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# Not So Good: The Classification of “Smart Goods” Under UCC Article 2

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## NOT SO GOOD: THE CLASSIFICATION OF “SMART GOODS” UNDER UCC ARTICLE 2

Chadwick L. Williams\*

### INTRODUCTION

Refrigerators can now tweet.<sup>1</sup> Today, almost sixty years after the states widely adopted the Uniform Commercial Code (UCC), the line between goods and services is more blurred than ever.<sup>2</sup> When the UCC was drafted, a good was the simple opposite of a service.<sup>3</sup> A good was something “movable” and tangible,<sup>4</sup> and a service was not.<sup>5</sup> Article 2 of the UCC, which governs sales, limits its scope to goods.<sup>6</sup> However, because Article 2 was drafted long before the proliferation of so-called “smart goods,”<sup>7</sup> courts continuously struggle to determine when a smart good falls within Article 2’s scope.<sup>8</sup> Courts have developed different tests over the years to deal with contracts

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\*J.D. Candidate, 2018, Georgia State University College of Law. I would like to thank Professor Mark Budnitz for helping me develop this topic and Professor Corneill Stephens for fostering my interest in contracts and the UCC. I would also like to thank my girlfriend Kayla and my family for their constant support and encouragement throughout this process. Finally, thank you to all the members of Georgia State’s Law Review who helped review and edit this Note.

1. Sam Byford, *Tweet My Fridge: The Bizarre Home Appliances of CES*, THE VERGE (Jan. 16, 2013, 9:31 AM), <http://www.theverge.com/2013/1/16/3867932/evernote-on-your-fridge-ces-home-appliance-insanity> [<https://perma.cc/VT8K-364R>].

2. Lee Kissman, *Revised Article 2 and Mixed Goods/Information Transactions: Implications for Courts*, 44 SANTA CLARA L. REV. 561, 571 (2004) (“[B]ecause emerging technologies have become increasingly intertwined, some authors point out that it is becoming increasingly difficult to draw a clear distinction between embedded and non-embedded software, even for computer scientists.”).

3. See Eric Goldman, *UCC 2B/UCITA Resurrected—ALI’s Principles of the Law of Software Contracts*, TECH. & MARKETING L. BLOG (June 1, 2007), [http://blog.ericgoldman.org/archives/2007/06/ucc\\_2bucita\\_res.htm](http://blog.ericgoldman.org/archives/2007/06/ucc_2bucita_res.htm) [<https://perma.cc/TTU7-KBFBK>]. Law professor Eric Goldman writes that because Article 2 was principally drafted in the 1950s, it was designed to “govern the sale of tangible items, not software . . . . Accordingly, Article 2 fits awkwardly when applied to ‘intangible goods’ like software.” *Id.*; U.C.C. § 2-102 (AM. LAW INST. & UNIF. LAW COMM’N 1977).

4. U.C.C. § 2-105(1).

5. U.C.C. § 2-102.

6. *Id.*

7. Goldman, *supra* note 3.

8. See Jean Braucher, *When Your Refrigerator Orders Groceries Online and Your Car Dials 911 After an Accident: Do We Really Need New Law for the World of Smart Goods?*, 8 WASH U. J.L. & POL’Y 241, 242 (2002).

containing a mixture of goods and services,<sup>9</sup> but those tests produce questionable results when applied to smart goods.<sup>10</sup> In the late 1990s, drafters attempted to address these issues with an ill-fated addition to Article 2 that ultimately failed.<sup>11</sup> Still today, as software and tangible goods become more intertwined,<sup>12</sup> software's legal status remains a fundamental, yet unanswered, question.<sup>13</sup> This unresolved question impacts consumers directly;<sup>14</sup> whether a contract falls within the scope of Article 2 affects customers' available warranties and remedies.<sup>15</sup>

The following Note discusses the classification difficulties posed by modern goods with embedded software and services. Part I explains the history of the UCC, the past efforts to address the difficulties, and the issues that still remain. Part II analyzes previous attempts to resolve the issue and courts' current solutions to these classification difficulties. Part III proposes a contemporary solution to these modern challenges and discusses how such a solution might be implemented.

### *I. Background*

In the early 1940s, two organizations, the National Conference of Commissioners and the American Law Institute (ALI), joined together to develop a comprehensive body of law to govern commercial transactions.<sup>16</sup> This commercial code embraced all

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9. See YVONNE W. ROSMARIN & JONATHAN SHELDON, SALES OF GOODS AND SERVICES 158–64 (2d ed. 1989).

10. Spencer Gottlieb, *Installation Failure: How the Predominant Purpose Test Has Perpetuated Software's Uncertain Legal Status Under the Uniform Commercial Code*, 113 MICH. L. REV. 739, 741 (2015); Holly K. Towle, *Enough Already: It Is Time to Acknowledge that UCC Article 2 Does Not Apply to Software and Other Information*, 52 S. TEX. L. REV. 531, 555 (2011).

11. See Amelia H. Boss, *Taking UCITA on the Road: What Lessons Have We Learned?*, 7 ROGER WILLIAMS U. L. REV. 167, 168 (Fall 2001); William H. Henning, *Amended Article 2: What Went Wrong*, 11 DUQ. BUS. L.J. 131, 135 (2009); Robert E. Scott, *The Rise and Fall of Article 2*, 62 LA. L. REV. 1009, 1011–12 (2002).

12. Kissman, *supra* note 2, at 571.

13. Gottlieb, *supra* note 10, at 741.

14. Walter D. Malcolm, *The Uniform Commercial Code in the United States*, 12 INT'L. & COMP. L.Q. 226, 234 (1963).

15. *Id.*

16. *Id.* at 229.

modern developments in other attempted uniform sales codes<sup>17</sup> and created new provisions to address recognized commercial problems.<sup>18</sup> If adopted by the states, this collection was intended to replace the common law of contracts for commercial transactions.<sup>19</sup> This collection was the UCC.<sup>20</sup> Following its initial introduction, the UCC went through many drafts and redrafts.<sup>21</sup> Finally, after years of debate and revision,<sup>22</sup> the official edition of the UCC was published in October 1952.<sup>23</sup> By 1967, forty-nine states had adopted the UCC to some degree.<sup>24</sup>

With the states’ mass adoption of the UCC,<sup>25</sup> the UCC preempted the common law of contracts whenever the UCC applied.<sup>26</sup> Article 2 of the Code applies to the sale of goods.<sup>27</sup> A “good” is defined as “all things (including specially manufactured goods) which are movable at the time of identification to the contract for sale . . . .”<sup>28</sup> Therefore, Article 2 governs the enforcement of any contract concerning tangible “things” which are “movable.”<sup>29</sup> The application of Article 2 is simple when the contract in controversy exclusively concerns goods. However, contracts are often mixed, with services and goods intertwined within the agreement.<sup>30</sup> The Code is silent on the treatment of mixed goods and service contracts;<sup>31</sup> these “hybrid contracts” have troubled courts since the adoption of the UCC.<sup>32</sup> To deal with this issue, courts have developed several different tests.<sup>33</sup>

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17. *Id.*

18. *Id.*

19. *Id.*

20. Malcolm, *supra* note 14, at 229–30.

21. *Id.*

22. *Id.*

23. *Id.* at 230.

