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Note

**THE SUPREME COURT PROVIDES CLARITY TO THE ILLUSIVE DOCTRINE OF EQUIVALENTS—HILTON  
DAVIS REVERSED**

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**\*364 I. Introduction**

The constitutional purpose of patent law is to “promote the Progress of Science and useful Arts” by granting inventors exclusive rights to their inventions for a limited period of time.<sup>1</sup> The judicially created doctrine of equivalents has long played an important, albeit controversial role in the realm of patent law. It strives to strike a balance between the two competing policies behind the enforcement of patent rights: (1) to protect the inventor’s right to exclude others who might steal the product of his work, and (2) to provide clear notice to the public of the invention’s boundaries. While this balance has proved to be extremely difficult to achieve, the Supreme Court in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*<sup>2</sup> has made an admirable response to this lingering problem.

**II. Origin of the Doctrine of Equivalents**

As early as a few decades after the enactment of the Patent Act of 1790, the doctrine of equivalents was applied to protect patent holders. Judge Story (who later became Chief Justice Story) noted that “[m]ere colorable differences, or slight improvements, cannot shake the right of the original inventor.”<sup>3</sup> Since literal infringement only occurs when all elements in a claim are exactly duplicated in an accused device, the Supreme Court has recognized that infringement often depends on the long-standing doctrine of equivalents.<sup>4</sup> The premise of the doctrine is that one may not work a fraud on a patent.<sup>5</sup>

If infringement analysis were limited to literal infringement, it would allow copyists to evade the literal language of claims and appropriate the benefit of the invention. Limiting enforcement of exclusive patent rights to literal infringement “would place the inventor at the mercy of verbalism and would be subordinating substance to form.”<sup>6</sup> Allowing this type of “limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law.”<sup>7</sup>

\*365 However, not only must a patentee be protected from those who would try to steal the benefit of the invention, the public also must be provided with fair notice of an invention’s boundaries.<sup>8</sup> This is achieved by assuring that the claims of a patent remain discernible and distinct. Therefore, the crucial issues become when should the doctrine of equivalents be applied, and at what point is the claim language of a patent stretched too far.

In the landmark case of *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*, the Supreme Court mapped out what it felt to be the boundaries of the doctrine of equivalents.<sup>9</sup> The Court held that the doctrine of equivalents applies when, in view of the circumstances of the case and the prior art, the differences between the claimed and accused processes are insubstantial.<sup>10</sup> Thus, the Supreme Court established “insubstantial differences” as the necessary predicate for infringement. The doctrine of equivalents is founded on the theory that “if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same.”<sup>11</sup>

Unfortunately, the boundaries of the doctrine of equivalents were not solidified by *Graver Tank*, but instead have been

greatly disputed. The tests and factors deemed appropriate for its application have remained in a seemingly constant state of flux. Indeed, even the Federal Circuit's opinion in *Hilton Davis* left a significant amount of uncertainty as to the proper factors to be considered in a doctrine of equivalents analysis.<sup>12</sup> However, the recent opinion of the Supreme Court which reversed *Hilton Davis* seems to have provided the long sought-after clarity and objective standards.

### III. Evolution of the Doctrine of Equivalents

#### A. Initial Boundaries under *Graver Tank*

In *Graver Tank*, the Supreme Court clarified both the rationale for the doctrine of equivalents and the test for its application.<sup>13</sup> The Court explained that in order to prevent an infringer from usurping the benefit of an invention, the doctrine may be \*366 invoked against the producer of a device "if the device performs substantially the same function in substantially the same way to obtain the same result."<sup>14</sup> This method of analysis came to be known as the "function-way-result test." It has also been referred to as the tripartite test and the "triple identity" test.

Since the examination of function, way, and result often discloses any substantial differences between the accused and claimed products or processes, many courts, including the Supreme Court, have viewed this formulation as being fully descriptive of the doctrine of equivalents.<sup>15</sup> The "substantiality of differences" test for infringement under the doctrine of equivalents also began to be viewed as synonymous with the function-way-result test described in *Graver Tank*. Often trial courts were presented only with evidence of function-way-result as the means to determine substantiality of differences.<sup>16</sup> In those cases the application of the doctrine of equivalents would then necessarily be decided on function-way-result criteria alone.

When the Supreme Court restated the function-way-result test in *Graver Tank*, it explained that the test arose in an era characterized by relatively simple mechanical technology.<sup>17</sup> Courts have since realized that "as technology becomes more sophisticated, and the innovative process more complex, the function-way-result test may not invariably suffice to show the substantiality of the differences."<sup>18</sup> The standard for "what constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case."<sup>19</sup>

The danger was that the tripartite test had become a mechanical formula that could be applied to accused infringers who had made more than insubstantial changes to an invention.<sup>20</sup> "Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum."<sup>21</sup> All available relevant evidence should be examined in each case. Thus it seems that while the tripartite test is very useful in determining insubstantiality, an "evaluation of function, way, and result does not necessarily end the inquiry."<sup>22</sup> The remaining \*367 question, which remained unanswered until the Supreme Court's decision in *Hilton Davis*, is what evidence should be considered relevant.

#### B. Restricting the Doctrine Of Equivalents

The first significant modification to the *Graver Tank* description of the doctrine of equivalents appeared in *Pennwalt Corp. v. Durand-Wayland, Inc.*<sup>23</sup> In contrast to the broad analytical approach of the function-way-result test which had previously been embraced, *Pennwalt* adopted an element-by-element refinement to the former version of the test.<sup>24</sup> The Federal Circuit held that when the doctrine of equivalents is applied, each limitation must be viewed in relation to the entire claim.<sup>25</sup> The court stated that "each element of a claim is material and essential, and that in order for a court to find infringement, the plaintiff must show the presence of every element or its substantial equivalent in the accused device."<sup>26</sup> The Federal Circuit further explained that "to be a 'substantial equivalent,' the element substituted in the accused device for the element set forth in the claim must not be such as would substantially change the way in which the function of the claimed invention is performed."<sup>27</sup>

This new standard for application of the doctrine of equivalents became known as the "All Elements Rule."<sup>28</sup> Under the All Elements Rule, the reach of the doctrine of equivalents was significantly curtailed. Indeed, Judge Bennett, dissenting in *Pennwalt*, stated that "the majority has eviscerated the underlying rationale of the *Graver Tank* test by requiring ... an exact equivalent for each element of the claimed invention."<sup>29</sup> This alteration to the doctrine of equivalents did not settle disputes over its application, but instead, seemed to open the door for further modifications.

The next modification to restrict *Graver Tank*, and to refine *Pennwalt*, was the holding of *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*<sup>30</sup> While adhering to the All Elements Rule of *Pennwalt*, which qualifies the function-way-result test of *Graver Tank*, the Federal Circuit in *Corning Glass* further refined the tripartite test. Instead of examining the inventive aspects of the patent element by element, the \*368 court substituted the criteria of limitations.<sup>31</sup> The court explained that in “the All Elements rule, ‘element’ is used in the sense of a limitation of a claim.”<sup>32</sup> Referring to “elements” without further clarification can be misleading.<sup>33</sup> Sufficient wording needs to be employed in order to indicate whether an “element” is intended to be a component of an embodiment of an invention, or whether it is intended to mean a feature as set forth in a limitation of a claim.<sup>34</sup>

The *Corning Glass* court’s analysis continued, stating that an “equivalent must be found for every limitation of the claim somewhere in an accused device, but not necessarily in a corresponding component.”<sup>35</sup> Thus, the restrictive “element by element” language of the All Elements Rule acquired a slight reprieve as it was transformed into the slightly broader “All Limitations Rule.”

