

**DAMAGES CALCULATIONS IN
INTELLECTUAL PROPERTY CASES IN CANADA**

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1.0 INTRODUCTION

In intellectual property cases, there are two types of monetary remedy: damages and an accounting of profits.¹ Damages represent the patentee's loss and are the default remedy in the sense that a court is obliged to award damages on proof of infringement and consequent loss.

This publication focuses on damages in patent cases, although the reasoning generally applies in trade-mark and copyright cases. It revises an earlier article published in 2001.² A companion piece deals with the accounting of profits remedy.³

1.1 Basic Principles

Damage principles in intellectual property cases are generally consistent with a modern understanding of general tort principles. This was emphasized by the English Court of Appeal in *Gerber Garment v. Lectra*:

Infringement of a patent is a statutory tort; and in the ordinary way one would expect the damage recoverable to be governed by the same rules as with many or most other torts. We were referred to Halsbury's Laws of England ... to establish the elementary rules (1) that the overriding principle is that the victim should be restored to the position he or she would have been in if no harm had been done, and (2) that the victim can recover loss which was (i) foreseeable, (ii) caused by the wrong, and (iii) not excluded from recovery by public or social policy. The requirement of causation is sometimes confused with foreseeability, which is remoteness.⁴

The plaintiff bears the burden of proving its loss, and damages are compensatory, not punitive.⁵

1.1.1 Causation: The "But For" Test

The "but for" requirement, which establishes causation, is central in intellectual property damages. Only the harm caused by an infringement is compensable as damages. Damages are measured by the difference between the actual position of the plaintiff and the position of the plaintiff *but for* the infringement: the position of the plaintiff if the infringement had not occurred.⁶

The "but for" test requires an answer to the necessarily hypothetical question of what would have happened if the defendant had not infringed.⁷ Assessing what would have happened can be difficult to do because the market for products and services is dynamic, subject to the forces of competition and continuing innovation, and fluctuating in response to advertising, distribution, microeconomic factors internal to the business, and macro factors external to the business. The notion that the plaintiff would have continued in exactly the same manner as it was just prior to the infringement is rarely sound. Consequently,

only well-thought-out models and related assumptions can simulate the “but for” result.

To investigate the “but for” position, it is necessary to determine how the plaintiff would have exploited the intellectual property. The answer is inferred from the operating reality of the rights holder. Actual historical patterns are important evidence, of course, but business plans, strategic plans, budgets, mission and vision statements, and the like must also be considered. With long-established businesses, one can determine the most likely exploitation plan by examining established strategy. With early-stage technology companies, one must rely much more on “what if” scenarios.

For these reasons, assessing damages in intellectual property cases requires a blend of judgment and principle. As Lord Shaw stated in *Watson, Laidlaw & Co.*, “[t]he restoration by way of compensation is therefore accomplished to a large extent by the exercise of a sound imagination and the practice of the broad axe.”⁸

1.1.2 Other Limits on Recovery: Remoteness and Foreseeability

Causation is not the only limit on recovery. Losses that are in fact caused by an infringement may nonetheless be unrecoverable if they are too remote. As the quotation from *Gerber v. Lectra* indicates, in modern tort law “remoteness” is not a test but a label for the conclusion that losses that satisfy the causation requirement should nonetheless be excluded. A conclusion that a loss is too remote is always based on some reason of “public or social policy”; a simple assertion that a loss is “too remote” is not usually accepted as persuasive.

The foreseeability requirement (a form of remoteness) is the best established limit on recovery in tort law apart from causation.⁹ Generally, however, it plays little role in intellectual property cases, since it is only the nature of the loss, and not its extent, that needs to be foreseeable.¹⁰ Because the nature of the typical loss in intellectual property cases—lost sales or licensing revenues—is always foreseeable, the foreseeability requirement is usually easily satisfied.¹¹

In *Gerber v. Lectra*, the Patent Court and the English Court of Appeal extensively discussed remoteness in patent cases, holding that while remoteness does operate in intellectual property cases separately from questions of causation or foreseeability, it should not be based on an amorphous fear of “extending the monopoly of the patent”:

Given that one can foresee these losses, why should the law not provide that the defendant must recompense the plaintiff? And all the more so where the defendant gets a corresponding benefit from his wrong. If that benefit were large enough it might pay the defendant to commit the wrong. ...

I think this is a very powerful policy reason for holding that these

ancillary damages [springboard and convoyed sales damages] are recoverable. The supposed counter-argument is that articulated by Goff L.J.: that one is thereby setting up a wider monopoly than that provided by the patent. However, upon analysis one can see that this is not really so. The patentee has no monopoly in any of these matters. Anyone could have made peel-apart cameras or film, or sell service or parts, or sell post-expiry. There is no question of setting up a monopoly at all—there is only an investigation into the effect of the invasion of one.¹²

1.2 Summary and Structure of Article

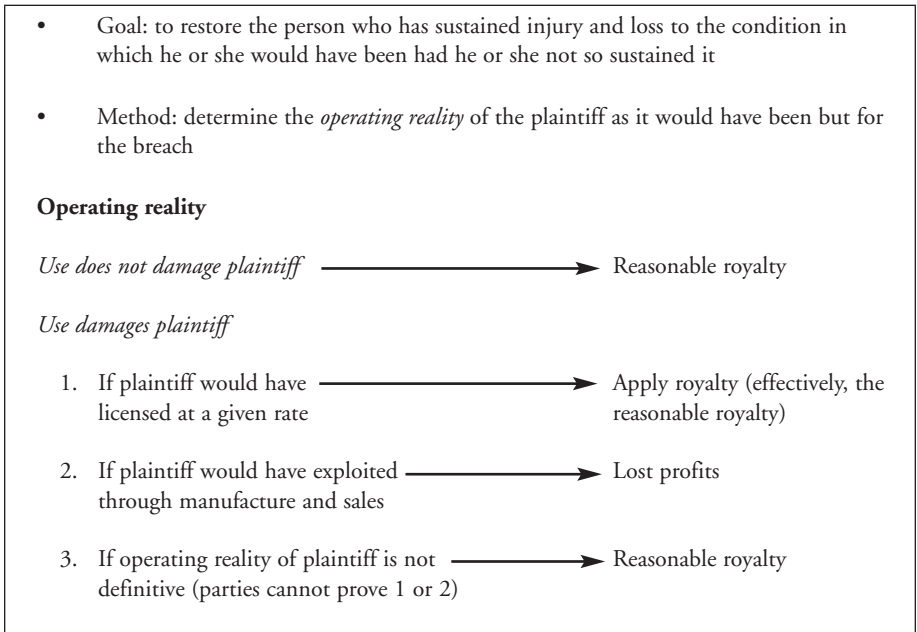
In summary, the plaintiff is presumptively entitled to all and only those losses in fact caused by the infringement. Loss of profits caused in fact by the infringement is the difference between the profit actually earned (“actual position”) and that which would have been earned but for the breach (the “but for position”).¹³ Specific losses caused by the infringement on this “but for” test may be excluded as being too remote. Foreseeability is a well-established limitation on remoteness, but it rarely comes into play in intellectual property cases. Other types of remoteness limitations may in principle also come into play if some public or social policy so requires, but actual examples of such limitations are rare. Furthermore, “extending the monopoly of the patent” is a dubious reason to refuse to award damages.

Thus, as a first step, a court hearing a damages reference must determine the plaintiff’s operating reality to find the basis for restoring the plaintiff to where it would have been but for the infringement. If the intellectual property was usually exploited through licensing, the award is based on a royalty award, as described in section 3.0 below. If the intellectual property was exploited through manufacturing and distribution, the referee can divide the infringer’s sales into those the rights holder would have captured absent the infringement, and those the rights holder would not have captured. For the sales the plaintiff would have captured, the court will award lost profits, as described in section 2.0 below. For those sales the plaintiff would not have captured, the court will award the rights holder a reasonable royalty on the sales, also described in section 3.0. Finally, if the parties cannot establish either the lost profits or a standard licensing policy, the default remedy is the reasonable royalty, again discussed in section 3.0. This scheme is diagrammed in figure 1. Section 4.0 discusses miscellaneous items, including taxes, transfer pricing, and pre-judgment interest.

2.0 LOST PROFITS

A plaintiff is entitled to recovery for its lost profits. If the plaintiff would usually have exploited the invention by selling the product itself, the plaintiff can claim damages for lost sales.¹⁴ A plaintiff can also recover lost profits for price reductions forced by the infringement, lost profits from higher production costs, sales of convoyed goods, loss of a springboard advantage, and lost profits from subsidiary companies. Speaking broadly, lost profits are calculated as the

Figure 1 Scheme for Damages



full profit on the *lost sales* plus the *lost profit* on the plaintiff's *actual sales*.

2.1 Lost Profits on Lost Sales

The burden is on a plaintiff to prove the number of sales that it would have captured but for the infringement. A plaintiff may be compensated for lost sales both inside and outside Canada.¹⁵ Usually, a plaintiff will prefer to receive an award of lost profits for lost sales rather than an award of a royalty for infringing sales, because a royalty typically splits the profit of the defendant between the plaintiff and the defendant.

The defendant is not an insurer against a general market crash, nor can the plaintiff complain of sales lost from legitimate competition. Changed external factors, such as an economic depression that reduces sales generally, or a rise in the price of raw materials that increases the plaintiff's production costs, must be taken into account in determining what the plaintiff's profits would have been but for the infringement. Conversely, if the market for the plaintiff's product is generally expanding, extrapolation of an increasing sales trend may be appropriate in determining what would have happened but for the infringement, subject to internal capacity and other similar internal factors.

As always, the fundamental question is, "What would in fact have happened but for the infringement?" This should be answered in a holistic fashion having regard to all relevant factors, both company-specific and larger ones. These fac-

tors will offer opportunity for profit and present constraints and risk of loss. Where possible, the answer should be based on an economic model that captures the dynamic interplay of market forces as one might reasonably anticipate them to have played out over the relevant period with the benefit of hindsight.

Care is needed in using hindsight to reconstruct the “but for” model. Since the question is what the plaintiff would have done at the time of the decision, only the information available to the plaintiff at that time should be considered in determining what decision would have been made. The parties cannot argue for a course of action that hindsight shows would have been most advantageous, if all considerations known at the time pointed in another direction.

Though the *decisions* that the plaintiff would have taken but for the infringement are assessed without the benefit of hindsight, the *consequences* of those decisions are assessed with the full benefit of hindsight. For example, if a licensing agreement would have been entered into but for the infringement, the royalty that would have been charged is based on a hypothetical negotiation carried out with the information available to the parties at that time, although the sales on which the royalties are payable are the actual sales—sales determined with the benefit of hindsight—during the period of infringement.¹⁶

These general principles imply that all factors that would have affected the plaintiff’s profit should be taken into account in determining what profits the plaintiff would have made but for the infringement. In *AlliedSignal*, Heald D.J. enumerated a list of such factors that had been considered in prior Anglo-Canadian decisions:¹⁷

1. advantages of the patented products over competing products;¹⁸
2. the advantages of the infringing product over the patented product;¹⁹
3. the market position of the patentee;²⁰
4. the market position of the infringer;²¹
5. the market share of the patentee before and after the infringing product entered the market;²²
6. the size of the market both before and after the infringing product entered the market;²³ and
7. the capacity of the patentee to produce additional products.²⁴

Heald’s opinion in *AlliedSignal* provides an illustration of how factors unrelated to the infringement may affect damages. He found that the patented product had significant advantages over the non-infringing alternatives.²⁵ However, the infringing product had superior quality control compared with the plaintiff’s product.²⁶ Heald D.J. found that for at least one important customer the quali-

ty problems with the plaintiff's product were sufficiently serious that the evidence did not establish that but for the infringement, the plaintiff would have made the sales actually filled by the defendant. Consequently, the plaintiff was awarded a reasonable royalty rather than lost profits in respect of that customer.²⁷

It is relatively straightforward to show that there was market demand for the infringing products if the court has evidence of the infringing sales.²⁸ However, other items require much more detailed and careful market analysis. For example, showing that the plaintiff would have captured the defendant's sales requires proving that the intellectual property has market power, or that it could influence the market and draw sales to the item. This argument depends heavily on the definition of the marketplace, including consideration of possible substitutes, classes of customers, demand and supply elasticities, and divisions by geography.²⁹ If the product in question is a widely distributed and purchased consumer product, it would generally be appropriate to look to market research, surveys, and market share analysis. In contrast, if the infringing products are expensive, infrequently purchased items, it may be possible and appropriate to gather evidence on individual sales from specific customers.³⁰ The choice between these two methods of analysis depends on the case at bar.

The intellectual property owner must also demonstrate how it would satisfy market demand to capture these sales. Alternatives include in-house production with existing or expanded capacity, outsourcing, joint venturing, and the like. The most appropriate basis will depend on the operating reality of the rights holder. The quantum of lost profits will be a function of the method by which demand is satisfied.

Having decided, numerically, on the lost sales and resulting revenues, the court needs to determine profits to assign to them, usually on a profit per item basis. In order to determine profit, cost needs to be determined. In the determination of cost there is a choice between costing methodologies, which arises similarly when disgorged profits are determined in an accounting of profits. Those methodologies include both absorption and differential methods as well as certain opportunity or economic-related costs.³¹

The time over which the profits would have been earned, the circumstances of the plaintiff, physical sales volumes, and capacity constraints—the operating reality of the plaintiff—will push one to a logical choice between absorption and differential accounting. They are not really alternatives in the computation of damages: there is an appropriate place for the application of each. In *Domco*, Collier J. held as much, saying that the appropriate methodology depended on each case's "own particular facts and circumstances."³² In the case at bar, he approved of Prothonotary Preston's choice of the differential accounting method, citing the *Teledyne* case as precedent. Counsel for the defence had argued before the prothonotary that since all costs become variable in the long term, the application of differential costing was inappropriate for a 10-year period of infringement. Prothonotary Preston thought otherwise, and stated:

The differential accounting concept is explained in the text *Fundamentals of Management Accounting*, 3rd ed. by Anthony and Welsch where at p. 203 it states:

Differential costs always relate to the future; they are intended to show what the costs would be if a certain course of action were adopted, rather than what the costs were in some past period.

For the purposes of this reference am I not required to go back in time to 1967 and ascertain, on the basis of incremental sales lost by Domco due to the infringing activity of Armstrong, what incremental costs would have been incurred if such sales were in fact made by Domco?

If this is so then, as is expressed at p. 257 of the text: “differential costs are estimates of what costs will be in the future.” However, I do not have to entirely estimate the incremental costs because I have the benefit of the use of historical costs available through Domco's and Armstrong's records.³³

As a general principle, over a short term, the variable cost or differential costing method is appropriate. Where costs are truly fixed and would have been incurred by the plaintiff in any event, then it is likely inappropriate to deduct these costs a second time from the damage award. Over a long term, the absorption method or full costing method would be appropriate. In fact, it would be equivalent to the differential method because over the long term many fixed costs become variable. Where fixed costs need to be incurred to generate profits, they are an appropriate deduction.

The applicability of certain opportunity or economic-related costs will depend on the facts; there is no general rule. It is interesting to note that it is possible to construct a damages equivalent to the differential profits argument in the accounting of profits context.

If, owing to the infringement, the plaintiff put its assets to an alternative profitable use, then a strict interpretation of the principle of restoration suggests that these profits should also be deducted from the award to arrive at an amount that will restore the plaintiff to where it would be but for the infringement.³⁴ Presumably, the basis for this argument would be proof that the plaintiff had in fact enjoyed this “opportunity benefit” which it would not otherwise have enjoyed. However, there is no example of this explicit argument in the surveyed intellectual property case law or literature.