24. William B. Davenport, *Uniform Commercial Code Annual Survey-1967*, 22 BUS. LAW. 707, 707 (1966).

25. *Id.*

26. *AmSouth Bank v. Tice*, 923 So.2d 1060, 1065 (Ala. 2005).

27. U.C.C. § 2-102 (AM. LAW INST. & UNIF. LAW COMM’N 1977).

28. U.C.C. § 2-105(1).

29. *Id.*

30. *See ROSMARIN & SHELDON, supra* note 9, at 158–64.

31. *See id.* at 159.

32. *See id.* at 158–64.

33. *Id.* at 158.

### A. *The Hybrid Tests*

The primary issue courts face with hybrid contracts is determining whether Article 2 applies,<sup>34</sup> and, if so, how much of the contract falls within the Article 2 scope.<sup>35</sup> The test used differs by jurisdiction.<sup>36</sup>

#### 1. *The Predominant Factor Test*

A majority of jurisdictions use the predominant factor test to resolve hybrid contract scope issues.<sup>37</sup> Even if a contract contains a mixture of goods and services, if its “predominant factor, [its] thrust, [its] purpose, reasonably stated, is . . . a transaction of sale,” then Article 2 of the UCC applies.<sup>38</sup> Once the court determines the “predominant purpose” of the contract, either the whole contract is governed by Article 2 or none of it is.<sup>39</sup>

Courts analyze several factors to determine if a hybrid contract’s “thrust” and “purpose” are truly a sale of goods.<sup>40</sup> The factors are (1) the language of the contract; (2) the manner of billing; (3) the allocation of costs; and (4) the nature of the final delivered product.<sup>41</sup>

34. Towle, *supra* note 10, at 555.

35. See Ann Lousin, *Cases on the Scope of Article 2*, 46 BUS. LAW. 1855, 1861–66 (1991).

36. See ROSMARIN & SHELDON, *supra* note 9, at 159.

37. See *id.*

38. Bonebrake v. Cox, 499 F.2d 951, 960 (8th Cir. 1974) (holding that a bowling alley’s contract with a bowling equipment dealer for bowling equipment, installation, and lane resurfacing was predominantly a sale of goods).

39. *Id.* at 959.

40. Insul-Mark Midwest, Inc. v. Modern Materials, Inc., 612 N.E.2d 550, 554 (Ind. 1993) (“Specifically, one looks to the terms describing the performance required of the parties, and the words used to describe the relationship between the parties.”).

41. BMC Indus. v. Barth Indus., 160 F.3d 1322, 1330 (11th Cir. 1998). The court stated:

Courts are frequently faced . . . with contracts involving both goods and services—so-called “hybrid” contracts. Most courts follow the “predominant factor” test to determine whether such hybrid contracts are transactions in goods, and therefore covered by the UCC, or transactions in services, and therefore excluded . . . Under this test, the court determines whether their predominant factor, their thrust, their purpose, reasonably stated, is the rendition of service, with goods incidentally involved (e.g., contract with artist for painting) or is a transaction of sale, with labor incidentally involved (e.g., installation of a water heater in a bathroom) . . . Although courts generally have not found any single factor determinative in classifying a hybrid contract as one for goods or services, courts find several aspects of a contract particularly significant. First, the language of the contract itself provides insight into whether the parties

First, if the contract contains language like “purchase order,” then courts consider that contractual language to be more indicative of an Article 2 transaction in goods.<sup>42</sup> Second, if the contract mandates a lump sum payment at delivery, that language is more indicative of a contract for goods than services.<sup>43</sup> Third, it is more indicative of a contract for goods if most of the costs are in exchange for the tangible portion of the contract.<sup>44</sup> Finally, if the final product delivered is movable and tangible, the contract would likely fall within the scope of Article 2.<sup>45</sup>

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believed the goods or services were the more important element of their agreement. Contractual language that refers to the transaction as a “purchase,” for example, or identifies the parties as the “buyer” and “seller,” indicates that the transaction is for goods rather than services . . . . Courts also examine the manner in which the transaction was billed; when the contract price does not include the cost of services, or the charge for goods exceeds that for services, the contract is more likely to be for goods . . . . Movable goods is another hallmark of a contract for goods rather than services. The UCC’s definition of goods makes clear the importance of mobility in determining whether a contract is for goods . . . .

*Id.* at 1329–30.

42. *Id.* at 1330–31.

43. *Id.*

44. *Id.*

45. *Id.* at 1330. Even among the courts that apply the same test, results often conflict. One court applying the predominant factor test stated:

There was no proof of defective goods. There was, however, proof of defective services performed in relation to the goods. The warranty provisions of [the UCC] apply to services when the sale is primarily one of goods and services are necessary to insure that those goods are merchantable and fit for the ordinary purpose. [Therefore, Article 2 applies to the sale and installation of a swimming pool.]

*Riffe v. Black*, 548 S.W.2d 175, 177 (Ky. 1977). Another court, however, held the opposite concerning a very similar transaction, stating:

The initial terms of the contract between the plaintiffs and the defendant provided merely that the defendant would “furnish all labor and materials . . . and to construct pool . . . furnish and install swimming pool with vinyl liner. Complete with built in fence and stairs” . . . . In the present case it is obviously impossible, or extremely difficult to effect a separation of the labor or services from the material and equipment. The two component parts do not readily permit that cleavage. [Therefore, Article 2 does not apply to the sale and installation of a swimming pool.]

*Gulash v. Stylarama*, 33 Conn. Supp. 108, 112–13 (1975). Unfortunately, this is the result of a balancing test; it gives the court more discretion than it would ordinarily have with a firm rule. Some commentators, however, claim that courts selectively choose factors that lead them to apply the UCC, particularly in consumer contracts, seeking to protect the consumer with the implied remedies provided by the Code. Alternatively, the conflicting results may simply result from different courts prioritizing the factors differently.

## 2. *The Gravamen Test*

The gravamen test is a simpler alternative to the predominant factor test.<sup>46</sup> Under this test, the court looks at the entire contract in the context of the facts and circumstances of the case.<sup>47</sup> If the hybrid contract, in light of the dispute, seems like its essence was for the sale of a good, then Article 2 applies.<sup>48</sup> If the contract, in light of the dispute, seems like it was actually for the contracting of services with some goods implicated, Article 2 does not apply.<sup>49</sup> In the gravamen test, like the predominant factor test, either all of the contract is

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One court prioritizing contract language stated: “The language thus employed is that peculiar to goods, not services. It speaks of ‘equipment,’ and of lanes free from ‘defects in workmanship and materials.’ The rendition of services does not comport with such terminology.” *Bonebrake v. Cox*, 499 F.2d 951, 958 (8th Cir. 1974). Another court, prioritizing manner of billing, stated: “Although [the original contract] included some service trips for inspection, startup, instruction of plant personnel, and observation, the contract was predominantly for the supply of equipment. The later communications from [the party] specifically noted that most service items would be in addition to the contract price.” *WesTech Eng’g, Inc. v. Clearwater Constr., Inc.* 835 S.W.2d 190, 197 (Tex. Ct. App. 1992). Yet another court, prioritizing allocation of costs, stated: “The projected total, excluding bonus, is therefore approximately \$59,828, of which [over 90% is allocated to] labor . . . Based on this evidence, we conclude that this was primarily a service contract.” *Micro-Managers, Inc. v. Gregory*, 434 N.W.2d 97, 161 (Wis. Ct. App. 1988).

