THE BOOK OF WISDOM: HOW TO BRING A METAPHORICAL FLOURISH INTO THE REALM OF ECONOMIC REALITY BY ADOPTING A MARKET RECONSTRUCTION REQUIREMENT IN THE CALCULATION OF A REASONABLE ROYALTY

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ABSTRACT

The “book of wisdom” concept has been the source of much obfuscation and confusion in determining a reasonable royalty damage award in patent infringement cases. Some of the confusion regarding the doctrine results from the apparent binomial nature of the book of wisdom’s availability—which depends on the methodological approach used to calculate the royalty award. Federal Circuit precedent indicates that the doctrine is not available when courts engage in the “analytical” method of calculating a royalty award. In contrast, there is currently confusion in Federal Circuit jurisprudence with regard to the doctrine’s availability when courts utilize the more common “willing licensor-licensee” approach. There is a rational framework by which courts can utilize this equitable doctrine in a consistent manner and simultaneously bring the calculation of a reasonable royalty into conformity with Federal Circuit precedent addressing the other major patent damage measure—a plaintiff’s lost profits. Federal Circuit consideration of the issue is crucial, less the calculation of a reasonable royalty become the Lazarus of the now discarded “accounting of infringer’s profits” damage award.

This article will advance the proposition that the proper role of the book of wisdom can be ascertained by placing the calculation of a reasonable royalty under the causation and market reconstruction paradigms developed for proving a plaintiff’s lost profits. It is certainly not apodictic that the evidentiary and analytical concerns of both calculations are identical. There is no need to go so far and it is not contended here. However, it is justifiable to assert that both damage measures should be bound by the same statutory mandate of focusing upon the economic loss suffered by the plaintiff. Understood in this framework, the book of wisdom doctrine becomes merely a metaphorical flourish acknowledging a well developed judicial interpretation of the patent statute. That interpretation acknowledges that an infringer’s profits are no longer awardable per se as a measure of damages, but may in appropriate circumstances be utilized as an element in the calculation of plaintiff’s pecuniary injury. However, the determination of when to utilize this data is restrained when courts are ascertaining proof of a plaintiff’s lost profits as the damage measure. This restraint is mandated by the Federal Circuit’s holding in Grain Processing, which requires litigants to reconstruct the relevant product market to serve as an appropriate context in which to consider causation. Analogously, the calculation of a reasonable royalty should also be placed within this larger economic and market-based paradigm of damage calculation. Therefore, the book of wisdom should only be allowed relevancy if utilized within a market reconstruction analysis as propounded by the Federal Circuit’s decision in Grain Processing.

Viewed within this framework, the book of wisdom doctrine will no longer be perceived as a cart blanche grant of unrestrained equitable sovereignty to be wielded during the royalty calculation. This perception has invited litigants to exercise the clear vision attendant with

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hindsight and to thinly veil their attempts at infringer profit disgorgement as innocuous utilization of a court sanctioned analytical tool. Rather, the book of wisdom will properly be characterized as merely an artful acknowledgement that courts may utilize an infringer’s profits as an element in the calculation of a reasonable royalty—provided the analysis is grounded in economic reality assured by an appropriate market reconstruction. Understanding the book of wisdom in this manner will help restrain what has become an equitable “free for all” in reasonable royalty litigation.
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INTRODUCTION

Congress did not intend to aid a patentee in solving his problem of proving the quantum of his damages by enabling him to substitute the quantum of the infringer's profits...the two concepts are basically different; they cannot be treated as equivalent.¹

The United States patent statute provides that upon a finding of infringement:

[T]he court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.²

Courts have interpreted the statute to grant patent holder’s the right to be awarded damages based upon two distinct measures. The first compensatory damage award is measured by ascertainment of a plaintiff’s lost profits,³ suffered as a result of the infringing activity. If a plaintiff is unable to prove lost profits attendant with the infringement, then the court is authorized to award at least a reasonable royalty⁴ to compensate the patent holder. The

³ Lost profits are available upon a showing that “but for” the infringement the plaintiff would have made the infringing sales revenue. Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 507 (1964); See Grain Processing Corp. v. American Maize-Prods. Co., 185 F.3d 1341, 1350 (Fed. Cir. 1999) (Stating that Federal Circuit precedent permits patentees a wide variety of market reconstruction theories by which to prove their lost profits in the “but for world.”); Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1545 (Fed. Cir. 1995) (en banc) (“To recover lost profits damages, the patentee must show a reasonable probability that, ‘but for’ the infringement, it would have made the sales that were made by the infringer.”).
⁴ Rite-Hite, 56 F.3d at 1554 (“A patentee is entitled to no less than a reasonable royalty on an infringer's sales for which the patentee has not established entitlement to lost profits.”); Hanson v. Alpine Ski Area Inc., 718 F.2d 1075, 1083 (Fed. Cir. 1983) (“If actual damages cannot be ascertained, then a reasonable royalty must be determined.”). The term reasonable royalty is not further defined by 35 U.S.C § 284 and its interpretation has been left to the courts. See Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1157-58 (6th Cir. 1978) (“A reasonable royalty is an amount ‘which a person, desiring to manufacture and sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make and sell the patented article, in the market, at a reasonable profit.’”) (quoting Goodyear Tire and Rubber Co. v. Overman Cushion Tire Co., 95 F.2d 978, 984 (6th Cir. 1937)).
reasonably royalty is the statutorily created lower threshold of permitted damages. Further, Congress amended the patent statute in 1946 to discard a once-common damage measure—disgorgement of an infringer’s profits—which had been utilized by the courts for decades.

It is undisputed that district courts have wide discretion in the methodology used to calculate a reasonable royalty. The two most common approaches are the “analytical” and “willing licensor-licensee” methodologies. Regardless of the methodological approach used, the first step in a reasonable royalty determination is to place the calculation at a point in time prior to infringement. This process is often described as occurring at a “hypothetical negotiation” between the patentee and infringer prior to the commencement of infringing activity.

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8 Rite-Hite, 56 F.3d at 1554 n.13 (“The hypothetical negotiation is often referred to as a ‘willing licensor/willing licensee’ negotiation.”). The Federal Circuit first sanctioned the analytical method in TWM and states that the willing licensor-licensee methodology is not the only viable method of royalty calculation. TWM, 789 F.2d at 899 (“The special master...used the so-called ‘analytical approach’, in which she subtracted the infringer's usual or acceptable net profit from its anticipated net profit realized from sales of infringing devices.”).

9 Integra Lifesciences I, Ltd. v. Merck KGaA, 331 F.3d 860, 870 (Fed. Cir. 2003) (“The first step in a reasonable royalty calculation is to ascertain the date on which the hypothetical negotiation in advance of infringement would have occurred...correct determination of this date is essential for properly assessing damages.”), vacated and remanded on other grounds, 545 U.S. 193 (2005); Hanson, 718 F.2d at 1079 (Stating that the “key element in setting a reasonable royalty... is the necessity for return to the date when the infringement began.”); Riles v. Shell Exploration and Prod. Co., 298 F.3d 1302, 1311 (Fed. Cir. 2002) (Determination of a reasonable royalty “contemplates a hypothetical negotiation between the patentee and the infringer at a time before the infringement began.”); Panduit, 575 F.2d at 1158 (“The key element in setting a reasonable royalty after determination of validity and infringement is the necessity for return to the date when the infringement began.”).

10 Integra, 331 F.3d at 869 (The calculation of a reasonable royalty “envisions and ascertains the results of a hypothetical negotiation between the patentee and the infringer”); Hanson, 718 F.2d at 1078 (Describing the calculation as a “hypothetical royalty resulting from arm's length negotiations between a willing licensor and a willing licensee.”).
The analytical and willing licensor-licensee methods differ greatly with regard to the significance that the hypothetical negotiation plays in their outcome. Fundamentally, the willing licensor-licensee approach utilizes the legal fiction of a hypothetical negotiation in an attempt to ascertain the pre-infringement bargaining positions of the parties, in order to construct what may have been agreed upon as a royalty.\footnote{The willing licensor-licensee approach engages in an elaborate fiction in its quest to ascertain what the hypothetical negotiators would have agreed upon as a reasonable royalty. *Panduit*, 575 F.2d at 1159 (“Determination of a ‘reasonable royalty’ after infringement, like many devices in the law, rests on a legal fiction...[the method] conjures a ‘willing’ licensor and licensee, who like Ghosts of Christmas Past, are dimly seen as ‘negotiating’ a ‘license.’”). Courts often use a 15 factor analysis in an attempt to weigh the relative bargaining positions of the patentee and infringer to determine the royalty which would have been established at the fictitious negotiation. Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116 (S.D.N.Y. 1970) (listing 15 factors found relevant to the royalty calculation by previous courts), modified and aff’d, 446 F.2d 295 (2nd Cir. 1971).} In stark contrast, the analytical approach merely uses the hypothetical negotiation as the relevant time period at which to employ its formulaic process of mandating what the royalty rate will be.\footnote{In contrast to the willing licensor-licensee method, the analytical approach has nothing to do with a subjective balancing of hypothetical party positions. JOHN SKENYON, CHRISTOPHER MARCHESE & JOHN LAND, PATENT DAMAGES LAW & PRACTICE § 3.4 (2009). Courts employing the analytical method use a pre-determined formula for calculating the reasonable royalty. *Id.* The formula, as sanctioned by the Federal circuit, involves determining a royalty rate by calculating the difference between the infringers projected net profit percentage and a normative industry standard profit. *TWM*, 789 F.2d at 899. The rate derived from this formula is then applied to the royalty base of the infringing sales. However, courts still refer to the result of the analytical analysis as reflecting what would have been agreed upon in a hypothetical negotiation. *Id.* at 900 (In upholding use of the analytical method, the court stated that the defendant had failed to prove that the 30% royalty determined by the formula did “not reflect what a willing licensor and licensee would have agreed to [pre-infringement].”}).

Courts utilizing the willing licensor-licensee approach would appear to be constrained in their consideration of empirical evidence, by an outer temporal limit set at the date of hypothetical negotiation. The court, acting as proxy for the negotiators, should logically only be able to draw upon facts available or reasonably foreseeable to the parties at the moment in time the hypothetical negotiation is held. However, the Federal Circuit has discussed the availability of an equitable doctrine, termed the “book of wisdom”, which allows a court to pierce the

\[\text{[References]}\]
temporal veil present at the hypothetical negotiation table.\textsuperscript{13} Most often, courts invoke the doctrine to make the infringer’s post-hypothetical negotiation profits available for utilization in the royalty determination.\textsuperscript{14} The underlying premise of the book of wisdom is that courts should be allowed the use of hindsight in determining the reasonable royalty.\textsuperscript{15} The doctrine is not as relevant for the analytical method, which by its acknowledged scope, only utilizes pre-infringement profit projections and industry standard profit data.\textsuperscript{16}

This paper will examine how the book of wisdom doctrine relates to both the analytical and willing licensor-licensee approaches of calculating a reasonable royalty. Further, the examination will lead to the conclusion that Federal Circuit precedent is clear with regard to the analytical method, but is rather equivocal in relation to the willing licensor-licensee approach. A framework for utilizing the book of wisdom will be proffered which will temper its effects and help bring the calculation of a reasonable royalty into conformity with Federal Circuit precedent addressing the other major damage measure in patent litigation—a patent holder’s lost profits.