It should be noted that the advantages of an invention are often reflected as much in increased sales as in increased price. Indeed, depending on the patentee's business strategy and operating reality, there may be no extra profit per unit sold at all, if the innovation is used to capture market share rather than increase the percentage of profit per unit.

For example, suppose the mousetrap market is mature at 100,000 units per year. A mousetrap costs 50¢ to make and sells for \$1, and many vendors compete on distribution and service. An innovator invents and patents a better mousetrap. It also costs 50¢ to make, yet it captures more mice by virtue of its clever design. The patentee chooses to sell its traps for \$1.50 each, thus making a profit of \$1. At this price, the patentee captures 10 percent of the market, or 10,000 units, for a total annual profit of \$10,000. Now an infringer enters the market and sells an identical unit, also at a price of \$1.50. The infringer captures half the market for the improved trap, selling 5,000 units. The patentee's sales fall by the same amount. In that case, the patentee's loss is the lost profit of \$1 per unit on the 5,000 lost sales, or \$5,000.

Alternatively, suppose that instead of selling at a premium price, the patentee's business plan was to exploit the invention by capturing a large market share. It chooses to sell its improved trap for the same price as an ordinary mousetrap, \$1, but captures half the market, or 50,000 units. (Competitors continued to sell the ordinary trap at the same price because of marketing and distribution advantages.) Again the infringer enters and sells an identical unit at the same price, and again the infringer captures only half the market. As a result, the patentee sells 25,000 units per year rather than 50,000, and the patentee's lost profit is 50¢ per unit on 25,000 lost sales, or \$12,500. The patentee's loss is substantial even though the patentee did not make any extraordinary profit on the improved mousetraps.

This example also shows that the profit premium that the patented trap commands depends on the patentee's business strategy as well the merits of the invention itself. As discussed above, this profit premium often can only be analyzed through a careful examination of the plaintiff's operating reality.

2.1.1 Relevance of Non-Infringing Alternatives

It is not just the plaintiff's alternatives and strategies that affect the "but for" scenario; often, the *defendant's* hypothesized behaviour but for the infringement will also affect the plaintiff's "but for" profits. For example, if the defendant was an established company with a good reputation and a sound product aggressively entering the market, it may be reasonable to infer that the defendant would have captured a portion of the market even without an infringing feature,³⁵ while a new company without a reputation would have encountered more difficulty in making sales in the absence of an infringing feature.³⁶ As another important example, it will often be necessary to consider the non-infringing alternatives available to the defendant at the time of the infringement in determining what the defendant would most likely have done but for the infringement. A defendant with a very close non-infringing substitute available to it might well have captured a substantial part of the market with the non-infringing product that it in fact captured with the infringing product. On the other hand, if there is no close non-infringing substitute, the defendant might not have entered the market at all. The plaintiff's "but for" profits will be quite different in the two cases.

The 1888 decision of the House of Lords in *United Horse-Shoe & Nail v. John Stewart & Co.*³⁷ addressed this point. The case is often cited (for example, in *Domco Industries*³⁸) for the principles that damages are computed on the assumption that the infringer had not entered the market at all,³⁹ and that it is not relevant that the plaintiff would have been equally hurt by the defendant if the defendant had produced non-infringing products. On this point, however, *United Horse-Shoe* may be inconsistent with modern Canadian cases and perhaps should not be followed in Canadian law today. The difficulty with the decision is that the defendant's non-infringing alternatives are clearly relevant in fact to what would most probably have happened but for the infringement. Ignoring this factor is inconsistent with the general principle that the plaintiff is to be put in the position it would have in fact been in but for the infringement, as best as this can be determined.

The plaintiff in *United Horse-Shoe* held patents related to machinery to save costs in the manufacture of horseshoe nails. Infringing nails had been made by the defendants. However, the evidence indicated that the savings from the use of the inventions subject to the first patent was small,⁴⁰ while the second patent was not practically useful and had been abandoned after a trial period.⁴¹ The defendant argued that it would therefore have made equally competitive nails without infringing, by simply using the same methods it had previously used, and so would have made the same sales in any event. If this was true, the plaintiff's sales but for the infringement would have been exactly the same as they were in fact, and so the plaintiff would have no lost profits from lost sales.⁴² The Lord Ordinary at first instance held for the plaintiff.⁴³ On appeal, the Scottish Court of Sessions reversed and rejected the plaintiff's claim for damages for lost sales, noting that on the facts it was established that the defendant would have competed equally well without infringing.⁴⁴

The House of Lords restored the award of the Lord Ordinary. The main basis for the House of Lords decision was that it was entirely irrelevant whether the defendant could in fact have competed successfully by non-infringing means.⁴⁵ Lord Halsbury remarked, "[W]hat does it matter if it is ever so much established that the loss which the pursuers have sustained by the unlawful act of the defenders might also have been sustained by them under such circumstances as would give the pursuers no right of action? Your Lordships have to deal with the facts as they exist."⁴⁶ Similarly, Lord Macnaghten stated, "It appears to be beside the mark to say that the respondents might have arrived at the same result by lawful means, and that, without infringing the appellants' rights, they might have produced a nail which would have proved equally dangerous a rival."⁴⁷

Thus, in *United Horse-Shoe* it was found that, but for the infringement, the defendant would have competed successfully and made the same sales by non-infringing means; yet this was held to be irrelevant. Is this reconcilable with the modern "but for" approach? The assessment of what hypothetically would have happened if the defendant had not infringed clearly includes the effects of third-party non-infringing competition. Why should it not include non-

infringing competition by the defendant? The fundamental inquiry is what would most probably have happened but for the infringement. This general principle provides no reason for distinguishing between the defendant and third parties.

The *United Horse-Shoe* distinction conflicts with decisions in other cases. In *Meters Ltd. v. Metropolitan Gas Meters Ltd.*, for example, the patented invention was a small but important part of a gas meter.⁴⁸ The defendants had sold 19,500 infringing meters and the plaintiff patentee claimed lost profits on the diverted sales. Eve J. noted that while the patented mechanism was an attractive feature that was important to many customers, the defendant had strong ties with some customers and its meters had their own attractive qualities apart from the infringing part.⁴⁹ In the end, he found that 16,000 of the meters would have been sold by the defendant even had it not infringed, and 3,500 of the defendant's sales would have gone to the plaintiff but for the infringement. Eve J., affirmed on this point by the Court of Appeal, held that the lost profit on the whole meters should be awarded only in respect of the 3,500 diverted sales.⁵⁰

More broadly, *United Horse-Shoe* seems to contradict the approach to causation taken by the Supreme Court of Canada in the context of accounting of profits and equitable compensation remedies for intellectual property. While these are not damages cases, the Supreme Court has recently stated that the same causation principle underpins all non-punitive remedies.⁵¹

In *Cadbury Schweppes v. FBI Foods*,⁵² the defendant had wrongfully used confidential information in order to develop a competing product. The plaintiff sought an award of the full market value of the information in question.⁵³ The Supreme Court held that the plaintiff was entitled to compensation reflecting the lost profit on sales made by the defendant that would otherwise have gone to the plaintiff. The nature of the harm claimed was thus exactly the same as is claimed by a patentee claiming lost profits during a period of infringement.⁵⁴

The trial judge had found that if the defendant had not misused the confidential information, the defendant would have independently developed a competing product within twelve months. The Supreme Court confirmed, noting that

[m]oral indignation is not a factor that is to be used to inflate the calculation of a compensatory award. The respondents' entitlement is to no more than restoration of the full benefit of this lost but time-limited opportunity.⁵⁵

It is important to note that the juice sold after the expiry of the 12-month period was in fact based on the confidential information; the defendant never actually undertook to independently develop its own juice recipe. The basis for the 12-month limitation was that the defendant would, hypothetically, have done so, but for the misuse of confidential information.

The Supreme Court also looked to the hypothetical actions of the defendant in

Schmeiser, an accounting of profits case.⁵⁶ In *Schmeiser*, the defendant grew herbicide-resistant canola that infringed the plaintiff's patent.⁵⁷ However, there was no evidence to show that the defendant took advantage of the herbicide resistance by spraying, and he sold the canola seeds for crushing rather than as seed, so the sale price of the infringing canola was no higher than that for unpatented seed.⁵⁸ The plaintiff argued that it was entitled to all of the defendant's actual profits regardless of whether the defendant gained material advantage from the infringement. However, the Supreme Court held that the plaintiff was entitled only to the difference between the profits the defendant actually made and those that he would have made but for the tort. On the facts, the defendant would have made identical profits if he had not infringed, and the plaintiff was awarded zero profits.

United Horse-Shoe and *Schmeiser* raise the same basic issue: how to determine whether "profits"—profits of the defendant in an accounting, lost profits of the plaintiffs in damages—are caused by the infringement. Following *Schmeiser*, in a damages case the possible non-infringing alternatives available to the defendant are relevant in determining causation and calculating the "but for" loss.

Note, however, that problems may arise only if *United Horse-Shoe* is cited on the determination of the *number* of sales that were lost by the plaintiff. If *United Horse-Shoe* is cited on the issue of the *quantum* of lost profits per sale (for example, to rebut the argument that damages should be based on a reasonable royalty even though it is established on the facts that the infringement diverted sales), its position is consistent with modern tort law.

2.1.2 U.S. Law and Subsidiary Tests

One should not be confused by the use of subsidiary tests in U.S. law. American law uses the same "but for" test as the fundamental principle in determining causation. However, the courts have also devised "subsidiary tests" that state that given a particular set of facts, causation is inferred.⁵⁹ In principle, a subsidiary causation test has the potential to reduce litigation costs by providing better predictability and certainty than direct application of the "but for" test in appropriate factual situations. Unfortunately, it appears that this promise has not been realized.

The most prominent example is the *Panduit* test, where the Sixth Circuit held:

To obtain as damages the profits on sales he would have made absent the infringement, i.e., the sales made by the infringer, a patent owner must prove: (1) demand for the patented product, (2) absence of acceptable non-infringing substitutes, (3) his manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit he would have made.⁶⁰

The first and second *Panduit* factors are an alternative means of establishing causation.⁶¹ If there was demand for the product and no non-infringing substi-

tute, then it can be inferred that the plaintiff would have made the sales but for the infringement.⁶²

Since the *Panduit* test is not the exclusive means of proving causation, the plaintiff may still argue on the facts that sales were lost, just as in Canadian law. In addition, to a considerable extent, *Panduit* is just a labelling exercise for the same arguments as in the general “but for” test. Whether there are acceptable non-infringing substitutes depends on how the market is defined. If the market is defined broadly, the answer may be yes, but if it is defined as the market for the product with the particular patented feature, the answer will always be no. From this perspective, *Panduit* and other subsidiary tests add complexity to the law without adding much benefit. The main effect of the *Panduit* test was that a later return to the appeal court was necessary to affirm that a departure from the *Panduit* test was indeed permissible.

2.1.3 Lost Profits Due to Price Reductions

A successful plaintiff can also claim damages for price reductions forced by competition from the infringer.⁶³ Such a price reduction may be considered to be caused by the infringement, notwithstanding that the direct cause of the price reduction was the plaintiff’s decision.⁶⁴

There is case law to the effect that, for this head of damages to be sustained, the plaintiff’s price reduction must have been reasonable in the circumstances,⁶⁵ must have been in response to the defendant’s lower price, and must not lower the plaintiff’s price below that of the defendant.⁶⁶ However, these cases followed the “natural and direct” remoteness test that has been supplanted in modern tort law. In the absence of more recent case law, detailed discussion of this point is difficult. It can be said that losses from price reductions are not generally too remote, though in particular instances they may be.⁶⁷

It appears that there has never been a Commonwealth case where it was successfully alleged that the effect of the competition was only to prevent the plaintiff from making price increases. This argument was accepted as a possible ground of damage by both parties in the *AlliedSignal* reference, but Heald D.J. did not rule on the issue because there was insufficient evidence.⁶⁸ Similarly, this head of damages was accepted as a possibility in the South African Court of Appeal, but again failed for a lack of evidence.⁶⁹ However, American courts have awarded damages for such price effects where sufficient proof of the effect has been offered.⁷⁰

As narrowly interpreted in the existing case law, this head of damages rests on evidence of the timing of the price reductions compared with the price in the market. A court may reduce the award from what it otherwise would have been if it thinks that the plaintiff’s reduction in price led to an increase in the size of the market,⁷¹ essentially taking into account the plaintiff’s mitigation efforts. Holding the market size constant, if the reduction was only partly due to the infringing acts of the defendant, an award may be made with respect to the part

of the loss that results from such reduction.⁷² The profit from a justified higher price may be claimed for both the sales the plaintiff actually made and the sales it would have made but for the infringement.

2.2 Increased Costs

Lost profits on account of increased costs of the plaintiff caused by lower volumes resulting from the defendant's infringement can also be a successful point of claim. These higher costs are often called a "loss of economies of scale." Manufacturing economies of scale can include:

- lower bulk purchasing prices from suppliers;
- lower labour and material costs due to better utilization when manufacturing at higher batch sizes;
- costs of start-up and shut-down if the manufacturing facility is sometimes idled due to lower production volumes; and
- higher error ratios and therefore higher costs per run.

Other expenses may increase absolutely or relatively to meet competition from the infringer and can be included in a damage claim. These include heavier advertising expenses, adding sales personnel, the increased use of discounts, or increased investment in a distribution system to improve service.

An award for increased expenses occurred in the *Domco* case for financing costs, where Prothonotary Preston allowed \$228,000 in additional damages:

Had Domco earned more profit in the period in question as a result of additional sales, its working capital from operations would have been correspondingly increased thereby effecting a corresponding reduction in its debt load. This would have reduced the cost of borrowed money.⁷³

2.3 Lost Profits from Lost Convoyed Sales

Convoyed sales are sales of goods that are typically or often sold with an infringing item, but the goods themselves are not caught by the intellectual property in question. The issue is particularly important in industries where a patented product is sold at a modest price, with most of the profit being generated by a service contract or sale of supplies.⁷⁴

The issue of convoyed sales gained prominence in the English case of *Gerber v. Lectra*,⁷⁵ in which the defendant infringed the plaintiff's patent on cutting machines. The plaintiff claimed for the loss of associated or convoyed sales of service, spares, and control software to be used in conjunction with the patent-

ed machines. Although it has been argued that such sales are always too remote,⁷⁶ Jacob J. held that under the principles of modern tort law, all damages are compensable if they were foreseeable and caused in fact by the infringement, and that damages for the loss of convoyed sales are no exception to this general principle:

I hold that infringement of patent is another case where a secondary loss can be recovered, provided that secondary loss is a foreseeable consequence of the infringement. The secondary loss may consist of sales of unpatented items which go with the patented item as a commercial matter (here the CAD, service, and spares) and such loss as the patentee can establish results from the infringer establishing a business pre-expiry. In all cases it remains critical that the patentee can establish the factual basis: that his loss is caused by the infringement and foreseeably so.⁷⁷

Jacob J.'s reasoning was expressly approved by the English Court of Appeal, which was unanimous on this point.⁷⁸ Testimony by a Lectra employee at trial provided a vivid illustration of the business realities underlying this head of damages:

[A senior Lectra executive] told me that the policy was to "take the market." He explained that the policy was to secure market share ... at any cost and irrespective of the profit margin that would result. He explained that even if no or little profit was made on the equipment sale the defendants would be compensated by revenue derived from service contracts sold with the equipment. Service contracts were, typically, between 7 and 10% per annum of the confidential list (as opposed to eventual sales) price of the relevant equipment. To the best of my knowledge every purchaser of one of the defendant's cutting systems during the period of my employment with the first defendant entered into a 12 month service contract following expiry of the initial warranty. In the vast majority of cases these customers extended the servicing arrangement indefinitely by taking out a succession of new contracts with the defendants each year.⁷⁹

2.4 Lost Profits from Springboard Damages and Early-Adopter Advantages

A patentee or other intellectual property holder may enjoy residual advantages even after the formal term of protection is over. After expiry of a patent, competitors are entitled to enter the market, but it will take time for them to build up a customer base and start taking a share of the previously protected market. Infringement allows a competitor a head start in gaining market share; a competitor who infringed prior to the expiry will have a larger market share on expiry than one who started competing only the day the patent expired. Conversely, the patentee will have a smaller market share in the period just subsequent to expiry than it would have had in the absence of infringement.

