We know that only approximately 1.5 per cent of patents are ever litigated: about 2000 patent cases are filed each year, involving 3000 patents.<sup>58</sup> We also know that post-filing settlement rates are high: according to Lanjouw and Schankerman, only 0.1 per cent are litigated through to trial.<sup>59</sup> In her detailed empirical study, Kimberley Moore found that 6.9 per cent of cases filed proceeded all the way to trial.<sup>60</sup> Settlements also usually occur early – soon after proceedings are filed.<sup>61</sup> Some of these studies have also considered outcomes in litigation. When it comes to outcomes, the results of these studies vary widely. Estimates of the rate at which patent validity is being upheld range between 54 per cent

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<sup>56</sup> National Research Council, above n8, 25-26.

<sup>57</sup> Jean Lanjouw and Mark Schankerman, “Protecting Intellectual Property Rights: Are Small Firms Handicapped?”, *Forthcoming in Journal of Law and Economics* (2004) (“Small Firms”).

<sup>58</sup> Kimberley Moore, “Worthless Patents”, George Mason University School of Law, Law and Economics Working Paper Series, 04-29, available at <[http://ssrn.com/abstract\\_id=566941](http://ssrn.com/abstract_id=566941).

<sup>59</sup> Jean Lanjouw and Mark Schankermann, “Window on Competition”, above n59; Lemley, “Rational Ignorance”, above n40.

<sup>60</sup> Moore, “Empirical Peek”, below n63.

<sup>61</sup> Jean Lanjouw and Mark Schankerman, “Small Firms”, above n57.

and 67 per cent.<sup>62</sup> Estimates of the rate at which infringement is found vary between 48 per cent and 58 per cent.<sup>63</sup>

The US studies have provided a highly contestable and complex picture of the operation of the US patent system. They *are* helpful in one key respect: in making it clear that patentees do not win in 100 per cent of cases, or even close to that figure, in an IP system which is arguably one of the strongest in the world. Care must be taken, however, in seeking to compare this system with the Australian system. Australian patent law and the patent system differ from the US in certain important respects. For example, Australian patent law does not have the procedure of ‘continuations’ which has been criticized as making it almost impossible for the USPTO to finally reject a patent.<sup>64</sup> Australian divisional applications have not been subject to the same criticisms. Our law and processes in patent litigation are also different. In US patent litigation, patents are valid unless ‘clear and convincing evidence’ is provided of invalidity,<sup>65</sup> a standard which is higher than the current Australian standard, in which a challenger need only show that the patent is invalid on the balance of probabilities.<sup>66</sup> Nor does Australia have a doctrine like the US doctrine of ‘wilful infringement’, whereby an infringer can be required to pay triple damages if it can be demonstrated the infringer was aware of the violated patent before infringement occurred.<sup>67</sup> By raising the stakes faced by a losing defendant, such damages are likely to affect the cases which end up going to trial – providing defendants with a further incentive to settle. Furthermore, Australia does not use juries to determine

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<sup>62</sup> According to Allison and Lemley, in the US, approximately 46 per cent of patents are held invalid at trial: J.R. Allison and M.A. Lemley ‘Empirical Evidence on the Validity of Litigated Patents’ (1998) 26 *American Intellectual Property Law Association Quarterly Journal* 185, 204. Moore found a different result, with patents being held valid some 67 per cent of the time overall: Moore, “Empirical Peek”, below n63.

<sup>63</sup> Kimberley Moore, “Judges, Juries and Patent Cases – An Empirical Peek Inside the Black Box” (2000) 99 *Michigan Law Review* 365, 385 (“Empirical Peek”) (finding 58%); Landes and Posner, above n20 at 338 (finding 48 per cent)

<sup>64</sup> Mark A. Lemley and Kimberley A. Moore, “Abolishing Patent Continuations” (2004) 84 *Boston University Law Review* 101.

<sup>65</sup> 35 U.S.C. 282 (2002), requiring “clear and convincing evidence” before a patent will be held invalid: *Applied Materials, Inc. v Advanced Semiconductor Materials Am., Inc.* 98 F.3d 1563, 1569 (Fed. Cir. 1996). But note that the Federal Trade Commission and others have proposed to eliminate the presumption of validity in the US, in favour of a weaker presumption: Federal Trade Commission, “To Promote Innovation”, above n7, Recommendation 2; see also American Intellectual Property Law Association, “Response to the October 2003 FTC Report” (2004), available at <http://www.aipla.org>.

<sup>66</sup> See above n36.

<sup>67</sup> See Moore, above n63.

questions in patent cases, which is an important fact given that the presence of a jury appears to be an influential factor in determining litigation outcomes in the US.<sup>68</sup>

Thus, while these studies are of interest, it is not valid to draw direct comparisons between the results obtained in US studies of patent litigation to any figures obtained in Australia. Unfortunately, there has been very little empirical study of outcomes in IP litigation elsewhere in the world.

### **2.5 Concluding comments**

In conclusion, neither theory, nor studies in other countries, are able to provide us with a clear picture of what the outcomes of patent litigation in Australia ‘should be’. This does not mean that an empirical study is not useful. A rigorous study can give us a clear picture of just what is happening in Australian courts. This may, or may not, dispel some of the myths about patent litigation in Australia. If nothing else, we would expect that this information would be of interest to practitioners who are advising clients about their prospects in litigation. Finally, as we outline further in the conclusion, such a study can act as a springboard for further studies of how the patent system is working.

## **3 Methodology**

One of the reasons why few empirical studies have been done of patent enforcement in the courts is that no consolidated sources of data on cases and their outcomes exist. Like the US scholars who have undertaken recent studies, we have had to construct our own database of patent enforcement outcomes from a range of sources.

Our main source of data has been judgments issued by the courts. In order to quantify the rate of patent enforcement in Australian courts, we have attempted to code the entire population of patent litigation cases in Australian courts over the period 1997-2003. We

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<sup>68</sup> Allison and Lemley, above n62; Kimberley Moore, above n63. The right to a jury trial has been affirmed by the US Supreme Court: *Markman et al. v. Westview Instruments, Inc.*, et al. 517 U.S. 370 (1996). Patent owners can request a jury or a ‘bench trial’ (determination by a judge). Moore has showed that requests for a jury have surged in the US, perhaps because they are seen as more favourable to patentees: Moore, “Empirical Peek”, above n63.

used a number of publicly-available caselaw databases in order to capture all of the relevant decisions. IPRIA researchers read every decision, and recorded data about those decisions in a custom-built database.<sup>69</sup> We then supplemented the resulting database with information from a variety of other sources, as noted below. One of the major contributions made in this study is the rigorous methodology applied to the collection and codification of the data on patent enforcement.

### 3.1 *The scope of the study*

This study is restricted to the population of all<sup>70</sup> patent enforcement decisions<sup>71</sup> rendered by Australian courts of superior jurisdiction, both reported and unreported,<sup>72</sup> in relation to patents for the period 1 January 1997 – 31 December 2003.<sup>73</sup> By ‘*courts of superior jurisdiction*’, we mean decisions of the State Supreme Courts, the Federal Court of Australia and Full Federal Court, and the High Court of Australia.<sup>74</sup> ‘*Patent enforcement decisions*’ are defined as final<sup>75</sup> decisions rendered in court proceedings where a patent owner has sought to enforce their rights: that is, where a patent owner initiates court action, for example by filing an infringement action, and cases where the IP owner cross-

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<sup>69</sup> As we noted in the thanks above, this is highly skilled, but sometimes tedious work, for which we are grateful to our researchers.

<sup>70</sup> We define the population being studied as the population of *all* patent enforcement decisions, and have used a variety of methods, detailed below, to ensure we captured every decision rendered by the relevant courts. As we acknowledge below, however, it is always possible that we have missed some decisions.

<sup>71</sup> We use the word “decision” to refer, in essence, to written judgments issued by a relevant court.

<sup>72</sup> In this respect, our study differs from Justice Drummond’s (2000) study which only looked at cases reported in the *Intellectual Property Reports*. While the inclusion of unreported judgments is less likely to be significant in patents than, say, in copyright or trade mark (patent decisions being more likely to be reported), a surprising number of patent judgments are in fact *not* reported. Of the 61 patent decisions which we identified using our method, within the scope of this study in the relevant period, a surprising 6 (or nearly 10 per cent) were not reported.

<sup>73</sup> Our study is therefore more recent than either of the existing studies of patent litigation in Australia. We hope to extend this time period back, possibly to federation, in a future extension of the study.

<sup>74</sup> State Courts of Appeal are not included, as they do not hear cases on the relevant intellectual property decisions. Single judges sitting in state Supreme Courts have jurisdiction to hear patent enforcement cases at first instance: *Patents Act* s 120(1). The Federal Court of Australia also has jurisdiction to hear these cases at first instance: *Patents Act* s 120(1). All appeals under the *Patents Act* are heard by the Full Federal Court: *Patents Act* s 158. Appeals from the Full Federal Court are of course heard by the High Court if special leave is granted: *Patents Act* s 158.

<sup>75</sup> Including summary judgment decisions, since these are just as ‘final’ as trial decisions. *Interlocutory* proceedings (where an interlocutory injunction is sought) are not included in the data presented in this paper.

claims for infringement in proceedings brought by another party.<sup>76</sup> The population does not include decisions on appeal from the Patent Commissioner: for example, appeals from refusals to grant a patent, or from oppositions.<sup>77</sup> We are concerned with the use of the courts by IP owners in enforcing their rights, and the calculations facing IP owners in making the decision to sue for infringement, rather than questions concerning the quality of decision-making by IP Australia.<sup>78</sup>

One important point to note about this study is that it is confined to those cases which proceed all the way to judgment. We have not undertaken any analysis of the numbers, or types, of patent cases *filed* in Australia, or any analysis of how many of those cases settle. An ACIP Report in 1999 provided some figures, noting that from 1993-1996, between 20 and 39 patent cases were filed each year in the Federal Court of Australia.<sup>79</sup> These figures would include not only infringement actions, but appeals from decisions of the Patent Commissioner, for example in opposition proceedings. Estimates from practitioners of the proportion of cases which settled ranged between 30 per cent and 95 per cent. Further research is clearly warranted on the rate of settlement, and the factors which influence such settlement – but it is beyond the scope of this paper.

### 3.2 *Locating decisions within the scope of the study*

It is surprisingly difficult to find all the relevant decisions of the courts, and to be confident that we *have* caught them all. We took a series of steps to ensure the

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<sup>76</sup> Such cross-claims may arise in an action for unjustified threats (*Patents Act* s 130), or in proceedings brought under s.138 which seek revocation of a patent

<sup>77</sup> Appeals may be brought to the Federal Court from decisions of the Patents Commissioner s 81(4); s 100A(3) (refusal to grant a patent – re-examination before grant); s 101(4) (revocation of patent – re-examination after grant); s 101F(4) (revocation of innovation patents); s 101J(5) (revocation of innovation patent following re-examination); s 101N(7) (opposition to innovation patents); s 104(7) (applications for amendments by applicants and patentees); and s 109 (amendments directed by the Commissioner).

<sup>78</sup> It may also be that questions of validity are approached differently when raised at the opposition stage, as opposed to being raised later in infringement proceedings. Infringement proceedings are likely to arise at a later stage, well after grant, and at a stage when future technologies are known – including the alleged infringement. Although courts are required by law to assess the validity of a patent *at the time it was granted*, it would be unrealistic to assume that there is no difference between assessing validity at the opposition stage, and the infringement stage, even where the legal tests are the same. We consider it preferable to compare only like cases with like cases for data comparability, and hence have included only infringement proceedings.

<sup>79</sup> ACIP, *Review of Enforcement of Industrial Property Rights*, above n7 p 29 (Appendix 1)

comprehensiveness of the list. First, we searched three different electronic databases in order to generate a list of relevant decisions. We adopted this approach in preference to the other possible approach – looking only at cases reported in a set of law reports like the *Intellectual Property Reports*<sup>80</sup> – because the editors of law reports select their cases on the grounds of their importance as precedent. The importance of a decision as precedent is not relevant to our study. Our aim was to be as comprehensive as possible in capturing the decisions of the courts.<sup>81</sup>

We tested three different generally available databases:

1. CaseBase, a proprietary case citator, which contains summary records of decisions issued by Australian courts compiled by employees of the publisher, LexisNexis Butterworths;
2. AustLII,<sup>82</sup> a set of free online databases which contain full text decisions, both reported and unreported; and
3. The LexisNexis Butterworths Unreported Judgments Database, which despite its name contains full text judgments of both reported and unreported decisions of all the relevant courts.<sup>83</sup>

The courts provide the same decisions, in electronic format, to both AustLII and LexisNexis Butterworths.<sup>84</sup>

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<sup>80</sup> This approach was used by Justice Drummond in his paper, above n26.