Other recent Federal Circuit decisions went further still, by advocating that the doctrine of equivalents be fully restrained within the bounds of equity. This would make application of the doctrine dependent on the judge’s discretion, and take the decision out of the hands of the jury.<sup>36</sup> In *Charles Greiner & Co. v. Mari-Med Manufacturing, Inc.*,<sup>37</sup> the court declared that the doctrine of equivalents is limited to traditional equitable bounds.<sup>38</sup> Another panel stated in *London v. Carson Pirie Scott & Co.* that application of the doctrine of equivalents should be the exception, not the rule.<sup>39</sup> The *London* court continued with a lengthy warning that

[I]f the public comes to believe (or fear) that the language of patent claims can never be relied on, and that the doctrine of equivalents is simply the second prong of every infringement charge, regularly available to extend protection beyond the scope of the claims, then claims will cease to serve their intended purpose.<sup>40</sup>

\*369 As seen in court decisions, the bounds of the “much-troubled” doctrine of equivalents have been bitterly disputed.<sup>41</sup>

#### IV. *Hilton Davis*—The Federal Circuit Opinion

The long awaited Federal Circuit decision in the *Hilton Davis* case was expected to clarify and restate the standard for infringement under the doctrine of equivalents.<sup>42</sup> It was to achieve this task by answering three questions: First, does a finding of infringement under the doctrine of equivalents require anything in addition to proof that the inventions are the same or substantially the same according to the triple identity test of *Graver Tank*? Second, is the issue of infringement under the doctrine of equivalents an equitable remedy to be decided by a court, or an issue of fact to be submitted to the jury? Finally, is the application of the doctrine of equivalents discretionary by the trial court when there is no literal infringement of the patent claims?<sup>43</sup>

When the Federal Circuit, sitting en banc, responded by producing a majority, a concurring, and three dissenting opinions, it became clear just how controversial this issue really had become. The majority opinion articulated yet another interpretation of the doctrine of equivalents and how it should be applied.<sup>44</sup>

The first question which the court addressed in evaluating the substantiality of differences test turned out to be the most dynamic issue. The court reaffirmed that a “finding of infringement under the doctrine of equivalents requires proof of insubstantial differences between the claimed and accused products or processes.”<sup>45</sup> It noted that the function-way-result test can often suffice to show the significance of the differences.<sup>46</sup> The court explained further that “other factors ... such as evidence of copying or designing around, may also inform the test for infringement under the doctrine of equivalents.”<sup>47</sup>

Thus the Federal Circuit in *Hilton Davis* concluded that insubstantiality of differences—as determined by the function-way-result test—was sufficient to find infringement, but other factors such as evidence of interchangeability, designing \*370 around, and copying were relevant as well.<sup>48</sup> The judge does, however, have a duty to rule as a matter of law on whether the proffered evidence is relevant.<sup>49</sup> “This duty to assess relevance is no different in a doctrine of equivalents case than in any other type of case.”<sup>50</sup>

The Federal Circuit held that the judge must admit only relevant evidence and instruct the jury that only this admitted evidence may be considered in reaching its decision.<sup>51</sup> However, the issue of which factors are relevant in the application of

the doctrine of equivalents proved to be so volatile that the Federal Circuit's analysis in *Hilton Davis* did not survive review by the Supreme Court.

Notwithstanding the staunch disagreement of the dissent, the case law on the second question at issue is quite clear. Infringement, whether literal or under the doctrine of equivalents, is an issue of fact to be submitted to the jury in a jury trial.<sup>52</sup> Furthermore, "like any other issue of fact, final determination requires a balancing of credibility, persuasiveness and weight of evidence."<sup>53</sup>

The answer to the third question is logically linked to the answer to the second. If a finding of infringement under the doctrine of equivalents is a question of fact, then the "trial judge does not have the discretion to choose whether to apply the doctrine of equivalents when the record shows no literal infringement."<sup>54</sup> Only if the doctrine of equivalents were a true equity doctrine would the judge have this discretion.

The divergent positions of the dissents make it clear that all three issues addressed in this case were still subject to dispute, even among the judges of the Federal Circuit Court of Appeals. Indeed, this examination of the doctrine of equivalents even raised additional questions regarding its application.<sup>55</sup> The ramifications of the Federal Circuit's decision proved to be short-lived though, due to the reversal and remand by the Supreme Court. The Supreme Court's \*371 *Hilton Davis* opinion provided the much needed clarification to the doctrine of equivalents and even answered the new questions raised by the Federal Circuit.

#### **V. *Hilton Davis*—The Supreme Court Clarifies**

The Supreme Court granted certiorari in *Hilton Davis* to consider the following question: "Does patent infringement exist whenever accused product or process is 'equivalent' to invention claimed in patent, in that differences are not 'substantial' as determined by jury, even though accused product or process is outside literal scope of patent claim?"<sup>56</sup> In fact, the Court went so far as to consider the very existence of the doctrine of equivalents. Justice Thomas, writing for the majority, stated that the petitioner had asked the Court to "speak the death" of the doctrine.<sup>57</sup> While the Court declined this invitation, it did recognize that the doctrine of equivalents was shrouded in a cloud of confusion and, therefore, endeavored "to clarify the proper scope of the doctrine."<sup>58</sup>

The Supreme Court began its discussion of the bounds of the doctrine of equivalents by stating its concern that the doctrine had become too broad since *Graver Tank*.<sup>59</sup> In this respect, the doctrine conflicts with the Court's numerous holdings that a patent may not be enlarged beyond the scope of its claims.<sup>60</sup> The Court's decision in *Hilton Davis* joins these two lines of authority by holding that the doctrine of equivalents is to be applied to each individual element of a claim, rather than to the entire accused product or process as a whole.<sup>61</sup>

The Supreme Court agreed with the petitioner's assertion that *Graver Tank* did not supersede the firmly established limitation on the doctrine of equivalents known as prosecution history estoppel.<sup>62</sup> The basis of this limitation is that subject matter surrendered during the prosecution of a patent may not be eligible for recapture, even if it is equivalent to the matter expressly being claimed.<sup>63</sup> However, the Court rejected the petitioner's further claim that "the reason for an amendment during patent prosecution is irrelevant to any subsequent estoppel."<sup>64</sup> The court held that if \*372 the patent holder can prove that an amendment was made for reasons unrelated to patentability, then an estoppel of the application of the doctrine of equivalents is precluded.<sup>65</sup>

The Supreme Court also rejected the petitioner's argument that application of the doctrine of equivalents requires judicial exploration into the intent of the alleged infringer.<sup>66</sup> Although neither the *Graver Tank* Court nor the Federal Circuit in *Hilton Davis* held intent to be a requirement for infringement under the doctrine of equivalents, factors that indirectly involve intent have been accepted as potent evidence in determining infringement.<sup>67</sup> These factors include evidence of copying, independent development, and designing around the patented product or process.<sup>68</sup> The Court, however, decided that the better approach, and the one consistent with precedent, is for application of the doctrine of equivalents to be completely objective, with intent playing no role in the determination.<sup>69</sup>

The Supreme Court did embrace the interchangeability of known equivalents as a purely objective factor that has direct "bearing upon whether the accused device is substantially the same as the patented invention."<sup>70</sup> The Court further held that the proper time for determining equivalency, based upon the known interchangeability between claimed and accused

elements, “is at the time of infringement, not at the time the patent was issued.”<sup>771</sup>

The final issue decided by the Supreme Court in *Hilton Davis* involved the proper test to be applied in evaluating equivalency.<sup>72</sup> The Court held that the debate between the particular linguistic framework used for the analysis, whether it be the “triple identity” test or the “insubstantial differences” test, is less important than the essential inquiry of whether “the accused product or process contain elements identical or equivalent to each claimed element of the patented invention.”<sup>773</sup> The Court decided to leave it to the sound judgment of the Federal Circuit, in its area of “special expertise,” to refine the formulation of the proper test on a case-by-case basis.<sup>74</sup>

### **\*373 A. The Doctrine of Equivalent’s Survival of the 1952 Patent Act**

In its *Hilton Davis* opinion, the Supreme Court first addressed the petitioner’s primary argument, namely that the doctrine of equivalents did not survive the 1952 revision of the Patent Act.<sup>75</sup> This claim was founded on four separate theories.<sup>76</sup> The first three theories, which were based upon language describing claiming, reissue, and the role of the Patent and Trademark Offices (PTO), were summarily dismissed by the Court since the language of the 1952 Patent Act is not materially different from the 1870 Act.<sup>77</sup> The petitioner’s fourth theory was premised on the assertion that an implied congressional negation of the doctrine of equivalents can be inferred from the reference to “equivalents” in section 112, paragraph 6, of the 1952 Patent Act; the so-called “means-plus-function” provision.<sup>78</sup>

The relevant language of section 112, paragraph 6 states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and *equivalents* thereof.<sup>79</sup>