The quantum of this residual advantage to the infringer is a function of the market share wrongly taken, the duration of the advantage, the infringer's profitability, the plaintiff's market response, and other factors. The plaintiff's loss is a function of the plaintiff's unique responses to the infringer's actions. The compensable damages are the result of dynamic factors—internal and external to the plaintiff. Damages of this nature are known by various descriptive terms: “springboard,” “head start,” “bridgehead” or “accelerated entry” damages.

The issue was raised and springboard damages were awarded by Jacob J. in *Gerber*:

[Gerber] also says that the defendants built up a substantial business in the United Kingdom during the period of patent subsistence. This enabled the defendants better to compete in the period following expiry—they built a wrongful “bridgehead” for post-expiry competition.⁸⁰

Again, there was evidence on this point by the same Lectra employee:

An expression used by myself and the defendants' other sales staff was “a service contract is for life.” We used this expression from time to time to defend ourselves against criticism of low profit margins achieved on the sale of the systems themselves.⁸¹

These damages were also unanimously and expressly approved by the English Court of Appeal. They have been awarded for patent infringement in the United States,⁸² and have been accepted as a possible head of patent infringement damages—though not awarded—in Canada.⁸³

Successful technology companies have demonstrated the importance of being an early entrant into a market and capturing market share. Convincing customers to be early adopters of their product often ensures continued customer loyalty. Once technology is embedded in a customer's operations or product, it can be difficult and expensive to dislodge. Customers who have successfully integrated a particular software technology are generally, subsequent to adoption, a recurring source of service, upgrade, and consulting revenues. A plaintiff who is denied early market entry and customers' early adoption of its technology will have lost the broad base of benefits thereof. The view that such losses, as with “springboard” losses, should be compensable in damages is consistent with the principle that the plaintiff is presumptively entitled to all losses caused in fact by the infringement.

2.5 Losses of Subsidiary Companies

The English Court of Appeal in *Gerber*, following the *George Fischer* case,⁸⁴ unanimously held that the parent of a subsidiary can recover damages in respect of losses at the subsidiary company even if the subsidiary has no cause of action against the defendant. However, the court split on the standards of proof need-

ed to support such a claim. Hobhouse L.J. and Hutchison L.J. both held that the plaintiff needed to explicitly prove the quantum of damage to the subsidiary that would flow through to the parent company. On the facts of the case, they held that Gerber had failed to address the impact of taxes, the subsidiaries and parents being located in different countries with different currencies, transfer pricing, and a complicated corporate structure, and denied Gerber's claim. In contrast, Staughton L.J. held that this approach would lead to injustice because plaintiffs would generally find it impossible to meet such standards of proof. Instead, he supported the approach of Jacob J. at trial, finding that there was a rebuttable presumption that a dollar lost by a wholly owned subsidiary is equal to a dollar lost by the parent.⁸⁵

In the Canadian case of *Domco v. Armstrong*, the successful plaintiff was in a similar position in respect of its Canadian subsidiaries. Prothonotary Preston allowed Domco to claim \$625,000 for damages suffered by the subsidiaries. Collier J. disallowed this award on appeal, stating:

The damages are only recoverable by the legal entities who incurred them. Further, the contention that Domco would have been paid increased dividends, or enlarged its equity, is too speculative, if not too remote. The subsidiaries could have applied the “lost” profits in many ways, purely for their own advancement or benefit.⁸⁶

However, Collier J. also noted that there was nothing in the plaintiff's pleading advancing this kind of loss. It appears likely that an appropriately worded pleading based on a sympathetic set of facts would succeed in Canada in establishing damage to subsidiaries as a head of damages.

2.6 Lost Post-Trial Profits—Future Profits

In principle, damages encompass a loss of future profits on sales that, but for the infringement, would have been made after the date of the trial. Where there are lost profits after a date of trial that are clearly attributable to an infringement, they are best computed by application of a discounted cash flow technique. Care needs to be taken in this exercise because the projection entails the interaction of many variables. The discount rate must be carefully chosen to reflect only the relevant execution and market risks. It should not be so large as to eliminate too much of the very profit being computed. The discount rate will very much depend on the quality of the financial inputs. Where there are clearly lost future profits but they cannot be specifically traced to identifiable sales, or specific assets, tangible or intangible, the lost future profits are often characterized or quantified under the nomenclature of “goodwill.” In principle, lost goodwill attributable to the infringement should also be compensable in the same manner as lost future profits from identifiable assets. However, it may be difficult to establish the value of the lost goodwill due to lack of specificity. Again, discounted cash flow techniques are usually the best tool for computing the value of lost goodwill.⁸⁷

3.0 ROYALTIES

Royalty calculations are generally made in four contexts:

- where the plaintiff typically exploits its intellectual property through licensing;
- where the plaintiff exploits its intellectual property directly, but the defendant has made sales that would not have been captured by the plaintiff in any case;
- where the defendant has made sales into a market that was not or could not be accessed by the plaintiff; and
- where the parties have failed to prove either a “habitual” licensing fee or lost profits.

The method for determining reasonable royalties has been given a number of formulations in different cases. A recent method is the “hypothetical negotiation,” where a reasonable royalty rate is “that which the infringer would have had to pay if, instead of infringing the patent, [the infringer] had come to be licensed under the patent.”⁸⁸ Or, as was said by Falconer J. in the reference in *Catnic Components*:

I have to consider “what would have been the price which ... could have reasonably been charged” for the plaintiffs’ permission to use the patented invention as the defendants did. In his opinion in the *General Tire* case Lord Salmon thought that it followed from Fletcher Moulton L.J.’s judgment that in a case where there is no established market rate the assessment must be on the basis of what royalty a willing licensee would have been prepared to pay and a willing licensor to accept.⁸⁹

This implies that the parties are acting reasonably and are under no compulsion to license.⁹⁰ Extrapolating from the definition of fair market value, a fair market royalty might be defined as the “highest royalty in an open unrestricted market between informed and prudent parties acting at arm’s length under no compulsion to license, expressed in terms of money or money’s worth.” The fair market royalty could be expressed as a rate as well, provided that the base against which it is applied is clear.

The notional date at which the royalty rate would be struck is the date of the first infringement. This can be very important in the licensing of risky technology, because the licensee will usually obtain favourable terms for bearing substantial risk.⁹¹

A “hypothetical negotiation” is not thought of as occurring between parties in isolation. Instead, it is presumed to take place in an open and unrestricted market where all prospective licensees will notionally participate. The presence of

non-infringing alternatives to the use of the intellectual property must be considered and will tend to put a ceiling on the amount that a licensee would be willing to pay for the intellectual property.⁹² Balancing the licensee's ceiling is the licensor's floor. That floor would notionally be established by considering all the avenues of exploitation reasonably available to the licensor, having regard for the licensor's then operating realities.

Suppose, for example, that a licensor is faced with two potential licensees in the same market—one is a large, efficient corporation and the other is small and inefficient. Assume that the first licensee is thus able to generate larger excess profits through use of the intellectual property than the second potential licensee. If both potential licensees are equally able to enter relevant markets, the more efficient firm will be a more attractive licensee than the less efficient firm, and the royalty negotiated with the efficient licensee will likely be higher than that which would be negotiated with the inefficient licensee in isolation. Although the less efficient firm may well be able to negotiate a licence fee from the rights holder, the royalty it ought to pay will be increased by the presence of the more efficient firm as an alternative in the licensing market.⁹³ As Referee Duclos stated in *J.R. Short Milling Co.*:

It is true that royalty is a matter generally spoken of by the Court and text books as that proportion of profits which the market will stand.⁹⁴

Similarly, Lord Wilberforce in *General Tire* overturned a royalty rate analysis that discounted the effect of the market. He stated:

The market impact is clear from two brief extracts.

“In our judgment, a distinction must be drawn between commercial considerations or other matters affecting the value of the subject matter of the supposed negotiations on the one hand and circumstances which have a direct bearing upon the relevant bargaining powers on the other.

When using the royalty method to assess (the value of the use) we must assume that the hypothetical negotiations take place between the parties bargaining on equal terms; in other words, there must be eliminated from the circumstances of the supposed market those elements of the circumstances of the actual market which would in any way distort the bargaining powers of the hypothetical negotiators.”

My Lords, this passage is, in my opinion, unsupportable in law or in fact. In law it rests upon the hypothesis that what has to be considered, in measuring the loss a patentee sustains through an infringement, is some bargain struck between some abstract licensor and some abstract licensee uncontaminated by the qualities of the actual actors. But this is not so. The “willing licensor” and “willing licensee” to which reference

is often made (and I do not object so long as we do not import analogies from other fields) is always the actual licensor and the actual licensee who, one assumes, are each willing to negotiate with each other—they bargain as they are, with their strengths and weaknesses, in the market as it exists. It is one thing (and legitimate) to say of a particular bargain that it was not comparable or made in comparable circumstances with the bargain which the court is endeavouring to assume, so as, for example, to reject as comparable a bargain made in settlement of litigation. It is quite another thing to reject matters (other than any doubt as to the validity of the patent itself) of which either side, or both sides, would necessarily and relevantly take into account when seeking agreement.⁹⁵

It is possible that, in some cases, the price at which the rights holder acting reasonably would have licensed its intellectual property is higher than the maximum price that the infringer would have been willing, or perhaps able, to pay. As discussed in section 3.7 below, the treatment of this situation depends on the remedial theory being applied; generally, however, the principle of compensation and the “but for” test implies that the court should act to restore the licensor to where it would have been absent the infringement, not to where the licensor would have been if it had licensed the infringer.

There is no difference in principle between a normal royalty and a reasonable or hypothetical negotiated royalty. The difference is in the evidence relevant to establishing the royalty. When it can be established that the plaintiff habitually granted licences at a normal rate, then this normal rate is the best evidence of the rate that the plaintiff would have agreed to, and there is no need to inquire as to idiosyncratic aspects of the business position of the two parties. When a normal rate cannot be established, then more detailed evidence is required to establish the outcome of the negotiation that would have taken place but for the infringement.

3.1 Established Licences

Strong evidence of the market rate for a licence exists if the plaintiff has an established history of negotiating licences for products comparable to the one that has been infringed. The most straightforward application of historical licences occurs where the patentee routinely granted licences at a certain rate. As stated by Fletcher Moulton L.J. in *Meters v. Metropolitan Gas Meters Ltd.*:

There is one case in which I think the manner of assessing damages in the case of sales of infringing articles has become almost a rule of law, and that is where the patentee grants permission to make the infringing article at a fixed price—in other words, where he grants licenses at a certain figure. Every one of the infringing articles might then have been rendered a non-infringing article by applying for and getting that permission. The court then takes the number of infringing articles, and multiplies that by the sum that would have been paid in order to make

the manufacture of that article lawful, and that is the measure of the damage that has been done by the infringement.⁹⁶

However, it must be emphasized that there is no rule that whenever the rights holder has granted a licence in the past, it is limited to an award of reasonable royalties. The question is whether the historical patterns of licensing establish that the plaintiff would have granted a licence to the defendant on the established terms if it had been approached at the time of the infringement. A pattern of granting licences is good evidence that the rights holder would have granted a licence if the defendant had approached it; an occasional grant of a licence in special circumstances is not.

Note also that a normal rate can only be taken as evidence of the rate the plaintiff would have agreed to if the defendant's use fell within the normal terms of the licence. When the defendant's use would have been a breach of standard licence terms, it is unreasonable to suppose that the plaintiff would have agreed to license such a use at the standard rate.⁹⁷

Licences negotiated to settle litigation have been held by the House of Lords not to be indicative of the "going rate"⁹⁸ because such rates are not embracing of all the dynamics that would have been at play at the time of the infringement. An example of this occurred in the case of *Consolboard v. MacMillan Bloedel*.⁹⁹ The court had evidence of three alternative negotiated royalties: first, an agreement to pay a royalty of 2.5 percent of the net factory selling price; second, a royalty of 3.5 percent; and third, a licence for 4.5 percent. The first licence was negotiated with the former employer of the inventor, who had a strong claim to "shop rights" in the invention, while the third amount was negotiated partly to avoid litigation over the validity of the patents in question.¹⁰⁰ In both cases, the negotiated rates would have reflected these particular circumstances, and the court rejected these royalties as not reflecting an agreement between a willing licensee and licensor bargaining on equal terms. This was upheld by the Federal Court of Appeal, which adopted the statement of Lord Wilberforce in *General Tire*:

These are very useful guidelines, but the principle of them must not be misapplied. Before a going rate of royalty can be taken as the basis on which an infringer should be held liable, it must be shown that the circumstances in which the going rate was paid are the same or at least comparable with those in which the patentee and the infringer are assumed to strike their bargain.¹⁰¹

3.2 The Hypothetical Negotiated Licence

If the evidence does not establish a historical rate that would have applied, then damages will be based on the reasonable royalty that would have been agreed to by the parties if they had negotiated a licence at the time of the breach.¹⁰² This is also the approach taken in the United States.¹⁰³

There is no sharp distinction between this hypothetical negotiation approach to determining the lost royalty and the historical licence approach. The task is always for the court or referee to determine the bargain that would most likely have been agreed to. Licence terms historically agreed to by the plaintiff may be relevant even if the circumstances are sufficiently different that they cannot be taken as establishing a normal royalty.¹⁰⁴ The difference is simply in the weight attributable to historical licensing practices.

A list of general factors that may be considered in determining the hypothetically negotiated royalty was given by the court in the U.S. case of *Georgia-Pacific Corp. v. United States Plywood Corp.*:¹⁰⁵

- (1) Royalties received by the patentee for the licensing of the infringed patent, proving (or tending to prove) an established royalty.
- (2) Rates paid by the licensee for the use of comparable patents.
- (3) The nature and scope of the license, as exclusive or non-exclusive, or as restricted or non-restricted territorially or with respect to whom the manufactured product may be sold.
- (4) The licensor's established policy and marketing program to maintain its patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve the monopoly.¹⁰⁶
- (5) The commercial relationship between the licensor and licensee, such as whether they are competitors or whether they are inventor and promoter.
- (6) The effect of selling the patented specialty in promoting sales of other products of the licensee, the existing value of the invention to the licensor as a generator of sales of its non-patented items and the extent of such tagalong/accessory/convoys sales.
- (7) The duration of the patent and the term of the license.
- (8) The established profitability of the patented product, its commercial success and its current popularity.
- (9) The utility and advantages of the patented property over the old modes or devices, if any, which had been used for working out similar results.
- (10) The nature of the patented invention, the character of the commercial embodiment of it as owned and produced by the licensor and the benefits to those who use the invention.
- (11) The extent to which the infringer has used the invention and any evi-

dence probative of the value of such use.