<sup>81</sup> The benefits of a more comprehensive approach are illustrated by the fact that, for the same period considered by Justice Drummond in his paper (above n26), our list of decisions includes all the decisions reviewed by his Honour, plus 6 more decisions. In the period of our study, there were 6 unreported judgments (as noted above n72), and a further 3 judgments which while reported were not included in the *Intellectual Property Reports* used by Justice Drummond. In other words, adopting Justice Drummond's method would have led to 9 missed judgments – which is nearly 15 per cent of the judgments we identified as relevant within the period (61 judgments).

<sup>82</sup> <<http://www.austlii.edu.au>>

<sup>83</sup> Cases are generally placed *in* the Butterworths Unreported Judgments database at a stage when they are unreported – i.e. immediately on being issued. However, once the case *is* reported, Butterworths employees do *not* remove the cases from the database: personal email to author from Elizabeth Hodgson, Head Trainer for LexisNexis Butterworths, 26 February 2004 (copy on file with one of the authors, Kim Weatherall).

<sup>84</sup> This was confirmed through correspondence with each of the relevant courts.

The list of decisions was generated by querying each database for all references to the ‘Patents Act’.<sup>85</sup> This search was chosen because it seemed to us that all decisions of interest (as defined above) would *have* to include a reference to the relevant legislation under which the claim for infringement was being brought.<sup>86</sup> After trials of the three databases, we found that we obtained the most comprehensive results using the full text Butterworths Unreported Judgments Database. For various reasons, the CaseBase searches and AustLII searches missed relevant decisions.<sup>87</sup> We are confident that, having taken these several steps and cross-checks, the list of decisions we have reviewed represents the real population, or at least the best approximation we are able to generate using publicly-available information.<sup>88</sup> In any event, of all the forms of IP studied, we believe that we are *least* likely to have missed patent decisions.<sup>89</sup>

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<sup>85</sup> In the Casebase search, we looked for references to the legislation in the “statute” field – a field recorded by Butterworths employees from reading the decision. The danger of this search is that it means we have to rely on the decisions of Butterworths employees in entering the field, and doing so accurately. This introduces some uncertainties into the search, which is probably reflected in the fact that searches of Casebase did miss some relevant decisions. When querying the other two databases, we searched the full text of the decisions issued by the court.

<sup>86</sup> The search for references to the legislation was adopted after trying a range of different searches. We found that searching for references to “patent” close to either “validity” or “infring\*” generated *fewer* results in a search of Casebase – giving rise to concerns that we might be missing relevant cases. When it came to searching the full text judgment databases, references to “patent” close to “validity” or “infring\*” generated a very high number of irrelevant results. By searching for references to the legislation, we can be confident that we are capturing all the relevant decisions, owing to the invariable practice of the courts of referring to the legislation at least once in their judgment.

<sup>87</sup> A Casebase search generated a shorter list of cases (for the initial period, a list of 372, compared to 586 for the full text database search). Thus a Casebase search is more efficiently reviewed. However, comparison with a full text search established that a Casebase search alone led to missed cases: 19 cases *within* the scope of the study were missed using a Casebase search: mostly copyright and trade mark enforcement decisions. The technology used in the Austlii database does not equip it to deal with larger or time-delimited searches, leading to missing results when we tried to use it particularly when looking in the important databases like the Federal Courts Judgments database. Butterworths had the advantage of being split by year, leading to easier searching of the same set of information that is held in Austlii.

<sup>88</sup> While we have attempted to find every patent judgment, it is possible that some decisions have been missed, particularly prior to 1998, simply because electronic record-keeping was not as advanced in earlier years. Inevitably, further back in time more judgments were simply not collected, or missed, in part due to the fact that, in the past, judgments had to be provided from chambers to the Library by hand, and later on floppy disk, according to conversations with the various courts. Only more recently has the process of collection been more automated. The introduction of medium-neutral citations has assisted in tracking judgments and ensuring records are complete.

<sup>89</sup> This belief is based on two facts. First, more patent decisions are likely to be of sufficient difficulty, and hence of sufficient interest to be reported in specialized law reporters like the *Intellectual Property Reports* (but see above n72 noting unreported judgments still occur): the same is not necessarily true in relation to copyright and trade mark infringement actions, where there are a relatively large proportion of cases which involve fairly straightforward enforcement against an alleged infringer who may not even appear in court. We report on these ‘counterfeit’ cases in a forthcoming paper on trade mark enforcement. Second, while some judgments of the courts may be left out of unreported judgments databases by mistake or because

Every decision identified using this search was then reviewed: first, to determine whether they were within the scope of our study or not (see the discussion of the scope, above Part 3.1), and second, to record relevant data. Cases that were beyond scope were discarded, leaving approximately one third of our initial list for closer review.<sup>90</sup>

### 3.3 *Data collected*

The backbone of this study is a unique, custom-built database of information distilled from decisions issued by the courts in patent enforcement proceedings. Broadly speaking, we have collected three types of data about each decision: case data, patent data and outcomes data. This is the first Australian study to record information about patent proceedings in such detail.

#### 3.3.1 *Method of collection*

The first stage in the construction of the database was a close reading of all decisions within the scope of the study. The reading and coding was undertaken by IPRIA researchers in close consultation with the authors,<sup>91</sup> and a range of data about those decisions was recorded in a custom-built relational database. A key determinant of the information we have collected was reliability. We only collected data which we could code consistently, and in a replicable way. In order to ensure the reliability of the data, several procedures were adopted:

- the database as well as the data collection methodology was developed and refined, using a small pilot population of cases;

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they were not considered sufficiently ‘important’ by the courts, this is most likely to occur with *ex parte* and *ex tempore* judgments – such judgments are, we believe, least likely in the complex area of patent law.

<sup>90</sup> The remainder fell mainly into two categories: (1) procedural decisions: for example decisions about pleadings or costs; and (2) appeals from decisions of the Patents Commissioner or Trade Marks Registrar.

<sup>91</sup> The IPRIA researchers who undertook the reading of the cases: Nitsa Karahalios, Sarah Moritz, Sally Pryor and Edward Sexton, had all either completed law degrees, or were close to completion. We thank all the researchers again for their patience. The researchers undertook the initial reading of the cases, and in all cases of doubt consulted with one of the authors, Kimberlee Weatherall, a lecturer in intellectual property law at the University of Melbourne, or Glenys Fraser, the originator of this project, who is an IP practitioner of many years’ experience, and former partner of law firm Minter Ellison.

- the variables were selected to reduce, so far as possible, the subjectivity of coding decisions: we have avoided collecting data on matters of impression;
- the database was also designed to maximise consistency across coded decisions and to minimise coding error, for example, by requiring the reader to choose from a list of static variables, rather than allowing subjective coding by comments fields;
- data which might be of interest, but which cannot be reliably gleaned from decisions issued by the court, were rejected;<sup>92</sup>
- consistency was maximised by having a second researcher undertake a ‘blind read’ of difficult decisions;
- in every situation where there was some doubt about the coding of a variable, there was consultation between the researchers and the supervising author;
- comprehensive checking was done of decisions coded early in the process, to maximise consistency with later coding decisions.<sup>93</sup>

Even adopting this approach, however, it should be noted that it is difficult to reduce information gleaned from the decisions of judges into quantitative results. In some decisions, it was difficult to discern exactly what issues were being decided, and on what basis. In other cases, determining how to categorise a decision required an exercise of judgment.<sup>94</sup> Further, there are many factors we do not record and cannot control for: *inter alia*, the quality of the patent, the financial resources of the parties, the skill of legal representatives and expert witnesses, strategic choices made by the parties in how they run their cases, and what arguments they run, or appeal, and behaviour on the part of judges.<sup>95</sup> Collecting this type of data of course would be extremely difficult, and in some

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<sup>92</sup> For example, one factor which we would have liked to measure was the success rates of given grounds for showing a patent was invalid. So, for example, we would have liked to consider how often obviousness succeeded as a ground for showing invalidity when pleaded or argued to the court. However, we cannot be sure that all grounds pleaded, or even argued to the court will be recorded in a judgment: it is quite possible for a court to consider only those limited grounds that it (rather than the parties) considers important or likely to succeed.

<sup>93</sup> The result is that a majority of the judgments in the database have been read by two different researchers.

<sup>94</sup> As noted above, such issues were discussed between the Legal Researchers and Kimberlee Weatherall and/or Glenys Fraser, in order to ensure a maximum of consistency across the researchers and across cases.

<sup>95</sup> See J.R. Allison and M.A. Lemley ‘Empirical Evidence on the Validity of Litigated Patents’ (1998) 26 *American Intellectual Property Law Association Quarterly Journal* 185, 204. For an empirical analysis of

cases, impossible. Finally, there are some issues of considerable interest that we could not address at all. For example, we have not been able thus far to consider damages awards in patent cases, because awards are very rarely included in the final merits judgment issued by the court.

Some basic information about patent proceedings is not available from reading decisions issued by the courts. We therefore supplemented the information in the decisions with data from court databases and IP Australia's patent database, as noted below.

### 3.3.2 *Proceedings data*

In relation to every decision included in the database, we have recorded:

- case details: the name and citation details of the decision, the court where the case was heard and the court file number;
- case type: appellate or original;
- important dates: issue date of the proceedings;<sup>96</sup> hearing date; and decision date;
- court time: the total number of hours of court time spent on the proceedings;<sup>97</sup>
- the parties, judges and counsel involved in the case;<sup>98</sup>

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the impact of personality differences, legal complexity, and ideological and socio-economic background on judicial voting patterns on the High Court of Australia, see: R. Smyth 'Explaining Voting Patterns on the Latham High Court 1935-50' (2002) 26 *Melbourne University Law Review* 88. Also see: R.P. Wagner and L. Petherbridge 'Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance' (2004) 152 *University of Pennsylvania Law Review* 1105, 1192.

<sup>96</sup> This information is not usually recorded in the written decision of the Court. We obtained issue dates directly from the Federal Court case management database (FEDCAMS), and from the Registries of the other courts. FEDCAMS through 2004 has been replaced by a new system, CaseTrack. CaseTrack records most, but not all, the information we have used here.

<sup>97</sup> This information is not recorded in the written decision of the Court. FEDCAMS, however, records each Federal Court "event" and how much court time was taken up, and gives a total number of hours and minutes spent in court. It includes every directions hearing, notice of motion hearing, and events after the rendering of any relevant decision – eg costs hearings. This information was not available for State Supreme Court decisions. In relation to High Court proceedings, the time in court was calculated using the times recorded on the High Court transcripts, which are available online at AustLII. For those High Court proceedings we have calculated the aggregate of the time spent in the special leave application and in the hearing, as well as time spent in any procedural hearings (relevant for one case that was reviewed).

<sup>98</sup> This information is not reported in this paper. The numbers of cases are simply too small to draw any conclusions: cf John Allison and Mark Lemley, "How Federal Circuit Judges Vote in Patent Validity Cases" (2001) 10 *Fed Circuit B. J.* 435 (concluding, however, that the votes of Federal Circuit judges

- whether the decision is the ‘ultimate’ decision in the period studied:<sup>99</sup> in other words, whether the decision is the ‘last word’ of the courts on whether a given patent is valid and infringed, up to the end of 2003.<sup>100</sup>

### 3.3.3 *Patent data*

Written decisions of the courts contain only limited information about the patent that is the subject of the decision. Using the patent number, we searched the IP Australia database<sup>101</sup> for additional information about the litigated patents:

- the earliest priority date of the patent: this provides information about the stage during a patent term when litigation occurs;
- the technology classes into which the patent is classified; and
- the country of origin of the patent, as recorded in IP Australia’s PatAdmin database.

### 3.3.4 *Outcomes data*

Some of the most important information in the database relates to the findings of the court. We have recorded separately the results for each patent dealt with in the decision.<sup>102</sup> Broadly speaking, we have separately recorded the results on both validity of each patent, and infringement. We refer to the outcome on each of these dimensions of

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during this period defied easy description. Judges do not fit easily into pro-patent or anti-patent categories, or into affirmers and reversers)

<sup>99</sup> It is not straightforward to determine whether a case, particularly a recent case, is the final decision, or whether it has been appealed. The absence of an appeal judgment, particularly in recent cases, is not a guarantee that the trial decision *is* final, at least until several years have passed. This is why we have only asked whether we have the ultimate decision *in the study period*, when we can be sure to have identified all appeal judgments.