This new provision allows a patent applicant to describe an element of his invention by the result that is accomplished or the function achieved, rather than by the structure of the element itself.<sup>80</sup> The petitioner’s argument was based on the warning in section 112, paragraph 6, that “the broad literal language of such claims must be limited to only those means that are ‘equivalent’ to the actual means shown in the patent specification.”<sup>81</sup> This describes an unrelated situation where the doctrine of equivalents is being used restrictively. The majority opinion of the Supreme Court in *Hilton Davis* endorses this alternative use of the doctrine of equivalents, stating that this type of use was previously recognized in *Graver Tank*.<sup>82</sup>

Section 112, paragraph 6 is silent, however, with regard to the primary use of the doctrine of equivalents—a means for protecting inventors from non-literal infringement. Since the reference to “equivalents” in section 112, paragraph 6 seems \*374 to be no more than an attempt to prevent misuse of this provision, the Supreme Court felt that “such limited congressional action should not be overread for its negative implications.”<sup>83</sup> What the *Hilton Davis* Court characterized as a “dubious negative inference”<sup>84</sup> was simply insufficient to shake the lengthy precedential history of the doctrine of equivalents.<sup>85</sup>

### **B. Reconciliation of Claim Limitations, Prior Art, and the Doctrine of Equivalents**

The Supreme Court did admit that it shared the concern of the dissenters in the Federal Circuit’s *Hilton Davis* decision, that the doctrine of equivalents has taken on a life of its own since *Graver Tank* and has come to be applied in a fashion that is unbounded by the claims of the patent.<sup>86</sup> The Court admitted further that “the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.”<sup>87</sup> Strong case precedent supports the importance of claim limitations in limiting the scope of equivalency.

The Federal Circuit has continuously held that proceeding under the doctrine of equivalents does not mean that claim limitations can be ignored.<sup>88</sup> Therefore, a court may not “under the guise of applying the doctrine of equivalents, erase a plethora of meaningful structural and functional limitations of the claim on which the public is entitled to rely in avoiding infringement.”<sup>89</sup> However, application of the doctrine of equivalents, by definition, involves an expansion beyond any permissible interpretation of the literal claim language; it involves deducing whether the accused product is “equivalent” to the invention described by the claim language.<sup>90</sup>

\*375 The enforcement of claim limitations is crucial because it in turn assures that the doctrine of equivalents does not stray into the prior art, which restricts the scope of equivalency that the party alleging infringement can assert.<sup>91</sup> It was established in *Graver Tank* that the standard for finding equivalency “must be determined against the context of the patent, *the prior art*, and the particular circumstances of the case.”<sup>92</sup> Subsequent courts relied on *Graver Tank* in finding that the range of equivalents may not include inventions that have already been disclosed by prior art.<sup>93</sup>

The basic rationale of the prior art limitation is that an inventor should not be able to receive patent coverage under the doctrine of equivalents that he could not otherwise have lawfully obtained from the PTO through literal claims.<sup>94</sup> Prior art limits the scope of equivalency simply because it restricts what an inventor could have claimed during the prosecution of the patent.<sup>95</sup> This restriction enforces the concept that “limitations in a claim cannot be given a range of equivalents so wide as to cause the claim to encompass anything in the prior art.”<sup>96</sup>

The question that remains is how to reconcile these apparently conflicting legal doctrines. To answer this question, the Supreme Court looked to the dissenting opinion of Judge Nies in the Federal Circuit’s *Hilton Davis* decision.<sup>97</sup> Judge Nies believed that this conflict could be avoided, stating that “a distinction can be drawn that is not too esoteric between substitution of an equivalent for a component in an \*376 invention and enlarging the metes and bounds of the invention beyond what is claimed.”<sup>98</sup>

Judge Nies elucidated further, stating that acceptance of her view that “the accused device or process must be more than ‘equivalent’ overall reconciles the Supreme Court’s position on infringement by equivalents with its concurrent statements that ‘the courts have no right to enlarge a patent beyond the scope of its claims as allowed by the Patent Office.’”<sup>99</sup> Interpreted in this manner, the scope of a patent’s claim limitations is not enlarged, so long as courts do not go beyond the substitution of equivalent elements.<sup>100</sup>

The Supreme Court in *Hilton Davis* embraced Judge Nies’ apt reconciliation of the Court’s two lines of precedent.<sup>101</sup> This version of the doctrine of equivalents requires “each element contained in a patent claim to be deemed material to defining the scope of the patented invention.”<sup>102</sup> Thus, the doctrine is properly “applied to individual elements of the claim, not to the invention as a whole.”<sup>103</sup> A unanimous Supreme Court stated that so long as it does not encroach beyond these limits, the Court is “confident that the doctrine will not vitiate the central functions of the patent claims themselves.”<sup>104</sup>

### C. Prosecution History Estoppel—A Rebuttable Presumption

There are situations however, where a product can be found to be an equivalent and still not infringe on the patentee’s invention. An equitable defense to a claim for infringement by equivalents is prosecution history estoppel (historically referred to as “file wrapper” estoppel).<sup>105</sup> Prosecution history estoppel prevents a patentee from using an infringement suit to obtain patent protection on subject matter that it previously relinquished during prosecution in order to achieve acceptance of the claims.<sup>106</sup>

\*377 The Federal Circuit has established that prosecution history estoppel uses an objective test which asks whether a competitor would reasonably conclude from the prosecution history as a whole that particular subject matter was relinquished.<sup>107</sup> Invoking the doctrine of prosecution history estoppel is a question of law requiring judicial application.<sup>108</sup> Further, the use of prosecution history estoppel necessitates analysis on a case-by-case basis.<sup>109</sup>

However, the Federal Circuit has held that application of prosecution history estoppel should not be too far reaching. It has warned that “[w]hen prosecution history estoppel is invoked as a limitation to infringement under the doctrine of equivalents, ‘a close examination must be made as to, not only what was surrendered, but also the reason for such a surrender.’”<sup>110</sup> If a concession is made or a position is taken to establish patentability—in view of the prior art on which the examiner has relied—then this is a substantive position on the technology for which a patent is sought, and it will generally create an estoppel.<sup>111</sup> If however, claims are changed or arguments are made in an effort to more particularly describe the applicant’s invention, then the purpose is to achieve greater precision, not to overcome prior art.<sup>112</sup> This type of prosecution is not presumed to raise an estoppel; rather it is reviewed on its facts, using the guidance of precedent.<sup>113</sup>

The petitioner in *Hilton Davis* argued that “any surrender of subject matter during patent prosecution, regardless of the reason for such surrender, precludes recapturing any part of that subject matter, even if it is equivalent to the matter expressly

claimed.<sup>114</sup> Although the Court agreed that *Graver Tank* did not extinguish prosecution history estoppel as a limitation on the doctrine of equivalents, \*378 it disagreed that the reason for an amendment during patent prosecution is irrelevant as to whether an estoppel will issue.<sup>115</sup>

The PTO has made it clear that there are a variety of reasons why it might request a change in claim language.<sup>116</sup> Thus, the Court concluded that “if the PTO has been requesting changes in claim language without the intent to limit equivalents or, indeed, with the expectation that language it required would in many cases allow for a range of equivalents, we should be extremely reluctant to upset the basic assumptions of the PTO without substantial reason for doing so.”<sup>117</sup>

At this point however, the Supreme Court’s *Hilton Davis* opinion departed from precedent. It held that although “certain reasons for a claim amendment may avoid the application of prosecution history estoppel, [this] is not tantamount to holding that the absence of a reason for an amendment may similarly avoid such an estoppel.”<sup>118</sup> Since patent claims are intended to serve both a definitional and notice function, the Court opined that the proper rule is to place the burden on the patent holder to prove the reason for an amendment which was required during patent prosecution.<sup>119</sup> The Court established a rebuttable presumption that the amendment was made to avoid the prior art.<sup>120</sup> Thus, when the patent holder cannot produce an alternative explanation, a court should presume that the PTO had a patentability-related reason for including the limiting language.<sup>121</sup> In these cases, prosecution history estoppel will bar application of the doctrine of equivalents to the element under scrutiny.<sup>122</sup>