- (12) The portion of the profit or selling price customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.
- (13) The portion of the realizable profit that should be credited to the invention as distinguished from other factors (non-patented elements, the manufacturing process, business risks or significant features or improvements added by the infringer).
- (14) The opinion testimony of qualified experts.
- (15) The amount which a prudent licensor (such as the patentee) and a prudent licensee would have agreed upon at the time the infringement began if both had been reasonably and willingly trying to reach an agreement; i.e., the amount which a prudent licensee—who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention—would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee.

This list of general factors emphasizes a reliance on profits and precedent to set a royalty. Notably, the hypothetical negotiation between a licensor and licensee is identified as only one of many factors to consider. Some U.S. courts have placed less emphasis on comparable licences, and more emphasis on the expected profits from the licence and the marketplace as a whole.¹⁰⁷ Since there is no prescribed method to determine reasonable royalties, expert witnesses are crucially needed to guide the court through these considerations in a persuasive manner in the context of a given case.

Lord Wilberforce in *General Tire* has provided a similar description of the relevant evidence:

In some cases it is not possible to prove either that there is a normal rate of profit, or that there is a normal, or established, licence royalty. Yet clearly damages must be assessed. In such cases it is for the plaintiff to adduce evidence which will guide this court. This evidence may consist of the practice, as regards royalty, in the relevant trade or in analogous trades; perhaps of expert opinion expressed in publications or in the witness box; possibly of the profitability of the invention; and any other factor on which the judge can decide the measure of loss. Since evidence of this kind is in its general nature general and also probably hypothetical, it is unlikely to be of relevance, or if relevant, of weight in the face of [evidence of normally granted licences]. But there is no rule of law which prevents the court, even when it has the evidence of licensing practice, from taking these more general considerations into account. The ultimate process is one of judicial estimation of the avail-

able indications. The true principle, which covers both cases where there have been licenses, and those where there have not, remains that stated by Fletcher Moulton L.J. in the *Meters* case ...

[Quotes Fletcher Moulton L.J. in *Meters*.¹⁰⁸]

A proper application of this passage, taken in its entirety, requires the judge assessing damages to take into account any licenses actually granted and the rates of royalty fixed by them, to estimate their relevance and comparability, to apply them so far as he can to the bargain hypothetically to be made between the patentee and the infringer, and to the extent to which they do not provide a figure on which the damage can be measured, to consider any other evidence, according to its relevance and weight upon which he can fix a rate of royalty which would have been agreed.¹⁰⁹

3.3 Reasonable Royalties on a Cost Basis

A common method for determining the value of assets is the cost, or replacement cost, approach, which values the asset by assessing how much it would cost to reproduce the future benefits from the asset. For intellectual property, however, this approach is often described as inappropriate for a number of reasons:

- All of the direct and indirect development costs expended to produce intellectual property are very difficult to define and equally difficult to track.
- The development costs for a given intellectual property are often disproportionately small (or, in some cases, disproportionately large)¹¹⁰ compared with the property's future economic return. The true cost of the creative process might genuinely be very low. Equally, the cost might better be calculated as the accumulated cost of all the company's prior failures.
- Reproduction cost is only one indicator of value.

As a result, there is a strong argument that the cost of development of the intellectual property should not have a significant impact on the determination of a reasonable royalty. Supportively but ironically, Goldscheider notes:

An argument sometimes raised by a proprietor when it is offering an invention for license is that it has expended enormous time, effort, and money to create and develop the technology involved. A realistic counterargument is that these are sunk costs to the licensor that are irrelevant to the licensee, who is only interested in the future profitability the technology is likely to generate. The elephant may have labored long and brought forth a mouse—and it is only a mouse that is on the table.¹¹¹

3.4 Industry-Standard Rates

An indication of reasonable royalties may be found by examining comparable licences within a given industry. Because it is unlikely that an exactly comparable licence can be found, this approach requires the evaluator to adjust for the exact context of the hypothetical licence. Adjustments include, but are not limited to,

- macroeconomic factors that underlie the negotiations, including investment marketplace, size and growth of the target marketplace for products incorporating the intellectual property, technology trends, and competitive factors;
- industry-specific complexities;
- industry-standard royalty rates on licences between arm's-length parties (such rates reflect average conditions for an industry but may not be appropriate to the particular case; for example, industry standards would reflect rates applicable to both emerging and untested technologies as well as well-established ones; clearly, in litigation matters the average is a very crude measure of what would be appropriate to the specific facts at trial); and
- industry-standard royalty rates on licences between non-arm's-length parties.

With regard to this last point, Goldscheider writes:

For example, it is a widely accepted practice in the agricultural chemical industry for important discoveries rarely to be licensed to third parties. Instead, they are kept within the family, and are usually only handled by affiliated companies. The only technology in this industry which is licensed to third parties is that which is of lesser significance and commercial interest. Therefore, if negotiated royalties were to be tabulated and averaged in the agricultural chemical business, the results would be unrealistically low.

It is believed that the same considerations hold true for many other industries, particularly those in which multinational companies are active. If certain industry trends indicate somewhat lower royalties, they would merely be a reflection of the general level of profitability in that industry. To hamstring some very important innovation in that industry to the same royalty standard would obviously be inappropriate.¹¹²

The fundamental criticism of comparison to existing licences is that the approach ignores the actual profitability of the intellectual properties and companies in question. Nevertheless, industry-standard rates quite often are similar

to royalty rates found through financially-based methods, and can often form a valuable standard for review.

3.5 The Sharing of Future Profits

It is generally only possible to strike a reasonable royalty rate by estimating the profits that would be expected to be generated through the use of the intellectual property by the hypothetical licensee and, equally, with full knowledge of the economic opportunity cost and strategic options available to the rights holder. How could a rate be determined as reasonable without knowing both of these vital factors? It is only possible to avoid such comprehensive analysis if the actual market for the licence is so deep as to produce a meaningful number of relevant comparables.

Several analogies are appropriate. The value of a small block of a large blue-chip, well-traded stock listed on the Dow Jones can be determined without fundamental analysis of the underlying company. The number of buyers and sellers is sufficient that the daily trading price is representative of the fair market value of one share. However, it is equally well accepted that for an illiquid stock, the trading price is rarely representative of fair market value. By analogy, the reasonable royalty rate for licensing of a particular product will rarely be represented by comparables unless the market from which the comparables have been taken is sufficiently broad and deep. Rarely will there be such a market.

Just as interest is the cost of borrowing money or using the capital of another person, so a royalty rate is the cost of using another's intellectual property. The rigour and paradigms used to determine reasonable interest rates or reasonable cost of capital are helpful in determining reasonable royalty rates or profit-sharing formulas.

There are numerous methods to decide how to divide the profit flow between licensee and licensor, and in this article we will examine three: the 25 percent royalty rule, a return-on-investment approach, and the analytical method.

3.5.1 The 25 Percent Royalty Rule

A powerful, insightful, and commonly used framework for thinking about the split of estimated profits between the hypothetical licensee and licensor is the "25 percent royalty rule." This rule seeks to split the profits in a fair manner so that each party could expect to benefit from the relationship proportionately to its investment and level of risk. In a "normal" technology licensing relationship, the licensee bears the risks of investment in manufacturing and commercialization of the technology and the risks of competition from the marketplace, while the licensor provides a strong technology package. The 25 percent royalty rule recognizes as a benchmark that the licensor should be entitled to 25 percent of the predicted "profits."¹¹³ However, this 25 percent rule is only a starting point: the profit split should then be adjusted up or down to reflect the exact circumstances of the licence, and it is not unreasonable for the ratio to be reversed.

The assumption that the licensee should be entitled to 75 percent of the pre-tax profits is based on the fact that the licensee is taking on a large risk element. The greater or lesser the risks undertaken by the licensee, the higher or lower the licensee's proportion of the pre-tax profit. In particular, if exploiting the licence requires an investment by the licensee in complementary assets (such as manufacturing and distribution capability), the risk to the licensee is correspondingly higher than it would be if the licensee is able to use pre-existing assets. Risk is also a function of the alternative opportunities available. If the licensee can deploy the necessary new investment to another opportunity with a greater certainty of return, then it may be unwilling to commit to the licence opportunity without receiving a more generous share of the profits. Some of these considerations are listed in figure 2.

Figure 2 Factors That Will Affect Licensee's Desired Profit Share

<ul style="list-style-type: none"> • Emphasis: the assumption of <i>risk</i> <p>Increase share</p> <ol style="list-style-type: none"> 1. Unusually high or unusually risky investment in new assets by the licensee 2. The extent that the licensee's strengths duplicate the licensor's strengths 3. Alternative uses of the licensee's assets offering a superior profit/risk combination 4. Weak technology package offered by the licensor <p>Decrease share</p> <ol style="list-style-type: none"> 1. Alternative licensees offering the licensor a superior profit/risk combination 2. If the licensee will be utilizing otherwise unprofitable existing assets or assets with excess capacity 3. If the licensor will provide assets typically provided by the licensee—that is, <ul style="list-style-type: none"> • manufacturing capabilities • marketing force
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The baseline allocation of 25 percent of profits to the licensor assumes that the licensor has a strong technology bundle to offer to the licensee. The following factors have been identified as contributing to a strong technology package:¹⁴

1. Relevant, assumable, and enforceable patents;
2. Trade secrets and know-how that are related to the subject technology;
3. Ancillary trade secrets and know-how, including marketing insights and contacts;
4. One or more established product trade-marks, house marks, or logos that could promptly contribute credibility and goodwill to the licensee;

5. Software programs, advertising support, and other expressions of creative work, whether or not protected by copyright;
6. An active, well-financed, and historically productive R&D facility that could reinforce the licensed technology on a regular basis;
7. A pattern of successful licences between the licensor and similar or current licensees;
8. A reputation for diligence in pursuing infringers of its rights; and
9. A reputation for protecting its licensees from independent actions initiated by third parties.

Finally, the eventual split will be affected by the comparative strengths of the parties and their position in the marketplace as a whole. If the licensee already possesses established strengths in areas where the licensor is also strong, these strengths tend to offset each other and thus diminish the licensor's bargaining strength. However, if the licensor has numerous strong alternatives for exploitation of the intellectual property, including the possibility of exploiting the technology in-house, the licensor's bargaining position is correspondingly strengthened.

When presenting these factors as evidence in court, it may be persuasive to translate them into the 15 factors relevant for the determination of the reasonable royalty listed in the *Georgia-Pacific* case (in section 3.2 above). These factors are only guidelines for ensuring that all relevant business and legal considerations are taken into account.

This approach relies heavily on the qualitative ability of an expert to appropriately adjust the return up or down to reflect the individual circumstances of the case at hand. As such, it leaves the judge in the position of relying on his or her assessment of the credibility of conflicting expert witnesses. For example, in *AlliedSignal*,¹¹⁵ Heald D.J. accepted and applied a variation of the 25 percent royalty rule as suggested by the defendant's expert. It is interesting to see the proffered relevant factors and their suggested impact on the royalty rate, keeping in mind that such factors are relevant only if they affect the risk to profit earning:

[The defendant's expert] testified that in the technology industry generally, a reasonable royalty for patented technology would be approximately 25% to 33.3% of profit before tax. [The expert] then detailed a number of factors that would affect the specific percentage in each case:

- (i) *Transfer of technology*: There would have been no need to transfer technology, so the rate should be reduced.

- (ii) *Difference in the practice of the invention*: The plaintiff and the defendant have two different processes to create their products. The defendant brings its own technology to the product development. This factor would tend to reduce the royalty rate.
- (iii) *Non-exclusive licence*: The defendant is not being given an exclusive license. It is not given total control over the market. This factor would tend to reduce the royalty rate.
- (iv) *Territorial limitations*: The patent is limited to the manufacture of the product within Canada. This factor would reduce the royalty rate.
- (v) *Term of the license*: The license is only for six years of infringement, not for the entire term of the patent. This factor would reduce the royalty rate.
- (vi) *Competitive technology*: The availability of competing technologies, such as polyethylene and coextruded film, would reduce the royalty rate.
- (vii) *Competition between licensor and licensee*: The fact that the plaintiff and the defendant would be competing against each other would increase the royalty rate.
- (viii) *Demand for the product*: Demand for nylon film was growing. This factor would increase the royalty rate.
- (ix) *Risk*: The risk that the product would not sell is very low. This factor would tend to increase the royalty rate.
- (x) *Novelty of invention*: The practice of using nylon films as a barrier to gas transmission has been commercially exploited for decades, and this invention is not the result of extensive laboratory studies. This would reduce the royalty rate.
- (xi) *Compensation for research and development costs*: Such costs for this product are quite low. This factor would reduce the royalty rate.
- (xii) *Displacement of business*: A royalty rate will tend to be higher if it results in increased revenues to the licensee. [The expert] suggests that it would not increase revenues to the defendant, but would simply “maintain existing business.”
- (xiii) *Capacity to meet market demand*: The royalty rate will be reduced if the patentee does not have the capacity to produce enough of the product to satisfy the market.

Based on these factors, [the defendant's expert] concluded that the low end of the range, namely 25% of profits before tax, is appropriate in this case. In his view, [the plaintiff's expert's] suggestion of 33% of the selling price is "virtually unheard of in the chemical industry."

I am thankful to [the defendant's expert] for his helpful review of these factors. I found him to be a credible and persuasive witness, and I accept the principles as he stated them.¹¹⁶

Applications of the 25 percent royalty rule have been criticized. The criticisms are more rightly levied against a strict application of a rule of 25 percent than against the paradigm or methodology described above. The criticisms include:

- the rule ignores precise profits generated by the intellectual property;
- the rule might ignore a variety of costs, including advertising, distribution,¹¹⁷ and the costs of complementary assets;
- by its very name, a court or other user of the rule might become attached to the 25/75 split, and may not appreciate that it is only a starting point or a paradigm for analysis;¹¹⁸ and
- the rule does not specifically analyze whether the 25 percent rate would provide an adequate return to the rights holder or leave the defendant with appropriate profits.

These criticisms raise bona fide issues that need to be explored. They lead to support for a more comprehensive analysis that analyzes the return on investment of both the rights holder and the licensee. The primary focus of such an approach is the determination of the maximum royalty rate that will leave the hypothetical licensor with the minimum acceptable investment rate of return on its overall company assets—perhaps the most pertinent factor that drives a reasonable royalty rate.

3.5.2 The Analytical Approach

The analytical approach estimates a reasonable royalty by subtracting the normal profit margin of a business from the expected super-profit anticipated from use of the intellectual property.¹¹⁹ The absorption cost approach is used to deduct both variable and a portion of fixed costs from the infringer's net sales. The "normal" profit margin is that which would likely have been realized by the infringer if it had sold similar products without infringing the intellectual property. The remaining amount ("super-profit") is then awarded to the rights holder as a reasonable royalty.

This approach tries to split the profits between the plaintiff and the defendant while allowing the defendant to keep a normal level of profits. The practical problem is the determination of what a "normal" profit margin is. The

approach must balance the margin that is normal to the plaintiff and that of the industry in question. It can be difficult to define precisely in what industry or market the infringement is taking place. Even within an industry, there is a wide discrepancy in profit margins, often by almost an order of magnitude. Furthermore, large companies with many product lines may well have large differences in profitability between individual products that relate only in the aggregate to the overall profitability of the company. The logic of the analytical approach suggests that the court will need to apply the normal profitability of the individual product line, and not the profitability of the company. The degree of fixed costs to be absorbed is subject to all the usual arguments.