<sup>100</sup> Note also that while usually the ultimate determination on an issue is the decision by the last appeal court, this is not always the case – if the determination on validity is not appealed, then the original validity determination is also the ultimate validity determination. So, for example, in the case of *Pinefair Pty Ltd v Bedford Industries Rehabilitation Association Inc* (1998) 42 IPR 330, the original decision, the court held the patent both valid and infringed. Only the determination on infringement was appealed. The appeal court upheld the finding of the trial court on infringement, and did not consider validity. In this case, the ultimate determination on validity is the finding of the trial court (a win on validity). The ultimate determination on infringement is the determination of the appeal court (a win on infringement).

<sup>101</sup> IP Australia’s PatAdmin database. Further information on this database can be found at IP Australia’s website, <[http://www.ipaustralia.gov.au/patents/search\\_mainframe.shtml](http://www.ipaustralia.gov.au/patents/search_mainframe.shtml)>

<sup>102</sup> We differ in this respect from earlier Australian studies, which are not explicit on whether they are considering “patents” or “proceedings” as the unit of analysis.

the decision as a **determination**. Thus, each decision may include two determinations: a validity determination, and an infringement determination.<sup>103</sup>

For each determination, we have recorded two items: the outcome, and the grounds for that outcome. In relation to outcomes, there are five possible results, which we have expressed from the perspective of the patent owner:

1. **All claims/allegations upheld:** patent owner successful in all respects: either all of the patent claims in issue were upheld as valid, or all the allegations of infringement were successful;
2. **No claims/allegations upheld:** patent owner failed in all respects: either none of the (litigated) patent claims were held valid, or no infringements were held to be proved;
3. **Some claims/allegations upheld:** patent owner partially successful: in validity determinations, this means that not all of the claims in the patent in issue were upheld, resulting in a valid, but narrower patent. In infringement cases, it means that some, but not all allegations of infringement were successful;
4. **Not determined:** the court did not make a finding on the relevant issue: because, for example, it was not raised, it was conceded, it was separately decided or it was not necessary to decide for the purposes of the judgment;<sup>104</sup>

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<sup>103</sup> Sometimes, a court deals only with one or other of these issues. This may occur because it is unnecessary to decide the other issue: if a patent is invalid, the court may not go on to make findings on infringement. Alternatively, a case may deal with only one issue because the hearing has been split for example under Order 29 of the *Federal Court Rules*, which allows the court to make an order for the determination of any question separately from any other question. It is not uncommon for such orders to be made in patent cases, whereby a determination is made on validity prior to the determination of infringement – or the other way around.

<sup>104</sup> It will be noted that ‘not determined’ is a very heterogeneous category. It includes situations where the matter was not raised in argument before the court, was conceded during the course of the hearing, or where the court chose not to make a determination on the issue in light of its other findings. Very little can be inferred, as a result, from a ‘not determined’ outcome. These various situations were ‘lumped together’ because of the concern about reliability, detailed above. It is not always possible to tell, simply from reading a decision, whether a matter has been argued before the court, conceded, or is unnecessary to determine.

5. **Remitted:** this means that the proceedings were remitted to a lower court for final determination.

In relation to **grounds**, where the patent owner has either had some or none of its claims upheld, we have also recorded the grounds for the determination (for example, lack of inventive step or lack of novelty).<sup>105</sup>

#### 4 Results

In this section we report the results of our population of litigated patents in the period 1997-2003. The statistics are largely descriptive – they provide an insight into the population of judicial patent enforcement decisions during a recent period of time. However, it should be noted that these statistics do *not* predict anything about future patent litigation. More sophisticated techniques are unavailable to us given the relatively small number of cases we have in our dataset, although we hope that in the future, as the size of our dataset grows, we will be able to expand the analysis. This paper also represents only a first attempt at analysis of the database, and there are variables on which we have collected information but have not yet attempted analysis.<sup>106</sup> We hope to expand on the basic analyses here reported in future studies.

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<sup>105</sup> We have also recorded the “grounds” for a loss or partial loss by the patent owner on the question of infringement. However, we found that in the relevant period, there were really only two grounds relevant in patent law: either the alleged infringement was not within the scope of the claims as construed, or the case involved the supply of parts not amounting to authorising, procuring etc. These results are not separately reported.

<sup>106</sup> So, for example, we have not sought to analyse the data on the counsel or judges involved in the cases. Overseas studies working with larger datasets have found that ‘the votes of Federal Circuit judges ... do not fit easily into “pro-patent” or “anti-patent” categories, or into “affirmers” and “reversers”’: John Allison and Mark Lemley, ‘How Federal Circuit Judges Vote in Patent Validity Cases’ (2000) 27 *Florida State University Law Review* 745. While such analysis is interesting, the present dataset is too small to conduct any such analysis here. Similarly, we do not seek to analyse here factors that might impact on litigation such as the size of the litigating firms: while we hope to conduct some such analysis in the future, once again the dataset here is too small, and data on firm size not readily available. Again, overseas studies have found that firm size can be important particularly to *whether* firms become involved in litigation: see eg Jean Lanjouw and Mark Schankerman, ‘Protecting Intellectual Property Rights: Are Small Firms Handicapped?’ (2004) 47 *Journal of Law and Economics* 45

#### 4.1 *Analysis of patent proceedings*

The first aspect of patent litigation we examine is an overall description of the extent of patent litigation in Australia. We first examine how many proceedings there have been in the 6 year period examined. More importantly, we have obtained figures on how long these proceedings have taken. This is important because the length of the proceedings has an important effect on the cost to the parties: the longer the proceedings, the more expensive they will be. In order to compare like with like, we have separated the original proceedings from the appeals.<sup>107</sup> For both, we present information on two variables:

- **case length:** the number of days elapsed between the date of issue of the proceedings and the last decision date;<sup>108</sup> and
- **court hours:** the total number of hours spent in court in the proceedings (including all preliminary events and skirmishes, directions hearings, and the final hearing).

Note that we have chosen to analyse ‘court hours’ rather than the number of hours or days in hearings alone, as the figure which more truly indicates the true cost of proceedings. Patent litigation often involves multiple skirmishes prior to trial: disputes over discovery, pleadings, and expert evidence may all involve lengthy hearings. The longest cases in our database in terms of court hours are invariably cases which involve multiple applications and notices of motion.<sup>109</sup>

Basic descriptive statistics on each of these variables are presented in Table 1.

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<sup>107</sup> Original proceedings involve extensive processes for the gathering and presentation of evidence to the court, and are therefore expected to take considerably longer than appeals. Note that we are not presenting information on how long any given dispute takes from the date of filing of the original proceedings through to the final appeal judgment in relation to the same dispute. This information is difficult to calculate.

<sup>108</sup> If there are two decisions – validity and infringement – we take the period up until the *later* decision.

<sup>109</sup> See further below; the description of the *Stack* litigation: nn120 - 123 and accompanying text.

**Table 1: Descriptive Statistics on Patent Proceedings**

Type of Proceeding	VARIABLES	
	Case Length (Days)	Court Hours
<b>ORIGINAL</b>		
No. of observations (proceedings)	29	25 <sup>110</sup>
Mean	1000.48	54.27
Median	915	50.67
Standard deviation	586.23	41.93
<b>APPEAL</b>		
No. of observations (proceedings)	23	23
Mean	418.91	11.81
Median	364	11.17
Standard deviation	262.85	6.10

Two matters of interest arise from these figures. First, the length of time that patent proceedings take, and second, the apparently high rate of appeal in patent cases. We consider these two issues in turn.

#### 4.1.1 *Length of proceedings: hours and days*

The number of hours spent in court in patent proceedings is an important issue for disputing parties. Since ‘time is money’, especially when talking about lawyers’ time, the number of hours in court is a proxy for the cost of the proceedings. Table 1 indicates that original proceedings typically require many more court hours than appeals: the average number of court hours is 54.27 for original proceedings (that is, approximately 11 full days in court) and 11.81 for appeals. It should be noted that without comparing these court hours, for example, to the average court hours spent on *other* types of litigation, it is not possible to draw general conclusions from this information, such as how expensive or complex patent litigation is compared to other kinds of litigation.<sup>111</sup> It

<sup>110</sup> The ‘number of observations’ represents the number of proceedings where we have data. In the case of the original proceedings, readers will observe that we have 25 observations in relation to court hours, but 29 for the case length. This is because in relation to court hours, there are 4 missing observations – proceedings for which we were not able to obtain data on how many hours were spent in court in those cases. This data was only available for Federal Court and High Court cases, and not for the small number of cases in the State Supreme Courts: see above n97

<sup>111</sup> The Annual Report of the Federal Court of Australia does give averages of how long cases filed in the court take to resolve, on average. During the five year period 1 July 1998 – 30 June 2003, 89.2 per cent of

is, however, relevant information for patent practitioners and patentees contemplating litigation.

The difference between the time taken for trials and appeals will not surprise any lawyer. In original proceedings, a judge must often deal with a significant number of pre-trial events such as the preliminary hearings dealing with the collection of evidence, disputes over the pleadings, the instruction of experts, and dealing with pre-trial motions.

Furthermore, the trial judge must hear extensive evidence, including the cross-examination of witnesses in particular. An appeal in the Full Federal Court<sup>112</sup> from a decision of a single Federal Court judge or a State Supreme Court are not hearings ‘*de novo*’. The court on appeal will not have to hear cross-examination of witnesses or be taken through the evidence as if the case were a fresh trial on the record.<sup>113</sup> An appeal is more concerned with whether a trial judge applied the law correctly to the facts as found, and while entitled to take a different view of the facts from the trial judge, will only overturn the trial judge where the trial judge’s findings can be characterised as erroneous.<sup>114</sup>

It is also interesting to note that the *distribution* of the court hours variable differs significantly by the type of proceeding. The distribution for original cases has a much larger standard deviation (41.93) than the distribution for appeal cases (6.10). This means that original proceedings vary significantly, but appeal proceedings are far more similar in terms of the time they take to resolve.<sup>115</sup> This is illustrated graphically by Figure 1.

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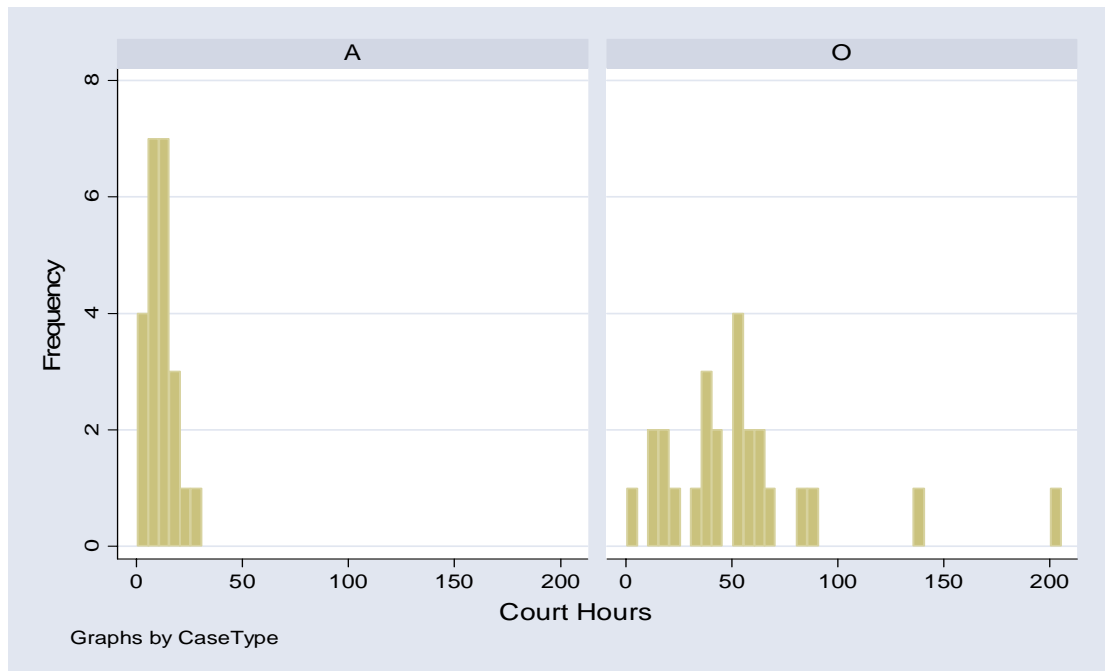
cases were completed in less than eighteen months: see Federal Court of Australia, *Annual Report 2002-2003*, Ch.3. However, those figures include all the cases which are filed but which do not proceed to judgment, and so are not comparable to our dataset.

