



Accountability for Defects in Commercial Software: Controversy Over the Ground Rules

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"Before deciding the merits of this case the court must address a troubling issue.

The computer industry and other courts have adopted the term "pizza box" to describe the package in which the document containing the terms and conditions of the agreement is shipped. As a matter of law in the State of New York, such a container is not a "pizza box." No self-respecting New York pizza would be caught soggy in such a box.

The container may pass as a "pizza box" in those parts of the world that think food from Domino's, Little Caesars, Pizza Hut, and Papa John's is pizza. In this court's opinion such a classification cannot be recognized east of the Hudson River."

--- Licitra v. Gateway, Inc., 189 Misc. 2d 721 (723-24); 734 N.Y.S.2d 389, Civil Court Of The City Of New York, Richmond County, October 18, 2001.

Computer-Related Contracts

- The contract-in-the-box used by Gateway has been the source of widespread derision and repeated litigation.
- Though occasionally ruled unconscionable, it has more frequently been enforced (see next slide)

O'Quin et al v. Verizon Wireless

The Seventh Circuit ... found that a pamphlet contained in a computer box that had an arbitration provision in it could bind a consumer who bought the computer over the telephone. See *Hill v. Gateway 2000, Inc.*, 105 F.3d 1147, 1149-50 (7th Cir. 1997) ... The Hill decision was an extension of the *ProCd, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996), in which a consumer who purchased computer software at a retail store was bound by a licensing agreement included in the box of software.

Several other federal and state courts have come to similar conclusions under similar factual scenarios, which were all premised on the consumer having the opportunity to return the product in order to avoid any term or condition that he found to be unacceptable. See *I. Lan Sys., Inc. v. Netscout Serv. Level Corp.*, 183 F. Supp. 2d 328, 337-38 (D. Mass. 2002); *Lozano v. AT&T Wireless*, 216 F. Supp. 2d 1071, 1073 (C.D. Ca. 2002); *Moore v. Microsoft Corp.*, 293 A.D. 2d 587, 741 N.Y.S.2d 91, (N.Y. App. Div. 2002); *Brower v. Gateway 2000*, 246 A.D.2d 246, 251, 676 N.Y.S.2d 569 (N.Y. App. Div. 1998); *M.A. Mortenson Co., V. Timberline Software Corp.*, 93 Wn. App. 819, 970 P.2d 803, 809 (Wash. Ct. App. 1999). ...These courts have found nothing overwhelmingly objectionable in the "money now, terms later" approach to sales of consumer goods.

Shane M. O'Quin, And A Class Of Similarly Situated Vs. Verizon Wireless, US District Court For The Middle District Of Louisiana 256 F. Supp. 2d 512 February 7, 2003

Computer-Related Contracts

- The contract-in-the-box used by Gateway has been the source of widespread derision and repeated litigation.
- Though occasionally ruled unconscionable, it has more frequently been enforced
- Why should this approach to contracting stir up such passion?



Commercial Law

The purpose of commercial law is to facilitate commerce.





Commercial Law

Uniformity facilitates commerce.





Commercial Law

Stability facilitates commerce.





Commercial Law

Appropriate accountability rules
facilitate commerce.

So what makes the rules appropriate?



Hmmm, Appropriate Accountability?

Erroneous Classifications Are Inevitable.

- A decision rule that is less complex than the situation being classified will make mistakes.
 - Sometimes buyers will lose when they should win.
 - Sometimes sellers will lose when they should win.
- Both sides will have great stories of unfairness to print in the newspapers.
 - Excellent fodder for political propaganda

Accountability: Classic Decision Problem

Who should pay for this software error's consequences?	User Error	Defective Product
Buyer Pays	Buyer appropriately held accountable	Unfair to customer
Seller Pays	Unfair to seller	Seller appropriately held accountable

Accountability: Classic Decision Problem

Should a tester report an odd behavior?	Bug	Feature
Report it	Good bug report (Hit)	False alarm
Ignore it	Miss	Appropriate silence (Correct rejection)

Accountability: Classic Decision Problem

- A lot of research has been done on basic classification under conditions of uncertainty (look up *signal detection theory* or *signal detectability*)
- One key conclusion:
 - Classification errors are inevitable
 - You can bias the decision rule(s) to make one type of error less likely, but this makes the other type of error more likely
- You can increase a system's sensitivity (making all errors less likely) but this is expensive
 - High financial and privacy costs associated with collecting evidence ("discovery").
 - (Reducing discovery costs is one of the key "benefits" of arbitration.)

Accountability: How Should We Bias the Law?

- Which classification error should we prefer?
 - Sellers stuck with returns of good products?
 - Buyers stuck with defects?
- Who should pay for user error? Why?
- We see different rationales for different biasing systems:
 - **Fault-based liability** (*it's your bug, you pay for it*).
 - **Technological risk management** (*you should have done it better*)
 - **Commercial risk management** (*allocate risk by contract*)
- Because these are biasing systems, none of them is a stable solution.