The reason the plaintiff's normal profit margin is not determinative is that the analytical approach seeks a reasonable royalty rate in the eyes of the whole notional target (or "buyer") industry—not just the rate that would be appropriate from the perspective of the plaintiff (or "seller"). This analytical approach has three potential pitfalls:

1. It ignores the cost or contribution of all other complementary assets unique to the business of the infringer.
2. It leads to erroneous results when the "normal" profits include the use of other intellectual properties. For example, suppose a company is found liable for infringing the trade-mark of a well-known soft drink. Finding the "normal" level of profit by looking at the profits of Coca-Cola, Pepsi, and Cadbury Schweppes would be unfair to the plaintiff, because these companies all have established trade-marks themselves. If the profits of other intellectual properties are used to find a normal profit level, the calculation will, in effect, assume that the infringing company, in the absence of the infringement, would have had legal access to a valuable trade-mark for its products.¹²⁰
3. It ignores the alternative licensees available in the marketplace. The analytical approach takes as its baseline the profits made by the infringing company. However, if the licensing company had more lucrative options in the marketplace to exploit the intellectual property other than hypothetically licensing the defendant, the award should restore the plaintiff to that higher level. The analytical method thus has the added danger of undercompensating the rights holder. Commonwealth case law has a greater focus upon the market than is implied by a narrow "hypothetical negotiation" test. All the opportunities for licensing to other companies should be evaluated in determining the reasonable royalty.

The analytical method is different from the investment return method (discussed below). It is less comprehensive and, because it focuses on historical costs, does not directly take into account market values. However, when comprehensively computed, a "normal profit margin" begins to look like economic profit and that, in turn, begins to move toward the result produced by investment return analysis.

3.5.3 Investment Return Analysis: The Economic Return from Intellectual Property ¹²¹

One approach to the estimation of reasonable royalties (or the negotiation of licences in general) is to determine the royalty rates that will provide an investment-quality return on the hypothetical licensee's assets that are contributed to the licensing relationship. Excess return resulting from use of the intellectual property or licence should be available to pay the reasonable royalty.

A commonly accepted standard for a company's minimum return on assets invested is its weighted average cost of capital (WACC). The WACC is the return needed to service the economic capital required by the firm. It is sufficient to service the notional debt and provide a fair rate of return on invested equity.

WACC is objectively determinable and is independent of the actual debt and equity of a particular firm. It is dependent on the optimal capital structure of the particular firm. The optimal capital structure is a function of a broad diversity of market and industry factors as well as considerations unique to the firm such as culture, management, and other company-specific risks.

For example, assume that "Infringer" is a division of a large company. Assume that Infringer's sole product line infringes a patent claiming subject-matter essential to the sole product line.

Assume that Infringer has \$30 million equity at fair market value and \$10 million of long-term debt, for a total divisional pre-debt value of \$40 million. Furthermore, assume that a fair rate of return on equity is 13 percent, and the debt requires a return of 6 percent after tax to finance the interest payments. Fair or not, the Infringer was making \$7,000,000 after tax, much more than the \$4,500,000 required for the WACC and debt service.

The WACC can be calculated as in table 1 to give a required return for the division as a whole of 11.25 percent. (An important sanity check is to reconcile the 11.25 percent with comparable market-based data.)

Table 1 WACC Calculation

Capital component	Amount	Percent of total	Cost of capital	WACC
Equity	\$30,000,000	75%	13%	9.75%
Debt	\$10,000,000	25%	6%	1.5%
Total	\$40,000,000	100%		11.25%

The assets of Infringer can be categorized and individually valued. This valuation should not be performed dogmatically or according to generally accepted accounting principles, but expansively, to take into account identifiable and unidentifiable intangible complementary assets such as intellectual capital and goodwill as well as traditional tangible assets.

The value of working capital and fixed assets may be found from Infringer’s financial statements. The identifiable and other intangible assets can be valued by a business valuator.¹²² Subtracting all these from the total value of the defendant division, as if it were not infringing, leaves the value that the marketplace ascribes to the right to use the intellectual property (assuming that it is not infringing). It follows that by subtracting all the known values from \$40 million, the residual or default amount is \$16 million attributable to intellectual property, as can be seen from table 2.

Table 2 Value of Infringer’s Various Assets

Asset category values		
	Value	Percent of total
Total	\$40,000,000	100%
Working capital	(\$16,000,000)	40%
Fixed assets	(\$4,000,000)	10%
Intangible assets other than intellectual property	(\$4,000,000)	10%
Intellectual property	\$16,000,000	40%

Having determined the various asset values and knowing the overall WACC, what is the acceptable rate of return for each of the asset categories?

The acceptable rate of return for individual assets depends on their inherent risk, which depends on a number of factors. Cash holdings are completely liquid and low risk, and should be assigned an equally safe rate of return—say, equal to the rate of return on 90-day guaranteed investment certificates (GICs). Fixed tangible assets are still fairly liquid, because they can be sold to other companies or put to an alternative use, so a fair rate of return might be that available for commercial bank loans: higher than for liquid cash, but still fairly low.

Intangible assets are often more vital than tangible assets but they are sometimes valuable only in the company-specific context. They are often not transferable. In the past, they were perceived to be, and may still be perceived to be, less valuable than tangible assets. This perception is changing. Technology, knowledge, and human-capital-based firms all prove the very high value of

intangible assets. Historically, intangible assets have been entitled to a higher rate of return than tangible assets. This remains true today.

The required rate of return on the \$16 million of intellectual property of Infringer can be determined by the default method, just as was its value. By applying the known required rates of return on all the other assets, it is easy to determine the return that is required on the intellectual property to produce the overall 11.25 percent WACC.

Table 3 Required Rate of Return

	Value	Percent of total	Required rate of return	Weighted rate of return
Total	\$40,000,000	100%		11.25%
Working capital	\$16,000,000	40%	8%	(3.2%)
Fixed assets	\$4,000,000	10%	10%	(1%)
Intangible assets	\$4,000,000	10%	14.1%	(1.41%)
Intellectual property (other than the infringing IP)	\$16,000,000	40%	14.1%	5.64%

Since working capital is inherently the most liquid asset of a company, it is a low-risk investment, so it can be assigned a safe rate of return—say, equal to the rate of return on 90-day GICs (8 percent). The fixed, tangible assets have a higher risk component than working capital, but are still fairly liquid, because most fixed assets can be sold to other companies or put to an alternative use if the present use fails.¹²³ A fair rate of return would be that available for commercial bank loans, assumed to be 10 percent. From these, the first two lines of table 3 may be filled in. We also know the required WACC at 11.25 percent. To achieve the WACC, it is straightforward to calculate that Infringer needs a return of 14.1 percent on its intangible assets.

Once the return on the intellectual property required for the licensee company to achieve its WACC is known, it is a mechanical exercise to use the company's pre-debt net income after tax to determine the maximum royalty the hypothetical licensee could pay and still generate an investment return on the assets it gives to the hypothetical licensing relationship.¹²⁴

Infringer's pre-debt net income after taxes is \$7 million. Of this, \$4.5 million is required to satisfy the WACC and debt service. Remember that, within the \$4.5 million, an adequate return was made on all complementary assets, includ-

ing identifiable intangibles under the infringing product line. That leaves \$2.5 million after tax of extraordinary profit, which in this example is exclusively attributable to the benefit of the infringed patent.

Assuming that income is taxed at a rate of 50 percent, the \$2.5 million after-tax profit attributable to the infringed patent translates to \$5 million pre-tax. This is the aggregate annual income that would be available to pay a royalty. If 100,000 units of the product were sold annually, then notionally each would bear a \$50 royalty. If each unit would have sold for \$500 (including the royalty), then the royalty would have been 10 percent. In other words, \$50 divided by \$500 implies that it was a 10 percent royalty.

As may be seen from this analysis, the royalty of 10 percent is only a derivative calculation. What is essential is the number of dollars that ought to have been captured by the royalty. If the product had sold for \$250 instead of \$500, the royalty would still have been \$50, but the notional royalty would have been roughly double, or approximately 20 percent.

One of the arguments that can be put forward against the above methodology is that the required return of 14.1 percent on intellectual property includes a profit to which Infringer is not entitled. If this is the philosophy of the law, the required return should be reduced to a lower level and the royalty increased.

Note how the above analysis has focused solely on the infringer. Given that the calculation is for damages and not profits to be disgorged, we must now look at the circumstances of the rights holder or plaintiff and assess its operating reality.

The estimated \$5 million pre-tax per annum royalty might be reasonable as a starting point. It might also be a reasonable ending point if none of the complementary assets to manufacture the product were owned by the plaintiff.

If, however, all the complementary assets, including the intellectual property asset, were in place or accessible to the plaintiff, then the plaintiff's damages should increase by approximately the required rate of return on each of the complementary assets it was not otherwise able to put to use. For example, assume that the plaintiff was able to otherwise use its working capital. Assume also, however, that its fixed assets, identifiable intangibles, and the intellectual property (an aggregate of \$24 million) were left idle as a result of the infringement—this is the key. In this situation, it would be reasonable to increase the damages by the required rate of return. The damages would increase to the sum of 10 percent on \$4 million of fixed assets (\$400,000) plus 14.1 percent on \$4 million of identifiable intangible assets (\$564,000) plus 14.1 percent on the intellectual property of \$16 million (\$2,256,000), or \$3,220,000. The aggregate after-tax royalty would thus increase to \$5,720,000 (\$2,500,000 plus \$3,220,000). This is an increase of \$6,440,000 pre-tax (\$3,220,000 divided by 50 percent), or \$64.40 per unit, increasing the aggregate royalty to \$114.40 per unit, or \$11,440,000.

One's first comment on the foregoing calculations might be that this large royalty does not seem reasonable. In a sense it is not. But the objective is to compute damages suffered by the plaintiff. In effect, the plaintiff lost an amount equivalent to Infringer's pre-debt net income after tax of \$7 million *less* the mitigating benefit of deploying \$16 million of working capital. That is to say, the plaintiff lost \$7 million after tax *less* \$1,280,000 of after-tax income earned on the working capital by mitigation, for a net loss of \$5,720,000 after tax, or \$11,440,000 before tax and \$114.40 per unit. The two approaches come to the same end.

An investment return approach can produce a highly defensible assessment of the range of royalties that would be acceptable to a hypothetical licensee in a licensing negotiation.¹²⁵ However, the approach is silent as to the determination of the actual reasonable royalty within this range. This final assessment is made by weighing the factors described under the 25 percent royalty rule.

3.6 The Royalty Base

A factor that has not received great attention in the Canadian case law is the definition of the royalty base, the amount on which the reasonable royalty is to be applied. Generally, the base is sales. However, it may be difficult for the licensor to verify the actual level of use of the technology by the licensee, or the technology may also create irregular but significant convoyed sales. In such cases, the licensor may prefer that the royalty be at least partially based on verifiable sales of products that do not incorporate the licensed technology.

It is questionable whether a court would be willing to entertain such an argument if it would result in significant differences in the size of the damages award. However, there may be cases where the court has greater confidence in the proof offered of the size of one royalty base compared with another. In such cases, the court may feel more comfortable choosing the more reliable royalty base as a basis for the damages calculation.

3.7 Reasonable Royalty as a Default

As noted above, there are some cases in which the defendant had clearly infringed the plaintiff's right, and yet on the facts the plaintiff cannot prove either that it would have made the defendant's infringing sales or that it would have negotiated a licence. Put loosely, the defendant's use "has not hurt" the plaintiff.

In such cases the plaintiff is entitled to a reasonable royalty, ultimately for the pragmatic reason that, "[o]therwise, that property which consists in the monopoly of the patented articles granted to the patentee has been invaded, and indeed abstracted, and the law, when appealed to would be standing by and allowing the invader or abstractor to go free."¹²⁶

Although the rule is clear, there is some dispute as to whether this result is

based on principles that are compensatory or restitutionary.¹²⁷ The argument for the restitutionary view is that the award cannot be compensatory because the plaintiff did not lose sales and would not have licensed. The counterargument is that the plaintiff would have been entitled to demand that the defendant license the invention or face an injunction to stop its production, and therefore what it lost was “the opportunity to sell to the defendant the right to use the plaintiff’s property.”¹²⁸

In any event, the issue is rarely raised and from a practical point of view unimportant, since a hypothetical royalty as discussed above will usually fall in a range satisfactory under either the compensatory or the restitutionary approach.

This issue might be important if the court is faced with a clash between a defendant’s low profitability and a high value placed on the intellectual property in the marketplace. For example, suppose that a plaintiff has a Canadian patent but does not enter the Canadian marketplace. A small and inefficient Canadian company infringes the patent. The defendant argues that it would not have rationally agreed to a royalty larger than its profit. The plaintiff, however, proves that if it had licensed the patent to efficient Canadian companies, it could have obtained twice the profit of the defendant as a royalty. How should the royalty be set?

The restitutionary argument suggests that the defendant’s profit should limit the award. However, the same conclusion may follow from the compensatory approach, if the underlying wrong is that the defendant denied the plaintiff an opportunity to license the defendant, not the opportunity to license in the Canadian market. Recall that the defendant is only responsible for damage stemming from its infringing actions, not for damage stemming from the plaintiff’s own decisions.

Similar arguments can be constructed in the case where a patentee sold in a market directly, but the defendant made sales that the plaintiff or its hypothetical licensees could not have made.¹²⁹

In the absence of relevant case law, these issues remain unresolved.

3.8 (Non-)Confiscatory Royalties

An interesting alternative to traditional damages and accounting of profits awards has arisen in the federal courts. In *Unilever PLC v. Procter & Gamble*, Muldoon J. sought to reconcile an avoidance of the difficulties of an accounting of profits with the reluctance of plaintiffs to reveal sensitive information to prove their damages by awarding damages “calculated upon a generous, but non-confiscatory, rate of royalty.”¹³⁰ His reasoning is best explained in an unrelated ruling on a motion in the *Scientific Games* case:

[Accounting of profits is a difficult remedy, and should be avoided where possible. However, some commentators object to this because]

when patentees are limited to a remedy in damages, they may thereby be obliged to disclose to the infringer, possibly a competitor in trade, information which could prove compromising to the patentee's business. But such would not be the case at all if damages were equated to royalties which could be, in the Court's discretion, non-confiscatory or indifferent as to whether confiscatory or not. Then no disclosure would be needed from the successful plaintiff. It would be up to the defendant to prove at what level royalties would be confiscatory or not.¹³¹

The award in the *Unilever* case was upheld by the Federal Court of Appeal, which explicitly recognized that the award could be higher than the maximum royalty the defendants would have accepted in a hypothetical negotiation:

Here, the respondents asked the trial judge to award the equitable remedy of accounting for the profits earned by the appellants by reason of their infringement. ... For their part, the appellants asked that the award be limited to what they would have had to pay if, instead of infringing the patent, they had become licensees of the patentee. For the reasons which he gave, the trial judge chose a middle ground. That choice is not prohibited by authority or by the language of s. 55(1) of the [*Patent Act*] and, in my view, is consistent with that language.¹³²

It should be noted that the "generous, but non-confiscatory rate of royalties" in *Unilever PLC v. Procter & Gamble* is likely not equivalent to a reasonable royalty. Typically, a reasonable royalty is struck as the midpoint within a reasonable range of royalties. A "generous, but non-confiscatory rate of royalties" might be at the high end of the range, although not so high as to be an unreasonable award.