46. *J.O. Hooker & Sons, Inc. v. Roberts Cabinet Co.*, 683 So.2d 396, 400 (Miss. 1996). In a case regarding cabinets, the court held that the UCC did not apply because the dispute involved the service aspect (disposing of cabinets) of the contract rather than the goods aspect (the new cabinets). *Id.* The court stated:

It is very often the case that a construction contract will involve the furnishing of goods by a subcontractor, and this Court holds that, in such a mixed transaction, whether or not the contract should be interpreted under the UCC or our general contract law should depend upon the nature of the contract and also upon whether the *dispute* in question primarily concerns the goods furnished or the services rendered under the contract. The present case clearly does not concern the cabinets manufactured, but rather the refusal of [one party] to assume duties which [the other party] contractually obligated itself to perform. This Court would not hesitate to apply Article 2 if the present case involved, for example, a dispute of the quality of the cabinets, but the present case is in actuality a fairly standard contract dispute involving delegation of duties under a contract and the right to unilaterally rescind said contract. The fact that goods were furnished in the present contract has no bearing on the legal analysis involved, given that the dispute in this case clearly concerns the service aspect of this mixed transaction.

*Id.*

47. *Id.*

48. *Id.*

49. *Id.*

governed by Article 2 or none of it is.<sup>50</sup> Although the majority of courts use the predominant factor test, courts remain divided on which test best applies Article 2 to contracts only partially within its scope.<sup>51</sup>

*B. The Life and Death of the Uniform Computer Information Transactions Act*

Contracts for the sale of software challenged the courts even more than the hybrid contracts that came before.<sup>52</sup> A few decades after the wide adoption of Article 2 marked the dawn of the computer age.<sup>53</sup> Courts attempted to apply the same hybrid tests to contracts for the sale of software.<sup>54</sup> Results varied greatly.<sup>55</sup> Although software was technically tangible and movable in compact disc form, the true essence of a contract for software was for the information on the tangible disc.<sup>56</sup> Courts continue to struggle to consistently apply the traditional hybrid tests to software contracts.<sup>57</sup>

In 1999, recognizing the widespread confusion software was causing,<sup>58</sup> the National Conference of Commissioners on Uniform State Laws and the ALI promulgated the Uniform Computer Information Transactions Act (UCITA) to govern transactions in computer information.<sup>59</sup> The UCITA initially began as a proposal for an addition to the UCC, which would be known as Article 2B.<sup>60</sup>

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50. *J.O. Hooker & Sons, Inc.*, 683 So.2d at 400.

51. See ROSMARIN & SHELDON, *supra* note 9, at 161.

52. Goldman, *supra* note 3.

53. See Erik Sandberg-Diment, *Personal Computers; Hardware Review: Apple Weighs In With Macintosh*, N.Y. TIMES (Jan 24, 1984), <http://www.nytimes.com/1984/01/24/science/personal-computers-hardware-review-apple-weighs-in-with-macintosh.html> [https://perma.cc/T5VF-62LC] (describing the Apple Macintosh computer and providing insight to the early days of personal computing).

54. Gottlieb, *supra* note 10, at 739.

55. *Id.* at 748 ("Balancing tests provide courts with a high degree of discretion, which can make the tests 'unavoidably vague' and 'loosely defined,' leading to 'inconsistent results.'").

56. Kissman, *supra* note 2, at 575 ("Some courts have found that Article 2 directly applies when software is sold in the form of a disk or other tangible and moveable medium.").

57. Gottlieb, *supra* note 10, at 748.

58. Lorin Brennan, *Why Article 2 Cannot Apply to Software Transactions*, 38 DUQ. L. REV. 459, 461 (2000).

59. *Id.*

60. Boss, *supra* note 11, at 176.



Displeased, the ALI withdrew early in the process.<sup>61</sup> The UCITA's development continued separately from the UCC.<sup>62</sup>

The UCITA attempted to address the software contract problem by adjusting the scope of Article 2.<sup>63</sup> If the UCITA was adopted, it would apply to "computer information transactions."<sup>64</sup> A computer information transaction is "an agreement or the performance of it to create, modify, transfer, or license computer information or informational rights in computer information."<sup>65</sup> Computer information is "information in electronic form which is obtained from or through the use of a computer or which is in a form capable of being processed by a computer."<sup>66</sup> The UCITA expands the term "computer information" to include "a copy of the information and any documentation or packaging associated with the copy."<sup>67</sup> Therefore, if the UCITA was adopted, all software would be removed from the scope of Article 2 and be governed by the UCITA.<sup>68</sup> However, the UCITA was widely considered overly complex and poorly conceived.<sup>69</sup> Additionally, competing interest groups created a deadlock in further UCITA adoption.<sup>70</sup>

As a result of its wide criticism, only Virginia and Maryland adopted the UCITA.<sup>71</sup> Since then, Iowa, North Carolina, Vermont, and West Virginia actually adopted anti-UCITA legislation,<sup>72</sup>

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61. Daniel Uhlfelder, *UCITA: Coming to a Statehouse Near You*, UBIQUITY (Nov. 30, 2000), <http://ubiquity.acm.org/article.cfm?id=355133> [<https://perma.cc/EA8Q-79JR>]. Several years in a row, the ALI refused to put the UCITA on the agenda for approval at its annual meetings. Boss, *supra* note 11, at 177. The ALI decided to take no final action because of concerns about the architecture and scope of the proposal. *Id.* The ALI was also concerned about its overall coherence and clarity. *Id.*

62. Boss, *supra* note 11, at 177.

63. Scott, *supra* note 11, at 1013.

64. UNIF. COMPUT. INFO. TRANSACTIONS ACT § 103(a) (UNIF. LAW COMM'N 2002).

65. UNIF. COMPUT. INFO. TRANSACTIONS ACT § 102(a)(11).

66. UNIF. COMPUT. INFO. TRANSACTIONS ACT § 102(a)(10).

67. *Id.*

68. Henning, *supra* note 11, at 136 ("Going into 1999, Articles 2 and 2B had complementary scope provisions; that is, products outside the scope of Article 2 were within the scope of Article 2B, and vice versa.").

69. Boss, *supra* note 11, at 199 ("Its sheer length and complexity makes UCITA a difficult act to understand, even for those who are familiar with its provisions.").