## D. Rejection of Other Factors Used to Determine Substantiality

### 1. Designing Around

There is a tremendous amount of precedent supporting the concept of “designing around” a patent. From an originalist standpoint, allowing parties to design around a patent is not only acceptable, it is “in fact, one of the ways in which \*379 the patent system works to the advantage of the public in promoting progress in the useful arts, its constitutional purpose.”<sup>123</sup> Encouraging inventors to keep informed of their competitors’ products and to design new and possibly better or cheaper functional equivalents is the quintessential purpose of competition in the capitalist marketplace and is supposed to benefit the consumer.<sup>124</sup> One of the ways the patent system benefits society is by creating the incentive to design around a competitor’s products, even when they are patented, and in this manner providing a steady flow of innovations to the marketplace.<sup>125</sup> The issue is whether intentionally designing around the claims of a patent is an action which can be countered by invocation of the doctrine of equivalents.<sup>126</sup>

In its *Hilton Davis* opinion, the Federal Circuit attempted to answer any remaining question regarding the relationship between the concept of “designing around” and the doctrine of equivalents. The court positively stated that evidence of designing around the claims of a patent is relevant to the question of infringement under the doctrine of equivalents.<sup>127</sup> The Federal Circuit stated that “evidence of designing around therefore weighs against finding infringement under the doctrine of equivalents.”<sup>128</sup> The court reemphasized its position that the “ability of the public successfully to design around—to use the patent disclosure to design a product or process that does not infringe, but like the claimed invention, is an improvement over the prior art—is one of the important public benefits that justify awarding the patent owner exclusive rights to his invention.”<sup>129</sup>

\*380 In what is probably the most profound aspect of the Supreme Court’s holding in *Hilton Davis*, the Court concluded that “designing around” is not truly an objective factor, and thus plays no role in the application of the doctrine of equivalents.<sup>130</sup> The Federal Circuit, in trying to explain its acceptance of this subjective factor, suggested that “an alleged infringer’s behavior, be it copying, designing around a patent, or independent experimentation, *indirectly* reflects the substantiality of the differences between the patented invention and the accused device or process.”<sup>131</sup> The Federal Circuit tried to further justify its position by explaining that “a person aiming to copy or aiming to avoid a patent is imagined to be at least marginally skilled at copying or avoidance, and thus intentional copying raises an inference—rebuttable by proof of independent development—of having only insubstantial differences, and intentionally designing around a patent claim raises an inference of substantial differences.”<sup>132</sup>

The Supreme Court wisely expounded that this explanation left much to be desired.<sup>133</sup> In its *Hilton Davis* opinion, the Court pointed out the dilemma that had troubled virtually every court in the past when it stated, “one wonders how ever to

distinguish between the intentional copyist making minor changes to lower the risk of legal action, and the incremental innovator designing around the claims, yet seeking to capture as much as is permissible of the patented advance.”<sup>134</sup> Thus, the Court dismissed “designing around” as an acceptable factor in the determination of whether to apply the doctrine of equivalents, clinging instead to purely objective factors.<sup>135</sup>

## 2. Copying

It has been the traditional position that while designing or inventing around patents to produce new innovations is encouraged, piracy is clearly not.<sup>136</sup> “Thus, where an infringer, instead of inventing around a patent by making a substantial change, merely makes an insubstantial change, essentially misappropriating or even ‘stealing’ the patented invention, infringement may lie under the doctrine of \*381 equivalents.”<sup>137</sup> The Supreme Court itself has stated in the past that for an accused product or process to avoid infringement under the doctrine of equivalents, there must be substantial, not merely colorable differences from the patent claims.<sup>138</sup> Again, the question that courts have struggled with is what distinguishes copying from designing around, with respect to the application of the doctrine of equivalents.

The Federal Circuit asserted in its *Hilton Davis* opinion, that in addition to interchangeability and designing around, evidence of copying is relevant to a determination of insubstantiality of differences under the doctrine of equivalents.<sup>139</sup> The court maintained that copying and designing around are similar activities; the former involving insubstantial changes and the latter, substantial changes.<sup>140</sup> It stated:

Evidence of copying is also relevant to infringement under the doctrine of equivalents, not because the doctrine of equivalents rests on the subjective awareness or motivation of the accused infringer, but rather because copying suggests that the differences between the claimed and accused products or processes—measured objectively—are insubstantial.<sup>141</sup>

This position was rejected by the Supreme Court in *Hilton Davis*, however, when it held that evidence of copying is not truly an objective factor and thus plays no role in the application of the doctrine of equivalents.<sup>142</sup> The Court completely dismissed the Federal Circuit’s claim that copying indirectly reflects the insubstantiality of differences between the patented invention and the accused \*382 device.<sup>143</sup> The Supreme Court resolved the untenable problem of trying to “distinguish between the intentional copyist making minor changes to lower the risk of legal action, and the incremental innovator designing around the patent claims,” by removing both of these factors from consideration under the doctrine of equivalents evaluations.<sup>144</sup>

## 3. Independent Development

There has been some uncertainty in the past as to the exact role evidence of independent development plays in determination of equivalency. The Supreme Court in *Graver Tank*, held that evidence of copying was relevant to infringement under the doctrine of equivalents.<sup>145</sup> The Court in *Graver Tank* “permitted the fact-finder to infer infringing ‘imitation’ from the lack of evidence that the accused infringer independently developed.”<sup>146</sup> More recently, the Federal Circuit specifically distinguished non-infringing parties from infringing copyists by stating that if there was no explanation or indication that the accused product was developed through independent research, it was permissible for the trial court to infer that the accused product or process was the result of imitation rather than experimentation or invention.<sup>147</sup>

The Federal Circuit in *Hilton Davis* also attempted to describe the significance of independent development in relation to the doctrine of equivalents. It concluded that evidence which would prove the accused infringer developed its product or process through independent research was not directly relevant to determining infringement under the doctrine of equivalents.<sup>148</sup> The Federal Circuit concluded that a showing of independent development, by itself, provided no information with respect to the substantiality of differences.<sup>149</sup> It further held that “evidence of independent development is highly relevant, however, to refute a patent owner’s contention that the doctrine of equivalents applies because the accused infringer copied, that is, intentionally appropriated the substance of the claimed invention.”<sup>150</sup>

\*383 The Supreme Court’s *Hilton Davis* decision completely redefines the role of independent development with respect to the doctrine of equivalents. It dismissed the previous view of the Federal Circuit that independent development should be used to rebut the presumption of insubstantiality created through an accusation of intentional copying.<sup>151</sup> The Court further rejected the Federal Circuit’s notion that independent development indirectly reflects the substantiality of the difference



between the relevant products or processes.<sup>152</sup>

The Supreme Court did not completely reject the applicability of independent development, since the *Graver Tank* Court twice referred to this factor's usefulness.<sup>153</sup> It held that a qualified acceptance of this criteria did not require a divergence from an objective standard for application of the doctrine of equivalents.<sup>154</sup> The Court clarified that when independent development was discussed in *Graver Tank*, it was in reference to the known interchangeability between the patented compound and the alleged infringing product.<sup>155</sup> Thus, evidence of independent experimentation can "reflect knowledge—or lack thereof—of interchangeability possessed by one presumably skilled in the art."<sup>156</sup> Only in this capacity can it be regarded as relevant to application of the doctrine of equivalents.