Fault-Based Liability

It's your defect. You pay for it.

- Problem: how do we define “defect”?
 - Failure to meet specification?
 - Failure to satisfy reasonable customer expectations?
- At what point do we create a lottery that randomly takes companies out of business?
 - Can *you* make zero defect software?
 - If not, how do you stay in business?

Technological Risk Management

You should have done it better.

- This is a cost-benefit analysis
- Liability when cost of improvement < total cost of defect to society
- Encourages improvements, but these can drive up cost.
- Problem: in the extreme, this system can create a huge tax to protect fools from their own recklessness.

Commercial Risk Management

Allocate risk by contract.

- The contract defines the responsibilities and risks of the buyer and seller
 - The contract lays out the
 - warranties (enforceable promises about quality)
 - performance criteria (at what point is the contract fulfilled?)
 - remedies (what the contract-breaker has to pay)
 - nature and place of litigation (court or arbitration)
 - choice of law (whose law governs the contract)
 - Each side wants to minimize their liability
- Makes perfect sense when there is genuine power to negotiate.
- What about non-negotiable situations?

Cost / Benefit Analysis: Quality / Cost

- The *Cost of Quality* is the total amount the company spends to achieve and cope with the quality of its product.
- This includes the company's investments in improving quality, and its expenses arising from inadequate quality.

Quality-Related Costs

- **Prevention**
 - Cost of preventing software errors, documentation errors, and any other sources of customer dissatisfaction
- **Appraisal**
 - Costs of looking for defects (all types of inspection and testing).
- **Internal Failure**
 - Costs of coping with errors discovered during development.
- **External Failure**
 - Costs of coping with errors discovered, typically by your customers, after the product is released.

Total Cost of Quality =

Prevention + Appraisal + Internal Failure + External Failure costs.

Categorizing Quality Costs

<i>Prevention</i>	<i>Appraisal</i>
<ul style="list-style-type: none"> • Staff training • Requirements analysis • Early prototyping • Fault-tolerant design • Defensive programming • Usability analysis • Clear specification • Accurate internal documentation • Pre-purchase evaluation of the reliability of development tools 	<ul style="list-style-type: none"> • Design review • Code inspection • Glass box testing • Black box testing • Training testers • Beta testing • Test automation • Usability testing • Pre-release out-of-box testing by customer service staff
<i>Internal Failure</i>	<i>External Failure</i>
<ul style="list-style-type: none"> • Bug fixes • Regression testing • Wasted in-house user time • Wasted tester time • Wasted writer time • Wasted marketer time • Wasted advertisements • Direct cost of late shipment • Opportunity cost of late shipment 	<ul style="list-style-type: none"> • Technical support calls • Answer books (for Support) • Investigating complaints • Refunds and recalls • Interim bug fix releases • Shipping updated product • Supporting multiple versions in the field • PR to soften bad reviews • Lost sales • Lost customer goodwill • Reseller discounts to keep them selling the product • Warranty, liability costs

Quality-Related Costs

Notice how this analysis ignores **externalized** failure costs -- the costs absorbed by the customer.

Seller: external costs	Customer: failure costs
<i>These are the types of costs absorbed by the seller that releases a defective product.</i>	<i>These are the types of costs absorbed by the customer who buys a defective product.</i>
<ul style="list-style-type: none"> • Technical support calls • Preparing answer books • Investigating complaints • Refunds and recalls • Interim bug fix releases • Shipping updated product • Supporting multiple versions in the field • PR to soften harsh reviews • Lost sales • Lost customer goodwill • Reseller discounts to keep them selling the product • Warranty, liability costs • Gov't investigations 	<ul style="list-style-type: none"> • Wasted time • Lost data • Lost business • Embarrassment • Frustrated employees quit • Demos or presentations to potential customers fail because of the software • Failure during tasks that can only be done once • Cost of replacing product • Reconfiguring the system • Cost of recovery software • Cost of tech support • Injury / death

Quality Costs

Quality / Cost analysis doesn't ask us to minimize customer's costs. Can we ignore them?

Remember the Pinto (and the Mustang)?

• *“Benefits and Costs Relating to Fuel Leakage Associated with the Static Rollover Test Portion of FMVSS 208”*

• Benefits -- Savings to Ford

- 180 burn deaths \$200,000 each
- 180 serious burn injuries \$67,000 each
- 2100 burned vehicles \$700 each
- Total Benefit \$49.5 million

• Costs of Fixing the Problem

- 11 million cars \$11 each
- 1.5 million trucks \$11 each
- Total Costs \$137 million

Quality-related litigation reflects the customer's intent to transfer its failure costs back to the company whose defective product caused them.