70. Scott, *supra* note 11, at 1050 n.129.

71. Goldman, *supra* note 3.

72. Boss, *supra* note 11, at 175 n.19.

nullifying any choice of law provisions applying the UCITA.<sup>73</sup> In 2003, the National Conference of Commissioners on Uniform State Laws announced that it would no longer seek further adoptions of the UCITA.<sup>74</sup> As a result, there is no national consensus on whether software is a good or a service.<sup>75</sup> Software's legal status remains a fundamental, yet unanswered, question.<sup>76</sup>

### C. *The Dawn of the Smart Good*

In recent years, a new layer of ambiguity has emerged in the world of hybrid contracts. The distinction between good and service continues to blur as technology develops.<sup>77</sup> Today, goods can have integrated software<sup>78</sup> and services.<sup>79</sup> Some goods now have software embedded in them; these types of goods are known as "smart goods."<sup>80</sup> Examples include a car with a computer chip controlling its automatic braking system<sup>81</sup> and a printer with integrated software.<sup>82</sup> The classic hybrid tests of years past are becoming less capable of classifying modern goods.<sup>83</sup> The classification of goods has a huge impact on the remedies available to the injured party.<sup>84</sup> As goods become smarter, "new thinking is needed and lines will need to be drawn to determine how to treat the goods containing . . . embedded software."<sup>85</sup>

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73. *Id.*

74. Henning, *supra* note 11, at 136.

75. Gottlieb, *supra* note 10, at 741.

76. *Id.*

77. Kissman, *supra* note 2, at 571.

78. *Id.*

79. See Stacy-Ann Elvy, *Contracting in the Age of the Internet Of Things: Article 2 of the UCC and Beyond*, 44 HOFSTRA L. REV. 839, 840 (2016). Amazon sells a product called the Amazon Dash. *Id.* The only function of the button is to reorder a product when pressed using Amazon's Dash Replenishment Service. *Id.* Without the service, the Dash is useless. *Id.*

80. Braucher, *supra* note 8, at 241.

81. Boss, *supra* note 11, at 187 n.54.

82. See Brennan, *supra* note 58, at 496.

83. See Goldman, *supra* note 3.

84. Susan Nycum, *Liability for Malfunction of a Computer Program*, 7 RUTGERS COMPUTER TECH. & L.J. 1, 2 (1979). The author states "at this time no one knows for certain what law would govern a contract for a computer program." *Id.* She then examines the importance of this question in light of the different remedies available depending on whether Article 2 of the UCC applies. *Id.*

85. Towle, *supra* note 10, at 558.

## II. Analysis

The theoretical classification of a smart good has a huge impact on the consumer.<sup>86</sup> The source of this effect is largely due to the nature of the UCC,<sup>87</sup> which conceptualizes contracts differently than traditional common law.<sup>88</sup> The common law of contracts, which invokes the principle of *caveat emptor*, “let the buyer beware,” provides little support to an unwitting consumer.<sup>89</sup> The UCC dispels this mentality and builds in a number of protections for a customer dealing with a merchant.<sup>90</sup> For example, instead of the principle of *caveat emptor*, Article 2 creates several implied warranties enforceable in every contract for the sale of goods.<sup>91</sup>

One of these warranties is the implied warranty of merchantability,<sup>92</sup> which guarantees that a consumer’s purchased good will “pass without objection in the trade”<sup>93</sup> and is “fit for the ordinary purposes for which [it is] used.”<sup>94</sup> Thus, under Article 2, a customer may recover damages from a manufacturer if the good is defective, even if the contract never assured the customer of its quality.<sup>95</sup> Under Article 2, these remedies include the difference in value, personal injury, and property damage proximately resulting from the breach of implied warranty.<sup>96</sup> This is in stark contrast to the common law of contracts, where the customer is left to fend for himself during contract negotiations.<sup>97</sup>

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86. Nycum, *supra* note 84, at 3.

87. *Id.*

88. *Id.*

89. Kissman, *supra* note 2, at 580; *Caveat Emptor*, BLACK’S LAW DICTIONARY (10th ed. 2014).

90. *See, e.g.*, U.C.C. §§ 2-314, 2-315 (AM. LAW INST. & UNIF. LAW COMM’N 1977).

91. *See, e.g.*, U.C.C. §§ 2-314, 2-315, 2-316 (creating, respectively, the implied warranty of merchantability, the implied warranty for fitness for a particular purpose, and establishing the ways a merchant may disclaim such warranties). Despite these implied warranties imposed on a merchant, it may still disclaim those warranties. U.C.C. § 2-316. Instead of the burden resting on the customer to insist on a warranty being created, this code scheme simply shifts the burden to the merchant. *Id.*

92. *See* U.C.C. § 2-314.

93. U.C.C. § 2-314(2)(a) (“(2) Goods, to be merchantable, must be at least such as: (a) pass without objection in the trade under the contract description . . .”).

94. U.C.C. § 2-314(2)(c) (“(2) Goods, to be merchantable, must be at least such as: . . . (c) are fit for the ordinary purpose for which such goods are used . . .”).

95. *See* U.C.C. § 2-314.

96. U.C.C. § 2-714 (2); Nycum, *supra* note 84, at 3.

97. *See* Bryan Hoynak, *Filling in the Blank: Defining Breaches of Contract Excepted from*

Additionally, Article 2 allows parties without privity to sue a party for damages resulting from a breach of implied warranty.<sup>98</sup> Unlike the common law of contracts, which requires some contractual relationship to maintain a lawsuit,<sup>99</sup> Article 2 creates potential

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*Discharge as Willful and Malicious Injuries to Property Under 11 U.S.C. § 523(a)(6)*, 67 WASH. & LEE L. REV. 693, 700–01 (2010) (“The focus in contract law is on the *promise* that arises out of the agreements between the contracting parties, whereas the focus in tort law is on the *wrongs* that result from violations of court-created rules.”). One of the oldest examples of the principle of *caveat emptor* is in *Laidlaw v. Organ*. In that case, the Supreme Court stated:

The question in this case is, whether the intelligence of extrinsic circumstances, which might influence the price of the commodity, and which was exclusively within the knowledge of the seller, ought to have been communicated to the buyer? . . . The court is of the opinion that he was not bound to communicate it.

*Laidlaw v. Organ*, 15 U.S. 178, 195 (1817). From there, contract law continued to allow sellers to not disclose defects, as long as they did not lie to the buyer. *Simone v. Homecheck Real Estate Servs., Inc.*, 840 N.Y.S.2d 398, 400 (App. Div. 2007). In *Simone v. Homecheck*, a modern case concerning ordinary contract law in the sale of land, the court stated:

New York adheres to the doctrine of *caveat emptor* and imposes no liability on a seller for failing to disclose information regarding the premises when the parties deal at arm’s length, unless there is some conduct on the part of the seller which constitutes active concealment . . . . The mere silence of the seller, without some act or conduct which deceived the buyer, does not amount to concealment that is actionable as fraud . . . . To maintain a cause of action to recover damages for active concealment in the context of a fraudulent nondisclosure, the buyer must show, in effect, that the seller thwarted the buyer’s efforts to fulfill the buyer’s responsibilities fixed by the doctrine of *caveat emptor*.

*Id.* (holding that numerous structural and material defects in a home purchased by the plaintiffs could not constitute a basis for action or damages by the buyer). This mentality is the opposite of the protective scheme in the UCC, where the defect itself creates the liability for the merchant seller. The seller need not say anything to be liable for his defective sale. The Official Comments of § 2-314 state:

The question when the warranty is imposed turns basically on the meaning of the terms of the agreement as recognized in the trade. Goods delivered under an agreement made by a merchant in a given line of trade must be of a quality comparable to that generally acceptable in that line of trade under the description or other designation of the goods used in the agreement. The responsibility imposed rests on any merchant-seller.