The "generous" award was designed to deliver the "middle ground between accounting for the profits earned and the royalty that the infringer would have had to pay if, instead of infringing the patent, they had become licensees." Perhaps "generous" and the emphasis on middle ground between accounting for the profits earned and the royalty might push a generous but not confiscatory rate of royalties modestly beyond the range of reasonable royalties. This excess would have to be struck in light of what royalty would produce an amount equivalent to an accounting for profits. Muldoon J. further explained this award on a later motion for discovery:

That the damages were ordered not to be confiscatory—a restraint on the plaintiffs and a benefit to the defendants—is why the defendants' profits (at least gross and net revenues from sales) are needed to be known to the referee lest he award damages by way of royalties which inadvertently slip over the line and actually confiscate some of the defendants' profits. ... [I]t can be seen that not a penny of the defendants' net profits or revenues can be awarded, but such profits need to be known and disclosed, as a datum, in order to avoid including any in the award of damages. This is common sense and ought to be clear

even to a retained expert. ...

... If [the defendant]'s priority be not to disclose profits at all costs, it may renounce or waive its "non-confiscatory" benefit and take the risk that the referee's award of "generous" and "in excess of" generous royalties might well be confiscatory. ...

... After all, while the defendants' net revenues are immunized from payment of damages by the non-confiscation provision, the damages-by-way-of-royalties obviously must be paid to the plaintiffs out of the defendants' gross revenues.¹³³

Although the reference in the *Unilever* case was heard, no decision was released and the case has presumably settled.

The remedy, as described in the above three sets of reasons, presents a number of difficulties. First, the term "non-confiscatory" is somewhat opaque. Muldoon J. states that "not a penny" of the defendants' net revenues or profits may be awarded. However, net revenues, speaking generally, are determined by subtracting costs from gross revenues. Does the non-confiscatory reasonable royalty therefore have a ceiling of the defendant's costs? Perhaps a better interpretation of "non-confiscatory" is that it ought not to reduce the defendant's profits below its WACC.

It appears from the reasoning above that the defendant, if it wishes, may try to limit the size of the award by disclosing its profits. If we leave aside Muldoon J.'s statement in the motion for discovery that not a penny of the profits is to be awarded, it appears that the defendant may prove its profits so that the referee can ensure that the generous royalty is not "too large" or "confiscatory," although no guidance on how that is to be assessed is provided. It might be suggested that the generous but non-confiscatory royalty award lies somewhere between the awards of damages assessed by a reasonable royalty and an accounting of profits.

If this is the case, then the award leaves room for many battles over discovery, as the plaintiff will naturally wish to determine whether the net revenues presented by the defendant are reasonable. Issues such as absorption costing and apportionment can also arise. In short, determining the defendant's profits to determine whether the royalties are non-confiscatory could simply re-introduce the difficulties from an accounting of profits.¹³⁴

Similarly, setting the non-generous royalty "floor" without information from the plaintiff may also be problematic. The determination as stated appears to contemplate setting the rate based on the defendant's actual profits, actual sales, and, conceivably, industry-standard royalty rates. However, as canvassed above, an assessment of the "normal" or non-generous royalty should include considerations of the plaintiff's other options in exploiting the intellectual property.

It is also unclear whether the generous, non-confiscatory royalty award is limited to cases where a reasonable royalty normally applies.¹³⁵ If not, this remedy's floor of reasonable royalties potentially overcompensates the plaintiff, while its ceiling of the defendant's profits potentially undercompensates it.

Finally, from a theoretical point of view, this award also begins to lose contact with the principle of restoration. The award appears to simply find a monetary amount within the range of possible awards, while possibly approximating neither an accounting of profits award nor a restorative award.

4.0 MISCELLANEOUS ISSUES

4.1 Income Taxes

Generally, an award of damages in intellectual property will be taxable to the recipient as normal business income. However, it may happen that the nature of the award makes it a capital receipt and, hence, the amount will be subject to capital gains.

Typically, profits earned by the infringer have been taxed as normal business profits and payment of the damages award will be deductible. As a practical matter, we suspect punitive damages are also regularly deducted from and included in taxable income, respectively, by the defendant and the plaintiff. However, there is academic thinking to the contrary.¹³⁶

Consequently, damages are generally computed on a "pre-tax" basis and are not reduced for income taxes.

4.2 Transfer Pricing

Transfer prices are the prices at which related parties trade goods and services, including intellectual properties, across international borders. When related companies transact, it is possible for them to manipulate the licences or prices they charge each other to shift profits to the company in the lower-tax jurisdiction. At an international level, the Organisation for Economic Co-operation and Development (OECD) has issued guidelines¹³⁷ on the treatment of international related-company transactions for tax purposes calling for use of the "arm's-length principle." As stated by the Canada Revenue Agency (CRA):¹³⁸

The arm's length principle requires that, for tax purposes, the terms and conditions agreed to between non-arm's length parties in their commercial or financial relations be those that one would have expected had the parties been dealing with each other at arm's length.¹³⁹

This approach has been adopted by tax authorities in Canada, the United States, and other countries. Generally, if the tax authority finds that the reported conditions of related-party transfers are not what would be agreed to between "arm's-length" companies, it may reassess the transaction, substituting

what it thinks to be the appropriate arm's-length royalty.¹⁴⁰ Many tax authorities, including the CRA and the Internal Revenue Service (IRS), are now requiring increased documentation and justification for royalty rates used in the tax treatment of intercompany transfers of intellectual property. If the reporting company does not make reasonable efforts to determine and use arm's-length transfer prices, a penalty may be applied in addition to tax and interest charges.¹⁴¹

The “arm's-length” principle for tax purposes is similar to the courts' definition of the reasonable royalty, reflecting the terms and conditions of a hypothetical negotiation between arm's-length parties. Furthermore, the tax authorities prescribe preferred methods for analysis that are broadly similar to the reasoning used by the courts and put forth in this article. For example, the CRA prefers that parties use one of three closely related “traditional” transfer-pricing methods—comparable uncontrolled price (CUP), resale price, and cost plus—to establish the appropriate arm's-length royalty. All these methods involve a comparison of the transaction under examination with features of known comparable transactions.¹⁴²

However, the CRA recognizes that “it may be very difficult to find intangibles which are comparable,” particularly for intangibles that are capable of delivering super-competitive levels of profits, and suggests that

to the extent that excess profits are generated by a highly valuable or unique intangible, it would be unusual that all the excess profits would accrue to either the supplier or the user of the intangible. In such cases, the residual profit split method may often be the most appropriate method.¹⁴³

(The residual profit split method first determines the total profit earned by the parties from the transaction and then splits the profit among the involved parties. It is similar to the methods described above in section 3.5, “The Sharing of Future Profits.”)

Both the IRS and the CRA require companies to submit and maintain documentation supporting their claimed royalties. The CRA specifically suggests that this documentation include:

- a description of the intangible property, potential market application, and advantages the intangible property provided in the particular market;
- the prevailing industry royalty rates;
- the terms of the licence, including geographic limitations, time limitations, and exclusivity rights;

- the singularity of the invention and the period for which it is likely to remain unique;
- technical assistance, trade-marks, and know-how provided along with access to the patent;
- profits anticipated by the licensee; and
- benefits to the licensor arising from sharing information on the experience of the licensee.¹⁴⁴

Although such evidence has not yet appeared in the Canadian case law, such documented assessments and reports could become crucial evidence in Canadian intellectual property litigation, particularly in cases involving Canadian subsidiaries of foreign corporations. As is noted by Olsen and Hampe in the U.S. context, courts might find such evidence persuasive for a number of reasons:

The goal and types of factors used by the transfer pricing economist to develop an arm's-length royalty rate are the same as traditional reasonable royalty analysis; however, the methodologies require a rigorous and fully documented study. These methodologies have the imprimatur of the US Government and are the result of vigorous, adversarial procedures between the IRS and private corporations. ... Secondly, companies in litigation may have in their files significant amounts of contemporaneous documentation on the value of their intellectual property.¹⁴⁵

The acceptance of such evidence may in some cases relieve the referee of some of the burden of determining reasonable royalty rates. However, the referee should keep in mind that differences in market position and capabilities between the subsidiary transferee and the infringing company should affect the determination of the reasonable royalty accordingly.

There is also a major difference between estimating transfer prices and reasonable royalties that may limit the application of transfer-pricing evidence in intellectual property litigation. When assessing transfer pricing, the tax authorities must generally take the transacting parties as they find them. That is, if the transaction being examined is between companies A and B, the arm's-length principle requires the taxpayer to justify what conditions would result if an arm's-length deal were reached between companies A and B, not what company A might receive if it placed the intellectual property on the open market. As noted above, the reasonable royalty determination generally requires an assessment of what the rights holder could have received in the open market, not the royalty at which it could have licensed the infringer.

Timing of the assessment also becomes crucial in cases where the infringement is not contemporaneous with the transfer-pricing evidence. Since an intellectual

property's value is based on its future ability to generate above-normal profits, this value may change over time as markets shift—for example, positive clinical studies may be reported for a patented drug candidate, or complementary technologies may be developed that increase demand for a patented product. In such a case, an earlier transfer-pricing report may be obsolete.

Only in limited cases (in Canada, when the transaction “can reasonably be considered not to have been entered into primarily for *bona fide* purposes other than to obtain a tax benefit”¹⁴⁶) can the tax authority “recharacterize” the transaction to reflect the quantum of royalty and the terms and conditions that a rights holder might have received on the open market.¹⁴⁷ Cases where this occurs must first be reviewed by the Transfer Pricing Review Committee in Ottawa and, over time, this committee may deliver decisions relating to intellectual property that would be interesting in the infringement context.

4.3 Pre-Judgment Interest

Similar to the question of limitation periods, the availability of pre-judgment interest in damages awards is not addressed in the federal intellectual property statutes, and so is subject to various provincial acts as determined by the *lex causae*.

The Ontario *Courts of Justice Act*, for example, explicitly gives judges the discretion to award pre-judgment interest. In *AlliedSignal*, the referee decided that the award was limited to simple interest, unless the parties had contemplated compound interest in the past,¹⁴⁸ and was calculated according to the interest rates found in the *Canada Gazette*. Although the referee had the discretion to vary the rate, evidence that the plaintiff had achieved a much higher return on investment over the relevant period failed to persuade him to award a higher rate of interest, based on the facts of the case at bar.¹⁴⁹ We believe this is because there was no lost investment opportunity. There was no evidence to demonstrate that had the plaintiff not suffered the damages, it would have earned more than interest on these profits. Finally, the federal *Currency Act* requires that all judgments be given in Canadian dollar amounts. Heald D.J. ruled that the “breach-date rule”¹⁵⁰ did not apply because there was no breach date for an ongoing infringement, and converted the award at the date of judgment.

Where large sums are involved over an extended period of time, the benefit to the plaintiff of receiving pre-judgment interest on pre-tax damages can be substantial. The plaintiff would not normally have had the benefit of compound interest on pre-tax profits and, hence, care needs to be taken to derive the appropriate pre-judgment interest amount having regard to this anomaly.

It is possibly most appropriate, in light of the above anomaly, that if compound interest is to be awarded, it should be pre-tax interest compounded on after-tax amounts—that is, pre-tax interest equivalent to an after-tax compounding calculation.

4.4 Pre-Grant Damages

Under s. 55(2) of the *Patent Act*,¹⁵¹ a patentee is eligible for “reasonable compensation” for any damage sustained between the date the application is laid open and the date of the grant of the patent for any activities that would have infringed the patent had it been in force. To date, only one case has discussed this section, and it did not actually make an award.¹⁵² It is unknown how the reasonable compensation should be assessed, and what relation it might have to damages as normally assessed.

5.0 CONCLUSION

The determination of damages in a patent case, or indeed any intellectual property case, can be difficult, particularly if the matter is hotly contested between two parties willing to commit considerable resources to litigation. The assessment involves the argument of hypotheticals, and damages arguments can involve complex market and economic analysis not dissimilar to a competition law analysis.

Owing to the recent run of patent cases in which accountings of profits were awarded, the complete range of damages considerations has not been fully canvassed in modern Canadian intellectual property law. However, cases may well arise in the future that will raise a number of difficult points. It should be remembered that in assessing damages the courts are usually applying Lord Shaw’s “broad axe” in attempting to reach a correct decision, but they are not necessarily concerned with perfection. In assisting the courts in this task, participants might be guided by the essential business economics underlying damages calculations, and the even older advice to “keep it simple.”

ENDNOTES

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1 “Damages” can be used as a generic term that refers to both an accounting of profits and compensatory damages. For the sake of clarity, this article will strive to use “damages” only in reference to compensatory damages.

2 A.J. Stack, A.S. Davidson, and S.R. Cole, “Damages Calculations in Intellectual Property Cases in Canada” (2001), 18(1) *C.I.P.R.* 1.

3 “Accounting of Profits Calculations in Intellectual Property Cases in Canada,” draft on file available from the authors, updating A.J. Stack, A.S. Davidson, and S.R. Cole, “Accounting of Profits Calculations in Intellectual Property Cases in Canada” (2001), 17(2) *C.I.P.R.* 405.

4 *Gerber Garment Technology v. Lectra Systems Ltd.*, [1997] R.P.C. 443, at 452 (C.A.), per Staughton L.J.

5 These are general tort principles. In the patent context, see Lord Wilberforce in *General Tire v. Firestone*, [1976] R.P.C. 197, at 212 (H.L.), citing *Pneumatic Tyre v. Puncture Proof Pneumatic Tyre* (1899), 16 R.P.C. 209, at 215 (C.A.): “There are two essential principles in valuing that claim: first, that the plaintiffs have the burden of proving their loss: second, that the defendants being wrongdoers, damages should be liberally assessed but that the object is to compensate the plaintiffs and not punish the defendants.”

6 The same “but for” test is also used in assessing patent damages in U.S. law: see *Rite-Hite Corp. v. Kelley Co.*, 56 F. 3d 1538, at 1545, 35 U.S.P.Q. 2d 1065 (Fed. Cir. 1995) (en banc).

7 See *Cadbury Schweppes v. FBI Foods*, [1999] 1 S.C.R. 142, at para. 73.

8 *Watson Laidlaw Co. Ltd. v. Pott, Cassells and Williamson* (1914), 31 R.P.C. 104, at 117-18 (H.L.). This reliance on an imaginative and flexible assessment was also reflected by Lord Buckley in *Meters Ltd. v. Metropolitan Gas Meters Ltd.* (1911), 28 R.P.C. 157, at 166 (C.A.), who said: “the whole subject-matter [of the calculation of damages] is one that is not capable of being mathematically ascertained by any exact figure.” See also *Colonial Fastener Co. v. Lightning Fastener Co.*, [1937] S.C.R. 36, at 44: “The first problem is to determine whether the plaintiff would have made all these sales and even a cursory examination of the evidence would indicate that this is clearly a case where the broad axe referred to by Lord Shaw in *Watson v. Pott* should be applied.”

9 As the Court of Appeal noted in *Gerber*, *supra* note 4, the foreseeability requirement is in principle a form of remoteness, but it is so well established that it is normally treated as an independent requirement rather than as a species of remoteness. Accordingly, for convenience we will use “remoteness” to mean remoteness issues other than foreseeability.

10 John G. Fleming, *The Law of Torts*, 9th ed. (Sydney: Law Book

Company, 1998), 240.

11 However, remoteness may be a live issue with respect to more unusual damages claims: see the discussion below in section 2.5, “Losses of Subsidiary Companies.”

12 *Gerber Garment Technology v. Lectra Systems*, [1995] R.P.C. 383, at 400 (Pat. Ct.); largely aff’d. *supra* note 4 (C.A.).