The proffered framework is constructed around the premise that the reasonable royalty, regardless of calculation technique, is subject to the same statutory proscription which forbids a \textit{per se} allotment of infringer’s profits. The current state of reasonable royalty jurisprudence allows the district courts to utilize the book of wisdom doctrine in order to disgorge the infringer of realized profits. However, the Federal Circuit has consistently held that the basis of the royalty

\begin{itemize}
  \item \textsuperscript{13} Fromson v. Western Litho Plate and Supply Co., 853 F.2d 1568 (Fed. Cir. 1988) (citing Sinclair Ref. Co. v. Jenkins Petroleum Process Co., 289 U.S. 689 (1933)).
  \item \textsuperscript{14} \textit{Id.}; Paul M. Janicke, \textit{A Review of Recent Decisions of the United States Court of Appeals for the Federal Circuit: Contemporary Issues in Patent Damages}, 42 Am. U. L. Rev. 691, 724-28 (1993). Professor Janicke provides an in-depth review of patent damage law as it existed in the early 1990’s, but much of his insightful commentary is as relevant today as it was over a decade ago.
  \item \textsuperscript{15} Janicke, \textit{supra} note 12, at 724-26; \textit{See infra} Part I. C & F.
  \item \textsuperscript{16} \textit{TWM}, 789 F.2d at 899; Janicke, \textit{supra} note 12, at 727-30; Skenyon, \textit{supra} note 10, at § 3.4.
\end{itemize}
calculation should be determined at a time before infringement. This requirement is an attempt to properly focus the analysis upon the harm done to the infringer, which is the traditional meaning of “damages” in patent vocabulary. Often courts utilizing the book of wisdom assert that it is unfair to value the plaintiff’s appropriated property at the time of infringement, when empirical evidence of an infringer’s profits gives a more accurate assessment of the patent’s value. Certainly this assertion may hold true in certain situations. However, this determination should be based upon consistently applied economic principles and not ad hoc equitable holdings which provide little predictability.

The Federal Circuit, in dealing with the other major category of damages available in infringement actions—a plaintiff’s lost profits—has developed sound market reconstruction and causation analysis principles which can be applied in the reasonable royalty context. Specifically, the causation analysis developed by the Supreme Court in Aro and expanded by the Federal Circuit’s Rite-Hite decision can be combined with the market reconstruction framework expounded in Grain Processing, to provide a market-based framework by which the reasonable royalty should be considered. Subjecting the calculation of a reasonable royalty to these standards will bring the book of wisdom doctrine into a larger economic paradigm buttressed upon well established market principles. Therefore, the question—“Does the book of wisdom allow plaintiffs to utilize the infringer’s profits to calculate a reasonable royalty?”—will become insufficient, as the inquiry must be asked within the confines of a properly reconstructed product market as detailed in Grain Processing.

17 Aro, 377 U.S. at 505 (“In patent nomenclature what the infringer makes is ‘profits’, what the owner of the patent loses by such infringement is ‘damages.’” (quoting Duplate Corp. v. Triplex Safety Glass Co., 298 U.S. 448 (1936))).

18 Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc., 750 F.2d 1552, 1568-69 (Fed.Cir.1984) (disagreeing with district court’s exclusion of defendant’s profits as being not relevant to the determination of a reasonable royalty).

19 See cases discussed infra Part II.
Part I focuses its discussion upon three key topics. First, the two major methods of calculating a reasonable royalty currently utilized by the Federal Circuit will be analyzed by discussing the main corpus of Federal Circuit precedent associated with the doctrines. The applicability of the book of wisdom doctrine will be specifically noted with each discussed case, in order to illustrate the confusion currently found in this area of the law. Second, a recent district court decision will be analyzed to offer insight into how the lower courts are struggling to implement the outlined Federal Circuit precedent on the issue. Lastly, an in-depth examination of the book of wisdom will reveal that the Supreme Court decision creating the doctrine has questionable precedential validity.

Part II analyzes Federal Circuit precedent dealing with the calculation of a plaintiff’s lost profits as a measure of damages, and the market based calculus developed by the court in this area. The discussion will outline these market reconstruction and causation analyses and argue that the methods should also be applied to the determination of a reasonable royalty. It will be asserted that application of the market reconstruction analysis proffered by *Grain Processing*—along with the causation inquires mandated by *Rite-Hite* and *Aro*—to the calculation of a reasonable royalty will necessarily bring the book of wisdom into a predictable economic framework.

Part III explores how a market reconstruction analysis can be utilized to properly define the availability of the book of wisdom doctrine. To illustrate the utility of the approach, pertinent precedent will be briefly re-analyzed using the framework. The analysis will demonstrate the increased predictability attendant with the economic and causative inquiries mandated by the approach, as opposed to the more speculative and metaphorical current book of wisdom analysis.
I. THE CALCULATION OF A REASONABLE ROYALTY

A. Two Methodological Approaches to Royalty Calculation: An Introduction

The methodology used to calculate the reasonable royalty generally falls into one of two approaches: the willing licensor-licensee or analytical approach. Both methods will be outlined with an emphasis placed upon the role that an infringer’s profits—utilized through the book of wisdom doctrine—are allowed to play in the calculation of the royalty. After a survey of the leading Federal Circuit precedent, a recent district court decision will be examined which provides perspective on the dilemma facing lower courts confronted with reconciling Federal Circuit precedent on the issue. The paper will then turn to an analysis of the origin of the book of wisdom doctrine and how its precedential value in the context of a reasonable royalty should be seriously scrutinized. This scrutiny is warranted as the doctrine was espoused by Justice Cardozo in 1933, at a time when a plaintiff was entitled to an accounting of infringer’s profits as a damage award. Further, Cardozo’s analysis was conducted under a breach of contract cause of action, attendant with its well established concepts of foreseeability and special damages. Patent damages, though borrowing much from the common law, are inherently a creature of statute and are necessarily constrained in their implementation by precedent which is aimed at construing the statutory language. Thus, if the book of wisdom doctrine is to have a place in the calculation of a reasonable royalty, it should be premised upon implementation of the statute’s mandate and not a haphazard engraftment of a common law breach of contract principle. This can be achieved by placing the doctrine within the market-based holdings of Aro, Rite-Hite, and Grain Processing as will be explained in Part II.
B. Tracking the Extinction of “Lost Profits” as a Damage Award

The patent statutes trace their origin back to 1793 and the first United States Congress. During this period of American jurisprudence there was a division in the courts between law and equity.\(^\text{20}\) The division was reflected in the patent statute and the remedies available to successful plaintiffs.\(^\text{21}\) For example, subsequent to the patent act of 1870, plaintiffs bringing suit in a court of equity were entitled to a remedy consisting of both the infringer’s profits and their own monetary losses.\(^\text{22}\) But during this period, courts of law only had jurisdiction to award damages based on the patentee’s lost profits.\(^\text{23}\) In patent law vernacular, what the infringer makes is “profits,” whereas loses suffered by the patentee as result of the infringement are “damages.”\(^\text{24}\) The ability of a court of equity to disgorge the infringer of ill-gotten profit revenue was premised upon a legal fiction holding that the infringer was a trustee for the patent holder and had unlawfully withheld funds from this trust.\(^\text{25}\)

The accounting of the infringer’s ill-gotten profits presented significant evidentiary problems and was credited for hampering the effective adjudication of patent cases.\(^\text{26}\) Courts

\(^{20}\) Nike, Inc. v. Wal-Mart Stores, Inc., 138 F.3d 1437, 1440-43 (Fed. Cir. 1998) (concise analysis of patent law damages evolution); Georgia-Pacific, 243 F. Supp. at 516-38 (exhaustive survey of leading cases interpreting the patent statute’s damage provisions). The analysis provided by Judge Herlands in Georgia-Pacific is exquisite in its reasoning and by far the most illustrative exposition of patent damages to be found in a judicial opinion. Id.

\(^{21}\) Nike, 138 F.3d at 1440-43.

\(^{22}\) Id.

\(^{23}\) Id.

\(^{24}\) Aro, 377 U.S. at 505.

\(^{25}\) Georgia-Pacific, 243 F. Supp at 517.

\(^{26}\) Id. at 525-26 (explaining that the goal of the 1946 amendment “was the avoidance of all, or nearly all, accounting for [infringer’s] profits before masters...to be accomplished...by eliminating the infringer's profits as an independent measure of the patent owner's recovery.”). Judge Herlands provides extensive analysis of the legislative history and concludes that the driving force behind the elimination of an infringer’s profits as a separate damage measure was the “grave concern expressed in the legislative history over the problems of apportionment of the infringer's profits and the delay and expense which arise during the ascertainment.” Id.
found the issue of apportionment to be most difficult, as it required a determination of the proportionate share of infringer’s profits attributable to the infringed device.\textsuperscript{27} Largely in response to the perceived need to eliminate apportionment issues, thereby creating efficiencies in patent litigation, congress passed the 1946 amendments to the patent statute.\textsuperscript{28} These amendments effectively eliminated the recovery of an infringer’s profits as a damage measure.\textsuperscript{29} The 1952 codification adopted these damage provisions into the current statutory language of § 284.\textsuperscript{30}

The statute presently allows for two measures of compensatory damages which must be adequate to compensate the patent owner for infringement: (1) lost profits of the patent owner, or (2) a reasonable royalty for use made of the patent. In order for a plaintiff to recover claimed lost profits, they must establish that “but for” the infringement, the revenue made by the infringer would have instead been realized by them. The remedy of a reasonable royalty is the statutory minimum threshold of damage award and is applicable in situations where a plaintiff is unable to prove lost profits. Courts should be extremely wary of equitable holdings which approximate the defunct “lost profits” damage measure.\textsuperscript{31} These equitable disgorgements of an infringer’s profits are antithetical to the statutory language.

\textsuperscript{27} \textit{Id.}

\textsuperscript{28} \textit{Id.}

\textsuperscript{29} \textit{Aro}, 377 U.S. at 505-07; \textit{Georgia-Pacific}, 243 F. Supp. at 516-38.

\textsuperscript{30} \textit{Aro}, 377 U.S. at 505-07.

\textsuperscript{31} \textit{Georgia-Pacific}, 243 F. Supp. at 519 (Judge Herlands remarking on the issue in a particularly insightful case of foreshadowing.). Thus, the premise that a reasonable royalty calculation can be used in a manner inconsistent with statutory intent is not a new concern.
C. *The Willing Licensor-Licensee*

By far the most common method of calculating a reasonable royalty is the willing licensor-licensee approach. The first step in determining a reasonable royalty under this paradigm is that the court must analytically return to a date pre-infringement. The court then places itself at a hypothetical negotiating table and seeks to ascertain the relative bargaining positions of the two parties and determine what royalty would have been agreed upon before infringement began.

In exploring the topography of this fictional negotiation, the courts seek evidence from a myriad of sources which may be probative of the negotiator’s bargaining positions. Many courts utilize the 15 non-exclusive factors outlined in *Georgia-Pacific* to provide a framework of evidentiary considerations that are pertinent in implementing the willing licensor-licensee methodology. The *Georgia-Pacific* court recognized that the method merely represented the judiciary’s attempt to place diverse evidentiary concerns under a common umbrella of analysis and was more aptly described as a “statement of approach” rather than an actual analytical tool. Describing the approach the court stated:

Where a willing licensor and a willing licensee are negotiating for a royalty, the hypothetical negotiations would not occur in a vacuum of pure logic. They would involve a market place confrontation of the parties, the outcome of which would depend upon such factors as their relative bargaining strength; the anticipated

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32 *See* cases cited *supra* note 7.

33 *Integra*, 331 F.3d at 869 (The calculation of a reasonable royalty “envisions and ascertains the results of a hypothetical negotiation between the patentee and the infringer”); *Hanson*, 718 F.2d at 1078 (Describing the calculation as a “hypothetical royalty resulting from arm's length negotiations between a willing licensor and a willing licensee.”). Certainly, this is a strenuous position for the courts and many have lamented the shortcomings and logical fallacies inherent in the framework. The *Panduit* court, 575 F.2d at 1159, famously criticized the process as akin to conjuring ghosts.

34 *Georgia-Pacific*, 318 F. Supp. 1116.

35 *Id.* at 1122. (Describing the process as “an attempt to colligate diverse evidentiary facts of potential relevance.”).