U.C.C. § 2-314 (Official Comment 2).

98. U.C.C. § 2-318. There are two types of privity: horizontal privity and vertical privity. 3 MARY ANNE FORAN, WILLISTON ON SALES § 22-10, at 350 (5th ed. 1994) [hereinafter WILLISTON ON SALES]. To maintain a suit under breach of implied warranty of merchantability through vertical privity, all that is required is that the party suing is the intended beneficiary of the implied warranty. U.C.C. § 2-318 (Official Comment 2). In practice, most customers who use the goods for their ordinary purpose are intended beneficiaries of the implied warranty of merchantability. *Id.* Accordingly, the ability to sue really turns on horizontal privity. WILLISTON ON SALES § 22-10, at 351. Horizontal privity defines how closely the injured party must be related to the purchaser of the defective good. *Id.* The UCC allows states to have discretion in this area, defining three alternatives that fall along the continuum from close relative to absolute stranger. *Id.* at 341.

99. See Hoynak, *supra* note 97, at 700–01.

manufacturer liability for most consumers of consumer goods.<sup>100</sup> For example, a spouse injured by a defective product that her husband bought from an electronics store could sue the manufacturer for a breach of warranty. This dynamic is absent in the common law of contracts, which seeks only to make injured parties to the contract whole;<sup>101</sup> contract law is compensatory, not punitive.<sup>102</sup> Therefore, the classification of smart goods is not a trivial matter. Unfortunately, their classification remains ambiguous<sup>103</sup> and no past or current solution sufficiently addresses this issue.<sup>104</sup>

*A. The UCITA: The One that Got Away*

Article 2's drafters struggled greatly with its scope.<sup>105</sup> Initially, the drafting committee attempted to broaden Article 2 to cover software.<sup>106</sup> Eventually though, for political reasons, they abandoned these attempts in favor of independent statutory treatment of goods and information.<sup>107</sup> Article 2 would govern the sale of goods.<sup>108</sup> Article 2B would govern information.<sup>109</sup> Unfortunately, Article 2B never garnered the necessary approval, was never widely adopted, and was abandoned after being spun off into the UCITA.<sup>110</sup>

One major issue the UCITA's drafters faced was the mixed transaction.<sup>111</sup> Unlike the hybrid contract, which contains a mix of goods and services,<sup>112</sup> a mixed transaction is one with an element of information either embedded in or packaged with the goods.<sup>113</sup> Supporters of the UCITA wanted it to cover the medium or tangible

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100. U.C.C. § 2-318.

101. See Hoynak, *supra* note 97, at 701–02.

102. *Id.*

103. Gottlieb, *supra* note 10, at 741.

104. *Id.*

105. Boss, *supra* note 11, at 185.

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.* at 185–86.

110. *Id.* at 185.

111. Boss, *supra* note 11, at 185.

112. *BMC Indus. v. Barth Indus.*, 160 F.3d 1322, 1329 (11th Cir. 1998).

113. Boss, *supra* note 11, at 187.

good on which the information was delivered to the customer.<sup>114</sup> Others insisted that smart goods must fall within the scope of Article 2, not the information-focused UCITA.<sup>115</sup>

The UCITA attempted to solve the problem of smart goods when the drafters developed it in the late 1990s, well before the problem was fully developed.<sup>116</sup> Additionally, since Article 2 was approved and adopted while Article 2B (UCITA) was abandoned, their scopes conflict over smart goods.<sup>117</sup> As a result, in the few states that adopted the UCITA, courts use the gravamen test to determine which law to apply.<sup>118</sup> In these states, for mixed transactions, the court simply applies either Article 2 or the UCITA, depending on the gravamen of the dispute;<sup>119</sup> if the dispute is regarding the tangible portion of the smart good, the court will apply Article 2, and if the dispute is regarding the information part of the good, the court will apply the UCITA.<sup>120</sup>

This solution is untenable for two reasons: (1) the gravamen test is unfit for this use long-term, as discussed below,<sup>121</sup> and (2) only two states have adopted the UCITA.<sup>122</sup> The UCITA is practically dead,<sup>123</sup> and there is little hope for any other states to ratify it.<sup>124</sup> Plus, many states have enacted legislation to plainly denounce the UCITA.<sup>125</sup> The whole purpose of the UCC is to be *uniform*.<sup>126</sup> Without a uniform acceptance of the UCITA and its relationship with Article 2's scope, the issue of smart good classification will not be resolved.<sup>127</sup>

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114. *Id.*

115. *Id.*

116. Braucher, *supra* note 80, at 243; Brennan, *supra* note 58, at 461.

117. Braucher, *supra* note 80, at 242–43.

118. Kissman, *supra* note 2, at 571.

119. *Id.*

120. *Id.*

121. Towle, *supra* note 10, at 555; *see infra* text accompanying notes 161–70.

122. Braucher, *supra* note 80, at 243.

123. Boss, *supra* note 11, at 168.

124. Braucher, *supra* note 80, at 243.

125. Goldman, *supra* note 3.

126. Malcolm, *supra* note 14, at 229–30.

127. Boss, *supra* note 11, at 187–88.

### B. *The Common Law: What We Are Stuck With*

Courts originally developed the tests mentioned above to deal with contracts involving a mix of goods and services.<sup>128</sup> For example, if a customer contracted with a builder to install a diving board for his pool, the diving board on its own would be within the scope of Article 2, but the service of its installation would not.<sup>129</sup> After the failure of the UCITA, courts have continued to use the preexisting tests for determining whether the smart good in question falls within the scope of Article 2.<sup>130</sup>

#### 1. *The Predominant Factor Test*

The majority of courts apply the predominant factor test.<sup>131</sup> Traditionally, courts used this test to determine whether the

128. See ROSMARIN & SHELDON, *supra* note 9, at 158–62.

129. See *Anthony Pools v. Sheehan*, 455 A.2d 434, 439, 441 (Md. 1983). Discussing Article 2, the court stated:

Were the predominant purpose test mechanically to be applied to the facts of this case, there would be no quality warranty implied as to the diving board. But here the contract expressly states that [seller] agrees not only to construct the swimming pool, but also to sell the related equipment selected by the [buyer]. The [buyer is] described as “Buyer.” The diving board itself is not structurally integrated into the swimming pool. [Seller] offered the board as an optional accessory, just as [seller] offered the options of purchasing a pool ladder or a sliding board. When identified to the contract, the diving board was movable . . . . A number of commentators have advocated a more policy oriented approach to determining whether warranties of quality and fitness are implied with respect to goods sold as part of a hybrid transaction in which service predominates. To support their position, these commentators in general emphasize loss shifting, risk distribution, consumer reliance and difficulties in the proof of negligence. These concepts underlie strict liability in tort . . . .

. . . .  
Accordingly we hold that where, as part of a commercial transaction, consumer goods are sold which retain their character as consumer goods after completion of the performance promised to the consumer, and where monetary loss or personal injury is claimed to have resulted from a defect in the consumer goods, the [UCC sections] dealing with implied warranties apply to the consumer goods, even if the transaction is predominately one for the rendering of consumer services.