<sup>112</sup> Which has exclusive appellate jurisdiction in intellectual property: see above n74.

<sup>113</sup> *Sydneywide Distributors Pty Ltd v Red Bull Australia Pty Ltd* (2002) 55 IPR 354, 368-370 [50] – [54].

<sup>114</sup> *Sydneywide Distributors Pty Ltd v Red Bull Australia Pty Ltd* (2002) 55 IPR 354, 368-370 [50] – [54]; *Branir Pty Ltd v Owston Nominees (No 2) Pty Ltd* (2001) 117 FCR 424 per Allsop J at [21] – [28].

<sup>115</sup> In fact, the only “outlier” case here, which took just under 30 hours of appeal time, is a case where the matter was twice heard and determined by the Full Federal Court, having been remitted back to the Full Court after a successful appeal to the High Court of Australia. (*Advanced Building Systems Pty Ltd v Ramset Fasteners (Aust) Pty Ltd* (1999) 44 IPR 481).

**Figure 1: Distribution of Number of Court Hours for Original (O) and Appeal (A) Cases**

This observation is well in line with what we would expect, given that original proceedings must deal with a range of technologies which may vary from the relatively straightforward to the highly scientific and technical. In some areas, extensive time and expert evidence will be required to ‘put the court in the position of the skilled addressee’.<sup>116</sup> Furthermore, it is not only the length of the hearing which has the potential to vary significantly between different cases. Original proceedings also vary considerably in the forensic and strategic decisions taken: it is possible, for example, for a party to dispute many procedural points leading to more hearings and hence more hours spent in court, or more frequent appearances before the court in the lead up to the hearing.

It is worth highlighting specifically the number of original proceedings we have at the lower end – cases where only a small amount of court time was required. We are sometimes inclined to forget that not all patent infringement cases are massive, multi-year undertakings, but a closer look at the cases at the ends of the extreme of this distribution will illustrate the point. For example, the shortest set of original proceedings

<sup>116</sup> *General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd* [1972] RPC 457 at 485

in terms of court hours – at just over four hours in total – was *Datadot Technology Ltd v Alpha Microtech Pty Ltd*.<sup>117</sup> The proceedings concerned an innovation patent covering a method of applying identity labels, called ‘microdots’, via a spraying mechanism to articles such as cars. In this case, not only was the technology relatively simple but, most unusually for patent litigation, the respondent did not appear. As a result, there was no need for cross-examination.

Another observation may be made about court hours. It has been noted by ACIP that it is disputes over validity which generally are the most complex and closely fought, and hence which are the most drawn out and expensive in patent litigation.<sup>118</sup> Our examination of the proceedings tends to confirm ACIP’s view. The cases at the lower end of the scale are often cases where the technology is simple and validity is not in issue. If we look behind this histogram to the next two shortest original proceedings, we see that in both, validity was not considered by the court.<sup>119</sup>

Like any area of commercial litigation, patent litigation also has its extreme outliers: very long, complex cases. Looking behind Figure 1, it is clear that the longest cases are not just about complex technology, but rather, are cases where the legal issues are very complex, and where forensic choices lead to additional court time. The longest original proceedings in the database remarkably concerns a petty patent, this time for water meter assemblies: *Stack v Brisbane City Council*.<sup>120</sup> This ‘imbroglio of litigation’, as Gummow J described it,<sup>121</sup> gave rise to at least 12 judgments on various issues and, most

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<sup>117</sup> *Datadot Technology Ltd v Alpha Microtech Pty Ltd* (2003) 59 IPR 402

<sup>118</sup> ACIP, above n7, at 11.

<sup>119</sup> In *Sydney Cellulose Pty Ltd v Ceil Comfort Home Insulation Pty Ltd* (2001) 53 IPR 359 (total court hours: 15.27 hours), validity was not in issue, and the technology was simple (a method of installing roof insulation). In *General Clutch Corporation v Sbriggs Pty Ltd* (1997) 38 IPR 359 (total court hours: 15.40), validity was not considered because infringement was not established. Once again, the case concerns relatively simple technology (a clutch mechanism on window blinds). It should be noted, however, that in some cases, even a full challenge to validity can be dealt with briefly. In *James Joseph Hutt v Enig Pty Ltd* (1998) 41 IPR 559 (total court hours: 16.25), both validity and infringement were dealt with, although in that case, the technology was not particularly complex (air released into a hopper to agitate the contents), and the parties were able to agree on the essential integers of the claim, differing on construction.

<sup>120</sup> Federal Court Proceedings QG28 of 1994; QG11 of 1996; QG21 of 1996; QG29 of 1996; VG39 of 1996; VG40 of 1996.

<sup>121</sup> See the transcript of the application for special leave, *Stack & Anor v Davies Shephard Pty Ltd & Ors* B41/2001 (26 June 2002)

importantly from the perspective of the time taken in the proceedings, involved a hearing that continued for some 30 sitting days. In this case, it was the complexity in particular of the various proceedings on foot,<sup>122</sup> and the law relating to entitlement,<sup>123</sup> as well as forensic decisions, which appear to have caused the excessive length of the case. Similarly, in the second longest case by court hours, *Old Digger v Azuko*,<sup>124</sup> proceedings appear to have been complicated by the sheer number of grounds of invalidity pleaded, as well as an attempt to re-open a cross-claim after partial success on appeal.<sup>125</sup>

We observe very similar patterns when it comes to case length. Once again, original cases are much longer and more variable than appeals. The mean number of days elapsed from commencement of proceedings to decision for original cases is 1000 (2.7 years), while the corresponding figure for appeals is 418.91 (1.1 years). These distributions are presented in Figure 2.

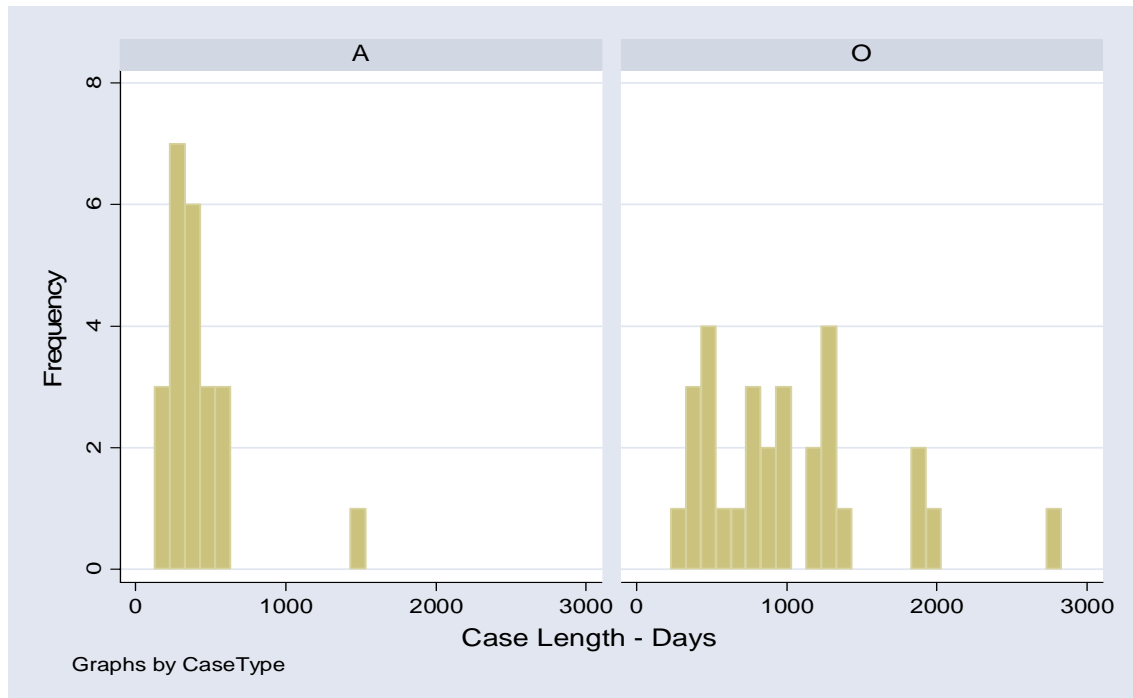
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<sup>122</sup> See *Stack v Davies Shephard Pty Ltd* (2001) 51 IPR 513, [2]-[11].

<sup>123</sup> There was a dispute in the case as to whether, in the case where the patented technology was invented by two co-inventors, one inventor alone was entitled to lodge an application: *Stack v Davies Shephard Pty Ltd* (2001) 51 IPR 513

<sup>124</sup> (2001) 52 IPR 43

<sup>125</sup> *Old Digger Pty Ltd v Azuko Pty Ltd* (2002) 56 IPR 416

**Figure 2: Distribution of Case Length (Days) for Original (O) and Appeal (A) Cases**

In terms of case length, there is only one ‘outlier’ in the appeals: the case of *Ramset Fasteners (Aust) Pty Ltd v Advanced Building Systems Pty Ltd*.<sup>126</sup> It was long (1504 days, or just over 4 years) because the Full Federal Court heard the matter twice after the matter was remitted by the Full Federal Court. The longest original proceedings were *Leonardis v Theta Development*,<sup>127</sup> at 2822 days (7.7 years).<sup>128</sup>

<sup>126</sup> (1999) 44 IPR 481.

<sup>127</sup> (2000) 51 IPR 546. Note that we do not know how many hours this case spent in court (ie, it is one of the ‘missing observations’ noted above n110, because this data is not recorded by the South Australian Supreme Court. It may, however, be that the hours were not so extensive as we might think: see n128 below.

<sup>128</sup> 7.7 years is a long time, but the case perhaps highlights the limitations of simply looking at numbers. The proceedings that led to *Leonardis v Theta Development* (2000) 51 IPR 546 were commenced in 1993. However, the standard patent at issue in the case was at the time being litigated in a separate set of proceedings, heard by Gummow J (the judgment is reported as *Sartas No 1 Pty Ltd v Koukourou and Partners Pty Ltd* (1994) 30 IPR 479). The decision of Gummow J was appealed (*Leonardis v Sartas No 1 Pty Ltd* (1996) 35 IPR 23). The proceedings commenced in the South Australian Supreme Court were therefore stayed pending the outcome of the other proceedings, particularly on the validity of the patent. Williams J did not hear the case until late 1999, and issued judgment approximately 12 months later.

#### 4.1.2 *Proportion of patent matters appealed*

The second interesting observation that arises out of the data in Table 1 is the high appeal rate. The data indicate that out of a total of 52 proceedings which have generated at least one decision in the period 1997-2003, there are 29 original proceedings and 23 appeal proceedings.<sup>129</sup> This is borne out if we look at what proportion of original proceedings which are subject to at least one appeal: in 17 out of 29 (59 per cent) were appealed to the Full Federal Court. A further 4 of the Full Federal Court proceedings involved a High Court decision.<sup>130</sup>

There is reason to believe that this is a high appeal rate compared to the overall caseload of the Full Federal Court. In 2002-2003, 3216 matters were filed in the Federal Court (excluding corporations law, bankruptcy and native title).<sup>131</sup> 375 appeals from State Supreme Courts or the Federal Court of Australia were filed in the same period.<sup>132</sup> This suggests that the proportion of decisions which are appealed across the spectrum of Federal Court matters is significantly lower than the rate we have observed in patent law.<sup>133</sup> Without more general data on the appeal rate of other types of litigation it is not possible to evaluate whether a high appeal rate is unique to patent cases.

<sup>129</sup> Note that ‘proceedings’ refer to proceedings filed in the court. Any given proceedings may have generated one or two decisions: see above n108. For example, in *Aktiebolaget Hassle v Alphapharm Pty Ltd*, in which Justice Lehane first issued a judgment on validity (*Aktiebolaget Hassle v Alphapharm Pty Ltd* (1999) 44 IPR 593), and later an unreported decision on infringement (*Aktiebolaget Hassle v Alphapharm Pty Ltd* [1999] FCA 1394). One set of proceedings in our dataset generated 3 separate judgments at the single judge level (Federal Court proceedings NG190 of 1997; NG 552 of 1997 between Lubrizol Corporation Inc and ICI Chemicals & Polymers Ltd (and others) over Australian Patent 638710).