36 *Id.* at 1121.
amount of profits that the prospective licensor reasonably thinks he would lose as a result of licensing the patent as compared to the anticipated royalty income; the anticipated amount of net profits that the prospective licensee reasonably thinks he will make; the commercial past performance of the invention in terms of public acceptance and profits; the market to be tapped; and any other economic factor that normally prudent businessmen would, under similar circumstances, take into consideration in negotiating the hypothetical license.37

The Federal Circuit has repeatedly sanctioned the use of the 15 Georgia-Pacific factors as a methodology of exploring what royalty would have been agreed upon at the hypothetical negotiation.38 Courts implementing this approach utilize the concept “as a device in the aid of justice”39 and therefore predictability is hampered, despite the fact that many courts rely upon Georgia-Pacific to frame their analysis. Leading to this unpredictability is the Federal Circuit’s stance that courts: (1) are allowed to analyze whichever Georgia-Pacific factors are deemed relevant to the case sub judice, (2) determine ad hoc how much weight is given the considered factors, (3) or not even consider the factors at all.40

The Federal Circuit’s position regarding the Georgia-Pacific factors is well supported as the willing licensor-licensee methodology was not created by the Georgia-Pacific decision.41 Therefore, the factors are not a recitation of former precedent that exhausts the possible

37 Id.
38 E.g., Hanson, 718 F.2d 1075; Rite-Hite, 56 F.3d at 1555.
39 TWM, 789 F.2d at 900.
40 See infra Part I. D.
41 In Georgia-Pacific, the court merely incorporated the doctrine into its list of 15 factors relevant in determining a reasonable royalty. Georgia-Pacific, 318 F. Supp. at 1121 (citing Horvath v. McCord Radiator & Mfg. Co., 100 F.2d 326, 335 (6th Cir. 1938), as the case establishing the method). The Horvath court described the approach as follows:
   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 wished to obtain a license but was not so compelled and a prudent patentee, who wished to grant a license but was not so compelled. Horvath, 100 F.2d at 335.
considerations relevant to determining the contours of the willing licensor-licensee approach.\textsuperscript{42} Rather, the factors explicitly consider other reasonable royalty precedent which was not based upon the methodology.\textsuperscript{43}

Despite the relatively unbounded parameters of the willing licensor-licensee framework, the concept has had several important qualifications engrafted upon its framework: 1) hypothetical negotiation occurs at a time pre-infringement, 2) irrefutable presumption that patent is valid, 3) infringement is known to have occurred, 4) and patentee is willing to license the intellectual property and the infringer is deemed to have acquiesced to accepting a license.\textsuperscript{44} These qualifications illustrate the policy concerns espoused by various courts that have struggled with determining what willing parties would have agreed upon to be a reasonable royalty.\textsuperscript{45} Courts adhering to these qualifications are otherwise allowed wide discretion in adapting the approach to the specific facts of the case. This wide latitude allows the court to determine what evidence is relevant, and thus admissible, in ascertaining what the hypothetical negotiators would have agreed upon as a royalty. Thus, the willing licensor-licensee methodology is fluid and largely unbounded by methodological parameters. This fact is imminently evident with regard to

\textsuperscript{42} Many cases cite to the opinion as reiterating the precedential contours of the willing licensor-licensee methodology, but this is technically misguided. The \textit{Georgia-Pacific} court incorporates the willing licensor-licensee doctrine into its list of relevant factors by articulating the approach in factor 15. The court prefaced its oft-cited list of evidentiary considerations by stating that they represented “some of the factors mutatis mutandis seemingly more pertinent to the issue” of determining a reasonable royalty, which it had adduced from surveying the leading cases. \textit{Georgia-Pacific}, 318 F. Supp. at 1121. More directly, in addressing the methodology to be implemented in ascertaining the reasonable royalty in its decision, the court noted that both parties relied upon “the traditional array of facts probative of a reasonable royalty”, but that one of the parties placed heavy emphasis “upon a later formulation” which is the willing licensor-licensee method. \textit{Id.}

\textsuperscript{43} \textit{Id.} at 1121. The \textit{Georgia-Pacific} court noted that both parties where in agreement with regard to relevant evidentiary considerations espoused by the Supreme Court to aid in the determination a reasonable royalty. All of the cited Supreme Court precedent predates the \textit{Georgia-Pacific} decision.

\textsuperscript{44} Janicke, \textit{supra} note 12, at 722-24.

\textsuperscript{45} \textit{Id.}
the book of wisdom doctrine, which allows courts to extensively utilize post-infringement data of the infringer’s actual profits.\textsuperscript{46}

The Federal Circuit has at times appeared contradictory with regards to the book of wisdom and its utility in making an infringer’s profits available for a court to consider in calculating a royalty. The following cases illustrate the confounding Federal Circuit precedent facing a district court seeking guidance on the issue.

\textbf{a. Hanson v. Alpine Ski Area Inc.}

One year after the creation of the Federal Circuit, the court had occasion to consider the calculation of a reasonable royalty in its 1983 \textit{Hanson} decision. In \textit{Hanson}, the infringed patent involved a method and apparatus for making artificial snow used in winter sports.\textsuperscript{47} Upon finding infringement, the district court determined that damages should be based upon a reasonable royalty.\textsuperscript{48} The court also determined that under the willing licensor-licensee method, the royalty should be based upon 1/3 of the estimated cost savings resulting from use of the infringed embodiment.\textsuperscript{49} This 1/3 cost saving was applied to the snow making capacity of each infringing machine for the number of years of infringing use.\textsuperscript{50}

The Federal Circuit approved this method of royalty calculation as appropriate under the willing licensor-licensee methodology. The court noted that appellant’s contention that it would not be able to make a profit based upon the royalty was irrelevant.\textsuperscript{51} The court stressed that the

\begin{itemize}
\item \textsuperscript{46} \textit{Id.} at 724-27.
\item \textsuperscript{47} \textit{Hanson}, 718 F.2d at 1076.
\item \textsuperscript{48} \textit{Id.} at 1077 (adopting the opinion of the special master who was assigned to hear the issue of damages).
\item \textsuperscript{49} \textit{Id.}
\item \textsuperscript{50} \textit{Id.}
\item \textsuperscript{51} \textit{Id.} at 1081
\end{itemize}
key to determining a reasonable royalty under the willing licensor-licensee method is “the necessity for return to the date when the infringement began.” Further, the court directly addressed the applicability of using an infringer’s profits in the calculation and held:

The issue of the infringer's profit is to be determined not on the basis of a hindsight evaluation of what actually happened, but on the basis of what the parties to the hypothetical license negotiations would have considered at the time of the negotiations. Whether, as events unfurled thereafter, [the infringer] would have made an actual profit, while paying the royalty determined as of [infringement], is irrelevant.

The court validated this strong position, by explaining that the crucial question is whether the royalty set by the magistrate would have been reasonable based on a hypothetical negotiation before infringement.

Thus, the Hanson court focused upon what would have been reasonable at the time of the hypothetical negotiation and held that the infringer’s profits, as realized post-negotiation, would not have been an appropriate consideration to inform the analysis. The court never mentions Sinclair or the book of wisdom doctrine. Hanson appears to be one of the strongest holdings from the Federal Circuit in opposition to the book of wisdom concept.

b. Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.

Shortly after its decision in Hanson, the Federal Circuit was again asked to consider the analysis pertinent to a reasonable royalty calculation. The infringed patent in Trans-World involved a design patent covering point-of-sale display racks, which the defendant was utilizing to sale non-infringing eyeglasses. The lower court ruled that the plaintiff was not entitled to a

52 Id. at 1079 (quoting Panduit, 575 F.2d at 1158)
53 Id. at 1081 (quoting Panduit, 575 F.2d at 1164) (quotations omitted).
54 Id.
55 Trans-World, 750 F.2d 1552.
direct award of the defendant’s profits based upon the sale of the non-infringing eyeglasses, and profit data regarding these non-infringing sales was not applicable to the calculation of a royalty.\textsuperscript{57}

The Federal Circuit agreed that the plaintiff was not entitled to a \textit{per se} award of the defendant’s profits based upon an item not covered by the litigated patent.\textsuperscript{58} However, the court disagreed as to the availability of the infringer’s profit data to inform the royalty calculation.\textsuperscript{59}
The court noted that an infringer's anticipated profits are relevant evidence in the willing licensor-licensee framework, which includes profits expected from infringing use of a device “in promoting sales of other products of the licensee.”\textsuperscript{60} The court stated that “[e]vidence of the infringer's actual profits generally is admissible as probative of his anticipated profits.”\textsuperscript{61}

The court reasoned that the defendant had obviously used the patented display case to promote the sales of the non-patented eyeglasses. Therefore, the court argued that evidence of the infringer’s profits would be crucial in determining the effect that using the patented display cases had upon sales of the eyeglasses. This information, according to the court, was relevant in determining the amount of royalty a potential licensee would have agreed to pay for use of the racks. However, the court qualified this contention by opining:

We therefore disagree with the district court's exclusion of evidence of [infringer’s] profits from the sale of displayed eyeglasses as not relevant to the determination of a reasonable royalty. In so stating, we express no opinion concerning the weight, if any, to be given such evidence or any conditions that

\textsuperscript{56} Id. at 1555.
\textsuperscript{57} Id. at 1566
\textsuperscript{58} Id. at 1568
\textsuperscript{59} Id.
\textsuperscript{60} Id.
\textsuperscript{61} Id. (citing Locklin v. Switzer Brothers, Inc., 235 F. Supp. 904, 906 (N.D.Cal.1964)).
might properly be imposed upon its admission; we indicate only that we do not think the district court should have excluded it.\textsuperscript{62}

This statement astutely foreshadows the problem currently facing the courts. Summarily, the Federal Circuit has allowed the use of an infringer’s profits to inform the royalty analysis in certain situations, but not others. The uncertainties presented by the lack of Federal Circuit guidance on the issue run counter to the purpose of the court’s establishment and exclusive jurisdiction on patent matters.

c.  \textit{Fromson v. Western Litho Plate and Supply Co.}

The Federal Circuit first explicitly discussed the book of wisdom doctrine in its 1988 \textit{Fromson} decision.\textsuperscript{63} The litigation involved the infringing use of photographic plates used in printing processes.\textsuperscript{64} Upon a determination of infringement, the district court held that the patent holder was entitled to compensatory damages measured by a reasonable royalty.\textsuperscript{65} The Federal Circuit agreed that the measure of damages should be that of a reasonable royalty; however, the court did not agree with the manner of calculation used by the lower court.\textsuperscript{66}

In explaining the calculation of a reasonably royalty under the willing licensor-licensee methodology, the Federal Circuit first opined:

\begin{quote}
The methodology encompasses fantasy and flexibility; fantasy because it requires a court to imagine what warring parties would have agreed to as willing negotiators; flexibility because it speaks of negotiations as of the time infringement began, yet permits and often requires a court to look to events and\end{quote}

\begin{itemize}
\item \textsuperscript{62} \textit{Id.}
\item \textsuperscript{63} \textit{Fromson}, 853 F.2d 1568.
\item \textsuperscript{64} \textit{Id.} at 1568-69.
\item \textsuperscript{65} \textit{Id.} at 1569-70.
\item \textsuperscript{66} \textit{Id.} at 1570 & n.2 (discussing the district court’s error-ridden mathematical calculations and “arbitrary” apportionments).
\end{itemize}
facts that occurred thereafter and that could not have been known to or predicted by the hypothesized negotiators.\textsuperscript{67}

The court then discussed the Supreme Court decision of \textit{Sinclair} in which Justice Cardozo coined the famous “book of wisdom” phrase.\textsuperscript{68} The court quoted at length from this decision in an apparent attempt to ground its earlier pronouncement in \textit{Trans-World} regarding an infringer’s profits in precedential authority. Despite acknowledging that courts are permitted to consider an infringer’s post-infringement profits by utilization of the book of wisdom; the court did not provide any guidance or framework that should be followed. In fact, immediately after elaborating upon the book of wisdom doctrine and the “fantasy” element of the willing licensor-licensee framework,\textsuperscript{69} the court appears to discuss restraints which may qualify the previous book of wisdom language. The court first recognizes the concern expressed by many courts that a reasonable royalty, if not permitted to consider infringer profit data, may merely serve as a win-win compulsory license for the infringer.\textsuperscript{70} However, after this recognition the court provides three methods by which patent law’s statutory damage provisions may nullify the issue: (1) increased damages for willful infringement, (2) attorney fees in exceptional cases, (3) prejudgment interest.\textsuperscript{71}

Therefore, if \textit{Fromson} is to be construed as the leading authority for use of the book of wisdom doctrine, then this assertion must be tempered. The court’s discussion of the doctrine is immediately followed by language aimed at alleviating concerns of the district courts that a

\textsuperscript{67} \textit{Id.} at 1575.