*Id.*

130. See Richard Raysman and Peter Brown, *How the UCC Is Applied to Software Contracts*, L. TECH. NEWS, Mar. 9, 2011, at \*1.

131. Gottlieb, *supra* note 10, at 741.

predominant purpose of the transaction was services or goods.<sup>132</sup> When the sale of a good was the dominant purpose and labor was incidentally involved, the court applying this test would hold that the entire transaction was governed by Article 2.<sup>133</sup>

In the early days of this test's application to software, the main focus was on the hardware.<sup>134</sup> At the time, customers had to go to a store to purchase software applications.<sup>135</sup> Software was most commonly sold in boxes containing the software on a compact disc.<sup>136</sup> Once the courts decided that software was primarily tangible, due to its medium, executing the predominant factor test led to classifying software as a good.<sup>137</sup> However, courts never reached a consensus on whether software was actually a good.<sup>138</sup> For example, compare software to the sale of a book.<sup>139</sup> If a customer buys a book from a bookstore, reads it, and then decides that the story is not up to the ordinary standards for that type of book, the customer cannot sue under the implied warranty of merchantability.<sup>140</sup> The intangible content of the book is clearly outside the scope of Article 2.<sup>141</sup> However, if that same customer's book fell apart while reading it, the customer could sue because the tangible good—the book itself—was defective.<sup>142</sup> Despite this analogy's clear parallel with software, the pressure of public policy<sup>143</sup> and the overall novelty of software in the

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132. *Id.*

133. *Id.*

134. Towle, *supra* note 10, at 556.

135. *See id.* at 545.

136. Kissman, *supra* note 2, at 575.

137. *Id.*

138. Gottlieb, *supra* note 10, at 741.

139. Towle, *supra* note 10, at 556.

140. *Id.*

141. *Id.*

142. *Id.*

143. *Advent Systems Ltd. v. Unisys Corp.*, 925 F.2d 670, 676 (3d Cir. 1991).

The [UCC] offers a uniform body of law on a wide range of questions likely to arise in computer software disputes: implied warranties, consequential damages, disclaimers of liability, the statute of limitations, to name a few. The importance of software to the commercial world and the advantages to be gained by the uniformity inherent in the U.C.C. are strong policy arguments favoring inclusion [of software within Article 2's scope].

*Id.* (holding that software is within the scope of Article 2).



early days<sup>144</sup> compelled courts to consider software within the scope of Article 2.<sup>145</sup>

Because of this history and the tendency early on to classify software as a good, some courts continue to assume Article 2 applies to software.<sup>146</sup> The issue is even more apparent today with the proliferation of software as a service, cloud computing, and smart goods.<sup>147</sup> Take this hypothetical as an example: a diabetic buys a small mobile device containing an application that sends reminders to inject insulin.<sup>148</sup> If there is an issue with the product, applying the predominant factor test to this scenario becomes very difficult because of the product's integrated hardware and software.<sup>149</sup> In particular, when evaluating the fourth factor of the analysis (the nature of the final product delivered), a court might consider the small mobile device an Article 2 transaction if the other factors are also consistent.<sup>150</sup>

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144. Towle, *supra* note 10, at 556.

145. *See, e.g., Advent Systems Ltd.*, 925 F.2d at 674. The court in *Advent* stated:

Because software was a major portion of the “products” described in the agreement, this matter requires some discussion. Computer systems consist of “hardware” and “software.” Hardware is the computer machinery, its electronic circuitry and peripheral items such as keyboards, readers, scanners and printers. Software is a more elusive concept. Generally speaking, “software” refers to the medium that stores input and output data as well as computer programs. The medium includes hard disks, floppy disks, and magnetic tapes.

In simplistic terms, programs are codes prepared by a programmer that instruct the computer to perform certain functions. When the program is transposed onto a medium compatible with the computer's needs, it becomes software . . . .

The increasing frequency of computer products as subjects of commercial litigation has led to controversy over whether software is a “good” or intellectual property . . . .

. . . .

The importance of software to the commercial world and the advantages to be gained by the uniformity inherent in the U.C.C. are strong policy arguments favoring inclusion. The contrary arguments are not persuasive, and we hold that software is a “good” within the definition of the Code.

*Id.* at 674–76.

146. Towle, *supra* note 10, at 556.

147. *Id.*

148. *Id.* at 557.

149. *Id.*

150. Gottlieb, *supra* note 10, at 745.

The obvious criticism of this test is that by applying either the UCC or common law to the entire contract, at least some subject matter of the mixed transaction will be governed by the wrong law.<sup>151</sup> Using the diabetic device example, the predominant factor test would force the court to apply Article 2 to the entire transaction, including the software and the insulin reminder software.<sup>152</sup>

As goods become smarter, continued use of the predominant factor test will lead to “pretty awful results.”<sup>153</sup> In some cases, the application of Article 2 to software will often result in the violation of federal law.<sup>154</sup> Additionally, Article 2’s default warranty rules are not adequately suited for the complexities of software.<sup>155</sup> Because Article 2 was drafted before software was commonplace and has not been substantially amended since, applying Article 2—through the use of the predominant factor test—will result in applying a law the does not adequately account for the nature of software.<sup>156</sup>

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151. *Id.*; see also Towle, *supra* note 10, at 558.

152. Gottlieb, *supra* note 10, at 741.

153. Towle, *supra* note 10, at 558. Towle states:

As goods become “smarter” with included digital, genetic, or other licensed information, new thinking is needed and lines will need to be drawn to determine how to treat goods containing that information, including embedded software. Use of a predominant purpose test will inherently mislead, or eventually lead, to the “pretty awful results” . . . if used to sweep information into UCC Article 2. Not surprisingly, the fact that the revisions drafted in the 1990s for UCC Article 2 codified a predominant purpose test was one of the reasons the revisions drew sharp criticism. More appropriate gravamen of the action lines have already been drawn for some modern circumstances, and more will develop over time . . . .

There are important differences that exist between goods and information in law, practice, under intellectual property laws and even under the First Amendment. Given those differences, a court fashioning the resolution of a dispute should not simply apply Article 2 by analogy or under a predominant purpose test, but rather should consider the issue . . . .

*Id.* at 558–59.

154. *Id.* at 559.

155. *Id.*

156. Gottlieb, *supra* note 10, at 745–46.

## 2. *The Gravamen Test*

The minority of jurisdictions apply the gravamen test, including those that have adopted the UCITA.<sup>157</sup> The gravamen test addresses many of the concerns produced by the continued use of the predominant factor test.<sup>158</sup> Unlike the predominant factor test, which applies one body of law based upon the analysis of factors,<sup>159</sup> the gravamen test applies law based on the subject matter of the dispute.<sup>160</sup> For example, a diabetic buys the device described in the example above, the software reminder malfunctions, and the diabetic is injured because he did not take his insulin. When the diabetic sues for the software malfunction, the court can easily avoid Article 2 by identifying the dispute as one of an intangible or service-based nature.<sup>161</sup>

The gravamen of the dispute, however, will become more difficult to identify as “technologies [continue to become] increasingly intertwined.”<sup>162</sup> The court may have trouble determining if the software’s failure to deliver the insulin reminder was in fact caused by a hardware defect. If the software failure was caused by a hardware defect, the diabetic should be entitled to sue under breach of implied warranty of merchantability.<sup>163</sup> However, it could be hard for courts to determine whether the gravamen of the dispute is the good or the embedded software or service. It is “becoming increasingly difficult to draw a clear distinction . . . even for computer scientists.”<sup>164</sup> The gravamen test is a tool courts developed to classify hybrid contracts where the distinction between good and service was much clearer.<sup>165</sup> Accordingly, “new thinking is

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157. Kissman, *supra* note 2, at 571.