### **E. Interchangeability—A True Objective Factor**

In prior cases both the Supreme Court and lower courts have stressed the importance of the evidence of known interchangeability in proving infringement under the doctrine of equivalents.<sup>157</sup> The Court clearly explained in *Graver Tank* that an "important factor to be considered, quite apart from function, way, result, is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was."<sup>158</sup> The interchangeability test of *Graver Tank* has since been accepted as an additional \*384 method of determining equivalents through assessment of the substantiality of differences.<sup>159</sup>

The Federal Circuit has also stated that the *Graver Tank* interchangeability test is a useful method for interpreting the function-way-result test.<sup>160</sup> Moreover, it discussed how the use of expert witnesses is helpful in ascertaining what one of ordinary skill in the art would consider to be interchangeable, and thus equivalent.<sup>161</sup> The Federal Circuit further explained its position in *Hilton Davis*, stating that "the known interchangeability of the accused and claimed elements is potent evidence that one of ordinary skill in the relevant art would have considered the change insubstantial."<sup>162</sup>

The Supreme Court in *Hilton Davis* also expressed unqualified acceptance of this true objective factor, stating that the "known interchangeability of substitutes for an element of a patent is one of the express factors noted by *Graver Tank* as bearing upon whether the accused device is substantially the same as the patented invention."<sup>163</sup>

\*385 In addition to relying on *Graver Tank*, the Court provided additional justification for its acceptance of interchangeability as an important factor. The Supreme Court elucidated that "a skilled practitioner's knowledge of the interchangeability between claimed and accused elements is not relevant for its own sake, but rather for what it tells the fact-finder about the similarities or differences between those elements."<sup>164</sup> In the same way that the perspective of the hypothetical "reasonable person" is used to determine concepts such as "negligence," so is the perspective of a skilled practitioner used to determine the concept of "equivalents."<sup>165</sup>

This analysis of interchangeability is integrally related to another of the petitioner's propositions—that the doctrine of equivalents should be limited to equivalents that are disclosed within the patent at issue.<sup>166</sup> The Supreme Court noted that the dissenters in the Federal Circuit's *Hilton Davis* opinion adopted a milder version of this argument—that the doctrine should be limited to equivalents that were known at the time the patent issued, as opposed to the time of infringement.<sup>167</sup> But if, as the Supreme Court stated above, the concept of interchangeability should be applied in the same manner as the hypothetical "reasonable person," then the "proper time for evaluating equivalency—and thus knowledge of interchangeability between elements—is at the time of infringement, not at the time the patent was issued."<sup>168</sup> Therefore, it follows that the rejection of the dissenter's milder version of this argument necessarily rejects the petitioner's more severe proposition—that equivalents must be actually disclosed in the patent in order to support a finding of infringement.<sup>169</sup>

### **F. Triple Identity or Substantiality of Differences**

The Federal Circuit stated in *Hilton Davis* that meeting the insubstantial differences test is the necessary predicate for infringement under the doctrine of equivalents.<sup>170</sup> It also noted that the function-way-result test is sufficient to make a \*386 determination of equivalency.<sup>171</sup> The Federal Circuit further provided yet another definition of the test by holding that differences which are unimportant and add nothing to the device, yet manage to avoid the claim language, can be considered insubstantial.<sup>172</sup>

Thus, the final task of the Supreme Court in *Hilton Davis* was to address the debate over linguistic framework, and designate, once and for all, the appropriate test under which “equivalence” should be determined.<sup>173</sup> As the Court aptly noted, there has been considerable debate over whether the function-way-result test is the proper method for determining equivalence, or whether the insubstantial differences test is the better approach.<sup>174</sup> Most agree that while the tripartite test is very effective for analyzing relatively simple mechanical devices, however it is often inappropriate for analyzing more advanced products and processes.<sup>175</sup> The insubstantial differences test is not without its own problems however, in that it offers little guidance as to what might render any specific variation insubstantial.<sup>176</sup>

The Supreme Court in *Hilton Davis* decided that the particular linguistic structure of the chosen test is not critical, as long as the adopted test is probative of whether the accused product or process contains elements that are equivalent to each of the claimed elements in the patented invention.<sup>177</sup> The Court held that it had no reason to micro-manage the “Federal Circuit’s particular word-choice for analyzing equivalence,” since different dictional frameworks may be more appropriate in different cases, depending on the individual fact pattern.<sup>178</sup> The Court left the formation and refinement of the test for equivalence to be determined by the Federal Circuit’s “sound judgment in this area of its special expertise,” on a case-by-case basis.<sup>179</sup> The Court did leave, however, the following limiting principles to be used as a guide:

\*387 A focus on individual elements and a special vigilance against allowing the concept of equivalence to eliminate completely any such elements should reduce considerably the imprecision of whatever language is used. An analysis of the role played by each element in the context of the specific patent claim will thus inform the inquiry as to whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different from the claimed element.<sup>180</sup>

## VI. Conclusion

It was hoped by many, if not all, that the Federal Circuit in *Hilton Davis* would clarify the status of the doctrine of equivalents, explain when the doctrine should be applied, and identify the factors that can be taken into consideration. When the Federal Circuit addressed these issues, however, it was argued by many that the majority, concurring, and three dissenting opinions created more confusion than they cleared up. Thankfully, the Supreme Court not only granted certiorari, but also produced an unambiguous holding, based on both precedent and common sense, that offers the promise of finally resolving the confusion that has surrounded this controversial doctrine. The Court’s *Hilton Davis* opinion should provide a doctrine of equivalents that is governed by clear objective factors, and will not intrude upon the boundaries of claim limitations or their definitional and notice-serving functions.

To summarize, the Supreme Court first reassured that the doctrine of equivalents had survived revisions of the 1952 Patent Act, including section 112, paragraph 6.<sup>181</sup> It next reconciled two lines of authority regarding the doctrine of equivalents and claim limitations by holding that the doctrine is to be applied to each individual element of a claim, rather than to the entire accused product or process as a whole.<sup>182</sup> Further, the Court held that although the reasons for claim language changes during patent prosecution are relevant to application of prosecution history estoppel, the proper rule is to place the burden on the patent-holder to prove the reason for such an amendment.<sup>183</sup> Thus, the Court established a rebuttable presumption that the amendment was made to avoid the prior art.<sup>184</sup>

Despite substantial case law to the contrary, the Supreme Court surprisingly held in *Hilton Davis* that copying and “designing around” are not truly objective factors and, thus, play no role in the application of the doctrine of equivalents.<sup>185</sup> It \*388 clarified that independent development can be relevant in so far as it is probative of whether a person skilled in the art would have known of the interchangeability between elements in the claimed and accused devices.<sup>186</sup> The Court held interchangeability, however, to be an unqualified objective factor in a doctrine of equivalents determination, and analogized it to the reasonable person standard in a negligence inquiry.<sup>187</sup> Finally, the Court stated that the particular linguistic structure of the chosen test is not critical, so long as the adopted test is probative of whether the accused device contains elements that are equivalent to each of the claimed elements in the patented invention.<sup>188</sup>

The Federal Circuit’s holding in *Hilton Davis* had produced a limiting effect on the doctrine of equivalents, when it encouraged other factors to be taken into consideration other than the function-way-result and the substantiality of differences inquiries.<sup>189</sup> Opinions that cited the *Hilton Davis* Federal Circuit decision, before the Supreme Court’s reversal, disclosed that when other factors, such as designing around, copying, and independent development were viewed as relevant in a doctrine

of equivalents analysis, the accused defendant was much less likely to be found to have infringed. Those in favor of stronger enforcement of claim limitations were pleased with that direction, while patent holders were displeased with that more limited application of the doctrine of equivalents.

Now that the Supreme Court's reversal of the *Hilton Davis* opinion is in effect, we should expect to see broader application of the doctrine of equivalents and, in turn, a greater likelihood that accused devices will be found to infringe. When the Court eliminated what it referred to as factors that indirectly involve intent—"designing around" in particular—it removed criteria that had typically been used as a defense to claims of infringement. In addition to enjoying greater clarity, the doctrine of equivalents will likely witness expanded utilization due to the removal of these defenses. In the wake of the Court's *Hilton Davis* opinion, patent holders can expect broader protection than they have seen in the past from a more expansive application of the doctrine of equivalents.

#### Footnotes

<sup>a</sup> J.D. Candidate, University of Texas School of Law, May 1997.

<sup>1</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>2</sup> 117 S.Ct. 1040, 41 U.S.P.Q.2d (BNA) 1865 (March 3, 1997).

<sup>3</sup> *Odiorne v. Winkley*, 18 F. Cas. 581, 582 (C.C.D. Mass. 1814) (No. 10,432).

<sup>4</sup> *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607, 85 U.S.P.Q. (BNA) 328, 330 (1950).

<sup>5</sup> *Id.* at 608, 85 U.S.P.Q. at 330.

<sup>6</sup> *Id.* at 607, 85 U.S.P.Q. at 330.

<sup>7</sup> *Id.*

<sup>8</sup> *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538, 20 U.S.P.Q.2d (BNA) 1456, 1458 (Fed. Cir.1991).

<sup>9</sup> *Graver Tank*, 339 U.S. at 607, 85 U.S.P.Q. at 330.

<sup>10</sup> *Id.* at 610, 85 U.S.P.Q. at 331.

<sup>11</sup> *Union Paper-Bag Machine Co. v. Murphy*, 97 U.S. (7 Otto.)120, 125 (1877).