\textsuperscript{68} \textit{Id.} at 1575-76.

\textsuperscript{69} \textit{Id.} at 1575.

\textsuperscript{70} \textit{Id.} at 1574 (explaining that “infringers could perceive nothing to fear but the possibility of a compulsory license at a reasonable royalty”).

\textsuperscript{71} \textit{Id.} at 1576 (“Whatever royalty may result from employment of the methodology, the law is not without means for recognizing that an infringer is unlike a true ‘willing’ licensee”...).
reasonably royalty award is simply a “can’t-lose” compulsory license\textsuperscript{72} for the infringer. The \textit{Fromson} court points out several statutory provisions which serve to discourage infringement and make the patentee whole, without the need to utilize the reasonable royalty in a punitive manner.

After the above general discussion, the court turns to ascertaining whether the lower court correctly applied these principles. The court summarily overrules the district court’s determination of a reasonable royalty. The decision was largely because of the insufficient justification provided by the lower court in justifying its holding that the royalty should be computed as 2.5\% of the infringer’s profit margin. It appeared to the \textit{Fromson} court that this figure was arbitrarily assumed to be 10\%.\textsuperscript{73} The Court, therefore, remanded the case for determination of a reasonable royalty, providing that such royalty may be measured as a percentage of the infringer’s profits.\textsuperscript{74}

The court in \textit{Fromson} explicitly establishes that an infringer’s profits are available in calculating a reasonable royalty and appears to ground this assertion in \textit{Sinclair}’s book of wisdom language. However, the \textit{Fromson} holding provides no guidance as to the appropriate considerations or analytical framework to be employed by courts when considering the issue.

d. \textit{Interactive Pictures Corp. v. Infinite Pictures, Inc.}

The litigation in \textit{Interactive Pictures} involved the infringing use of an image processing system.\textsuperscript{75} The jury in \textit{Interactive} returned a verdict in favor of the patentee in the amount of $1

\textsuperscript{72} \textit{Id}. at 1575.

\textsuperscript{73} \textit{Id}. at 1578 (Court explaining that it “cannot fathom either the rationale that led to selection of a ‘standard 10\% profit’ or the basis for employing a percentage of a percentage.”).

\textsuperscript{74} \textit{Id}. (“[I]t would appear sufficient to fix a reasonable royalty as a percentage of the dollar amount of profit made by the infringer from its use of the invention, whatever that dollar amount may have from time to time been”).

\textsuperscript{75} \textit{Interactive Pictures Corp. v. Infinite Pictures, Inc.}, 274 F.3d 1371, 1373 (Fed. Cir. 2001).
million dollars.\textsuperscript{76} The award was based upon expert testimony regarding a willing licensor-licensee’s hypothetical negotiation occurring pre-infringement.\textsuperscript{77} The plaintiff’s expert presented evidence that the parties would have agreed upon a lump-sum 10% royalty rate applied to gross revenue from the defendant’s company.\textsuperscript{78} In order to construct the appropriate gross revenue royalty base, the expert utilized a pre-infringement business plan of the defendant’s.\textsuperscript{79} The business plan was developed by the defendant 2 months prior to infringement and was essentially a 5 year estimate of the company’s projected sales revenue.\textsuperscript{80} The expert utilized the revenue projections as the most appropriate data available at the time of infringement, which would have informed the hypothetical parties’ royalty negotiations. However, the defendant argued that this methodology was flawed because its realized profits did not meet the projections of the business plan.\textsuperscript{81}

On appeal the defendant asserted that it was error to base the royalty calculation upon its projected profits and not its actual profits. The Federal Circuit disagreed and affirmed the district court’s royalty calculation. The court stated that its precedent endorsed the willing licensor-licensee conceptual framework, utilized by the lower court, and noted that when such approach is used “the negotiation must be hypothesized as of the time infringement began.”\textsuperscript{82} Explicitly

\textsuperscript{76} Id. at 1375.

\textsuperscript{77} Id. (awarding damages based on “evidence of a reasonable royalty on Infinite's sales determined in a hypothetical negotiation”).

\textsuperscript{78} Id. at 1384.

\textsuperscript{79} Id.

\textsuperscript{80} Id.

\textsuperscript{81} Id. at 1385 (“The fact that Infinite did not subsequently meet those projections is irrelevant to Infinite's state of mind at the time of the hypothetical negotiation.”) (emphasis added).

\textsuperscript{82} Id. at 1384.
addressing the defendant’s contention that realized profits are the appropriate measure to be utilized in the calculation, the court explained:

In this case, the [pre-infringement profit projections]...were prepared by Infinite two months before infringement began...rather than being outdated for purposes of the hypothetical negotiation, those projections would have been available to Infinite at the time of the hypothetical negotiation. The fact that Infinite did not subsequently meet those projections is irrelevant to Infinite's state of mind at the time of the hypothetical negotiation. Nor does Infinite's subsequent failure to meet its projections imply that they were grossly excessive or based only on speculation and guesswork. Instead, Infinite's subsequent failure to meet its projections may simply illustrate the “element of approximation and uncertainty” inherent in future projections.83

The court’s analysis reiterates the strong support for grounding a reasonable royalty calculation at a hypothetical negotiation occurring pre-infringement. Interactive makes clear that the preference of only using data available to the parties pre-infringement is defensible, regardless of post-infringement profit data which indicates that the hypothetically negotiated rate may be excessive. Further, the court explicitly notes that the “state of mind” of the parties is crucial to framing the hypothetical negotiations. Focusing upon what the parties would reasonably have known or contemplated at the time of a hypothetical negotiation is antithetical to the book of wisdom doctrine.

The Interactive court’s decision is in complete accord with Hanson, as both analyses refused to allow evidence of an infringer’s actual profits into the royalty calculation. Instead, both decisions focused on information which would have been available to the parties at the pre-infringement hypothetical negotiation. In contrast, these two decisions appear to be discordant with the Federal Circuit’s decisions in Trans-World and Fromson. The court in these two decisions also advocated a pre-infringement negotiation analysis, but then speculated upon the

83 Id. at 1385.
use of an infringer’s profits which would be unknowable at the time of the hypothetical negotiation.

e. **Integra Lifesciences I, LTD v. Merck KGaA**

In *Integra*, decided two years after *Interactive*, the Federal Circuit again cast doubt upon the applicability of the book of wisdom.\(^{84}\) The litigation involved Integra’s charge that Merck had violated its patented technology relating to a pharmaceutically useful peptide embodiment.\(^{85}\) Integra asserted that the infringement occurred during the period from 1994 thru 1998.\(^{86}\) Upon a finding of infringement, the jury awarded Integra $15 million dollars as a reasonable royalty.\(^{87}\) Merck requested the district judge render a JMOL as the award was not based upon substantial evidence, but the request was denied.

Upon appeal, the Federal Circuit agreed with Merck’s contention and reversed the denial of JMOL and remanded the case for proper calculation of a reasonable royalty consistent with its opinion.\(^{88}\) In explaining its decision, the court first addressed the methodology appropriate to determining a reasonable royalty:

A reasonable royalty calculation envisions and ascertains the results of a hypothetical negotiation between the patentee and the infringer at a time before the infringing activity began. Thus, the reasonable royalty calculus *assesses the relevant market* as it would have developed before and absent the infringing activity. Although an exercise in approximation, this analysis must be based on “sound economic and factual predicates.” Royalties, like lost profits, are compensatory damages, not punitive.\(^{89}\)

\(^{84}\) *Integra*, 331 F.3d 860.

\(^{85}\) *Id.* at 862

\(^{86}\) *Id.*

\(^{87}\) *Id.*

\(^{88}\) *Id.* at 869.

\(^{89}\) *Id.* at 869-70 (citing *Riles*, 298 F.3d at 1311 (Fed. Cir. 2002))(citation omitted)(emphasis added).
Turning to the facts of the case, Judge Rader reiterated that the first step in calculating a reasonable royalty is to determine the date on which the hypothetical negotiation in advance of infringement is deemed to have occurred.90 The court explained that the proper setting of this date is crucial as it determines the economic risks and rewards which would have been known to the hypothetical negotiators when bargaining for a royalty.91 The court was troubled by the lack of a clear indication in the lower court’s decision as to the exact date of first infringement. There was evidence which indicated that the first date of infringement may have been 1994, and thus a full year before the date utilized by the expert to base his hypothetical negotiation analysis.92 This time period was crucial, as Merck did not develop an expectation of FDA approval of its cyclic peptide therapeutic until 1995.93 The expectation of FDA approval is a very valuable corporate asset that the expert may have unjustifiably relied upon as informative of the hypothetical negotiator’s bargaining positions. As explained by the court:

If indeed the record shows that the first infringement occurred in 1994, then the hypothetical negotiation should be regarded as having occurred at least before that earlier date. ...[Plaintiff’s] proffered a hypothetical license figure based, in part, on Merck's 1995 expectations of obtaining FDA approval of a cyclic peptide therapeutic...if the hypothetical negotiation occurred in 1994, Merck did not have that expectation. Thus, an earlier date will change the risks and expectations of the parties.94

90 Id. at 870.
91 Id.
92 Id.
93 Id.
94 Id. As discussed, many courts place the utmost importance upon returning the hypothetical negotiation to a time pre-infringement when calculating a reasonable royalty. The Integra court goes one step further by providing a concise market-based foundation for the mandate. Id.
As with its *Interactive* decision, the Federal Circuit in *Integra* does not discuss the book of wisdom doctrine or its decision in *Fromson*.\(^{95}\) The *Integra* court stresses the importance of returning to a date pre-infringement when calculating the reasonable royalty, but this is not new. *Fromson* also espoused this view, but then seemingly eviscerated the stance by discussing the book of wisdom and its emphasis on hindsight. However, the *Integra* court’s emphasis upon market expectations of the parties at the time of the hypothetical negotiation is perhaps suggestive of the direction the court wishes to take when analyzing the calculation of a reasonable royalty. Also of note, is the possible integration of *Interactive*’s focus upon the “state of mind” of the hypothetical negotiators and *Integra*’s emphasis upon their “market expectations” at a time pre-infringement. This emphasis is in complete accord with the circuit’s holdings in *Rite-Hite* and *Grain Processing* addressing the determination of a plaintiff’s lost profits, as will be discussed in Part II. Further, the focus upon market expectations at the time of hypothetical negotiation is also in accord with the circuit’s endorsement of the analytical approach to calculating a reasonable royalty.

D. The Analytical Approach

The Federal Circuit gave its approval of the analytical approach in its 1986 *TWM Manufacturing Co. v. Dura Corp.* decision.\(^{96}\) In *TWM*, the court was charged with reviewing the methodology used by a special master in calculating a reasonable royalty. The special master calculated the royalty by utilizing data contained in a pre-infringement memorandum issued by

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\(^{95}\) It is hard to reconcile why the book of wisdom’s espousal of the value of hindsight is not available to the parties in *Integra* or *Interactive*. Surely *Integra* could benefit from utilizing the post-infringement fact that Merck may develop a valuable expectation of FDA approval of its pharmaceutical embodiment as a result of its utilization of an infringed patent. And so also could the defendant’s in *Interactive* have benefited from the use of hindsight in proving that their pre-infringement corporate profit projections were exceedingly optimistic.