158. *Id.*

159. *BMC Indus. v. Barth Indus.*, 160 F.3d 1322, 1330 (11th Cir. 1998).

160. Kissman, *supra* note 2, at 571.

161. *Id.*

162. *Id.*

163. *See Brennan, supra* note 58, at 473 n.49.

164. Kissman, *supra* note 2, at 571.

165. *See Brennan, supra* note 58, at 473.

needed . . . to determine how to treat the goods containing . . . embedded software.”<sup>166</sup>

### *III. Proposal*

All current solutions fail because they are retrofitted to the issue. Smart goods emerged after the tests and doctrines around the hybrid contract were formed and settled.<sup>167</sup> Courts still struggle to use these ill-suited tools to accomplish the task of classifying smart goods.<sup>168</sup> The solution to this problem should be developed with a conscious consideration of smart goods, not mere application after-the-fact. The predominant factor test fails at this task primarily because it applies one body of law to the entire contract, even if parts of the contract are clearly outside the scope of Article 2.<sup>169</sup> The gravamen test fails at

166. Towle, *supra* note 10, at 558.

167. ROSMARIN & SHELDON, *supra* note 9, at 158–64.

168. Kissman, *supra* note 2, at 570–72. Kissman describes the issue:

Courts face [a dilemma] when dealing with mixed transactions that involve goods and services. To determine the source of law that applies to these mixed transactions, courts have developed different tests . . . Some [commentators argue that the gravamen test] is more reasonable for information transactions, and that the predominant purpose test renders awkward results when applied to information transactions. On the other hand, because emerging technologies have become increasingly intertwined, some authors point out that it is becoming increasingly difficult to draw a clear distinction between embedded and non-embedded software, even for computer scientists . . . [J]ust as the definition of “information” can determine the applicable law, the mixed transaction test that a court decides to apply can also have a significant impact on the source of law that will govern a transaction, and thus the contractual rights of the parties.

*Id.* at 571–72.

169. Towle, *supra* note 10, at 555. Towle writes:

The predominant purpose test is a judge-made rule and is the approach that most courts use when a transaction involves a mixed subject matter—typically a mixture of goods and services. The test holds that the court should apply the contract law applicable to the subject matter that forms the predominant purpose of the transaction and apply that contract law to the entire transaction. The approach ensures that the intellectually wrong contract law will apply to at least some of the subject matter of a mixed transaction . . . It is inappropriate for information transactions. In fact, initial use of this test in software transactions contributed to the problem that exists today—using the presence of a good in a transaction to subsume all items even though some cry out for individual treatment.

*Id.* at 555–56.

this task primarily because the actual “gravamen” of the dispute may be impossible to determine.<sup>170</sup> In some instances, the software might have caused a malfunction in a tangible good; in other instances, the hardware of the tangible good may have contributed to a software malfunction. An easily-applied solution should address the failings of these traditional tests to remove the ambiguity surrounding smart good classification.

#### *A. The Solution*

The proposed solution has three steps. First, the court must determine if the good in question is a smart good. If the good is not “smart” or if there is no “good” component, then the court simply applies either common law or Article 2 respectively. Second, if the good is smart, and the litigation does not concern breach of warranty, the smart good will be deemed inside the scope of Article 2. Third, for litigation around a breach of warranty of a smart good, the court will assess the practical effect of the defect. If the practical effect is tangible, the smart good will be deemed inside the scope of Article 2.

##### *1. Step One: Is It Smart?*

The first step of the solution is the easiest to apply and the most obvious. A smart good, for this solution, will be any tangible good ordinarily within the scope of Article 2 containing some intangible functionality which, taken alone, would be outside the scope of Article 2. If the good is deemed a smart good, the analysis continues to the next step. If the good is not smart, the inquiry ends, and Article 2 applies automatically.

##### *2. Step Two: Is It Defective?*

The second step addresses several issues inherent in the predominant factor test. If the litigation is not for breach of warranty, the smart good is automatically deemed within the scope of Article 2,

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170. Kissman, *supra* note 2, at 570–71.

despite the presence of embedded software. One major problem with the predominant factor test is forcing the court to determine what was actually bargained for.<sup>171</sup> This is a complex endeavor when a smart good's software is just as important to the bargain as the hardware. For example, a customer contracts to buy a smart good but the seller never delivers. That simple breach of contract suit does not necessitate the predominant factor analysis. The smart good is powered off and in the box. The presence of embedded software makes no difference. The UCC's remedies for a buyer in the event of a seller's breach easily apply. For all breaches of contract, other than those concerning *functionality*, the presence of embedded software makes no difference. Article 2 should apply in those cases as though the good was not smart.

### 3. *Step Three: Is the Defect Tangible?*

Step three addresses litigation concerning the smart good's *functionality*. The key concern is avoiding the application of the UCC to issues it was never meant to govern. Article 2 was not designed to provide remedies and warranties to contracts for intangibles.<sup>172</sup> Article 2's scope provision expressly limits the scope to things that are "movable."<sup>173</sup> Labor, services, and modern software are settled as being outside of Article 2's scope.<sup>174</sup> However, issues can arise with the application of UCC Article 2 to modern smart goods containing integrated software—for example, when the software in a refrigerator makes it stop refrigerating. This issue is what the gravamen test tries

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171. Gottlieb, *supra* note 10, at 741. Gottlieb writes:

Courts routinely apply the predominant purpose test to software contracts to determine if the UCC applies. Under that test, Article 2 governs when the transaction at issue is predominantly for goods, while common law applies when the transaction is predominantly for services. The U.S. Supreme Court has yet to rule whether software is a good or service, and "there is no national consensus" on the issue. And yet despite its prevalence, the predominant purpose test has failed to assist courts in adjudicating software contract disputes. As a result, software's legal status remains a fundamental yet unanswered question.

*Id.*

172. U.C.C. § 2-105(1) (AM. LAW INST. & UNIF. LAW COMM'N 1977).

173. *Id.*

174. *Id.*

but fails to address.<sup>175</sup> It is often unclear and very difficult to determine what exactly caused the breach of warranty in a litigation.<sup>176</sup> Accordingly, step three of the analysis shifts the inquiry from what caused the litigation to the actual litigated defect. This is a subtle but important shift. Under this analysis, if the defect manifests itself tangibly, then Article 2 applies. “Tangible” keeps its standard definition: a thing that is perceptible by touch. This standard is easier to apply than the gravamen test. Under the gravamen test, the court endeavors to determine the cause of the litigation, its gravamen,<sup>177</sup> which can be difficult “even for computer scientists.”<sup>178</sup> Instead, this test simply asks if the defect manifested itself tangibly. Even if the defect originated in the software, a tangible manifestation will thrust the contract into the scope of Article 2. If a hardware defect causes a software malfunction or a software defect causes a software malfunction, Article 2 will not apply to the litigation.