13 This is simply a statement of the general rule in the economic context. See also *Livingstone v. Rauryards Coal Co.* (1880), 5 A.C. 25, at 39, per Lord Blackburn, quoted by Heald D.J. in *AlliedSignal Inc. v. DuPont Canada* (1998), 78 C.P.R. (3d) 129, at 137-38 (F.C.T.D.—D.J.): “The general rule at any rate in relation to ‘economic’ torts is that the measure of damages is to be, so far as possible, that sum of money which will put the injured party in the same position as he would have been in if he had not sustained the wrong.”

14 If the patent is a process patent, the plaintiff will generally be able to claim damages for lost sales of products made by the machine: see *Colonial Fastener*, *supra* note 8, at 26-27.

15 See *AlliedSignal*, *supra* note 8, at 139.

16 In general tort law, see Major J.’s discussion in *Athey v. Leonati*, [1996] 3 S.C.R. 458, at paras. 31-32 (under the heading “Independent Intervening Events”). Major J. cites the House of Lords in *Jobling v. Associated Dairies Ltd.*, [1981] 2 All E.R. 752 (H.L.). In *Jobling*, a plaintiff had suffered a back injury due to the negligence of the defendant. Damages were reduced because an unrelated spinal disease that developed after the injury would have proved totally disabling within a few years. Thus, hindsight was used to determine that the plaintiff would have become disabled even but for the accident. (On the facts in *Athey*, where the plaintiff’s back was negligently injured in two traffic accidents by the defendants, and the plaintiff subsequently suffered a herniated disc during recovery, the Supreme Court ruled that there was no applicable independent intervening event.)

17 *AlliedSignal*, *supra* note 13, at 141.

18 *United Horse-Shoe & Nail Co. v. Stewart & Co.* (1888), 5 R.P.C. 260, at 264, L.R. 13 App. Cas. 401 (H.L.); *Meters Ltd. v. Metropolitan Gas Meters Ltd.* (1910), 27 R.P.C. 721, at 731 (Ch. D.); aff’d. on this point, *supra* note 8.

19 *Meters*, *ibid.*, at 731.

20 *Catnic Components v. Hill & Smith*, [1983] F.S.R. 512, at 522 (Pat. Ct.) and *Hamilton Cosco v. Featherweight Aluminum* (1965), 47 C.P.R. 40 (Ex. Ct.—Registrar). In the latter case, it was found that the plaintiff, an American company, had an ineffective distributor in Canada (evidence was introduced

that many large department stores in prominent cities had never heard of the distributor), so it would have only captured 20 percent of the defendant's sales, rather than 80 percent in the presence of a functioning distribution system.

21 *Meters, supra* note 18, at 731; *Catnic, supra* note 20, at 522.

22 *Domco Industries Ltd. v. Armstrong Cork Canada Ltd.* (1983), 76 C.P.R. (2d) 70, at 92 (F.C.T.D.—Prothonotary); *var'd.* (1986), 10 C.P.R. (3d) 53 (F.C.T.D.).

23 *Domco, ibid.*, at 62 (F.C.T.D.).

24 *Domco, supra* note 22, at 92 (F.C.T.D.—Prothonotary); *Catnic, supra* note 20, at 522.

25 *Supra* note 13, at paras. 31-33.

26 For example, the product was a special-purpose plastic film supplied in rolls, and the plaintiff's rolls sometimes unrolled prematurely: *ibid.*, at para. 61. See also the discussion of the GenCorp customer at paras. 85-92.

27 See the discussion of the GenCorp customer, *ibid.*, at paras. 85-96.

28 Alternatively, market surveys can be used to show that customers would buy the product if it were available to them.

29 This point is discussed in M.B. Stewart, "Calculating Economic Damages in Intellectual Property Disputes: The Role of Market Definition" (April 1995), *J.P.T.O.S.* 321. Stewart writes (at 334): "Most antitrust issues cannot be analyzed in a meaningful way without consideration of the relevant market in which the act in question took place. Much the same can be said of damages in intellectual property disputes. Except for two polar cases—the 'garage inventor' for whom lost profits are not in issue and the wronged (patent-holding) manufacturer or seller who could reasonably have expected to make all of an infringer's sales—the plaintiff in a patent dispute cannot be made whole without an explicit consideration of the relevant market(s) in which the patented product and the infringing product competed for sales."

30 This was the approach taken by Heald D.J. in *AlliedSignal, supra* note 13, where there were only nine infringing sales.

31 These approaches were discussed in "Accounting of Profits Calculations," *supra* note 3. In differential costing, fixed costs are not deducted from revenues to determine profits; in absorption costing, some portion of fixed costs is deducted. Hence, the use of absorption costing decreases the quantum of profits.

32 *Domco, supra* note 22, at 65 (F.C.T.D.).

- 33 *Domco, supra* note 22, at 89 (F.C.T.D.—Prothonotary).
- 34 Quaere whether this is equivalent to mitigation. For a study of the differential profits argument in the accounting of profits context, see “Accounting of Profits Calculations in Intellectual Property Cases in Canada,” *supra* note 3.
- 35 *Meters, supra* note 18, at 731, per Eve J.; aff’d. on this point, *supra* note 8.
- 36 *Catnic, supra* note 20, at 522, per Falconer J.
- 37 *United Horse-Shoe, supra* note 18.
- 38 *Domco, supra* note 20 (F.C.T.D.).
- 39 See Collier J., *ibid.*, at 61-62.
- 40 (1886), 14 Court Sess. Cas. (4th) 266, at 275.
- 41 *Ibid.*
- 42 In modern law, the plaintiff would therefore be eligible for a reasonable royalty on the infringing sales.
- 43 The Lord Ordinary ruled for the plaintiff, on the basis of a legal presumption that a patented invention must necessarily be useful. The Lord Ordinary noted that on the facts it appeared that the patented inventions did not provide a practical advantage, but he was of the view that because the patent was admitted to be valid, it must be presumed as a matter of law that the invention was indeed useful in saving waste, notwithstanding the evidence to the contrary. Court Sess. Cas., *supra* note 40, at 268. This view is clearly not correct in modern patent law.
- 44 Per Lord Adam, *ibid.*, at 276. However, the defendant did realize a small cost saving through the use of the invention. The Court of Session would have awarded £50 as the difference between the defendant’s profits with and without the use of the invention. This is an application of the “differential profits” approach to an accounting of profits: see “Accounting of Profits Calculations,” *supra* note 3.
- 45 Lord Watson also stated that “if these parts are not commercially useful ... it would necessarily follow, either that the patent was void or that there was no substantial infringement which could entitle the patentee to an interdict.” *Supra* note 18, at 267. If this were the sole basis for the decision, it would be clear that it is no longer good law.
- 46 *Ibid.*, at 409. Similarly, also per Lord Halsbury, *ibid.*, “I think it is

nothing to the purpose to shew, if it is shewn, that the defenders might have made nails equally good and equally cheap without infringing the pursuers' patent at all."

47 *Ibid.*, at 416. Lord Watson's decision might be said to turn on the lack of proof of an alternative non-infringing process of equal efficacy (see his remarks at 414), but he did remark (at 412) that the principle in *Mowry v. Whitney* was "manifestly erroneous."

48 *Supra* note 18.

49 *Ibid.*, at 116.

50 *Ibid.* This aspect of the decision was approved on appeal, although the English Court of Appeal expressed reservations about the plaintiff not receiving a royalty on the sales the plaintiff would not have captured. See *Meters*, *supra* note 8.

51 *Monsanto Canada Inc. v. Schmeiser*, 2004 SCC 34, [2004] 1 S.C.R. 902 ("*Schmeiser*"), at para. 102.

52 *Cadbury Schweppes Inc. v. F.B.I. Foods Ltd.*, [1999] 1 S.C.R. 142.

53 The plaintiff also sought a permanent injunction, which was denied by the Supreme Court.

54 While the basis for the award was equitable compensation rather than damages, the court noted that potential doctrinal differences were not relevant: *supra* note 1, at para. 51.

55 *Ibid.*, at para. 64.

56 *Supra* note 52.

57 Specifically, the plaintiff's patent covered genes that conferred herbicide resistance on the adult plant.

58 *Monsanto Canada v. Schmeiser* (2001), 12 C.P.R. (4th) 204, at para. 121 (F.C.T.D.); (2002), 21 C.P.R. (4th) 1, at para. 78 (F.C.A.).

59 These subsidiary tests do not displace or change the underlying "but for" test: see *Micro Chem. v. Lextron*, 318 F. 3d 1119, at 1122 (Fed. Cir. 2003).

60 *Panduit Corp. v. Stablin Brothers Fibre Works, Inc.*, 575 F. 2d 1152, at 1156 (6th Cir. 1978) (citations omitted).

61 The third and fourth *Panduit* factors apply equally in Canadian law as

prerequisites to lost profit damages, as discussed above.

62 Other U.S. “tests” are not really tests at all, but simply represent permissible inferences of fact. The market share approach may be used when there are several competitors, all selling infringing products, and the patentee has sued only one competitor. The defendant cannot argue that the other competitors, and not the plaintiff, would have made the sales had it not infringed. Instead, it can be inferred that the plaintiff would have captured its market share of the defendant’s sales: *State Indus. Inc. v. Mor-Flo Indus. Inc.*, 883 F.2d 1573, at 1577-78, 12 U.S.P.Q. 2d (BNA) 1026, at 1028 (Fed. Cir. 1989); cert. denied, 493 U.S. 1022 (1990). The two-supplier-market test applies in the special case where there are only two suppliers in the market, the patentee and the defendant. In such a case, “it is reasonable to assume, provided the patent owner has the manufacturing and marketing capabilities, that it would have made the infringer’s sales.” *Micro Chem., ibid.*, at 1124. See also *Lam Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, at 1065 (Fed. Cir. 1983): “where ... the patent owner and the infringer were the only suppliers of the product, causation may be inferred.”

63 See *Colonial Fastener*, *supra* note 8, and *American Braided Wire Co. v. Thomson & Co.* (1890), 7 R.P.C. 152 (C.A.).

64 Indeed, price reduction may be seen as a form of mitigation, as the rights holder will want to respond in a way that will minimize its losses; it would be perverse to require the plaintiff to incur extraordinary losses by maintaining an uncompetitive price in the face of infringing competition in order to preserve its damages claim.

65 See *United Horse-Shoe*, *supra* note 18.

66 *Colonial Fastener*, *supra* note 8, at 30 (S.C.C.).

67 For example, in *Colonial Fastener*, *supra* note 8, the Supreme Court rejected a claim for losses from a price reduction that the plaintiff asserted was made because its sales representatives had been told, apparently falsely, by prospective or actual customers that they would otherwise purchase more cheaply from the defendants. The court held that these losses were too remote (*ibid.*, at 47). However, the court’s treatment of the issue was cursory, and it may have been that the court was simply not satisfied on the facts that the price reduction had been induced by the threat of infringing competition, rather than by the threat of general competition.

68 *AlliedSignal*, *supra* note 13, at 181.

69 *Omega Africa Plastics Pty. Ltd. v. Swisstool Mfg. Co. (pty.)*, [1978 (3)] S.A. 465, at 475 (App. Div.), as quoted in *AlliedSignal*, *ibid.*, at 201.

70 See *Minnesota Mining and Manufacturing v. Johnson & Johnson*

Orthopaedics, 976 F. 2d 1559; 24 U.S.P.Q. 2d 1321 (Fed. Cir. 1992), and *In re Mahurkar Patent Litigation*, 831 F. Supp. 1354, 28 U.S.P.Q. 2d 1801 (N.D. Ill. 1993); aff'd. 71 F. 3d 1573, 37 U.S.P.Q. 2d 1138 (Fed. Cir. 1995).

Compensable price reductions include reductions on the announcement of the introduction of a competing product: see *Brooktree v. Advanced Micro Devices Inc.*, 977 F. 2d 1555, at 1578-81, 24 U.S.P.Q. 2d 1401, at 1417-19 (Fed. Cir. 1992).

71 See *American Braided Wire Co.*, *supra* note 63.

72 *Colonial Fastener*, *supra* note 8.

73 *Domco*, *supra* note 22, at 94 (F.C.T.D.—Prothonotary). Prothonotary Preston was adopting statements from the affidavit of an expert witness, which are reproduced here.

74 The classic example is ink-jet printers, where printers are sold at reduced prices in the expectation of substantial profits on the sale of ink-jet cartridges.

75 *Supra* note 12.

76 See *Catnic*, *supra* note 20, at 537.

77 *Supra* note 12, at 402. Similarly, in the United States, a majority of the U.S. Court of Appeals for the Federal Circuit stated in *Rite-Hite v. Kelley*, *supra* note 5, at 1546 (Fed. Cir. 1995): “If a particular injury was or should have been reasonably foreseeable by an infringing competitor in the relevant market, broadly defined, that injury is generally compensable absent a persuasive reason to the contrary.” See also *King Instruments v. Perego*, 65 F. 3d 941, 36 U.S.P.Q. 2d 1129 (Fed. Cir. 1995); cert. denied, 116 S. Ct. 1675 (1996); *Kaufman Co. v. Lantech Inc.*, 926 F. 2d 1136 (Fed. Cir. 1991); and *Ristvedt-Johnson Inc. v. Brandt Inc.*, 805 F. Supp. 557 (N.D. Ill. 1992), which discusses the “entire market value rule.”

78 *Supra* note 4. The lead decision on this point was that of Staughton L.J., with Hobhouse and Hutchison L.JJ. concurring.

79 *Supra* note 12, at 403-4.

80 *Ibid.*, at 396.

81 *Ibid.*, at 404.

82 See *Bic Leisure Products v. Windsurfing International*, 687 F. Supp. 134 (S.D.N.Y. 1988), and *Amsted Industries v. National Castings*, 16 U.S.P.Q. 2d 1737 (N.D. Ill. 1990).

83 See *Baker Hughes Inc. v. Galvanic Analytical Systems* (1991), 37 C.P.R. (3d) 512 (F.C.T.D.); *Wellcome Foundation v. Interpharm* (1992), 41 C.P.R. (3d) 215 (F.C.T.D.); and *Whirlpool Corp. v. Camco* (1995), 65 C.P.R. (3d) 63 (F.C.T.D.).

84 *Gerber, supra* note 4, at 456, 478, and 481. *George Fischer (Great Britain) Ltd. v. Multi-Construction Ltd.*, [1995] 1 B.C.L.C. 260 (C.A.).

85 *Gerber, supra* note 4, at 457. Staughton L.J. did hold that the effect of taxes was not adequately addressed by Jacob J., and would have remitted this issue to Jacob J. for further consideration.

86 *Domco, supra* note 20, at 69 (F.C.T.D.).

87 For a general discussion of future or post-trial damages, see *Athey, supra* note 16, at paras. 26-30.

88 *AlliedSignal, supra* note 13, at 176, and *A.G. für Autogene Aluminium Schweissung v. London Aluminium Co. (No. 2)* (1923), 40 R.P.C. 107, at 113 (Ch. D.). Similarly, in *Colonial Fastener Co. v. Lightning Fastener Co.*, [1936] 2 D.L.R. 194, at 205 (Ex. Ct.—Referee), Referee Duclos said: “I find that as to such sales the defendants are liable to pay a fair royalty, that is, they must pay the plaintiff what it would have cost them to make these sales lawfully.” This decision was upheld upon appeal to the Supreme Court of Canada, *supra* note 8.