\(^{96}\) *TWM*, 789 F.2d 895.
the defendant’s top corporate management. The memorandum indicated that defendant-Dura projected a gross profit of 52.7% from sales of the infringing product. From the initial projected gross profit margin, the special master subtracted Dura’s overhead expenses to arrive at an anticipated net profit of 37-42%. Lastly, the master subtracted an “industry standard net profit” of 6.5-12.5% and ultimately arrived at a reasonable royalty rate of 30%.

On appeal, Dura argued that it was legal error for the court to use the analytical approach to calculate a reasonable royalty. Dura asserted that the special master’s exclusive reliance on the pre-infringement profit projections was contrary to the notion of a hypothetical negotiation, which requires the examination of all 15 Georgia-Pacific factors. As an alternative to the analytical method, Dura urged the court to consider its actual post-infringement profits and strenuously argued that the 30% royalty rate was exorbitant in light of these figures.

Despite Dura’s arguments, the Federal Circuit affirmed the special master’s use of the analytical method. The court initially observed that there is no single methodology that must be used in determining a reasonable royalty rate, so long as the amount compensates for infringement. Thus, Dura’s contention that the hypothetical negotiation framework requires a court to consider all 15 Georgia-Pacific factors was without merit. The court then held that under the analytical method the master was correct to rely upon the infringer’s anticipated profit, rather

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97 Id. at 899.

98 Id.

99 Id.

100 Id.

101 Id. (arguing the court “erred as a matter of law” in its selection of the analytical method).

102 Id.

103 Id.
than any realized profits made post-infringement.\textsuperscript{104} Further, Dura could not attack the appropriateness of the analytical method by merely proving that it produced a “high” award compared to the company’s preferred analysis which considered realized profits.\textsuperscript{105}

In support of its holding that post-infringement profit data was properly excluded, the Federal Circuit cited two previous decisions dealing with the issue.\textsuperscript{106} In \textit{Hanson v. Alpine Ski Area, Inc.} the court used forceful language when addressing the issue of an infringer’s actual profits, holding that:

The issue of the infringer's profit is to be determined not on the basis of a hindsight evaluation of what actually happened, but on the basis of what the parties to the hypothetical license negotiations would have considered at the time of the negotiations. Whether, as events unfurled thereafter, [the infringer] would have made an actual profit, while paying the royalty determined as of [the date of infringement], is irrelevant.\textsuperscript{107}

Further buttressing this position, and cited heavily in \textit{Hanson}, the \textit{Panduit} court held:

The infringer's profit element, in the post-judgment “reasonable royalty” equation, is not related to the infringer's actual profit; nor is it designed to insure the anomalous result of guaranteeing an actual profit to an infringer...The licensee-profit element...should be based on the customary profit allowed licensees in the industry [at date of hypothetical negotiation].\textsuperscript{108}

The court cites \textit{Hanson} and \textit{Panduit} as guiding precedent for what data is allowed to be utilized in applying the analytical approach. However, neither court espoused that the analytical approach was being implemented in its analysis and in fact both decisions rested upon the

\textsuperscript{104} \textit{Id.} (“In arguing against the district court's application of the analytical approach, Dura deals mostly with events subsequent to its initial infringement. Although evidence of actual profits is generally admissible the district court here correctly focused on the date when the infringement began.”) (citation omitted).

\textsuperscript{105} \textit{Id.} (“On appeal, an infringer cannot successfully argue that the district court abused its discretion in awarding a ‘high’ royalty by simply substituting its own recomputation to arrive at a lower figure. That argument does not show error, but merely indicates the damages an infringer-appellant would prefer to pay.”) (citation omitted).

\textsuperscript{106} \textit{Id.} (citing \textit{Hanson}, 718 F.2d 1075; \textit{Panduit}, 575 F.2d 1152).

\textsuperscript{107} \textit{Hanson}, 718 F.2d at 1081.

\textsuperscript{108} \textit{Panduit}, 575 F.2d at 1164.
willing licensor-licensee concept. Regardless of characterization, both cases strongly express that post-infringement profit data is antithetical to a reasonable royalty rate calculation, which is deemed to occur at a hypothetical negotiation pre-infringement.

In summary, courts employing the analytical method do not consider post-infringement data regarding the infringer’s profits when arriving at a reasonable royalty rate. The approach also does not entertain arguments from the parties regarding what their bargaining strategies would have been at the time of infringement and hypothetical negotiation. Rather, the methodology advocates the determination of a reasonable royalty by calculating the difference between the infringer’s anticipated net profit margin and an industry standard margin at the time of infringement. The calculated figure is deemed to be the rate determined at a pre-infringement hypothetical negotiation; it is irrelevant that post-infringement profit data indicates that the infringer will not earn an actual profit.

E. Perspective from the Trenches: How a District Court Perceives Book of Wisdom Precedent

The relatively recent decision of Honeywell Int’l Inc. v. Hamilton Sundstrand Corp. provides an illustrative real-world example of the dilemma facing the nation’s district courts when determining a reasonable royalty. The litigation involved the infringing use of a patent owned by Honeywell and directed toward a jet-engine torque regulating system. The accused infringing device, an Auxiliary Power Unit (APU) used in jet aircraft during startup of the

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109 It has been suggested by prominent commentators that the analytical method should replace the willing licensor-licensee approach, as it is more objective and predictable. Janicke, supra note 12, at 727-29 (“The analytical approach...would be a far better determinant of just compensation than is provided by the present hyperfiction of the [willing licensor-licensee] hypothetical negotiation.”); See also Stevan D. Porter, Jr., Estimating Hypothetically Negotiated Royalty Rates After Medimmune, Inc. v. Genetech, Inc., et al., 14 J. LEGAL ECON. 43, 50 (2008) (describing how the traditional willing licensor-licensee method will no longer be accurate after Medimmune; whereas, the analytical method will be unaffected).


111 Id. at 462.
engines, belonged to defendant-HSC.\textsuperscript{112} HSC presented a pretrial motion, which requested the court to preclude Honeywell from presenting a reasonable royalty damage calculation based on sales projections of the accused product that did not exist at the time of the hypothetical negotiation.\textsuperscript{113} The district court denied this motion and held that the post-hypothetical negotiation sales projections should be available to Honeywell.\textsuperscript{114} District Judge Sleet provided an expansive and well reasoned analysis of the dilemmas facing courts when considering the calculation of a reasonable royalty.

In more detail, both Honeywell and HSC are fierce competitors in the aerospace industry.\textsuperscript{115} Both companies actively compete for the business of a large Brazilian jet manufacturer, Embraer.\textsuperscript{116} HSC was awarded a contract by Embraer in 1999 to supply the company with its allegedly infringing APU product.\textsuperscript{117} Approximately at this time, both HSC and Honeywell created internal corporate projections of the sales revenue which would be realized from the Embraer-HSC contract.\textsuperscript{118} At this time, HSC projected the contract would result in 609 APU sales by 2017.\textsuperscript{119} Honeywell’s projections determined that HSC would make APU sales in the range of 348-600 throughout the contract’s duration.\textsuperscript{120} Honeywell contends that the events of September 11, 2001 have caused an increase in the demand for jet aircraft and

\textsuperscript{112} Id.
\textsuperscript{113} Id.
\textsuperscript{114} Id. at 480.
\textsuperscript{115} Id. at 462.
\textsuperscript{116} Id.
\textsuperscript{117} Id.
\textsuperscript{118} Id. at 462-63.
\textsuperscript{119} Id.
\textsuperscript{120} Id.
therefore an increased demand for HSC’s infringing device.\(^{121}\) Consequently, Honeywell argues that this increase in market demand caused Embraer to dramatically increase the volume of APU’s purchased from HSC.\(^{122}\) Honeywell now predicts that HSC will sell Embraer 1,001 of the devices by 2017.\(^{123}\) Not surprisingly, Honeywell wishes to present these projections at trial when the court addresses the issue of a reasonable royalty. These revised sales projections were constructed from 2004-2005. Honeywell argues that if the hypothetical negotiation is placed at the time of initial infringement, thus constrained to the 1999 profit projections, the company will only be entitled to 17 million dollars in damages.\(^{124}\) However, if the hypothetical negotiation is allowed to consider the post-infringement profit projections developed in 2004-2005, the company stands to be entitled to an award of 28 million dollars in damages.\(^{125}\) Understandably, the parties disagreed vehemently on whether the revised sales projections should be considered by the court in its willing licensor-licensee analysis of determining a reasonable royalty.

The court held that the 2004-2005 sales projections should be allowed in the determination of a reasonable royalty, despite the fact that these figures would not have been available to the hypothetical negotiators at a pre-infringement bargaining table.\(^{126}\) In its opinion, the court determined that Federal Circuit precedent addressing the book of wisdom is conflicting.\(^{127}\) Specifically, the court concluded that \textit{Fromson} and \textit{Integra} dictate opposite

\footnotesize{\begin{itemize}
\item[121] \textit{Id.} at 463.
\item[122] \textit{Id.}
\item[123] \textit{Id.}
\item[124] \textit{Id.}
\item[125] \textit{Id.}
\item[126] \textit{Id.} at 480.
\item[127] \textit{Id.} at 469
\end{itemize}}
The court reasoned that *Fromson* and its reliance upon the book of wisdom, dictated the allowance of the revised revenue figures into evidence; whereas, the market expectations and risks inquiry highlighted in *Integra* would forbid such evidence. The court declined to follow the mandates of *Integra* and chose instead to follow *Fromson*. Explaining this choice, the court stated that *Fromson*’s book of wisdom approach was most “sensible” for four reasons: (1) the approach promoted “flexibility” in damage calculations, (2) the ability of courts to utilize post-infringement profit data will discourage infringement by “placing the risk of success on the infringer,” (3) the approach protected the “quid pro quo underlying patent law by preventing a premature valuation of the patent,” (4) the book of wisdom allowed courts to fashion damage awards “more in keeping with the plain language” of the patent statute.  

The analysis of the *Honeywell* court must be commended for its reasoning. However, there are several flaws with the court’s interpretation of precedent. First, the court never mentions the controlling precedent of *Hanson*, which is strongly antithetical to the book of wisdom approach. Second, the court interprets *Interactive Pictures* as supportive of the plaintiff’s position, when clearly the court in *Interactive* forbids the use of post-hypothetical negotiation data. Third, the facts of the case seem to be exactly the type of situation which the *Integra* decision contemplated.

At the time of initial infringement, both parties had created sales projections based upon available market analyses. These projections are relevant to the parties’ state of mind at the time of the hypothetical negotiation as emphasized in *Integra*. Further, the *Honeywell* court has essentially used the book of wisdom doctrine to eviscerate any legitimacy that the Federal Circuit has placed upon the necessity of conducting the hypothetical negotiation pre-infringement.

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128 *Id.*

129 *Id.*
Consequently, the defendants in the case are subject to an increased royalty because of the intervening acts of terrorists on September 11, 2001. No doubt this result places “the risk of success on the infringer”, but this is not the purpose of damages. As the Federal Circuit and Supreme Court have stated, the patent statute’s damage remedy is not punitive; but rather focuses on the loss to the patentee.

Under the facts of Honeywell, there is ample data regarding the economic expectations of the parties on the date of infringement. It is difficult to imagine a more appropriate factual scenario in which to heed the Federal Circuit’s analysis in Integra. The interpretation of precedent proffered by the Honeywell court improperly focuses upon unforeseeable post-infringement events and does not attempt to ascertain the state of mind of the hypothetical negotiators. The equities which compel the Honeywell court to adopt its analysis should not be an invitation to embark into territory reserved to the legislature. The concern raised by the court that HSC may profit considerably if the revised figures are not allowed into evidence is legitimate. Also legitimate is the court’s contention that its analysis will “discourage infringement.” However, the court failed to recognize that Fromson, the opinion buttressing its analysis, also addressed this very concern and concluded that the patent statute already provides an adequate deterrent without the need for the reasonable royalty award to serve as proxy.