<sup>12</sup> *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 35 U.S.P.Q.2d (BNA) 1641 (Fed. Cir.1995), *rev'd*, 117 S.Ct. 1040, 41 U.S.P.Q.2d (BNA) 1865 (1997).

<sup>13</sup> *Graver Tank*, 339 U.S. at 608-10, 85 U.S.P.Q. at 330-31.

<sup>14</sup> *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929).

15 *Graver Tank*, 339 U.S. at 608, 85 U.S.P.Q. at 330.

16 *Hilton Davis*, 62 F.3d at 1522, 35 U.S.P.Q.2d at 1648.

17 *Id.* at 1518, 35 U.S.P.Q.2d at 1645 (citing *Graver Tank*, 339 U.S. at 609, 85 U.S.P.Q. at 330).

18 *Id.*

19 *Graver Tank*, 339 U.S. at 609, 85 U.S.P.Q. at 330.

20 *International Visual Corp. v. Crown Metal Mfg., Co.*, 991 F.2d 768, 774, 26 U.S.P.Q.2d 1588, 1592 (Fed. Cir.1993).

21 *Graver Tank*, 339 U.S. at 609, 85 U.S.P.Q. at 330.

22 *Hilton Davis*, 62 F.3d at 1518, 35 U.S.P.Q.2d at 1645.

23 833 F.2d 931, 935, 4 U.S.P.Q.2d (BNA) 1737, 1739-40 (Fed. Cir.1987).

24 *Id.*, 4 U.S.P.Q.2d at 1740.

25 *Id.*, 4 U.S.P.Q.2d at 1739 (quoting *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1533, 3 U.S.P.Q.2d (BNA) 1321, 1325 (Fed. Cir.1987)).

26 *Id.*, 4 U.S.P.Q.2d at 1739-40 (quoting *Perkin-Elmer*, 822 F.2d at 1533, 3 U.S.P.Q.2d at 1325).

27 *Id.*, 4 U.S.P.Q.2d at 1740 (quoting *Perkin-Elmer*, 822 F.2d at 1533, 3 U.S.P.Q.2d at 1325).

28 4 DONALD S. CHISUM, PATENTS § 18.03[4] (1986).

29 *Pennwalt*, 933 F.2d. at 940, 4 U.S.P.Q.2d at 1744.

30 868 F.2d 1251, 9 U.S.P.Q.2d (BNA) 1962 (Fed. Cir.1989).

31 *Id.* at 1259, 9 U.S.P.Q.2d at 1968.

32 *Id.*

33 *Id.*

34 *See Perkin-Elmer*, 822 F.2d at 1533 n.9, 3 U.S.P.Q. at 1325 n.9.

35 *Corning Glass*, 868 F.2d at 1259, 9 U.S.P.Q.2d at 1968.

36 The Supreme Court went out of its way to clarify that application of the doctrine of equivalents remains a jury question and had not been altered by *Markman. Hilton Davis*, 117 S.Ct. at 1053 (citing *Markman v. Westview Instruments, Inc.*, 116 S.Ct. 1384, 38 U.S.P.Q.2d (BNA) 1461 (1996)).

37 962 F.2d 1031, 22 U.S.P.Q.2d (BNA) 1528 (Fed. Cir.1992).

38 *Id.* at 1036, 22 U.S.P.Q.2d at 1530.

39 *London v. Carson Pirie Scott*, 946 F.2d 1534, 1538, 20 U.S.P.Q.2d 1456, 1458-59 (Fed. Cir.1991).

40 *Id.* This proposition was rejected by the Supreme Court in *Hilton Davis*. 117 S.Ct. at 1048-49.

41 *International Visual Corp. v. Crown Metal Mfg., Co.*, 991 F.2d 768, 773, 26 U.S.P.Q.2d 1588, 1592 (Fed. Cir.1993).

42 This would facilitate its conclusion as to whether Warner-Jenkinson had infringed the Hilton Davis patent.

43 *Hilton Davis*, 62 F.3d at 1516, 35 U.S.P.Q.2d at 1644.

44 Using its current interpretation of the doctrine of equivalents, the court determined that Warner-Jenkinson had infringed. *Id.* at 1528-29, 35 U.S.P.Q.2d at 1654.

45 *Id.* at 1517, 35 U.S.P.Q.2d at 1648.

46 *Id.* at 1522, 35 U.S.P.Q.2d at 1648.

47 *Id.*

48 *Id.*

49 *Id.*

50 *Id.*

51 *Id.*

52 *Id. See also Winans v. Denmead*, 56 U.S. (15 How.) 330 (1854); *Graver Tank & Mfg. Co. v. Linde Air Prod.s Co.*, 339 U.S. 605, 85 U.S.P.Q. (BNA) 328 (1950); *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 227 U.S.P.Q. (BNA) 577 (Fed. Cir.1985).

53 *Hilton Davis*, 62 F.3d at 1520, 35 U.S.P.Q.2d at 1647 (quoting *Graver Tank*, 339 U.S. at 609-10).

54 *Id.* at 1522, 35 U.S.P.Q.2d at 1648.

55 These questions included whether an accused infringer's intent is directly relevant; whether there should be a new legal limitation to the doctrine, regarding when the range of infringing substitutes that were known to be equivalent should be determined; and to what extent prosecution history estoppel should be applied. *Id.* at 1527-28, 35 U.S.P.Q.2d at 1653-54.

56 116 S Ct. 1014 (Feb. 26, 1996) (granting cert.).

57 *Hilton Davis*, 117 S.Ct. at 1045.

58 *Id.*

59 *Id.* at 1048-49.

60 *Id.* at 1049.

61 *Id.*

62 *Id.*

63 *Id.*

64 *Id.*

65 *Id.* at 1049-50.

66 *Id.* at 1052.

67 *Id.*

68 *Id.*

69 *Id.*

70 *Id.*

71 *Id.* at 1052-53.

72 *Id.* at 1054.

73 *Id.*

74 *Id.*

75 *Id.* at 1047. 35 U.S.C. § 100 et seq. (1994).

76 *Id.*

77 *Id.* at 1047-48.

78 *Id.* at 1048. The Supreme Court freely admits, however, that Congress can legislate the doctrine of equivalents out of existence if ever it so wishes. *Id.*

79 1952 Patent Act, 35 U.S.C. § 112, para. 6 (1994) (emphasis added).

80 117 S.Ct. at 1048. For example, an element of a patent claim could read “a means of connecting Part A to Part B” rather than “a two-penny nail.” *Id.*

81 *Id.*

82 *Id.*

83 *Id.*

84 *Id.*

85 *Id.*

86 *Id.* at 1048-49.

87 *Id.* at 1049.

88 *See e.g.*, *Pennwalt Corp. v. Durand-Wayland Inc.*, 833 F.2d 931, 935, 4 U.S.P.Q.2d (BNA) 1737, 1739 (Fed. Cir.1987). *See also* *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 398, 29 U.S.P.Q.2d (BNA) 1767, 1769 (Fed. Cir.1994).

89 *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1532, 3 U.S.P.Q. (BNA) 1321, 1324 (Fed. Cir.1987).

90 *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 684, 14 U.S.P.Q.2d (BNA) 1942, 1948 (Fed. Cir.1990), *cert. denied*, 498 U.S. 992, (1990). Interpretation of claim language was held in *Markman v. Westview Instruments, Inc.* to be a matter of law. 116 S.Ct. 1384, 38 U.S.P.Q.2d 1461 (1996). Thus, the literal scope of claim limitations is judicially determined. The Supreme Court went out of its way to clarify, however, that application of the doctrine of equivalents remains a jury question and

was not altered by the the *Markman* decision. *Hilton Davis*, 117 S.Ct. at 1053, 41 U.S.P.Q.2d at 1875.

91 *Conroy v. Reebok Int'l, Ltd.*, 14 F.3d 1570, 1576, 29 U.S.P.Q.2d (BNA) 1373, 1377 (Fed. Cir.1994); *See also* *International Visual Corp. v. Crown Metal Mfg. Co.*, 991 F.2d 768, 772, 26 U.S.P.Q.2d 1588, 1591 (Fed. Cir.1993).

92 *Graver Tank*, 339 U.S. at 609, 85 U.S.P.Q. at 330 (emphasis added).