<sup>130</sup> Namely, *Advanced Building Systems Pty Ltd v Ramset Fasteners (Aust) Pty Ltd* (1999) 44 IPR 481; *Aktiebolaget Hassle v Alphapharm Pty Ltd* (2000) 51 IPR 375; *Firebelt Pty Ltd v Brambles Australia Ltd (t/as Cleanaway)* (2000) 51 IPR 231, and (outside the period of the study), *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd* [2004] HCA 58 (18 November 2004). A special leave application was filed in relation to another included judgment, *Minnesota Mining & Manufacturing Co v Tyco Electronics Pty Ltd* (2002) 56 IPR 248, but was discontinued in December 2002. Note that special leave may have been sought in relation to other Full Federal Court decisions.

<sup>131</sup> Federal Court of Australia *Annual Report*, 2002-2003.

<sup>132</sup> *Ibid.*

<sup>133</sup> It should be noted, however, that the range of matters litigated in the Federal Court varies very significantly, from cases which are, in essence, a form of appeal from an administrative tribunal decision – as occurs in migration cases, or social security cases – through to highly complex commercial and tax cases. Aggregation at this very high level may not, therefore, provide a very accurate picture. It would be more useful if we could compare the appeal rates of the complex commercial cases, rather than “all federal court proceedings”. This data is unfortunately not available.

This high appeal rate may suggest that sorting occurs prior to the decision of the court in the original proceedings. Proceedings where the stakes are not sufficiently high to pursue to an appeal, and those where there is less uncertainty as to the outcome (and hence less likelihood of a lower decision being overturned) are presumably often settled prior to trial – or never filed. In those patent proceedings where parties are prepared to proceed all the way to trial, the case is sufficiently important, and/or uncertain, to take the matter through further avenues of appeal. This is consistent with our intuition, as we know that patent proceedings, even at the original level, are very expensive and risky, because the patent owner risks losing their patent.<sup>134</sup> Given the high stakes and costs, we would expect that the matter will be pursued through to an original decision only where the case is very important to both parties, and hence worth appealing.

The population of appeals is further dissected in Table 2 below. In this table, we report on which parties brought appeals<sup>135</sup> and the results they obtained on appeal. Note that by ‘results on appeal’ we refer only to whether the appeal was successful – regardless of what the grounds were for the appeal.<sup>136</sup> So, for example, a case in which the patent owner appeals to the High Court, and succeeds in having the Full Court judgment overturned, has ‘succeeded’ even if the result of the High Court judgment is that the matter is remitted for further consideration by the Full Federal Court. The figures therefore tell us little about the actual *outcomes* for patent owners and alleged infringers, which depend on the final determinations of the court on validity and infringement. These determinations reported in more detail later in this paper.<sup>137</sup>

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<sup>134</sup> See the discussion above Part 2.3.1, pp12ff.

<sup>135</sup> ‘Party bringing appeal’ means only the party who files a notice of appeal (*Federal Court Rules 1979* (Cth) Order 52 Rule 12; *High Court Rules 2004* (Cth) Rule 42.01) or cross-appeal (*Federal Court Rules 1979* (Cth) Order 52 Rule 22; *High Court Rules 2004* (Cth) Rule 42.08). It does not include those cases where a party files a notice of contention seeking to contend that the judgment should be affirmed on grounds other than those relied on by the court below (*Federal Court Rules 1979* (Cth) Order 52 Rule 22(3); *High Court Rules 2004* (Cth) Rule 42.08.5), since in these cases we assume that the arguments would not have been raised by the respondent but for the appeal by the other party. It is of course also possible that some cross-appeals would not have been brought had there not been an appeal already lodged, making the ‘both parties’ category somewhat heterogenous – it includes cases where both parties were sufficiently unhappy with the judgment below actively to seek a change, plus cross-appeals that happened because one party had already lodged an appeal.

<sup>136</sup> ‘success’ here also includes ‘partial success’ (the numbers being too small to distinguish between full and partial success in this context).

<sup>137</sup> See Parts 4.3 and 4.4 respectively.

**Table 2: Population of Appeals 1997-2003**

<b>Party bringing appeal</b>	<b>Result on appeal</b>	<b>Full Federal Court</b>	<b>High Court</b>	
<b>Patent Owner</b>	<b>Total number</b>	<b>6</b>	<b>4</b>	<b>10</b>
	Patent owner successful <sup>138</sup>	1	3	4
	Patent owner unsuccessful	5	1	6
<b>Alleged Infringer</b>	<b>Total number</b>	<b>5</b>	<b>0</b>	<b>5</b>
	Alleged infringer successful	2	0	2
	Alleged infringer unsuccessful	3	0	3
<b>Patent owner and alleged infringer</b>	<b>Total number</b>	<b>8</b>	<b>0</b>	<b>8</b>
	Patent owner successful	2	0	2
	Alleged infringer successful	5	0	5
	Both parties successful	1	0	1

A number of observations arise from Table 2. First, in the Full Federal Court, the numbers are about evenly split in terms of who brings the appeal: that is in the period 1997-2003, alleged infringers appealed from the decision at trial about as often as patent owners. Note also that there are a substantial number of cases where *both* parties appealed some aspect of the judgment. On the other hand, in the same period, only patent owners had appeals heard in the High Court of Australia.<sup>139</sup>

<sup>138</sup> 'Success' here is defined as 'successful in the appeal' (ie, on the matters appealed). It *includes* partial success

<sup>139</sup> Appeal to the High Court does not lie of right, but requires a grant of special leave: *Judiciary Act* 1903 (Cth) ss 35, 35AA, 35A. In fact, the High Court has exhibited some reluctance to take patent appeals, considering that in general the Full Federal Court should be the final court of appeal (see eg *CCOM Pty Ltd & Ors v Jiejing Pty Ltd & Ors* B26/1994 (10 March 1995). It would therefore not be appropriate to conclude, from the figures in Table 2 (ie the lack of judgments) that alleged infringers did not appeal to the High Court in the relevant period. It could be the case that alleged infringers had sought, but been refused leave to appeal. In fact, a perusal of the transcripts of special leave applications published online by AustLII <<http://www.austlii.edu.au>> indicates that while special leave has been refused between 1995 – 2003 in at least four patent cases, in each case the application for special leave was made by the patentee: see *Stack & Anor v Davies Shephard Pty Ltd & Ors* B41/2001 (26 June 2002); *Patent Gesellschaft AG v Saudi Livestock Transport and Trading Company* M8/1997 (6 June 1997); *CCOM Pty Ltd & Ors v Jiejing Pty Ltd & Ors* B26/1994 (10 March 1995); *Speedy Gantry Hire Pty Ltd v Preston Erection Pty Ltd & Anor* S2/1999 (6 August 1999). In other words, no alleged infringer has even sought special leave during the period of this study or for 2 years prior.

Further examination of Table 2 gives some indication as to why the figures fall this way. In the period studied, the patent owner failed in their Full Court appeal more often than the alleged infringer did. Five of the six appeals by a patent owner to the Full Court were unsuccessful, and where both parties appealed, the patent owner was successful or partly successful in three of the eight proceedings. Results for infringers on appeal were more evenly split (three failures as compared to two successes in infringer-only appeals). Patent owners enjoyed more success in their appeals before the High Court, succeeding in three of the four appeals. We have referred earlier in this paper to a perception among the profession that the Court, in particular the Federal Court, was ‘anti-patentee’.<sup>140</sup> It may be that low rate of success in Full Federal Court appeals is a source of such perceptions. It is natural that appeal judgments attract more attention particularly among the profession than decisions at first instance. We would argue, however, that the ‘score card’ in the terms presented in Table 2 is less important, for patentees’ purposes, than whether patents are ultimately (ie, in the final decision rendered by the court in the proceedings) being held valid, and/or infringed. These issues are considered further below, in Parts 4.3 and 4.4. In particular, in our analysis of validity and infringement we have been careful to record the *ultimate decision* of the court – whether trial court, intermediate appeal or High Court. We would argue that the figures look less ‘grim’ for patentees than is sometimes assumed.

#### **4.2 *Characteristics of litigated patents***

The next issue of interest relates to the characteristics of the litigated patents. It should be remembered here that in talking about ‘litigated’ patents, we are *only* talking about those patents which have been litigated through to judgment – itself a subset of all those patents in relation to which proceedings have been filed, and the following discussion needs to be read with that in mind. Since our dataset has both original decisions and appeals, there is not a one-to-one relationship between the number of patents and the number of proceedings. In the period studied, 39 patents were litigated through to a court

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<sup>140</sup> Above n11 and accompanying text.

decision,<sup>141</sup> of which 2 were litigated twice.<sup>142</sup> This is a small number, and means that we can present only very general information about the litigated patents, namely, the country of origin, the type of patents (petty or standard), and the age and type of technology embodied in the patent. This information is presented in Table 3.

**Table 3: Characteristics of Litigated Patents by Country of Origin**

<i>Country of Origin</i>	<i>Patent Type</i>	<i>No. of Patents</i>	<i>Average Age of Technology (Years)</i> <sup>143</sup>
<b>Australia</b>	Petty/innovation patent	5	4.64
	Standard patent	20	9.68
<b>United States</b>	Petty/innovation patent	2	2.54
	Standard patent	8	10.04
<b>Others<sup>a</sup></b>	Petty/innovation patent	0	0
	Standard patent	4	9.88
<b>TOTAL</b>	Petty/innovation patent	7	4.04
	Standard patent	32	9.82

Notes: <sup>a</sup> Others includes France, the UK and New Zealand.

This data is interesting, because we can treat ‘country of origin’ of the patent as a proxy for the country of origin of the technology to which the patent relates.<sup>144</sup> We can see that most of the patents litigated in Australian courts relate to patents for technologies having

<sup>141</sup> Since our dataset has both original decisions and appeals, there is not a one-to-one relationship between the number of patents and the number of proceedings. Complicating this even further is that some of the judgments involved multiple patents.

<sup>142</sup> Patent: # 526490 (*Sydney Cellulose Pty Ltd v Ceil Comfort Home Insulation Pty Ltd and Natural Fibre Pty Ltd v Natra-Cel Insulation Pty Ltd*); # 601974 (*Aktiebolaget Hassle v Alphapharm Pty Ltd and Aktiebolaget Hassle v Biochemie Australia Pty Ltd*).

<sup>143</sup> Data relating to the earliest priority date for the patent application and the IPC section were only available for 35 of the population of 41 patents.

<sup>144</sup> In the IP Australia PatAdmin database the ‘Country of origin’ for non-PCT applications is the country listed in the address of the first applicant in the patent application. This usually correlates to the country of the receiving office where the application was initially lodged, although occasionally applicants may chose to initially lodge an application in a country other than their own. For PCT applications the country of origin is that indicated by the PCT country code, which correlates to the country in which the PCT application was first lodged. In general, the distinction of most interest to us is the distinction between ‘Australian’ and ‘foreign’ patents, and here, it would seem that country of first application will be quite reliable. Given that Australia is a minor market, only companies based in Australia are likely to choose Australia as their country of first application. It seems *more* likely, however, that Australian patent applicants for Australian patents could choose to file first overseas, if that is the major or priority market (for example, filing in the US first).

their origin in Australia (25 of 39, or 64 per cent): the rest came from the US (26 per cent) and from other countries such as the UK, New Zealand and France (10 per cent). Most of the litigated patents in the population (over 80 per cent) are standard patents, while a small proportion are petty (or innovation) patents.<sup>145</sup> The average age of technology variable is calculated by determining the numbers of days elapsed between the date of earliest priority for the patent application (which was obtained by matching the data from the legal proceedings through the data from IP Australia on the patent details) and the date of issue of court proceedings.

The finding that the technology covered by 64 per cent of the *litigated* patents was Australian in origin is very striking when compared to data relating to patents *granted* in Australia. In the same period (1997-2003) an average of only 7.85 per cent of patents granted had their country of origin in Australia.<sup>146</sup> Striking, but not startling. We would expect that Australian companies (who are more likely to be involved in litigation involving patents the country of origin of which is Australia<sup>147</sup>) would be far more likely to litigate in Australia than foreign or multi-national companies, who are more likely to litigate in their own home market or in their most important markets (for example, the United States).<sup>148</sup>

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<sup>145</sup> From 1979 - 2000, Australia had a system for the grant of petty patents, designed to provide protection for small-scale innovations with a short commercial life. Petty patents were cheaper to obtain and lasted for 6 years. Following an ACIP Report (*Review of the Petty Patent System* (1995)) which suggested that the standard for obtaining petty patents was too high (not dissimilar to the standard patent system), in 2000 the petty patent system was replaced by the *Patents Amendment (Innovation Patents) Act 2000* (Cth) with 'innovation patents', which differ from standard patents in that (a) they have a term of 8 years, and (b) they require only an 'innovative step', not an 'inventive step' (*Patents Act 1990* (Cth) s 18(1A)(b)(ii)).