F. The Book of Wisdom - A Novel Not Entirely On Point

The book of wisdom originated in the 1933 Supreme Court decision of Sinclair Ref. Co. v. Jenkins Petroleum Process Co. The plaintiff-Sinclair was the owner of a patented “experimental still” used to process petroleum into gasoline.\textsuperscript{130} Sinclair agreed to loan the machine to a competitor, Jenkins, on the condition that any patents developed for improving the

\textsuperscript{130} \textit{Sinclair}, 289 U.S. 690-92.
device were assigned back to Sinclair.\textsuperscript{131} After executing the agreement, Jenkins began utilizing the device and subsequently developed patentable improvements.\textsuperscript{132} The company received a patent on the improvements, but promptly refused to assign the patent back to Sinclair.\textsuperscript{133} The litigation proceeded through the lower courts and ultimately certiorari was accepted by the Supreme Court.\textsuperscript{134} The pertinent issue presented to the court was whether the defendant’s profits from sales of the patented device, not assigned back to Sinclair as per the contract, were relevant for determining the measure of damages to be awarded.

Justice Cardozo delivered the Court’s opinion. The Court held that the defendant’s profits from sales of the patented device, which was not assigned back to Sinclair as required by the loan agreement, were relevant to the damage calculation. Cardozo explained:

\begin{quote}
The use that has been made of the patented device is a legitimate aid to the appraisal of the value of the patent at the time of the breach.

This is not a case where the recovery can be measured by the current prices of a market. A patent is a thing unique. There can be no contemporaneous sales to express the market value of an invention that derives from its novelty its patentable quality. But the absence of market value does not mean that the offender shall go quit of liability altogether. The law will make the best appraisal that it can, summoning to its service whatever aids it can command. At times the only evidence available may be that supplied by testimony of experts as to the state of the art, the character of the improvement, and the probable increase of efficiency or saving of expense. This will generally be the case if the trial follows quickly after the issue of the patent. But a different situation is presented if years have gone by before the evidence is offered. Experience is then available to correct uncertain prophecy. Here is a book of wisdom that courts may not neglect.
\end{quote}

\textsuperscript{131} \textit{Id.}

\textsuperscript{132} \textit{Id.}

\textsuperscript{133} \textit{Id.}

\textsuperscript{134} \textit{Id.} at 692. The First Circuit had previously held proof of defendant’s profits from use of the patented device were allowable in order to ascertain the proper damage award. However, the First Circuit restricted use of this information and held it only to be admissible upon a denial of the device’s commercial success by the defendant. \textit{Id.} Much of the legal debate in the case sprang from the now defunct distinction between courts of law and equity. At the time, the lower courts were grappling with the measure of discovery allowed in cases at law, when merely damages were sought to be proven with the discovery writ. \textit{Id.} at 694.
We find no rule of law that sets a clasp upon its pages, and forbids us to look within.

Value for exchange is not the only value known to the law of damages. There are times when heed must be given to value for use, if reparation is to be adequate. An imaginary bid by an imaginary buyer, acting upon the information available at the moment of the breach, is not the limit of recovery where the subject of the bargain is an undeveloped patent. Information at such a time might be so scanty and imperfect that the offer would be nominal. The promisee of the patent has less than fair compensation if the criterion of value is the price that he would have received if he had disposed of it at once, irrespective of the value that would have been uncovered if he had kept it as his own. Formulas of measurement declared alio intuittu may be misleading if wrested from their setting and applied to new conditions. The market test failing, there must be reference to the values inherent in the thing itself, whether for use or for exchange. These will not be known by first imagining a forced sale, and then accepting as a measure its probable results. The law is not so tender to sellers in default.\(^{135}\)

As expected from the jurist, Cardozo’s opinion is elegant and forceful. In announcing its accord with the book of wisdom doctrine, the Federal Circuit in Fromson similarly quoted at length from the persuasive prose, but also failed to elaborate upon the proper use of the doctrine in a modern reasonable royalty context. Adding to the confusion surrounding the doctrine are several important aspects of Sinclair which place its precedential value into question.

First, Sinclair is decided in 1933 at a time when a defendant’s profits are recognized as a legitimate damage award. Certainly Sinclair was not concerned with calculating this measure of damages, but nevertheless the Court was not confronted with this added consideration.

Second, and most importantly, Sinclair was not concerned with calculating a reasonable royalty to compensate for patent infringement. The plaintiff-Sinclair was suing for damages under a breach of contract cause of action. The distinction is crucial.\(^{136}\) Sinclair was not the owner of the patent in question; rather, the company claimed the defendant had not assigned the

\(^{135}\) Id. at 697-99 (citation omitted) (emphasis added).

\(^{136}\) Generally, one seeking money damages for patent infringement must have held legal title to the patent at the time of the infringement. Crown Die & Tool Co. v. Nye Tool & Mach. Works, 261 U.S. 24, 40-41 (1923).
newly patented improvement as required by contract. At the time of the loan agreement, the patent in question did not exist and there was no certainty that Jenkins would even attempt to develop a patentable improvement. Therefore, Sinclair was not entitled to the statutorily recognized monopoly that a patent grants to its holder, nor the attendant compensatory damages entitled to a patentee when this exclusivity is violated. The damages Sinclair sought were to compensate the company for a lost bargain. Consequently, the Court was asked to determine the monetary loss reflective of this lost bargain. It is completely in keeping with a breach of contract theory of recovery that Cardozo held discovery of the defendant’s profits admissible. This data was indicative of the lost opportunity of assignment that had been expected. This is in distinct contrast to a situation in which a patent holder seeks compensatory damages—defined by statute to place them in the same financial condition which would have been attendant absent infringement—because their statutorily created rights to exclusivity have been appropriated.

The issue presented to the Sinclair court, though involving the determination of a patent’s value, was not an analysis constrained to the statutory language of the patent act’s damage provisions. The modern reasonable royalty analysis, premised on a hypothetical negotiation pre-infringement, is entirely at odds with the issue in Sinclair. There could be no hypothetical negotiation analysis under these facts, because there was not a statutorily-sanctioned monopolistic right violated. Logically, there can be no damages to compensate for a violation of a non-existent right to exclude.

Lastly, the Sinclair court’s implicit endorsement of the assignment agreement executed between the parties is in discordance with modern antitrust jurisprudence. Sinclair’s

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137 Transparent-Wrap Mach. Corp. v. Stokes & Smith, 329 U.S. 637 (1947). Grant-backs are agreements in which a licensee agrees to extend back to the licensor any patents developed from improving the licensed technology. U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY, § 5.6 (April 6, 1995). The agreements can require merely a non-exclusive grant-back of the patented
requirement that all improvement patents, developed using the loaned device, be assigned exclusively back to the company could impermissibly extend the scope of the company’s patent. This condition would be sufficient to trigger a rule of reason analysis by the courts and would likely influence any type of damage award calculation.

In summary, any precedential value that Sinclair’s book of wisdom language provides must be specifically adapted to a reasonable royalty context under the modern patent statute’s damage language. Perhaps the court in Fromson accomplished this by extensively citing the decision in relation to a reasonable royalty calculation. However, there was no guidance provided as to the proper application of the doctrine. This lack of guidance has led to confusion and litigation regarding the availability of the book of wisdom.

II. MARKET RECONSTRUCTION & ECONOMIC GUIDANCE—FEDERAL CIRCUIT PRECEDENT ADDRESSING PLAINTIFF’S LOST PROFITS

A. Reconstructing the Relevant Market and Considering Causation


The Supreme Court first had occasion to consider the current patent statute’s damage provision in its 1964 Aro decision.138 The litigation in Aro involved the infringing use of a patented convertible automobile top structure. The defendant-Aro manufactured fabrics designed to repair the convertible tops and was consequently sued for contributory infringement by the patent holder. The court held Aro was liable for contributory infringement of the convertible top improvement, or may demand an outright exclusive assignment of the patent. Id. In Transparent-Wrap, the Supreme Court ruled that grant-backs are not per se illegal under the antitrust laws and would be analyzed under the rule of reason. Transparent-Wrap, 329 U.S. at 648. However, the court expressed concern that exclusive grant-back provisions may allow patentees to extend their patents beyond the statutorily defined term. Id. at 646 (“We are quite aware of the possibilities of abuse in the practice of licensing a patent on condition that the licensee assign all improvement patents to the licensor. Conceivably the device could be employed with the purpose or effect of violating the anti-trust laws.”); See also GARY MYERS, THE INTERSECTION OF ANTITRUST AND INTELLECTUAL PROPERTY 623 nn.1-5 (2007).

138 Aro, 377 U.S. 476.
patents. Most important for this discussion, the Court made two fundamental holdings with regard to patent damages available upon a finding of infringement.

To begin its analysis of patent damages, the Court first explicitly recognized that the 1946 amendment to the patent statute effectively eliminated an accounting of an infringer’s profits as a recoverable damage award.\(^\text{139}\) Having determined that an accounting of the infringer’s profits was no longer available as a damage remedy, the court turned to the analysis required to recover one of the two measures of damages—plaintiff’s lost profits or a reasonably royalty—under the current statute.

The court adopted a clear “but for” causation analysis which must be satisfied in order for a plaintiff to recover their lost profits as a compensatory damage award.\(^\text{140}\) The court held that the damage measure must reflect the difference between the patentee’s pecuniary condition after the infringement and what his condition would have been had infringement not occurred.\(^\text{141}\) Further, the Court distilled the crucial question of causation into the following: Had the infringer not infringed, what would the patent holder have made?\(^\text{142}\)

\(^\text{139}\) \textit{Id.} at 505-06 (Discussing the 1946 amendments to the patent statute, the Court held: “The purpose of the change was precisely to eliminate the recovery of profits as such and allow recovery of damages only...There can be no doubt that the amendment succeeded in effectuating this purpose; it is clear that under the present statute only damages are recoverable.”); \textit{accord} General Motors Corp. v. Devex Corp., 461 U.S. 648, 654 (1983)(“In 1946 Congress excluded consideration of the infringer's gain by eliminating the recovery of his profits, the determination of which had often required protracted litigation.”) (citing \textit{Aro}, 377 U.S. 476 at 505).

\(^\text{140}\) \textit{Aro}, 377 U.S. 476 at 507 (Recognizing that damages may be defined as “compensation for the pecuniary loss...suffered from the infringement [by the patentee], without regard to the question whether the defendant has gained or lost by his unlawful acts.”) (quoting Coupe v. Royer, 155 U.S. 565, 582 (1895))).

\(^\text{141}\) \textit{Id.}

\(^\text{142}\) \textit{Id.} The Supreme Court in \textit{Aro} appears to cast a wider role for the “but for” analysis. \textit{Id.} at 505 (“The statute allows the award of a reasonable royalty, or of any other recovery, only if such amount constitutes damages for the infringement...[i]n patent nomenclature what the infringer makes is profits what the owner of the patent loses by such infringement is damages.”). Therefore, the general causative analysis is applicable to both a lost profit measure of damages and a reasonable royalty calculation. As the Federal Circuit stated in \textit{Integra}: “Royalties, like lost profits, are compensatory damages, not punitive.” \textit{Integra}, 331 F.3d at 870.
b. **Rite-Hite Corp. v. Kelley Co.**

The Federal Circuit elaborated upon the causation analysis required when determining damages in patent infringement litigation in its 1995 *Rite-Hite* decision.\(^\text{143}\) In *Rite-Hite* the Federal Circuit expands upon the “but-for” causation analysis mandated by *Aro*, and adopts an additional proximate causation inquiry.\(^\text{144}\) The test adopted by the court to govern the proximate causation analysis is one of “reasonable foreseeability.”\(^\text{145}\)

The litigation in *Rite-Hite* involved the infringement of Rite-Hite’s patent covering a manual restraining system (MDL) used to restrain trucks to loading docks.\(^\text{146}\) Rite-Hite also owned a patent covering an automatic dock lever mechanism (ADL-100), which was used for the same purpose as the MDL system.\(^\text{147}\) Shortly after Rite-Hite had acquired the patent pertaining to its MDL system, the company sued defendant-Kelley for selling an infringing version of the manual system.\(^\text{148}\)

At the trial, Rite-Hite argued for the traditional lost profits it was denied because of Kelley’s infringing sales of its MDL system.\(^\text{149}\) However, Rite-Hite also asserted that it was entitled to damages based upon lost sales that were diverted from its other patented product, the ADL-100, which was not infringed by Kelley.\(^\text{150}\) Upon finding infringement, the district court determined that Rite-Hite was entitled to a damage award for lost sales based upon the MDL

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\(^{143}\) *Rite-Hite*, 56 F.3d 1538.