93 *Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1449, 17 U.S.P.Q.2d (BNA) 1806, 1810 (Fed. Cir.1991).

94 *Wilson Sporting Goods*, 904 F.2d at 684, 14 U.S.P.Q.2d at 1948.

95 *Id.*

96 *Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 899 F.Supp. 1268, 1282 (D.Del. 1995), (citing *Senmed, Inc. v. Richard-Allan Medical Indus.*, 888 F.2d 815, 821, 12 U.S.P.Q.2d (BNA) 1508, 1513 (Fed. Cir.1989)). One way of investigating this issue is through the hypothetical patent claim, which is a conceptual method of determining the prior art's limitation on the scope of equivalents. *See Wilson Sporting Goods*, 904 F.2d at 684, 14 U.S.P.Q.2d at 1948. The method is implemented by asking whether a "hypothetical patent claim, sufficient in scope to literally cover the accused product ... could have been allowed by the PTO over the prior art." *Id.* (emphasis omitted). If the hypothetical claim would not have been allowed, "then it would be improper to permit the patent holder to obtain that coverage in an infringement suit under the doctrine of equivalents." *Id.* "If, however, the hypothetical claim could have been allowed, then prior art is not a bar to infringement under the doctrine of equivalents." *Id.* It is the burden of the patentee to prove that the range of equivalents it seeks, would not encroach upon the prior art. *Id.* at 685, 14 U.S.P.Q.2d at 1948-49.

97 *Hilton Davis*, 117 S.Ct. at 1049.

98 *Hilton Davis*, 62 F.3d at 1573, 35 U.S.P.Q.2d at 1692 (Nies, J., dissenting)(emphasis omitted).

99 *Id.* at 1574, 35 U.S.P.Q.2d at 1692 (Nies, J. dissenting) (citations omitted).

100 *Hilton Davis*, 117 S.Ct. at 1049.

101 *Id.*

102 *Id.*

103 *Id.*

104 *Id.*

105 *See Brenner v. United States*, 773 F.2d 306, 307-08, 227 U.S.P.Q. (BNA) 159, 160-61 (Fed. Cir.1985); *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1362-63, 219 U.S.P.Q.2d (BNA) 473, 481-82 (Fed. Cir.1983).

106 *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291, 36 U.S.P.Q.2d (BNA) 1095, 1100 (Fed. Cir.1995). *See also* *Zenith Labs., Inc. v. Bristol-Myers Squibb Co.*, 19 F.3d 1418, 1424, 30 U.S.P.Q.2d (BNA) 1285, 1290 (Fed. Cir.1994); *Townsend*



Eng'g Co. v. HiTec Co., 829 F.2d 1086, 1090, 4 U.S.P.Q.2d (BNA) 1136, 1139 (Fed. Cir.1987).

107 *Mark I Mktg.*, 66 F.3d at 291, 36 U.S.P.Q.2d at 1100.

108 *Id.*

109 *See* *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 871, 228 U.S.P.Q.2d (BNA) 90, 96 (Fed. Cir.1985). *See also* *Bayer Aktiengesellschaft v. Duphar Int'l Research B.V.*, 738 F.2d 1237, 1243, 222 U.S.P.Q. (BNA) 649, 653 (Fed. Cir.1984).

110 *Insta-Foam Prods., Inc. v. Universal Foam Sys., Inc.*, 906 F.2d 698, 703, 15 U.S.P.Q.2d (BNA) 1295, 1298 (Fed. Cir.1990) (quoting *Bayer Aktiengesellschaft*, 788 F.2d at 1243, 222 U.S.P.Q. at 653).

111 *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1220, 36 U.S.P.Q.2d (BNA) 1225, 1231, (Fed. Cir.1995).

112 *Id.*

113 *Id.* *See also* *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 990, 10 U.S.P.Q.2d (BNA) 1338, 1348 (Fed. Cir.1989); *American Permahedge, Inc. v. Barcana, Inc.*, 901 F.Supp. 155, 38 U.S.P.Q.2d (BNA) 1048 (S.D.N.Y. 1995).

114 *Hilton Davis*, 117 S.Ct. at 1049.

115 *Id.*

116 *Id.*, at 1050. *See* Brief for the United States as Amicus Curiae at 22-23, *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S.Ct. 1040, 41 U.S.P.Q.2d (BNA) 1865 (1997) (No. 95-728).

117 *Hilton Davis*, 117 S.Ct. at 1050.

118 *Id.* at 1051.

119 *Id.*

120 *Id.*

121 *Id.*

122 *Id.*

123 *Slimfold Mfg. Co. v. Kinkead Indus. Inc.*, 932 F.2d 1453, 1457, 18 U.S.P.Q.2d (BNA) 1842, 1845-46 (Fed. Cir.1991).

124 *State Indus. Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1235-36, 224 U.S.P.Q. (BNA) 418, 424 (Fed. Cir.1985).

125 *Id.* at 1236, 224 U.S.P.Q. at 424.

126 *Slimfold Mfg.*, 932 F.2d at 1457, 18 U.S.P.Q.2d at 1845-46.

127 *Hilton Davis*, 62 F.3d at 1522, 35 U.S.P.Q.2d at 1647-48.

128 *Id.* at 1520, 35 U.S.P.Q.2d at 1647.

129 *Id.* Recent decisions (before the Supreme Court's reversal) regarding the doctrine of equivalents had embraced the Federal Circuit's *Hilton Davis* position on the role of designing around a patent. *See* James River Corp. of Va. v. Hallmark Cards, Inc., 915 F.Supp. (E.D. Wis. 1996); Regents of University of Cal. v. Eli Lilly and Co., 39 U.S.P.Q.2d (BNA) 1225, 1229 (S.D. Ind. 1995); Lucas Aerospace, Ltd. v. Unison Indus., L.P., 899 F.Supp. 1268, 1280 (D.Del. 1995); Stutz Motor Car of Am., Inc. v. Reebok Int'l, Ltd., 909 F.Supp. 1353, 1366, 38 U.S.P.Q.2d (BNA) 1253, 1263, (C.D. Cal. 1995); Brunswick Corp. v. United States, 34 Fed. Cl. 532, 555 (Fed. Cl. 1995).

In *Bradshaw v. Igloo Prods. Corp.*, the Federal Circuit decision in *Hilton Davis* was cited as authority for the proposition that "designing around" involves an improvement in the art, and that it is one of the other factors to be considered in determining the substantiality of differences. *Bradshaw v. Igloo Prods. Corp.*, 912 F.Supp. 1088, 1098 (N.D. Ill. 1996). Further, Queen's Univ. at Kingston v. Kinedyne Corp., in citing the Federal Circuit *Hilton Davis* opinion, declared that evidence indicating that "the accused product was 'designed around' a patent claim weighs against a finding of infringement under the doctrine of equivalents and supports the inference that the developer designed substantial changes into the new product to avoid infringement." Queen's Univ. at Kingston v. Kinedyne Corp., 910 F.Supp. 527, 533 (D.Kan. 1995).

130 *Hilton Davis*, 117 S.Ct. at 1051-53.

131 *Id.*, (emphasis added).

132 *Id.*

133 *Id.*

134 *Id.*

135 *Id.*

136 *London v. Carson Pirie Scott*, 946 F.2d 1534, 1538, 20 U.S.P.Q.2d (BNA) 1456, 1458 (Fed. Cir.1991).

137 *Id.*

138 *Singer Mfg. Co. v. Cramer*, 192 U.S. 265, 286 (1904).

139 *Hilton Davis*, 62 F.3d at 1520, 35 U.S.P.Q.2d at 1647.

140 *Id.* at 1519, 35 U.S.P.Q.2d at 1646.