Unstable Liability Rules

- Commercial approach
 - **Quality / cost analysis:** (corporate self-interest) vendor improves when
 - external failure cost $>$ cost of improvement
- Technological approach
 - **Negligence analysis:** vendor must improve when
 - cost to society $>$ cost of improvement
- Technological approach
 - drives companies to adopt better practices:
 - An essential tool when societal costs of defects are high (Pinto)
 - But it becomes a tax on society and industry if lawsuits focus on small differences, especially if cost to litigate is greater than cost to settle (Small aircraft)
 - Subject to significant propaganda (McDonalds)

Grab File Edit Capture Window Help

McFacts about the McDonalds Coffee Lawsuit

http://lawandhelp.com/q298-2.htm

Mozilla Firebird Help User Support Forum Plug-in FAQ Yahoo! Groups Topica: My Topica

McFacts about the McDonalds Coffee Lawsuit

Everyone knows what you're talking about when you mention "the McDonald's lawsuit." Even though this case was decided in August of 1994, for many Americans it continues to represent the "problem" with our civil justice system.

The business community and insurance industry have done much to perpetuate this case. They don't want us to forget it. They know it helps them convince politicians that "tort reform" and other restrictions on juries is needed. And worse, they know it poisons the minds of citizens who sit on juries.

Unfortunately, not all the facts have been communicated - facts that put the case and the monetary award to the 81-year old plaintiff in a significantly different light.

According to the *Wall Street Journal*, McDonald's callousness was the issue and even jurors who thought the case was just a tempest in a coffee pot were overwhelmed by the evidence against the Corporation.

The facts of the case, which caused a jury of six men and six women to find McDonald's coffee was unreasonably dangerous and had caused enough human misery and suffering that no one should be made to suffer exposure to such excessively hot coffee again, will shock and amaze you:

- McFact No. 1:** For years, McDonald's had known they had a problem with the way they make their coffee - that their coffee was served much hotter (at least 20 degrees more so) than at other restaurants.
- McFact No. 2:** McDonald's knew its coffee sometimes caused serious injuries - more than 700 incidents of scalding coffee burns in the past decade have been settled by the Corporation - and yet they never so much as consulted a burn expert regarding the issue.
- McFact No. 3:** The woman involved in this infamous case suffered very serious injuries - third degree burns on her groin, thighs and buttocks that required skin grafts and a seven-day hospital stay.
- McFact No. 4:** The woman, an 81-year old former department store clerk who had never before filed suit against anyone, said she wouldn't have brought the lawsuit against McDonald's had the Corporation not dismissed her request for compensation for medical bills.
- McFact No. 5:** A McDonald's quality assurance manager testified in the case that the Corporation was aware of the risk of serving dangerously hot coffee and had no plans to either turn down the heat or to post warning about the possibility of severe burns, even though most customers wouldn't think it was possible.
- McFact No. 6:** After careful deliberation, the jury found McDonald's was liable because the facts were overwhelmingly against the company. When it came to the punitive damages, the jury found that McDonald's had engaged in willful, reckless, malicious, or wanton conduct, and rendered a punitive damage award of 2.7 million dollars. (The equivalent of just two days of coffee sales, McDonalds Corporation generates revenues in excess of 1.3 million dollars daily from the sale of its coffee, selling 1 billion cups each year.)
- McFact No. 7:** On appeal, a judge lowered the award to \$480,000, a fact not widely publicized in the media.
- McFact No. 8:** A report in *Liability Week*, September 29, 1997, indicated that Kathleen Gilliam, 73, suffered first degree burns when a cup of coffee spilled onto her lap. Reports also indicate that McDonald's consistently keeps its coffee at 185 degrees, still approximately 20 degrees hotter than at other restaurants. Third degree burns occur at this temperature in just two to seven seconds, requiring skin grafting, debridement and whirlpool treatments that cost tens of thousands of dollars and result in permanent disfigurement, extreme pain and disability to the victims for many months, and in some cases, years.

The most important message this case has for you, the consumer, is to be aware of the potential danger posed by your early morning pick-me-up. Take extra care to make sure children do not come into contact with scalding liquid, and always look to the facts before rendering your decision about any publicized case.