\(^{144}\) Id.

\(^{145}\) Id. at 1546–47.

\(^{146}\) Id. at 1542–43.

\(^{147}\) Id.

\(^{148}\) Id.

\(^{149}\) Id. at 1543.

\(^{150}\) Id.
system infringed by Kelley. The district court further determined that Kelley was liable for Rite-Hite’s lost sales relating to the ADL system which was not infringed. The court found that “but for” Kelley’s infringing sales of the manual system; Rite-Hite would have sold additional manual and automatic systems. The district court held that the defendant “could reasonably have foreseen” that its sales would divert revenue away from both of Rite-Hite’s products. Aggrieved, Kelley appealed and asserted that the patent statute does not provide for lost profit damages diverted from a product not covered by the infringed patent in suit.

Upon appeal, the Federal Circuit agreed with the district court’s determination that Rite-Hite could recover damages for lost sales of a product not covered by the patent in suit. To justify its holding, the Federal Circuit explained that strict reliance on Aro’s “but for” causation analysis was not the end of the question as to ascertaining acts giving rise to liability for patent infringement. The court explained that a full causation inquiry would also entail a determination of proximate cause. Explaining the newly adopted proximate causation analysis the court held:

We believe that under § 284 of the patent statute, the balance between full compensation, which is the meaning that the Supreme Court has attributed to the statute, and the reasonable limits of liability encompassed by general principles of law can best be viewed in terms of reasonable, objective foreseeability. If a particular injury was or should have been reasonably foreseeable by an infringing

151 Id.
152 Id.
153 Id.
154 Id. at 1544
155 Id. at 1546.
156 Id. (“Preliminarily, we wish to affirm that the “test” for compensability of damages under § 284 is not solely a “but for” test in the sense that an infringer must compensate a patentee for any and all damages that proceed from the act of patent infringement. Notwithstanding the broad language of § 284, judicial relief cannot redress every conceivable harm that can be traced to an alleged wrongdoing.”).
competitor in the relevant market, broadly defined, that injury is generally compensable absent a persuasive reason to the contrary.\textsuperscript{157}

In adopting the proximate cause analysis, over a vigorous dissent, the court acknowledged that its holding reached beyond the express text of the patent statute.\textsuperscript{158} Addressing the concern directly, the court stated that express language was not required to justify its holding when statutes by necessity are general in nature.\textsuperscript{159} In summary, Rite-Hite stands for the proposition that a patentee is entitled to compensatory damages which are “reasonably foreseeable” from a patent infringement.

c.  \textit{Grain Processing Corp. v. American Maize-Prods. Co.}

The Federal Circuit again expanded its causation analysis jurisprudence in the 1999 decision of \textit{Grain Processing}.\textsuperscript{160} The litigation involved with the case spanned over an 18 year period and involved 8 judicial opinions.\textsuperscript{161} The controversy centered on a patented maltodextrin food additive and associated processes of manufacture owned by Grain Processing Corporation.\textsuperscript{162} Grain Processing brought an action against competitor American Maize-Products alleging infringement of the maltodextrin patent.

At trial, the district court held the maltodextrin patent to be infringed, but denied Grain Processing lost profit damages and instead awarded the company a reasonable royalty.\textsuperscript{163} In support of this determination, the district court found American Maize had proven its ability to

\textsuperscript{157} Id. at 1546.

\textsuperscript{158} Id. at 1546-47 (“Recovery for lost sales of a device not covered by the patent in suit is not of course expressly provided for by the patent statute.”).

\textsuperscript{159} Id. at 1547.

\textsuperscript{160} Grain Processing, 185 F.3d 1341.

\textsuperscript{161} Id. at 1343-44.

\textsuperscript{162} Id.

\textsuperscript{163} Id. at 1347.
have produced a non-infringing substitute maltodextrin, by simply incorporating a different method of manufacture. Particularly, the company had introduced evidence that a common, yet slightly more expensive enzyme, important to the manufacturing process was available during infringement. Use of this particular enzyme would have created a manufacturing process that produced a non-infringing maltodextrin product—able to compete against the patented maltodextrin in the market. Therefore, the court held that American Maize had effectively rebutted the “but for” lost profit damage claim advanced by Grain Processing.

In awarding Grain Processing a royalty of 3%, the district court determined that the cost differential between the infringing and non-infringing manufacturing process served to cap the royalty. The court reasoned that if Grain Processing had attempted to charge a higher license fee than this cost difference, American Maize would have switched to the non-infringing process and simply produced the substitute maltodextrin.

Grain Processing appealed the ruling and contended that American Maize could not escape liability for the lost profits it caused, on the basis of a non-infringing substitute product that did not exist in the marketplace during the period of infringement. The Federal Circuit disagreed and affirmed the district court.

The Federal Circuit began its analysis by reiterating the holdings of Aro and Rite-Hite and elaborated upon what is required in their implementation:

164 Id. at 1345-47.

165 Id.

166 Id. The enzyme was not initially used by American Maize in its manufacturing process as the company believed its other processes to be non-infringing and also because the enzyme increased the cost of production. Id. at 1347.

167 Id. at 1347.

168 Id.

169 Id.
The “but for” inquiry therefore requires a reconstruction of the market, as it would have developed absent the infringing product, to determine what the patentee “would ... have made.”

Reconstructing the market, by definition a hypothetical enterprise, requires the patentee to project economic results that did not occur. To prevent the hypothetical from lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture.\(^\text{170}\)

With this language, the court effectively fine-tuned the required causation analysis and grounded the inquiry in a market reconstruction paradigm. Accordingly, a plaintiff in a patent infringement action must satisfy the court that its claims are not subjective, but rather based upon “sound economic proof” of market conditions. The court elaborated further upon this market reconstruction framework and stated that the process necessarily involves a consideration of actions the infringer may have taken had he not infringed:

By the same token, a fair and accurate reconstruction of the “but for” market also must take into account, where relevant, alternative actions the infringer foreseeably would have undertaken had he not infringed. Without the infringing product, a rational would-be infringer is likely to offer an acceptable noninfringing alternative, if available, to compete with the patent owner rather than leave the market altogether.\(^\text{171}\)

The explicit consideration of alternative actions available to the infringer is a crucial holding developed by the *Grain Processing* court and which necessarily flows from a market reconstruction framework.\(^\text{172}\) The necessity to evaluate actions which may have been taken by the infringer assures that the market reconstruction analysis proffered by the court will not be an exercise in asymmetrical skewing.\(^\text{173}\) The court also explains that the reconstruction exercise will

\(^{170}\) *Id.* at 1350.

\(^{171}\) *Id.* at 1350-51.

\(^{172}\) *Id.* at 1351 (“Thus, an accurate reconstruction of the hypothetical “but for” market takes into account any alternatives available to the infringer.”).

\(^{173}\) *Id.* at 1351 (quoting ROBERT P. MERGES, PATENT LAW 1080 (2nd ed. 1997) (“[T]he infringer should have a chance to argue what he or she might have done in the absence of infringement. Obviously, if the defendant is not
involve the consideration of the relevant product market available to participants and would-be infringers:

The competitor in the “but for” marketplace is hardly likely to surrender its complete market share when faced with a patent, if it can compete in some other lawful manner. Moreover, only by comparing the patented invention to its next-best available alternative(s) - regardless of whether the alternative(s) were actually produced and sold during the infringement - can the court discern the market value of the patent owner's exclusive right, and therefore his expected profit or reward, had the infringer's activities not prevented him from taking full economic advantage of this right. Thus, an accurate reconstruction of the hypothetical “but for” market takes into account any alternatives available to the infringer. 174

These holdings establish an analytical framework for determining whether a plaintiff is entitled to a damage award based on their lost profits attributable to infringement. The analysis requires reliable economic proof of a reconstructed product market, in order to establish the necessary context by which to project the likely results “but for” the infringement. 175

Turning to the facts of the case, the Federal Circuit affirmed the district court’s holding that American Maize proffered sufficient economic proof that a non-infringing substitute product176 existed at the time of infringement. The court was strongly persuaded that the evidence indicated that the materials and skill necessary to create the alternative maltodextrin were present during the entire period of infringement177 and were not utilized merely because permitted to present evidence of this ilk, the analysis is quite skewed: only the patentee's ‘best case’ scenario is presented, rather than a more realistic scenario.”); MARTIN J. ADELMAN, PATENT PERSPECTIVES § 5.2 (2nd ed. 1998) (“[w]here an infringer demonstrates that it could have chosen to market a noninfringing alternative and that it would have done so had it known that it was infringing...the sales that it made of the infringing products were not sales that the patentee would otherwise have made...”); JOHN W. SCHLICHER, PATENT LAW: LEGAL AND ECONOMIC PRINCIPLES § 9.05 (1997) (“unless the law wishes to systematically overreward patented inventions, it is necessary to inquire about the nature and value of the product that the infringer could have made had he not infringed.”)).

174 Id. at 1351 (citation omitted).
175 Id. at 1356.
176 Id. at 1355 (“Consumer demand defines the relevant market and relative substitutability among products therein.”).
American Maize had a good faith belief that its original product was non-infringing. Therefore, the district court had accurately ascertained the product market and possible non-infringing substitutes during the period for which damages were claimed. Consequently, the court affirmed the denial of lost profits as a damage award, as the “but for” causation test had been effectively rebutted.

The Federal Circuit also affirmed the district court’s calculation of a reasonable royalty to be awarded Grain Processing for the years in which American Maize had utilized the infringing process. The royalty award was capped by the price differential between the infringing and non-infringing manufacturing processes available to American Maize at the time of initial infringement. However, since the royalty was not challenged by the parties the court did not have occasion to consider whether the market reconstruction holding also applied to the royalty calculation.

To summarize the Federal Circuit’s newly outlined market based analysis for proving lost profits as a damage measure, Judge Rader states:

[T]his court requires reliable economic proof of the market that establishes an accurate context to project the likely results “but for” the infringement. The availability of substitutes invariably will influence the market forces defining this “but for” marketplace...Moreover, a substitute need not be openly on sale to exert this influence. Thus, with proper economic proof of availability...an acceptable substitute not on the market during the infringement may nonetheless become part of the lost profits calculus and therefore limit or preclude those damages.  

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177 Id. at 1353. (“The critical time period for determining availability of an alternative is the period of infringement for which the patent owner claims damages, i.e., the “accounting period.”).  

178 Id. The court cautioned that an alleged alternative product which is not on the market during the infringing period can reasonably be inferred to be not available by a court. Id. at 1353. However, this inference is rebuttable if sufficient “economic proof” of availability is offered. Id. at 1356. The court cautioned that this is a delicate determination requiring more than “mere speculation or conclusory assertions” and that the defendant must actually “prove” the substitute was available, as opposed to merely “theoretically possible.” Id. at 1353.  