<sup>146</sup> Strictly speaking, to draw a comparison between this and the litigation rate we would need to build in a 'lag', looking at the application rates at the time when the patents being *litigated* in 1997-2003 were granted. Such a detailed analysis is beyond the scope of this paper. It is perhaps worth noting that in the preceding period (1990-1996), an average of 8.5 per cent of patents granted had Australia as the country of origin. Statistics taken from IP Australia website <<http://www.ipaustralia.gov.au>> (last visited 25 April 2005).

<sup>147</sup> We also acknowledge that we are engaging here in some elision here between the country of origin of the technology, and the nationality of the patent owner. We have not analysed the ownership of the patents, which would be a more complicated analysis. We are effectively using the country of origin of the technology as a 'proxy' for the ownership. Ideally we would analyse the nationality of the firms listed as owning the patents in IP Australia's database; this is, however, a more complicated analysis and beyond the scope of this study.

<sup>148</sup> Australian courts do sometimes become involved in multi-state patent litigation. The validity of the patents covering the same technology involved in the *Lossec* case, for example (*Aktiebolaget Hassle v Alphapharm Pty Ltd* (2002) 212 CLR 411) has also been litigated in the US (*Astra Aktiebolag v. Andrx Pharmaceuticals, Inc.* 222 F.Supp.2d 423 (S.D.N.Y. 2002)) and in the UK (Cairnstores Limited, Generics

Table 4 presents data on the type of technology embodied in the 33 litigated patents, which we determined using a UK system known as the OST Classification.<sup>149</sup>

**Table 4: Litigated Patents by Technology Type**

<i>OST Classification</i>	<i>Number</i>	<i>Per cent</i>
Electrical devices	1	3.03
Information technology	1	3.03
Analysis, measurement, control	1	3.03
Pharmaceuticals, cosmetics	3	9.09
Biotechnology	1	3.03
Basic chemical processing, petrol	5	15.15
Mechanical elements	8	24.24
Handling, printing	3	9.09
Agriculture/food machinery	3	9.09
Space technology, weapons	1	3.03
Consumer goods & equipment	1	3.03
Civil engineering, building, mining	5	15.15
<b>Total</b>	<b>33</b>	<b>100</b>

It is difficult to draw any significant conclusions from this information, particularly in the absence of readily available information on the number of patent cases filed with respect to the various forms of technology. We can, however, state that these results are broadly consistent with the patents found to be litigated in the US in Allison and Lemley's 1998 study, where a large proportion of the patents litigated were classified as "general" (a category which appears to include mechanical and engineering-related inventions) or chemical.<sup>150</sup>

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(UK) Limited v. Aktiebolaget Hässle [2002] EWHC 309) and Canada (*AB Hassle v. Genpharm Inc.* [2004] FCA 413). Such situations are, however, the exception rather than the rule, on the figures above.

<sup>149</sup> The international standard for classifying patented technologies is the International Patent Classification, or IPC, which was established by the *Strasbourg Agreement concerning the International Patent Classification (of 1971)*, which entered into force on October 7, 1975 and is administered by the World Intellectual Property Organisation. The IPC is used by patent offices world-wide. The IPC itself is not useful to categorise technologies as its classifications do not correspond to our common knowledge/common intuitions about technology types; nor does it correspond to common industry classifications. We have used the more useful categories, produced by the UK Office for Science and Technology (OST), which are based on a mapping of common industry classifications against IPC subtypes. The table mapping the OST Classifications against the IPC subclasses is available from IP Australia at <<http://www.ipaustralia.gov.au/pdfs/statistics/%20Technology%20Groups.doc>>.

<sup>150</sup> Allison and Lemley, above n62. Allison and Lemley do not appear to have applied any particular standard set of classifications in determining the technology class of the patent: Ibid at 203-204.

When this information was presented to some practitioners at a seminar, some surprise was expressed that there were not more litigated patents relating to pharmaceuticals. This highlights a feature of the information we are presenting, however: the only patents we have recorded here are those where there has been a judgment issued by the court in the period 1997-2003, relating to validity or infringement of the patent. In fact, at present there are several ongoing proceedings in the Federal Court which concern disputes over pharmaceutical patents, but none of these generated a validity or infringement decision in the period of the study.<sup>151</sup>

### 4.3 *Patent validity in the courts*

The information above gives us some information about patent litigation proceedings and the characteristics of litigated patents. While these issues are of interest to both practitioners and scholars alike, it is the outcomes of patent litigation that have been the subject of much of the debate. In order to analyse this, we change our unit of analysis in the following section. Rather than looking at information at the proceedings level, we look at **determinations** made by the court with regard to validity and infringement separately, as they relate to **each** patent considered by a court. In other words, where there were multiple patents in an individual proceeding, we have treated the determination on each patent separately.<sup>152</sup> Later, we return to the question of how often

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<sup>151</sup> As at 25 April 2005, there are several ongoing proceedings relating to pharmaceuticals. There is ongoing relating to paroxetine hydrochloride, an anti-depressant drug, between patent-owning companies in the SmithKline Beecham group and various assorted alleged infringers (N398/03; V105/03; N539/02; V362/02; V741/01 and N229/01). There is also ongoing litigation concerning pharmaceutical injectable hydrosol compositions – drugs which can be used to help prevent tissue rejection (V1163/03). There is also ongoing litigation concerning a dosage regimen of alendronate, to treat or prevent osteoporosis (N1211/02). In addition, since the period of this study Justice Heerey has handed down his decision in the Viagra litigation: *Eli Lilly and Company v Pfizer Overseas Pharmaceuticals* [2005] FCA 67. The existence of a number of patent proceedings relating to pharmaceuticals in the courts at present does *not* necessarily indicate that pharmaceutical cases settle more often – rather, that the technologies litigated through to judgment can vary over time, and we are only presenting a brief snapshot. Longer term data would be the only way to assess whether there was a trend. We have no way of telling, from available databases, how many cases are *filed* in relation to different technologies, which makes it impossible to tell whether certain cases settle more often.

<sup>152</sup> The implications of our approach are that we will have a different number of “determinations” than there were “proceedings” (as reported above). The number of determinations is also not the same as the number of decisions issued by the courts in the period – one judgment may have up to 6 determinations, for

the patent owner was successful overall in showing that their patent was valid and infringed.

#### 4.3.1 *Patent validity determinations*

The data on the outcome of patent determinations is presented in Table 5. In total, there were 53 determinations on patent validity: 34 were original determinations and 19 were determinations made on appeal.<sup>153</sup> We have also tabulated data on ultimate determinations, of which there were 32 in our dataset.<sup>154</sup> From both a legal and economic perspective, ultimate determinations are the most important to consider: a patent owner who wins at trial and in the Full Federal Court, but has lost in the High Court still lost, even though a majority of the determinations were favourable.

**Table 5: Patent Validity Determinations, 1997-2003**

Determination	Original Determinations		Appeal determinations		Ultimate Determinations	
	No.	Percentage of original determinations	No.	Percentage of appeal determinations	No.	Percentage of ultimate determinations
All litigated claims upheld	14	41	5	26	15	47
Some litigated claims upheld	7	21	3	16	3	9
No litigated claims upheld	13	38	11	58	14	44
<b>Total</b>	<b>34</b>	<b>100</b>	<b>19</b>	<b>100</b>	<b>32</b>	<b>100</b>

Looking first at the original determinations, the data show that patent owners had all of their claims upheld in 14 (or 41 per cent) of original determinations, some of their (litigated) claims upheld in 7 (21 per cent), and no litigated claims upheld in 13 (38 per cent). Note that the ‘some litigated claims upheld’ category is heterogeneous: it could

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example, where three patents were litigated, and the court made a finding in relation to validity and infringement on each.

<sup>153</sup> In addition, there were 16 instances where there was no determination on patent validity. The definition of “not determined” is given above, n104. Reasons why validity might not be determined in any given judgment are explained in above n103.

<sup>154</sup> For our discussion of ‘ultimate decisions’, see above nn 99-100

include a case in which 1 of 30 claims was upheld and one in which 29 of 30 claims were upheld.<sup>155</sup>

The figure of 21 per cent of patents being held *partially* valid – ie having some claims upheld – is quite a high proportion compared with similar studies in the United States. In their 1998 study, Allison and Lemley found that the US federal courts disaggregated claims in only 2.3 per cent of the patents litigated. This suggests that Australian courts appear to be using this method for narrowing patents more often than US Courts.<sup>156</sup>

On appeal, the situation is slightly worse for patent owners: the percentage of cases where all litigated claims were upheld for patent owners fell to 26 per cent while the percentage of cases where the patents had no claims upheld increased to 58 per cent. But in considering these figures we must take into account the underlying population of appeal cases. The subset of patents where validity is in issue in the appeal may be a weaker set, because it does not include those patents where findings of validity at trial were not challenged.<sup>157</sup> Actually, however, of the patents which generated a finding on validity on appeal, only 47 per cent (9 of the 19) were held invalid at trial, with a further four being held partially valid. A further 6 were held valid at trial. This is not an

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<sup>155</sup> So, for example, we classify *Doric Products Pty Ltd v Lockwood Security Products Pty Ltd* (2001) 53 IPR 270, where the trial judge held that claims 1-32 were invalid, and only claim 33 was valid, as a partial win. This could seem anomalous to a patent owner, given that, in the *Doric* case, in fact it was not argued that Claim 33 was infringed – hence, the patent owner ‘lost’ on the validity of all the claims that mattered to the patentee in that litigation. Arguably, we could have tried to assess whether the patent owner succeeded in relation to the validity of the claims that were ‘important to them’, or those which were being litigated in the case. By retaining a category of ‘some claims upheld’, even if heterogenous, enables us to recognise the fact that in the *Doric* case, following a judgment upholding only one claim, a patent still exists as a public instrument which describes and defines continuing monopoly rights: *Welch Perrin & Co Pty Ltd v Worrel* (1961) 106 CLR 588 at 610.

<sup>156</sup> Note, however, that it is possible the American courts are narrowing patents by other means. It has been argued that since the Federal Circuit was instituted in the 1980s, the courts in the US have been more willing to find a patent valid – but less willing to find it infringed, a fact reflected in their adoption of narrow construction of patent claims in the US: see Glynn S. Lunney Jr, “Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution” (2004) 11 *Sup. Ct. Econ. Rev.* 1. It is possible that in the US, just as here, patent owners post-litigation are ending up with narrower patents than what they thought they started with.

<sup>157</sup> There are two proceedings, relating to 5 patents in our dataset where an original win on validity does not appear to have been in issue at all on appeal: in *Pinefair Pty Ltd & Anor v Bedford Industries Rehabilitation Association Inc* (1998) 42 IPR 330, and in *Bartlem Pty Ltd v Cox Industries (Australia) Pty Ltd* (2002) 55 IPR 449.

overwhelmingly weak set of patents. In fact, as illustrated in the next part, patent owners on the whole ended up slightly worse off after appeals (see below Part 4.3.2).

But, as we noted earlier in this paper, it is easy to focus only on appeals, which tend to attract more attention from practitioners, and lose site of the cases that are not appealed. A better overall measure of findings on validity is to look at the ultimate determinations. Here, the outcome for patent owners looks much better: all of their claims are upheld in 15 of 32 determinations (47 per cent) of cases and partially upheld in a further 3 determinations (9 per cent). It is worth noting that these results are quite different to those found by Justice Drummond in his earlier study. Justice Drummond found that the patent was revoked in 38 out of 59 proceedings, or 64 per cent of the time.<sup>158</sup> However, using our data, patents have only been held invalid by the courts in 14 of 32 ultimate determinations, or 44 per cent of the time.<sup>159</sup>

International comparisons are of limited use, for the reasons we have already outlined above.<sup>160</sup> For what it is worth, however, our figures are in line with one of the US studies of outcomes on validity. Allison and Lemley, in their 1998 study, found that patents were held valid 54 per cent of the time, and invalid 46 per cent of the time.<sup>161</sup> Other US studies have found higher rates of success for patent owners, with both Landes and Posner and Moore finding success rates of 67 per cent for the patent owner on validity.<sup>162</sup> However in the US patents have a presumption of validity in the courts which is absent in Australia.<sup>163</sup>

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<sup>158</sup> In fact, Justice Drummond counted *both* appeal *and* trial decisions cumulatively. If we did that, using our figures, we find that at least some claims were upheld in 29 out of 53 determinations (55 percent), and that patents were revoked in only 24 determinations (45 per cent).