141 *Id.* It is well established that intent has never been an element of infringement. *See Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 478, 181 U.S.P.Q. (BNA) 673, 677 (1974). If only insubstantial changes are made to a patented product or process, liability for infringement still results, regardless of a person's awareness of the patent or its disclosure. *Hilton Davis*, 62 F.3d at 1527, 35 U.S.P.Q.2d at 1653. "Infringement is, and should remain a strict liability offense." *Id.*

Prior to the Supreme Court's decision, lower courts had been accepting and enforcing the Federal Circuit's *Hilton Davis* ruling copying as a relevant factor. *See Bradshaw v. Igloo Prods. Corp.*, 912 F.Supp. 1088 (D.Ill. 1996); *James River Corp. of Va. v. Hallmark Cards, Inc.*, 915 F.Supp. 968 (D.Wis. 1996); *Queen's Univ. at Kingston v. Kinedyne Corp.*, 910 F.Supp. 527 (D.Kan. 1995); *Univ. of Cal. v. Eli Lilly & Co.*, 39 U.S.P.Q.2d (BNA) 1225 (S.D. Ind. 1995); *Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 899 F.Supp. 1268 (D.Del. 1995); *Stutz Motor Car of Am., Inc. v. Reebok Int'l, Ltd.*, 909 F.Supp. 1353, 38 U.S.P.Q.2d (BNA) 1253 (D.Cal. 1995); *Brunswick Corp. v. United States*, 34 Fed.Cl. 532 (Fed. Cl. 1995).

In *Edward Lowe Industries, Inc. v. Oil-Dri Corp. of America*, 1995 WL 632043 (N.D. Ill. 1995), evidence of copying was critical in the court's decision. A finding of copying was also crucial to the holding of infringement under the doctrine of equivalents in *General American Transportation Corp. v. Cryo-Trans, Inc.* 897 F.Supp. 1121 (D.Ill. 1995).

142 *Hilton Davis*, 117 S.Ct. at 1051-52.

143 *Id.* at 1052.

144 *Id.*

145 *Graver Tank*, 339 U.S. at 612, 85 U.S.P.Q. at 332.

146 *Hilton Davis*, 62 F.3d at 1518, 35 U.S.P.Q.2d at 1645 (citing *Graver Tank*, 339 U.S. at 612, 85 U.S.P.Q. at 332.).

147 *International Visual Corp. v. Crown Metal Mfg.*, 991 F.2d 768, 774, 26 U.S.P.Q.2d (BNA) 1588, 1593 (Fed. Cir.1993).

148 *Hilton Davis*, 62 F.3d at 1520, 35 U.S.P.Q.2d at 1647.

149 *Id.*

150 *Id.* Prior to the Supreme Court's reversal, several courts had adopted the Federal Circuit's position in its *Hilton Davis* decision regarding independent development as a factor in equivalency. *See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 72 F.3d 857, 37 U.S.P.Q.2d 1161 (Fed. Cir.1995); *Queen's Univ. at Kingston v. Kinedyne Corp.*, 910 F.Supp. 527 (D.Kan. 1995); *Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 899 F.Supp. 1268 (D.Del. 1995).

151 *Hilton Davis*, 117 S.Ct. at 1052.

152 *Id.*

153 *Id.*

154 *Id.*

155 *Id.*

156 *Id.*

157 *See Corning Glass*, 868 F.2d at 1261, 9 U.S.P.Q.2d at 1969.

158 *Graver Tank*, 339 U.S. at 609, 85 U.S.P.Q. at 331.

159 *See B.E. Wallace Prod. Corp., v. United States*, 26 Cl.Ct. 490, 506 (1992).

160 *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 975, 226 U.S.P.Q (BNA) 5, 8-9 (Fed. Cir.1985).

161 *Id.* Until recently, however, the full acceptance of interchangeability as a factor in determining equivalency still seemed uncertain. *See Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1449, 17 U.S.P.Q.2d (BNA) 1806, 1810 (Fed. Cir.1991) (stating that an interchangeable device is not necessarily an equivalent device).

162 *Hilton Davis*, 62 F.3d at 1518, 35 U.S.P.Q.2d at 1646. Recent decisions on point have embraced the Federal Circuit's *Hilton Davis* position regarding the importance of the interchangeability test. *See Lifescan, Inc. v. Home Diagnostics, Inc.*, 76 F.3d 358, 362 37 U.S.P.Q.2d (BNA) 1595, 1599 (Fed. Cir.1996); *Sofamor Danek Group, Inc. v. Depuy-Motech, Inc.*, 74 F.3d 1216, 1222, 37 U.S.P.Q.2d (BNA) 1529, 1533 (Fed. Cir.1996); *Bradshaw v. Igloo Prods. Corp.*, 912 F.Supp. 1088, 1098 (N.D. Ill. 1996); *Queen's Univ. at Kingston v. Kinedyne Corp.*, 910 F.Supp. 527, 533 (D.Kan. 1995); *Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 899 F.Supp. 1268, 1281 (D.Del. 1995).

In *Lifescan v. Home Diagnostics Inc.*, Lifescan asserted that HDI had simply replaced the initial step of the Lifescan process with a known interchangeable alternative. *Lifescan*, 76 F.3d at 362, 37 U.S.P.Q.2d at 1599. This was admitted as evidence reinforcing Lifescan's position that the processes were equivalent. *Id.* The court in *Bradshaw v. Igloo Products* wrote that *Hilton Davis* was authoritative on the test for equivalents, holding that other factors may be considered beyond function-way-result. *Bradshaw*, 912 F.Supp. at 1098. These other factors include "whether persons reasonably skilled in the art would have known of the interchangeability of an element." *Id.*

In *Queen's University at Kingston v. Kinedyne Corp.*, the court used the interchangeability test to reach its holding of non-infringement under the doctrine of equivalents. *Queen's Univ.*, 910 F.Supp. at 532-33. It concluded that a person reasonably "skilled in the art of designing restraint devices would not have known that the Kinedyne combination was interchangeable with the patented bracket of the '210 patent'." *Id.* The court in *Lucas Aerospace, Ltd. v. Unison Industries* also cited *Hilton Davis* as precedent for its position that other factors, such as interchangeability, provide relevant information with which to determine whether or not the differences between the claimed invention and the accused device are insubstantial. *Lucas Aerospace*, 899 F.Supp. at 1280-81.

163 *Hilton Davis*, 117 S.Ct. at 1052.

164 *Id.* at 1053.

165 *Id.*

166 *Id.*

167 *Id.*

168 *Id.*

169 *Id.*

170 *Hilton Davis*, 62 F.3d at 1517-18, 35 U.S.P.Q.2d at 1644-45. In other recent decisions the Federal Circuit has stressed the significance of the “insubstantial differences” standard. *See Valmont Indus. Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1043, 25 U.S.P.Q.2d (BNA) 1451, 1454 (Fed. Cir.1993); *Charles Greiner & Co. v. MariMed Mfg., Inc.*, 962 F.2d 1031, 1036 22 U.S.P.Q.2d (BNA) 1526, 1529-30 (Fed. Cir.1992); *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538, 20 U.S.P.Q.2d (BNA) 1456, 1458 (Fed. Cir.1991); *Slimfold Mfg. Co. v. Kinkead Indus. Inc.*, 932 F.2d 1453, 1457, 18 U.S.P.Q.2d (BNA) 1842, 1846 (Fed. Cir.1991); *Moleculon Research Corp. v. CBS, Inc.*, 872 F.2d 407, 409, 10 U.S.P.Q.2d (BNA) 1390, 1392 (Fed. Cir.1989); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935, 4 U.S.P.Q.2d (BNA) 1737, 1739-40 (Fed. Cir.1987); *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1532, 3 U.S.P.Q.2d (BNA) 1321, 1324 (Fed. Cir.1987).

171 *Hilton Davis*, 62 F.3d at 1522, 35 U.S.P.Q.2d at 1648.

172 *Id.* at 1517, 35 U.S.P.Q.2d at 1644 (citing *Graver Tank*, 339 U.S. at 607, 85 U.S.P.Q. at 330.).

173 *Hilton Davis*, 117 S.Ct. at 1054.

174 *Id.*

175 *Id.*

176 *Id.*

177 *Id.*

178 *Id.*

179 *Id.*

180 *Id.*

181 *Id.* at 1047-48.

182 *Id.* at 1049-51.

183 *Id.* at 1051.

184 *Id.*

185 *Id.* at 1051-52.

186 *Id.* at 1052.

187 *Id.*

188 *Id.* at 1054.

189 The Federal Circuit in *Hilton Davis* stated that “other factors, however, such as evidence of copying or designing around, may also inform the test for infringement under the doctrine of equivalents.” *Hilton Davis*, 62 F.3d at 1522, 35 U.S.P.Q.2d at 1648. The effect of the Federal Circuit’s opinion was to allow much more evidence to be considered relevant and allowed to reach the jury.