90 *Catnic, supra* note 20, at 530. See also Sargent J. in *Autogene Aluminium Schweissung, supra* note 80, at 113: “what has to be ascertained is that which the infringer would have had to pay if, instead of infringing the patent, he had come to be licensed under the patent. I do not mean that by that the successful patentee can ascribe any fancy sum which he says he might have charged, but in those cases where he has dealt with his property merely by way of license, and there have been licenses at definite rates, there *prima facie*, apart from any reason to the contrary, the price or royalty which has been arrived at by means of a free bargain between the patentee and the person desiring to use the patented article has been taken as being the price or royalty that presumably would have to be paid by the infringer.”

90 Similarly, in the United States, in *Horvath v. McCord Radiator & Manufacturing Co.*, 100 F.2d 295, at 335-36 (2d Cir. 1971), the Second Circuit stated the “willing licensor-willing licensee” rule to determine reasonable royalties: “In fixing damages on a royalty basis against an infringer, the sum allowed should be reasonable and that which would be accepted by a prudent licensee who wishes to obtain a license but was not so compelled and prudent patentee, who wished to grant a license but was not so compelled. In other words, the sum allowed should be that amount which a person desiring to use a patented machine and sell its product at a reasonable profit would be willing to pay.”

91 For example, in *Integra Lifesciences I Ltd. v. Merck KGaA*, 331 F.3d 860 (Fed. Cir. 2003); rev'd. 545 U.S. 193, 125 S. Ct. 2372 (2005), the defendant conducted initial work on the plaintiff's pioneer technology while licensing negotiations were ongoing. Negotiations broke down and litigation ensued. The damages awarded at trial were relatively low because the hypothetical bargain was held to have taken place early in the process, before the defendant's work crossed the line from pure experiment to development. Because the technology was still very risky at that time, the court held that the plaintiff would have agreed to terms very favourable to the defendant. Indeed, it appears that in order to obtain a better hypothetical bargain, the plaintiff was arguing the experimental-use defence on behalf of the defendant in order to push the date of the hypothetical bargain downstream, when the technology had shown increased promise.

92 See C. Shifley, "Alternatives to Patent Licenses: Real-World Considerations of Potential Licensees Are—and Should Be—A Part of the Courts' Determinations of Reasonable Royalty Patent Damages" (1993), 34 *IDEA* 1.

93 U.S. law also reflects the state of the overall market. Donald S. Chisum, ed., *Chisum on Patents* (New York: Matthew Bender, 1978), §20.03[3], states: "The more recent decisions stress the limited utility of the willing buyer-settler rule." See *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970); mod'd. and aff'd. 496 F.2d 295 (2d Cir. 1971); and *Panduit*, *supra* note 60.

94 *J.R. Short Milling Co. v. Continental Soya Co.* (1942), 2 C.P.R. 158, at 169 (Ex. Ct.—Referee).

95 *General Tire*, *supra* note 5 at 221.

96 *Meters*, *supra* note 8, at 164; for the fact pattern in the trial decision, see the description associated with footnote 18. Fletcher Moulton L.J. and the Court of Appeal disapproved of the trial judge's failure to award a reasonable royalty for infringing sales that the plaintiff would not have captured, but did not disturb the trial decision because they were reviewing on a "jury standard," not correctness. The quotation is part of a section discussing the award of reasonable royalties. See also *Penn v. Jack* (1866), 14 L.T. N.S. 495; (1867), LR 5 Eq. 81.

97 See *Monsanto Co. v. McFarling*, 2007 U.S. App. LEXIS 12099 (Fed. Cir. 2007).

98 *General Tire*, *supra* note 5, at 219-20.

99 *Consolboard v. MacMillan Bloedel* (1982), 63 C.P.R. (2d) 1 (F.C.T.D.); aff'd. (1983), 74 C.P.R. (2d) 199 (F.C.A.).

100 Shop rights in the United States exist when an employee who is not employed for the purpose of invention invents and develops an invention, which the plant puts into use as part of the development process. In such cases, the plant has a “shop right” to continue using the invention without payment to the patent holder, but cannot sell the patented item or build copies. Note, however, that the court eventually found that the specific royalty owed by this defendant was limited to 0.5 percent by a secondary contract. *Ibid.*, at 29 (F.C.T.D.).

101 *Ibid.*, at 210 (F.C.A.), quoting *General Tire*, *supra* note 5, at 213.

102 *AlliedSignal*, *supra* note 13, at 176; *Catnic*, *supra* note 20, at 530, per Falconer J.: “where there is no established market rate the assessment must be on the basis of what royalty a willing licensee would have been prepared to pay and a willing licensor to accept.”

103 For a good summary of U.S. law on this point, see *Applied Med. Res. Corp. v. United States Surgical Corp.*, 435 F.3d 1356 (Fed. Cir. 2006).

104 Of course, previous licensing arrangements are still valuable evidence in finding this hypothetical royalty. Chisum notes that in the United States, existing licences provide, as a practical matter, a floor beneath which the judicially ascertained reasonable royalty is unlikely to fall. Chisum, *supra* note 93, at §20.03.

105 *Supra* note 93, at 1120 (S.D.N.Y.).

106 For example, in *SmithKline Diagnostics Inc. v. Helena Laboratories Corp.*, 926 F.2d 1161, at 1168, 17 U.S.P.Q. 2d 1922, at 1928 (Fed. Cir. 1991), the reasonable royalty was increased because the patentee was an “unwilling licensor.”

107 In *Honeywell v. Minolta*, factor (12) was restated as “[w]hat the parties reasonably anticipated would be their profits or losses as a result of entering into a licensing agreement,” and three new considerations were added: “The relative bargaining positions of [the plaintiff] and [the defendant] ... The extent to which the infringement prevented [the plaintiff] from using or selling the invention ... [and] The market to be tapped.” See R. Goldscheider, *Technology Management: Law, Tactics, Forms* (New York: Clark Boardman Callaghan, 1984), §24.02. *Honeywell v. Minolta* (D.N.J. 28 January 1992, Civil nos. 87-4847, 88-1624) was settled: the details are from the jury instructions.

108 *Supra* note 8, at 164.

109 *General Tire*, *supra* note 5, at 214.

110 For example, in the 1950s, the U.S. government spent approximately \$100 million researching nuclear-powered aircraft, which were never able to

develop enough thrust for takeoff. The future economic value of aircraft engine technology that fails to fly is presumably zero. See R.L. Parr, *Intellectual Property Infringement Damages: A Litigation Support Handbook* (Toronto: John Wiley & Sons, 1993), 173.

111 Goldscheider, *supra* note 107, at §10.03.

112 *Ibid.*, at §10.10.

113 It is sometimes suggested that the parties begin with an assumption that licences are typically in the 25-33 percent range. See W.M. Lee, “Determining Reasonable Royalty,” in J. Simon and W. Friedlander, eds., *The Law and Business of Licensing* (New York: Clark Boardman Callaghan, 1996), 2061, at 2067, citing numerous earlier sources for this approach. Alternatively, the companies could begin with a typical split for their industry, or look to an investment-based analysis to set a range in which to negotiate.

114 From R. Goldscheider, “The Negotiation of Royalties and Other Sources of Income from Licensing” (1995), 36(1) *IDEA* 1, at 7. In a real licence, companies usually license a bundle of intellectual property and know-how as the “technology.” In contrast, in a reasonable royalty calculation, the hypothetical licence is stated in terms of the infringed intellectual property only. This should not have a particularly strong effect on the calculation, however, because the goal is to restore the rights holder by determining what royalty it would have received if a real licence had been negotiated.

115 *Supra* note 13. It should be noted that Heald D.J. found the plaintiff’s expert’s testimony unpersuasive, so the defendant’s expert’s testimony was to a certain extent unopposed.

116 *Ibid.*, at 178-80.

117 See Parr, *supra* note 110, and G.V. Smith and R.L. Parr, *Valuation of Intellectual Property and Intangible Assets*, 2d ed. (Toronto: John Wiley & Sons, 1994). See also criticism of the 25 percent royalty rule in J.W. Schlicher, *Licensing Intellectual Property* (Toronto: John Wiley, 1994), 34.

118 See Goldscheider, *supra* note 107, at §10.04. In particular, deviation from the standard rates may occur most often with drastic or pioneer innovations: these inventions are the most valuable and are perhaps the innovations most in need of legal defence.

119 This approach was originally used on appeal in *Georgia-Pacific Corp.*, *supra* note 93, and has been used or referred to in a number of cases including *Panduit*, *supra* note 60; *Tektronix Inc. v. US*, 552 F. 2d 343, 193 U.S.P.Q. 385 (Ct. Cl. 1977); *Paper Converting Machine v. Magna-Graphics*, 745 F. 2d 11, 223 U.S.P.Q. 591 (Fed. Cir. 1984); and *TWG Mfg. Co. v. Dura Corp.*, 789 F. 2d 895, at 899 (Fed. Cir. 1986).

120 Recognizing these limitations, Parr, *supra* note 110, at 159-62, suggests that the “normal profit margin” be replaced by a “commodity product profit margin,” where the commodity product margin should be derived from a product that (1) lacks intellectual property, (2) requires a similar amount of investment in complementary assets, and (3) is in the same (or a closely similar) industry as the infringing product.

121 The analysis for this section is largely based on Smith and Parr, *supra* note 115; Parr, *supra* note 110; and R.L. Parr, “Advanced Royalty Rates Determination Methods,” in R. Parr and P. Sullivan, eds., *Technology Licensing* (Toronto: John Wiley & Sons, 1996).

122 See Parr, *supra* note 110, at 110. Methods of more precisely evaluating this amount may be found in Smith and Parr, *supra* note 117 .

123 The more specific the use of the tangible asset, the less marketable it is and the higher its risk and required return.

124 Debt-free operating income is used since the capital structure of a company is independent of the value brought by an intellectual property (that is, the patent is just as valuable whether or not the infringer has overextended itself by taking on too much debt).

125 An investment return approach can also be used to determine a lower bound of acceptable royalties for the licensor. Determining the lower bound is straightforward if the licensor’s only income from the intellectual property is the royalties; however, it can be quite complicated and subjective if the intellectual property is exploited through a complicated combination of sales and licensing.

126 *Watson Laidlaw*, *supra* note 8, at 120, per Lord Shaw. To the same effect, see *Meters*, *supra* note 8, at 164-65, per Moulton L.J.

127 See S.M. Waddams, *The Law of Damages*, 2d ed. (Aurora ON: Canada Law Book, 1991), ¶5.990, discussing the restitutionary argument.

128 R.J. Sharpe and S.M. Waddams, “Damages for Lost Opportunity to Bargain” (1982), 2 *Ox. J.L.S.* 290, at 290; see also Waddams, *supra* note 128, at ¶9.30 to ¶9.130.

129 This also invites a debate about the definition of a market: a submarket that cannot be realistically serviced by the plaintiff or its potential licensees is arguably simply a different market.

130 *Unilever PLC v. Procter & Gamble Inc.* (1993), 47 C.P.R. (3d) 479, at 572 (F.C.T.D). The award was set at an amount greater than a reasonable royalty as compensation for the non-issuance of an injunction against the defendants.

- 131 *Scientific Games Inc. v. Pollard Banknotes Ltd.* (1997), 76 C.P.R. (3d) 22, at 33-34 (F.C.T.D.).
- 132 *Procter & Gamble v. Unilever PLC* (1995), 61 C.P.R. (3d) 499, at 523-24 (F.C.A.). In contrast to the American and Federal Court of Appeal decisions, Falconer J. in the reference in *Catnic*, *supra* note 20, at 532-33, appeared reluctant to follow through on this reasoning, and instead focused on what the licensee would have agreed to pay.
- 133 *Unilever PLC v. Procter & Gamble Inc.* (1997), 75 C.P.R. (3d) 170, at 175 (F.C.T.D.).
- 134 See “Accounting of Profits Calculations,” *supra* note 3.
- 135 In *Unilever*, *supra* note 131, the plaintiff did not market the substance of its invention in Canada, and so would not have been eligible for a lost profits award in any case.
- 136 See J.A. Nitikman, “Taxability and Deductibility of Judgments and Awards,” in *1991 British Columbia Tax Conference* (Toronto: Canadian Tax Foundation, 1991), tab 3, at 52-55, and S.H. Hugo and L.A. Rautenberg, “Damages and Settlements: Taxation of the Recipient” (1993), 41(1) *Can. Tax J.* 1, at 36-37.
- 137 See Organisation for Economic Co-operation and Development (OECD), *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations* (Paris: OECD, 1995), which superseded earlier guidelines issued in 1979.
- 138 Formerly known as the Canada Customs and Revenue Agency (CCRA) and, before that, as Revenue Canada.
- 139 *Information Circular 87-2R*, “International Transfer Pricing,” September 27, 1999. para. 28. See also U.S. Internal Revenue Code Regulations at 26 CFR §1.482-1(b)(1).
- 140 See the Canadian *Income Tax Act*, R.S.C. 1985, c. 1 (5th Supp.), as amended, s. 247(2).
- 141 See “International Transfer Pricing,” *supra* note 131; F. Vincent and M. Freedman, “Transfer Pricing in Canada: The Arm’s-Length Principle and the New Rules” (1997), 45(6) *Can. Tax J.* 1213; and the *Income Tax Act*, *supra* note 141, s. 247.
- 142 The “traditional” transfer-pricing methods are the comparable uncontrolled price (CUP) method, the resale price method, and the cost plus method. The resale price method begins with a resale price to arm’s-length parties and

reduces the resale price by a comparable gross margin. The cost plus method begins with the costs incurred by a supplier of a product or service, and then adds a comparable gross markup. In all three cases, the applicability of the method in intellectual property cases is often limited by the ability to identify comparable intellectual properties. Apart from the intellectual property itself, the more the other aspects of the transaction (such as the position of the companies in the marketplace) are comparable, the greater the confidence that the prices are comparable.

143 *Information Circular 87-2R*, *supra* note 140, at para. 145.

144 “International Transfer Pricing,” *supra* note 139, at para. 197.

145 L. Olsen and K. Hampe, “Setting a Reasonable Royalty: New Tools from Transfer Pricing Studies,” *AIPLA Selected Legal Papers* (1995), 12 (1& 2) 417-430.

146 *Income Tax Act*, *supra* note 141, s. 247(2)(b). See also *Information Circular 87-2R*, *supra* note 140, at paras. 45, 46, and 151.

147 The OECD guidelines, *supra* note 138, at para. 1.37, give as an example of a circumstance to which this might be applied (and which “International Transfer Pricing,” *supra* note 139, cites in para. 44): “a sale under a long-term contract, for a lump sum payment, of unlimited entitlement to the intellectual property rights arising as a result of future research for the term of the contract.” The OECD guidelines also suggest (at para. 1.10) that, “[f]or example, an independent enterprise may not be willing to sell an intangible (e.g. the right to exploit the fruits of all future research) for a fixed price if the profit potential of the intangible cannot be adequately estimated and there are other means of exploiting the intangible. ... An independent enterprise in such circumstances might exploit the intangible itself or license it to another independent enterprise for a limited period of time (or possibly under an arrangement to adjust the royalty).”

148 See *AlliedSignal*, *supra* note 13, at 190-91.

149 *Ibid.*, at 190.

150 Established by the Supreme Court of Canada in *Custodian v. Blucher*, [1927] 3 D.L.R. 40 (S.C.C.) and *Gatineau Power v. Crown Life Insurance*, [1945] S.C.R. 655.

151 *Patent Act*, R.S.C. 1985, c. P-4.

152 *Baker Petrolite Corp. v. Canwell Enviro-Industries Ltd.* (2001), 13 C.P.R. (4th) 193, at 253 (F.C.T.D.). The court ruled that the plaintiff had not made out its case on this point.