<sup>159</sup> This comparison must be qualified – although it is not entirely clear from the paper, it appears that Justice Drummond looked at “proceedings” rather than separating out the patents and looking at how many *patents* were upheld, overall. On recalculation looking at the same proceedings his Honour looked at, it appears that patent owners may have done slightly better than the original figures indicated: of the 64 patent validity determinations, validity was upheld in 26.

<sup>160</sup> See above Part 2.4, nn64-68 and accompanying text.

<sup>161</sup> Allison and Lemley, above n62.

<sup>162</sup> Moore, “Empirical Peek”, above n63, Landes and Posner, above n20.

<sup>163</sup> See above nn 65 and 66.

#### 4.3.2 Are findings on validity upheld on appeal?

Another issue that patentees might be interested in is whether trial court determinations on validity are upheld on appeal. We do not have extensive figures on this issue as yet, because we have a relatively small number of cases – 16 in total – in our 6 year period where we have **both** the original **and** the appeal decision on validity. What we do have, however, is shown in this matrix in Figure 3. The shaded squares are the situations where the Appeal court upholds the trial court’s findings on validity.

**Figure 3: Validity Determinations: Original and Appeal<sup>164</sup>**

		ORIGINAL		
		Win	Partial Win	Loss
APPEAL	Win	3	-	1
	Partial Win	1	2	-
	Loss	1	3	5

One feature of this table is particularly striking. In a majority of the cases (10 of the 16 cases), the appeal court **upheld** the finding of the trial court on validity.<sup>165</sup> In 6 cases, the finding of the trial court was overturned: however note that in only one of those cases was the shift in favour of the patentee – (i.e. from invalid to valid).<sup>166</sup> In the other 5 cases the patentee was **worse off** after the appeal court stepped in: either because:

<sup>164</sup> A “win” corresponds to all of the patent claims being upheld, a “partial win” means that only some claims were upheld, while a “loss” means that none of the patent claims were upheld. Data on judgments where infringement determinations were not made were also included since it was often the case that infringement was not determined if the patent was found to be invalid.

<sup>165</sup> This is expected, given the standards of review being applied: see nn112-114 and accompanying text.

<sup>166</sup> *Minnesota Mining & Manufacturing Co v Tyco Electronics Pty Ltd* (2002) 56 IPR 248

- The patent went from valid to invalid (one case);<sup>167</sup>
- The patent went from partially valid to invalid (3 cases);<sup>168</sup>
- The patent went from valid to partially valid (one case).<sup>169</sup>

This is consistent with the information reported above in Table 2<sup>170</sup> in which it was noted that patentees particularly in the Full Federal Court had a lower rate of success in the period 1997-2003 than alleged infringers.

It should be noted that there is ample opportunity for appeal courts to overturn findings of trial judges in relation to the validity of a patent, as most grounds of invalidity involve a combination of questions of fact and questions of law.<sup>171</sup> The issue of whether an invention lacks an inventive step, or is anticipated by a prior publication or act are questions of fact. Appeal courts are reluctant to interfere with such findings, conscious of the significant advantage of a trial judge who has had the benefit of a longer, more detailed education in the relevant technology.<sup>172</sup> However, *construction* of the claims in

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<sup>167</sup> *Arico Trading International Pty Ltd v Kimberley-Clark Australia Pty Ltd* (1999) 46 IPR 1 – although note that this finding was overturned by the High Court of Australia, which remitted the case back to the Full Federal Court: *Kimberley-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* (2001) 207 CLR 1

<sup>168</sup> Citing the appeal decisions only: *Preston Erection Pty Ltd v Speedy Gantry Hire Ltd* (1998) 43 IPR 74; *Atlantis Corporation Pty Ltd & Anor v Peter Schindler & Ors* (1997) 39 IPR 29; and *Doric Products Pty Ltd v Lockwood Security Products Pty Ltd* (2001) 53 IPR 270.

<sup>169</sup> *Grove Hill Pty Ltd v Great Western Corp Pty Ltd* (2002) 55 IPR 257.

<sup>170</sup> See above n135-140 and accompanying text

<sup>171</sup> The most ‘factual’ of the grounds is obviousness, which is often referred to as a ‘jury question’: *Aktiebolaget Hassle v Alphapharm Pty Ltd* (2002) 212 CLR 411 at [79] (Gleeson, Gaudron, Gummow and Hayne JJ), [85] (McHugh J), [151] (Kirby J). However, it is possible for judges even at the highest levels to disagree as to whether a given appeal raises questions of fact (upon which the trial judge’s decision should be respected) or questions of law. For example, in *Aktiebolaget Hassle v Alphapharm Pty Ltd* (2002) 212 CLR 411, while the majority held that there had been errors of law by both trial judge and Full Federal Court, the dissenting Judges (Justice McHugh and Justice Kirby) both argued that the case ‘really concerned factual findings and reasoning’ (per McHugh J at [89]).

<sup>172</sup> *Azuko Pty Ltd v Old Digger Pty Ltd* (2001) 52 IPR 75 at 123 [152] (Gyles J). Australian appeal courts have also frequently cited the dicta of Lord Hoffmann in *Biogen v Medeva plc* [1997] RPC 1 at 45, where his Lordship notes that appellate caution is required ‘because specific findings of fact, even by the most meticulous judge, are inherently an incomplete statement of the impression which was made upon him by the primary evidence. His expressed findings are always surrounded by a penumbra of imprecision as to emphasis, relative weight, minor qualification and nuance (as Renan said, *la vérité est dans une nuance*), of which time and language do not permit exact expression, but which may play an important part in the judge’s overall evaluation.’

a patent is a question of law,<sup>173</sup> and an appeal court which takes a different view on the proper construction of the claims may quite easily reach a different result from that reached by the trial judge.

#### 4.3.3 *Grounds of invalidity*

Why do patentees lose on validity? We have tabulated the grounds used by the courts revoking some, or all of the claims in the litigated patents in Table 6.<sup>174</sup> We have also reported the percentage of determinations in which specific grounds for invalidity were used by the court. For example, we have 20 determinations where a trial court revoked some or all of the patent claims. In 3 of those cases, manner of manufacture was reported as one of the grounds for invalidity. Therefore, manner of manufacture was a ground for invalidity in 15 per cent of the relevant original judgment determinations.<sup>175</sup> Similarly, 50 per cent of original judgments where the patent owner lost (or was partially unsuccessful) had obviousness as one of the grounds.

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<sup>173</sup> *General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd* [1972] RPC 457 at 485. See similarly in the US, where claim interpretation is a question of law for the court, not a question of fact for the jury: *Markman v Westview Instruments Inc* (1996) 116 S. Ct. 1384

<sup>174</sup> Note that the table does not list *all* grounds which a court *could* use to invalidate a patent claim. Grounds not listed here were not used by a court in the relevant period.

<sup>175</sup> Note that individual patents can be found invalid on multiple grounds and, therefore, that the percentages presented in each column of Table 6 will not add to 100. Furthermore, not every partial win necessarily has a ground for invalidity. In one case, three claims were held valid, and a further four were remitted to a lower court for further consideration. We have counted this as a partial win, however because no claim was actually held invalid, there are no grounds of invalidity. This occurred in only one case.

**Table 6: Grounds for Patent Invalidity**

Grounds for Invalidity	Original Determination (n=20) <sup>176</sup>	Appeal Determination (n = 14) <sup>177</sup>	Ultimate Determination (n = 17) <sup>178</sup>
Manner of manufacture	3 (15%)	0	1 (6%)
Entitlement	1 (5%)	1 (7%)	1 (6%)
Novelty	8 (40%)	4 (29%)	8 (47%)
Obviousness	10 (50%)	4 (29%)	6 (35%)
Fair basis (s 40(3)) <sup>179</sup>	9 (45%)	3 (21%)	5 (29%)
Description (s 40(2))	2 (10%)	2 (14%)	2 (12%)
Utility	1 (5%)	0	0
Clarity	3 (15%)	2 (14%)	5 (29%)

As we can see from Table 6, overall, the most common grounds for invalidity were novelty, obviousness and fair basis.<sup>180</sup>

Is this in line with what we would expect? We would expect, if the patent examination system is working properly, that the grounds of invalidity which succeed in court would be grounds where either:

1. they are not examined by IP Australia, such as utility, secret use, or anticipation through prior acts;<sup>181</sup> or
2. they are more difficult to examine in the absence of expert evidence, such as lack of inventive step (obviousness).<sup>182</sup>

<sup>176</sup> Source: Table 5, above (figure obtained by adding number of original determinations where some or all patent claims were held invalid i.e. 7+13).

<sup>177</sup> Source: Table 5, above (figure obtained by adding number of appeal determinations where some or all patent claims were held invalid i.e. 3+11).

<sup>178</sup> Source: Table 5, above (figure obtained by adding number of ultimate determinations where some or all patent claims were held invalid, i.e. 3+14).

<sup>179</sup> Does not include “external” or “priority” fair basing – meaning the requirement, under s 43(2) and *Patents Regulations* 1991 (Cth) Reg. 3.12(1)(b) that the complete specification be ‘fairly based’ on the provisional specification (see Amanda McBratney, “The Problem Child in Australian Patent Law: ‘Fair’ Basing” (2001) 12 *AIPJ* 211, 212.) The consequence of a finding that a complete specification is not fairly based on the provisional is that the earlier priority date is lost. The practical consequence of this may be that the patentee finds that novelty is lost as a result of their own conduct occurring between the date of filing the provisional, and the date of filing of the complete specification.

<sup>180</sup> We will have to see whether this changes following the High Court decision in *Lockwood v Doric* (see above n130. *Lockwood* considered internal fair basing as a ground of invalidity.

<sup>181</sup> None of these form matters which will be examined under the *Patents Act* 1990 (Cth), s.45.

<sup>182</sup> Inventive step is difficult to examine, because the test under the *Act* requires an assessment of whether the invention would have been obvious to a “person skilled in the relevant art in light of the common general knowledge”: s.7(2). However examiners, unlike courts, do not have access to evidence from the person skilled in the art.

To the extent that other grounds come up, it may indicate that the law in relation to the ground is particularly uncertain, or that there is a difference between the approach at examination and the approach being applied by the courts.

Considering Table 6, the relatively high number of findings of ‘obviousness’ is not surprising, but the prevalence of novelty and fair basis warrants further examination. First, consider novelty. An invention lacks novelty only if all the essential integers of the invention are found in a prior publication.<sup>183</sup> *Prima facie*, novelty ought to be accurately determined during examination. A patent examiner should, in theory, be able to locate and assess any prior publications in the form of documents. The exception would be where the invention has been anticipated by an act rather than a document.<sup>184</sup> One explanation might be that some of these novelty cases were in fact ‘external’ fair basing cases where loss of priority date under s 43 has led to anticipation by the patentee’s own acts between the filing of the provisional specification and the complete specification – an area of law where the Federal Court has been criticized for being unduly harsh on patentees.<sup>185</sup> In fact, however, only one case within the period studied was of this kind.<sup>186</sup> Further examination of the cases shows that in only two cases was anticipation through acts an issue.<sup>187</sup> In the majority of the cases, anticipation occurred through a document (usually a patent), published prior to the priority date. This may be an issue warranting further, more detailed consideration.<sup>188</sup>

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<sup>183</sup> *Patents Act* 1990 (Cth) s 7(1); 18(1)(b)(i); *MJA Scientifics International Pty Ltd v SC Johnson & Son Pty Ltd* (1998) 43 IPR 287 at 303; *Meyers Taylor Pty Ltd v Vicarr Industries Ltd* (1977) 137 CLR 228 at 235 (the reverse infringement test).

<sup>184</sup> Patent examiners do not look at anticipation through prior acts: they only look at the prior art base as it is embodied in documents: *Patents Act* 1990 (Cth) s.45(1A).

<sup>185</sup> McBratney, above n179.

<sup>186</sup> *Atlantis Corporation Pty Ltd v Schindler & Ors* (1997) 39 IPR 29.

<sup>187</sup> *Doric Products Pty Ltd v Lockwood Security Products Pty Ltd* (2001) 53 IPR 270; *Atlantis Corporation Pty Ltd v Schindler & Ors* (1997) 39 IPR 29.