179 Id. at 1356 (citation omitted).
After *Grain Processing* it is clear that the Federal Circuit has refined the simple “but for” causation analysis offered three decades ago by the Supreme Court in *Aro*. The proper causation analysis must now consider not only causation in fact, but must also incorporate the proximate causation inquiry developed by *Rite-Hite*. These causation inquiries are not analyzed in a vacuum. Rather, *Grain Processing* establishes that the court must engage in a proper market reconstruction analysis in order for the causation inquiries to be contextually relevant. The market reconstruction analysis requires: (1) an assessment of the possible actions taken by the would-be infringer had he not utilized the infringing product, and also (2) ascertaining the relevant product market, defined by consumer preference, in order to determine the availability of non-infringing substitute products. These substitutes may or may not be economically or physically appropriate for the defendant to use, in which case their influence would appear to be minimal in the “but for” market place. However, as in *Grain Processing*, the substitute product may be a viable alternative for the defendant and therefore serve as an economically justifiable rebuttal to a plaintiff’s claim of lost profits. The market reconstruction analysis in *Grain Processing* is therefore a pre-requisite for conducting the causation analyses of *Aro* and *Rite-Hite*. It is only when courts have correctly reconstructed the relevant market can they accurately analyze the “but for” and proximate causation consequences of infringement.

### III. The Book of Wisdom Tempered by Economic Theory—Applying Grain Processing to the Calculation of a Reasonable Royalty

The court did not have occasion in *Grain Processing* to determine whether the market reconstruction analysis should also apply in the context of a reasonable royalty. It undoubtedly should.\(^{180}\) *Grain Processing* held that reconstruction of the relevant product market provides the

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\(^{180}\) The Federal Circuit has given indications that *Grain Processing* does apply in a reasonable royalty context. *Riles*, 298 F.3d 1302. In *Riles*, the court specifically addressed, but did not decide the issue because the damage expert erroneously based the royalty calculation on the value of an entire oil-rig platform rather than the patented anchoring devices.
appropriate analytical framework in which to ground the causation inquiries developed in *Aro* and *Rite-Hite*. The court properly held that alternative non-infringing products and courses of action available to a defendant should be considered when determining a plaintiff’s lost profits. There is no economic reason why these same analyses should not be available in the reasonable royalty context. Ascertaining the value of that which was misappropriated from the patentee—the right to exclude others from making, using, selling, or importing the patented embodiment—should involve a market reconstruction analysis, because it is within this context that the hypothetical negotiation is taking place. Analogous to *Grain Processing*’s mandate that the causation analyses required to prove plaintiff’s lost profits must occur within parameters defined by the market reconstruction, so too should the willing licensor-licensee’s hypothetical negotiation occur within this market reconstruction.

Further, the “reasonable foreseeability” standard of proximate causation developed in *Rite-Hite* should be adopted as the appropriate test for gauging the ability of the hypothetical negotiators to ascertain future market conditions, which may ultimately affect profits realized by the infringer. Litigants will be required to prove reasonable foreseeability whenever they wish to argue that a future event has caused a subsequent increase in realized profits to the infringer.

mechanism itself: however, strongly indicative of the court’s intent to apply *Grain Processing* to the calculation of a reasonable royalty the court stated:

[I]n the hypothetical negotiation that characterizes the reasonable royalty calculation, Shell may have had non-infringing alternatives to installing with temporary pilings. Thus, under the constraints of the hypothetical negotiation, the market could not award Riles a royalty for his method divorced of all relation to a potential non-infringing alternative method. The economic relationship between the patented method and non-infringing alternative methods, of necessity, would limit the hypothetical negotiation.

*Id.* at 1312 (emphasis added); *But cf.* Micro Chem. Inc. v. Lextron Inc., 317 F.3d 1387, 1393 (Fed. Cir. 2003) (“This court has not had occasion to address whether the holding of *Grain Processing* has applicability in the reasonable royalty context.”). Other commentators have also expressed the opinion that the market reconstruction analysis of *Grain Processing* is applicable to the calculation of a reasonable royalty. Joan L. Eads, Commentary, *Does Grain Processing Apply In A Reasonable Royalty Damage Analysis?*, 10 No. 26 ANDREWS INTELL. PROP. LITIG. REP. 13 (2004); see also Liane M. Peterson, *Grain Processing and Crystal Semiconductor: Use of Economic Methods in Damage Calculations Will Accurately Compensate For Patent Infringement*, 13 FED. CIRCUIT B.J. 41 (2003).
the event would not have been reasonably foreseeable at the time of the hypothetical negotiation, then the patent holder most assuredly could not prove causation with regard to how the event would have influenced the bargaining position of the parties.

Often, the evidence produced by litigants pursuant to the Georgia-Pacific factors does reconstruct the relevant market. But, this reconstruction is not required under current reasonable royalty jurisprudence, whereby litigants may emphasize only those particular factors amenable to their claim. This lack of guidance leads to confounding precedent, particularly with regard to the book of wisdom doctrine. If litigants were required to perform a substantial market reconstruction analysis, and appropriately consider “but for” and proximate causation, then many of the issues addressed by the book of wisdom would become insufficient.

a. **Trans-World Revisited**

For example, consider the issue confronting the court in *Trans-World*. The court was faced with determining whether an infringer’s profits, related to the sale of non-infringing eye glasses, were available to inform the calculation of a reasonable royalty for the infringing use of a patented display rack. Under the proffered analysis, the court would place the hypothetical negotiators at the bargaining table pre-infringement and require the parties to perform a relevant product market reconstruction and causation analysis. The analysis would require evidence pertaining to the following: (1) definition of the relevant product market - arguably display racks, (2) the availability of any potentially non-infringing substitute racks, (3) and a causation analysis relating to the ability of the defendant to use any of the non-infringing racks. Subsequent to an examination of this evidence, the willing licensor-licensee analysis would proceed in substantial consanguinity with current precedent. Therefore, the application of the relevant market reconstruction analysis is not a wholesale departure from previous case-law, but merely an
additional consideration that places the hypothetical negotiation into a more objective economic framework. Continuing with the example, the relevant issue in *Trans-World* would no longer be centered on the ability of an equitable doctrine to allow the court to traverse an artificially imposed temporal wall separating the hypothetical negotiation from economic reality. The court would allow evidence of an infringer’s profits, if that evidence validly informed what the market risks and expectations of the parties would have been at the time of hypothetical negotiation. This consideration would be analyzed in the context of the reconstructed product market. In *Trans-World*, it is a supportable presumption that there would indeed have been non-infringing display racks available to the defendant. Consequently, evidence of the defendant’s sale of eyeglasses may still have been allowed into consideration, but the data would be analyzed within the larger economic framework of the relevant product market. Further, supposing the availability of substitute display racks, the defendant would also be allowed the opportunity to argue that any price deferential between the infringing and non-infringing racks, should effectively cap the royalty analysis. Therefore, the temptation to use the book of wisdom as a justification for substituting the defendant’s profits into the hypothetical negotiation on an *ad hoc* equitable basis will be tempered. Under the market reconstruction analysis, if the court still deems the defendant’s profits relevant to the market risks and expectations of the parties pre-infringement, then both litigants will enjoy the benefit of a hindsight evaluation. This will prevent the asymmetrical skewing of the patent’s value, which is currently inundating reasonable royalty decisions utilizing the book of wisdom.

b. *Honeywell Redux*

For further illustration, consider the issue recently facing the district court in *Honeywell*. The court decided to follow the current book of wisdom precedent mandated by *Fromson* in
contrast to precedent mandating the contrary. If the Honeywell court would have been required to apply a market reconstruction analysis, the outcome of the book of wisdom’s influence would have been much different.

First, the court would have considered the relevant product market of jet engine torque regulators. In such a highly specialized field, it is very likely that one or two firms will control the entire product market. In these situations, there may not be a viable non-infringing substitute product available. But the analysis would not stop there. The litigant wishing to utilize profit data of the infringer would still be required to show its efficacy in informing the court of the market risks and expectations of the hypothetical negotiators. In Honeywell, the answer would be patently no. Neither Honeywell nor Hamilton could have anticipated the increased market demand for jet-engine torque regulators that accompanied the September 11, 2001 terrorist attacks. Consequently, the infringer’s profit data would not be allowed into evidence, because the data merely informs the court about unforeseeable market conditions—and consequently the patent’s value at this future time—after the required pre-infringement hypothetical negotiations. In summary, the infringer’s profit data could not be used to inform the court in a reasonable royalty calculation when the data is inherently reflective of conditions that were not reasonably foreseeable to the hypothetical negotiators—bargaining in the appropriately reconstructed product market.

By applying Grain Processing’s market reconstruction and causation analysis principles to the determination of a reasonable royalty, the courts will incorporate all patent damage calculations under an economically defensible and market-based paradigm of evaluation. Consequently, the book of wisdom will be subsumed by economic and causative concerns broader than its equitable ability to allow hypothetical negotiators to utilize hindsight.
CONCLUSION

The language used by the Federal Circuit in an overwhelming majority of its decisions mandates that the reasonable royalty rate must be set as of the time of initial infringement. The methodology used to calculate this rate generally falls into one of two approaches. The analytical approach bases the royalty rate upon an objective formula using the infringer’s anticipated profits and an industry standard profit margin. The rate determined in this approach is then applied to the total revenue the infringer generated by infringing the patent. The second and most prevalent approach is based upon a hypothetical negotiation which occurs between the patentee and infringer at a time pre-infringement. The fictitious “willing licensor-licensee” framework envisions the court determining a royalty based upon what the patentee and infringer would have agreed upon during a hypothetical negotiation. The Federal Circuit has continually stressed that the hypothetical negotiation is to be based prior to initial infringement. Evaluating a hypothetical negotiation prior to infringement necessarily should place an outer temporal limit upon facts available to the participating negotiators. Therefore, the hypothetical negotiation should logically be based upon market conditions and facts known, or reasonably foreseeable, to the negotiators at the moment in time prior to infringement. The precedent of the Federal Circuit acknowledges this conclusion to a degree. In recognition of this fact, nearly the entire corpus of Federal Circuit precedent stresses that post-hypothetical negotiation data regarding the infringer’s profits is not allowed into the calculation of the royalty rate. This mandate has been acknowledged under the analytical approach and appears to be well settled. However, the circuit has at least discussed allowing the “book of wisdom” doctrine to pierce the temporal veil present at the hypothetical negotiation table when courts elect to use the willing licensor-licensee approach.
There is much ambiguity with regard to utilizing the book of wisdom doctrine when calculating a reasonable royalty. Many decisions have viewed the book of wisdom as a one way mirror which only allows the patentee the benefit of hindsight in ascertaining the royalty rate which would have been agreed upon during the fictitious hypothetical negotiation. This asymmetric approach is illogical and makes little economic sense. If the Federal Circuit wishes to evaluate the reasonable royalty as a continuous variable, with fluctuating market value over the course of infringement, then it is necessary to allow the benefit of the book of wisdom to both the patentee and the infringer. To do otherwise, is to categorically treat the value of the patented embodiment as subject to the perspective of the parties. The value from the perspective of the patentee enjoys the benefit of a myriad of unforeseeable conditions that would not have been known to the hypothetical negotiators. However, the patent’s value to the infringer is frozen in time and relegated to the market conditions which would have been known at the time of initial infringement. In recognition of the comprehensive case authority which is skeptical and at times antithetical to the continued existence of the doctrine as it is currently applied, a new paradigm of analysis is urgently needed. Federal Circuit case law directly addressing the book of wisdom concept is therefore most appropriately understood as a tentative acceptance of the equitable underpinnings girding the doctrine, and not a cart blanche endorsement.

The book of wisdom’s overemphasis upon metaphorical reasoning can be reconciled with economic reality by bringing the reasonable royalty analysis under the holding of Grain Processing. Under the market reconstruction analysis mandated by Grain Processing, an infringer’s profit data will be treated consistently with respect to both measures of patent damages—a reasonable royalty and plaintiff’s lost profits. By reinterpreting the book of wisdom
concept as constrained by the market reconstruction analysis of *Grain Processing*, the hindsight power inherent in its invocation can be applied more systematically.