A basic example to illustrate this distinction is a refrigerator with an embedded software operating system. Suppose a customer comes home and realizes that his refrigerator stopped refrigerating. Under the gravamen test, the court would endeavor to determine if the defect was caused by the hardware or software.<sup>179</sup> This could be impossible to determine.<sup>180</sup> And if the refrigeration ceased because of a software defect, the court would not apply Article 2,<sup>181</sup> despite its clear effect on the function of the tangible good. Instead, under this test, the court would not need to determine the root cause of the malfunction. Regardless, whether the malfunction arose from the hardware or software, the failure to refrigerate is a tangible malfunction and should be governed by the implied warranties and remedies available under Article 2. However, if the refrigerator suddenly lost its ability to connect to the internet or post tweets, that

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175. Towle, *supra* note 10, at 558.

176. *Id.* at 556.

177. Kissman, *supra* note 2, at 570–71.

178. *Id.* at 571.

179. *Id.*

180. *Id.*

181. *Id.* at 572.

intangible malfunction—whether caused by hardware or software—should not be governed by Article 2.

The downside to this approach is that some hardware defects might render a smart good useless if the defect is manifested as a software malfunction. Some flawed circuitry, for example, would not be covered under Article 2 if it impaired the software’s ability to connect to the internet. In this particular example, the tangible part of the good is causing an intangible malfunction. However, this is a necessary downside for the overall clarity and consistency of this approach. The whole purpose of the proposed solution is to avoid the inquiry into what actually caused the defect. Because Article 2 of the UCC was designed to provide warranties over defects of tangible goods,<sup>182</sup> that implicitly means that Article 2 was not meant to address intangible defects. This will be less of a problem as “technologies [continue to become] increasingly intertwined”<sup>183</sup> and the true cause of a smart good malfunction becomes increasingly obfuscated. By limiting the tangible defect standard to only litigations involving breach of warranty, ensuring Article 2 protection for all other smart goods, the number of cases affected by this apparent inconsistency will be much lower than with current solutions.

### *B. The Implementation*

The solution outlined above is restricted to the classification of smart goods under Article 2. Therefore, it leaves open the possibility of a future body of law to replace the ill-fated UCITA governing information transactions. This solution also does not conflict with any pre-existing or future software licensing law. Instead, the only time Article 2 will govern a defect in information is when that defect manifests itself in a tangible way that entitles the customer to an Article 2 breach of warranty cause of action.

However, implementing this solution could prove challenging. The most direct way of implementing this solution is to amend Article 2’s

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182. See U.C.C. §§ 2-105(1), 2-314, 2-315, 2-316 (AM. LAW INST. & UNIF. LAW COMM’N 1977).

183. Kissman, *supra* note 2, at 570–71.



scope provision to include smart goods. Then, in the breach of warranty provisions, the application of smart goods should be limited to cases of manifested tangible defects. The official comments would then describe the analysis for the court.

The challenge of this implementation is that the UCC is not black letter law. The UCC provisions only become law once the states adopt them.<sup>184</sup> As with the UCITA, it is possible that only a few states, or none at all, would adopt these modified provisions. However, if the solution could make it past the scrutiny of the ALI and the Uniform Law Commission (ULC)—a feat the UCITA was unable to achieve<sup>185</sup>—the states would likely adopt the changes.

Individual states could implement their own adaptations of Article 2 including the altered smart good scope and warranty provisions. However, this implementation is less desirable for two reasons. First, the goal of the UCC is to provide a *uniform* set of regulations for the sale of goods.<sup>186</sup> If states start haphazardly implementing a tweaked

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184. *Id.* at 594.

185. Henning, *supra* note 11, at 135–36. Henning writes:

The [group of drafters] came tantalizingly close [to ratifying the UCITA]. [At the drafters' annual meeting in 1999, the drafters were] inundated with letters of objection, primarily from industry stakeholders. There was even a full page ad in USA Today urging that the draft be rejected. The floor debate began after a long and difficult debate over UCITA, and it consumed so much time that it threatened to derail other important projects. As it was apparent that even if the debate continued it would not produce a product that could successfully gain widespread enactment, NCCUSL's leadership, in consultation with the leadership of the ALI, made the controversial decision to stop the debate. [UCITA's scope issues could never be resolved and the UCITA ultimately died.]

*Id.*

186. Malcolm, *supra* note 14, at 229–30. Malcolm writes:

One problem is the disparity among the laws . . . uniformity or harmony would permit business and society to function more easily. It is against this general background that a report on a major effort of unification of the law in the United States culminating in the production of the new Uniform Commercial Code may be found timely. The Uniform Commercial Code, hammered out by lawyers, judges and law teachers dedicated to clarity and good business sense in commercial law, has brought together into one coherent statement the best laws and practices prevalent in the United States. Both the procedures by which this Code was developed and the contents of the Code which, it is hoped, will soon be the law in all states of the Union . . . .

*Id.* at 226–27.

definition of Article 2's scope, fragmentation and unpredictability would spread across the nation. Second, although many states often tweak the ULC and ALI sanctioned versions, the issue of smart goods is very complex. It would be prudent for states to let a solution pass through the scrutiny of the ALI before implementing their own individual, complex solutions. Finally, implementing individual state adaptations would require courts to ignore or overturn precedent. Even if they tried, there would be no uniformity within a state unless the state's supreme court issued a ruling establishing this solution. Even then, fragmentation among the states would still persist. Therefore, an amended Article 2, vetted by the ALI and adopted by the states, is the best way to implement this solution.

#### CONCLUSION

Legal scholars were aware in the 1990s that transactions in information would grow in popularity. Even during the drafting of the UCITA, scholars hotly debated the classification of a theoretical smart good. Unfortunately, although Article 2 and Article 2B were to complement each other, Article 2B (UCITA) never garnered the necessary support. Article 2 forged ahead alone, with the classification of smart goods never resolved. The line between software and hardware continues to blur. The common law approaches used to fill the void left by the failed UCITA in resolving smart good classification grow evermore antiquated.

This Note proposes that courts perform a three-part test when determining whether UCC Article 2 applies to a smart good. First, Article 2 shall apply to any smart good in a litigation for anything other than breach of warranty. Second, if the cause of action is breach of warranty, whether expressed or implied, the body of law which shall apply to the contract will be Article 2. Third, Article 2 will only apply if the alleged nonconformity is a tangible defect.

Article 2 can provide implied warranties and remedies to customers injured by tangible defects. It is only when the defect is intangible that the controversy leaves the scope of Article 2. If this

proposal passes the scrutiny of the ALI and the ULC and is uniformly adopted by states, the ambiguity will finally be resolved, and the door will remain open for a comprehensive body of law to finish what the UCITA never could.