<sup>188</sup> For example, one issue worth examining would be whether the prior art documentation was available to, or at least seen by, the patent office. If the document *was* seen by the examiner, it would be worth considering whether different results resulted from a different interpretation of the two documents, or whether the examiner did not appreciate the significance of the document. If the examiner did *not* have the document, this might raise questions about the quality of the search. We are grateful to an anonymous referee for this point.

The number of cases where fair basing (meaning internal fair basing under s 40(3)) is a ground of invalidity also seems high, given that it is a ground examined by IP Australia.<sup>189</sup> The frequency with which this ground is raised may indicate a lack of certainty in the law in this area, which would certainly be consistent with criticisms found in the literature.<sup>190</sup> On the other hand, it could indicate that while the law is relatively certain, its *application* involves difficult judgments on which courts may differ (and, being questions of construction, and thus questions of law,<sup>191</sup> issues where an appeal court will feel more justified in taking a different view.) It will be interesting to see whether, in the future, the High Court decision in *Lockwood* leads to any reduction in reliance on this ground of invalidity.<sup>192</sup>

#### 4.4 *Patent infringement in the courts*

The data on patent infringement determinations are presented in Table 7. In total, there were 48 determinations on patent infringement: 31 were original determinations, and 17 were appeals.<sup>193</sup> We have also tabulated data on ultimate determinations, of which there were 29 that related to infringement in our dataset.

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<sup>189</sup> In fact, according to the current manual, “[l]ack of fair basis is a significant issue under the Quality Standards for Patent Examination, and therefore must be objected to if the examiner considers it to have occurred”: *Australian Patent Office Manual of Practice and Procedure*, Vol 2. [10.7.3.1].

<sup>190</sup> McBratney, above n179; see also Advisory Council on Industrial Property, above n 7, at [5.3.2] (making recommendations about this ground).

<sup>191</sup> See above n173

<sup>192</sup> *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd* [2004] HCA 58 (18 November 2004).

<sup>193</sup> In addition, there were 21 instances where there was no determination on patent infringement and 4 instances where issues relating to patent infringement were not applicable. This number is higher than the number of non-determinations on validity (see above n153), probably because in many cases where a patent is held invalid, the court does not go on to make a determination on infringement.

**Table 7: Patent Infringement Determinations, 1997-2003**

Determination	Original Determinations		Appeal Determinations		Ultimate Determinations	
	No.	Percentage of original determinations	No.	Percentage of appeal determinations	No.	Percentage of ultimate determinations
All allegations upheld	15	48	10	59	16	55
Some allegations upheld	0	0	1	6	1	4 <sup>194</sup>
No allegations upheld	16	52	6	35	12	41
<b>Total</b>	<b>31</b>	<b>100</b>	<b>17</b>	<b>100</b>	<b>29</b>	<b>100</b>

The first observation to make about the infringement data is that unlike validity, infringement determinations are generally binary: that is, they typically result in either complete success (all allegations upheld) or failure (no allegations upheld). This is not surprising: most cases concern one alleged infringing product.<sup>195</sup>

Looking at the original infringement determinations, we can see that patent owners in the period studied won on infringement almost as often as they lost. However, on appeal, the story is quite different: the percentage of patent owners that won on appeal increased to 59 per cent, whereas the alleged infringers only won in 35 per cent of cases. With regard to ultimate determinations, the situation is quite similar to appeals: patent owners are more likely to have all or some of their allegations of infringement upheld.

The appeal figures are even more striking when we consider the underlying population of appeals which generated a finding on infringement. Of the 17 appeal determinations, eight had a finding of infringement at trial, and in eight there was no infringement.<sup>196</sup> We are not starting out from a base where the appeal court is simply affirming existing findings of infringement. In other words, in those cases where an appeal court made a

<sup>194</sup> This has been rounded to 4 although it is in fact only 3.44 per cent, in order to ensure the percentages sum to 100.

<sup>195</sup> In one case, however (*Theta Developments Pty Ltd v Leonardis* [2002] FCAFC 170) there were three separate products which were alleged to infringe the patent. A majority of the Full Federal Court held that one of the three products infringed the patent. Dowsett J dissented, finding that two of the products were infringements.

<sup>196</sup> In the one remaining case, *Advanced Building Systems Pty Ltd v Ramset Fasteners (Aust) Pty Ltd* (1998) 194 CLR 171, there was no determination on infringement immediately below (in the Full Federal Court, which had held the patent invalid). At trial, Justice Hill held that the patent was not infringed by the conduct of the alleged infringer: *Advanced Building Systems Pty Ltd v Ramset Fasteners (Aust) Pty Ltd* (1995) AIPC 91-129

finding on infringement, the infringer was more often *worse off* than they were better off – the appeal court more often shifting the finding on infringement in favour of the patentee.<sup>197</sup> This is a finding which warrants further examination: it may be that appeal courts have taken a different approach in construing the patent which has been more generous to the patentee (at least on infringement<sup>198</sup>). Without a detailed examination of the reasoning in the cases, it is not possible to test this theory.

It is also important to see these results in context, and in particular, in the context of the interaction between validity and infringement determinations. As we noted earlier in this paper, the alleged infringer need only win on one of the two issues: validity, *or* infringement, to avoid liability.<sup>199</sup> Further examination of the underlying cases reveals that there are a further five patent appeal decisions in the dataset where the alleged infringer was held to have infringed at trial, but where the patent was held invalid on appeal, resulting in an effective win for the infringer, even though there was no determination by the appeal court relating to infringement. These cases are not represented in Table 7.

#### **4.5 *Interaction of validity and infringement determinations***

As we have already seen, there are a number of permutations associated with each judgment: some deal only with infringement, some only deal with validity, while others deal with both. The analysis thus far has separated determinations on infringement from those on validity since each determination has economic significance and interest in its own right. However, we (and patent owners) are also interested in the interaction

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<sup>197</sup> Note that, as with validity, infringement raises mixed questions of fact and law: construction of the claims is a question of law (see above n173), but whether the alleged infringement falls within the scope of the claims is a question of fact: *Clarke v Adie* (1875) LR 10 Ch App 667 at 675.

<sup>198</sup> Noting that a ‘generous’ (ie broader) construction of the claims which makes infringement more likely may also, in some cases, put in question the validity of the patent. In the United States, commentators have noted that the Court of Appeals for the Federal Circuit has taken an approach of construing patents narrowly, where patents are more likely to be valid, but less likely to be infringed: see Glynn S. Lunney, Jr, ‘Patent Law, the Federal Circuit, and the Supreme Court: a Quiet Revolution’ (2004) 11 *Supreme Court Economic Review* 1

<sup>199</sup> See above n35 and accompanying text.

between the two determinations: what happens in those decisions where there are both infringement and validity determinations?

For these purposes, it is worthwhile putting the results in a **matrix**, because there are all kinds of possible permutations – and we may be interested in all of them.

**Table 8: Interaction Between Validity and Infringement Determinations<sup>200</sup>**

		VALIDITY			Total
		Win	Partial Win	Loss	
INFRINGEMENT	Win	13	6	4 <sup>201</sup>	23
	ND	-	-	12	12
	Loss	7	3	5	15
Total		20	9	21	50

In total, there are 50 judgments<sup>202</sup> where there were determinations on both infringement and validity, which are presented in Table 8. Of the 50 judgments considered here, there were 13 instances (26 per cent) where the patent owner was successful on both validity and infringement, while there an additional 6 instances (12 per cent) where the patent was found partially valid (i.e. the scope of the patent was determined by the court to be narrower than originally claimed by the owner) but the alleged infringement was still

<sup>200</sup> A “win” corresponds to all of the patent claims being upheld, a “partial win” means that only some claims were upheld, while a “loss” means that none of the patent claims were upheld. Data on judgments where infringement determinations were not made were also included since it was often the case that infringement was not determined if the patent was found to be invalid. “ND”, in relation to infringement, means there was ‘no determination’ on infringement. This often occurs where there is a loss on validity, where the court does not go on to consider whether the invalid patent (or claim) was infringed.

<sup>201</sup> This result, of course, looks like a nonsense: an invalid patent cannot be infringed. However, trial courts will often make findings on infringement even where they find a patent invalid – because it is more efficient to make that finding while all the evidence is before them: for example, in the *Losec* litigation: discussed above n 34.

<sup>202</sup> This includes both original and appeal decisions

confirmed. Note that this total success rate of 38 per cent is *higher* than Justice Drummond found in his 2000 study, in which he found that the patent owner succeeded overall in only 20 per cent of cases. The key reason for any difference is that we have looked at a different period from his Honour: our study period is from 1997-2003; his Honour looked at cases from 1990-2000 reported in the *Intellectual Property Reports*.

It is important to note what these figures do *not* say. We can not conclude, from this study, that in the more recent period patentees had a higher chance of winning. Drawing such a conclusion would require us either (a) to engage in some assessment of the underlying quality of the cases, to show that lower quality cases were winning in the later period – an invidious attempt at best, or (b) to engage in a study over a much longer period to attempt to assess more long term trends. It is worth noting that in the US, where academics have worked with much larger sets of cases, researchers have found that patentee win rates can vary significantly from year to year.<sup>203</sup> All we can say on the short period, and small sample that we here report is that patentees *were* more often successful in fact. This is still relevant, because it may dispel, in part, a perception that the 20 per cent figure reported by Justice Drummond is a consistent rate.

The data also confirm the importance of separating the two dimensions of enforcement since there were 7 instances where the patent was found valid but the alleged infringement was not confirmed. Furthermore, there were 3 instances where the patent owner was partially successful on validity, but lost on infringement.

## 5 Conclusions

What conclusions can we draw from this study? First, and most importantly, we hope that readers of this paper will take away a more sophisticated understanding of the complex factors that bear on patent litigation and its outcomes. There are very real reasons why patents are, not a simple property right, but very expensive lottery tickets: a right to *attempt* to enforce the patent, and not an absolute monopoly in the technology

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<sup>203</sup> See, for example, Moore, 'Empirical Peek' above n45.

described in the patent application. At a time when patents, and patent litigation, have become more important, and more controversial, it is very important to bear in mind the serious – and *inevitable* – uncertainty these rights entail.

Second, we hope that the reader has a better picture of how the patent enforcement system has been working over the period 1997-2003. If nothing else, we have the facts: how long the litigation has taken, on average; what results obtained; what grounds of invalidity succeeded.

The main result from the analysis of the patent litigation data is that, with regard to ultimate determinations, patent owners are more likely to have at least some of their claims upheld in both validity and infringement than they are to lose all of their claims. This is a significantly different result from that presented in earlier research and suggests that claims of anti-patent bias within the Australian courts are at least exaggerated. It also tends to suggest that the call for specialist courts to hear patent disputes in Australia in order to provide certainty and lower litigation costs may be premature. Importantly, we have also shown that in the immediate past, win rates for patentees were not as low as has been reported for earlier periods in earlier studies. In 38 per cent of the instances where a court considered a patent, it has held that patent both valid, and infringed. This is higher than the 20 per cent rate reported by Justice Drummond in 2000, although caution must be exercised: the numbers in both studies were relatively small.

More study detailed study is required on a number of issues in order to make a better assessment of what this means for the Australian patent system and IP Australia. We would like to emphasise that we see this study as a first step, not a last, in gaining a better understanding of the patent system, and whether, overall, it serves the ends for which it was designed. As we have noted, this study feeds into a rapidly expanding literature on the granting, examination of, opposition to, and enforcement of patents. We hope, in the future, to look at further questions, particularly relating to who is litigating, and how litigation affects firm performance. More research will also be done on litigation processes in order to improve our understanding of how patent characteristics affect the

likelihood of being litigated. This work is currently underway at IPRIA with efforts being undertaken to construct a database on patent disputes that result in court filings, which can then be compared the characteristics of the population of all patent rights in existence and to those disputes that end up in a judgment. Another step which we could take is to look at the relationship between litigated patents and the opposition procedure. Work by Dietmar Harhoff and others found that the European patent opposition system is effective in identifying important patents. Patents that survived an opposition proceeding are more valuable than any other type of patent.<sup>204</sup> While the ‘black box’ has been opened a little, there is much we do not yet know.

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<sup>204</sup> Dietmar Harhoff, Frederic M.Scherer, Katrin Vopel “Citations, Family Size, Opposition and the Value of Patent Rights” (2002) 1596 *Research Policy* 1.