Done

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Unstable Liability Rules

- Commercial approach
 - **Quality / cost analysis:** (corporate self-interest) vendor improves when
 - external failure cost $>$ cost of improvement
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 - **Negligence analysis:** vendor must improve when
 - cost to society $>$ cost of improvement
- **Commercial approach**
 - is essentially indifferent to quality.
 - The deal is whatever is in the contract
 - If there is a negotiating power imbalance, the more powerful party is protected when quality is bad.
- Contracts of adhesion: non-negotiable standard-form contract
- Buyer protection possible only if:
 - vigorous competition, or
 - products are luxuries that consumers can walk away from easily, or
 - contract terms are regulated

Computing Situation Today: Commercial Risk Management with Contracts of Adhesion

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Problems with Pizza Boxes, Shrinkwraps, and Clickwraps

- Terms unavailable before the sale
 - don't affect the buying decision
 - unlikely to be read or understood, unlikely to cause return of the product
 - unlikely to be reviewed (in a company) by a person with negotiating authority
 - unlikely to be reviewed in magazines
- Result: the contract-after-the-sale seller can get away with almost anything in the contract
 - no disclosure of known bugs or liability for losses caused by known bugs
 - no warranty
 - no remedies ("there is no right without a remedy")
 - arbitrate instead of sue; sue only in Ireland; no class action suits
 - nondisclosure (no bad reviews, no benchmarks)
 - limited time / place / nature of use
 - no transferability

Current Rules: Uniform Commercial Code

- Article 2 governs contracts for sale of goods in USA.
- Sale of packaged software has been treated by the courts as a sale of goods.
- Sale of custom software is a sale of services, not covered by the UCC, though several courts have applied the UCC anyway.
- UCC is maintained and updated by
 - National Conference of Commissioners on Uniform State Laws (NCCUSL) a legal drafting organization funded by the 50 US states to write “Uniform” laws. (300 lawyers appointed by states, typically by Governor.)
 - American Law Institute, another non-profit body of senior lawyers (3000 judges, law professors, senior partners, elected to membership by the Institute.)

American Law of Sales

Traditional rules (up to about 1997)

- Implied warranties
- Right to inspect
- Perfect tender rule
- Right to see contract before the sale (Magnuson Moss and various state laws)
- No restrictions on transferability
- No restrictions on reverse engineering
- Choice of law/forum subject to some restrictions
- Vendor has limitations on ability to change contract after sale
- Mass-market licensing is invalid
- Mass-market nondisclosure terms would be unconscionable

Uniform Computer Information Transactions Act (UCITA)

- Software seller protection act
 - endorses the post-sale contract
 - rejects requirement (common for goods) that customer be allowed to see contract before the sale
 - eliminates perfect tender rule
 - narrows “unconscionability”
 - narrows enforceability of express warranties
 - endorses choice of forum clauses
 - endorses transfer restrictions
 - endorses use restrictions, including ban on reverse engineering
 - endorses post-sale contract changes, including negative option changes (you have to opt-out of the change, rather than agree to it)
- Mid-to-late-1990’s, this was seen as the seller’s last best hope against Y2K liability

History of UCITA

- UCITA was initially an amendment to Article 2. The Article 2 revision effort split into an Article 2 (law of sales) committee and an Article 2B (law of software licenses) committee.
- The Article 2B project ended when the American Law Institute withdrew, after repeatedly protesting that Article 2B was writing around user/public rights built into federal Copyright law and fundamental balances inherent in current contract law.
- This was the first time that ALI and NCCUSL have split.
- NCCUSL renamed the bill's name to UCITA and went forward on its own.
- Despite extensive lobbying work, UCITA passed only in Virginia and Maryland, with "bomb shelter" laws passed in Iowa, North Carolina, Vermont, and West Virginia.
- Eventually abandoned by NCCUSL
- But highly influential in the courts--modern software law, in the courtroom, looks like UCITA

UCITA Bomb Shelters

A choice of law provision in a computer information agreement which provides that the contract is to be interpreted pursuant to the laws of a state that has enacted the Uniform Computer Information Transactions Act, as proposed by the National Conference of Commissioners on Uniform State Laws, or any substantially similar law, is voidable and the agreement shall be interpreted pursuant to the laws of this State if the party against whom enforcement of the choice of law provisions is sought is a resident of this State or has its principal place of business located in this State. For purposes of this section, a "computer information agreement" means an agreement that would be governed by the Uniform Computer Information Transactions Act or substantially similar law as enacted in the state specified in the choice of law provisions if that state's law were applied to the agreement.

<http://www-affect.@ucita.com/UCITABombShelter.htm>

Meanwhile, Back at Article 2

- Article 2 revision effort continued
- Software lobbyists combined with other manufacturing lobbyists who thought the UCITA rules were favorable to them, wanted to
 - keep software out of Article 2 (despite the failure of UCITA)
 - import UCITA laws into goods
 - initially via embedded software
 - ultimately just as the law of goods
- The ALI / NCCUSL process went through a wild closing cycle for Article 2 -- ALI approved it, NCCUSL executives approved it for final vote, then tabled it without discussion at annual meeting.
- Article 2's senior author ("Reporter") resigned, protesting disproportionate impact of software lobbyists at NCCUSL

Meanwhile, Back at Article 2

- Ultimately, we hit a deadly-embrace compromise.
 - Customers get clearer warranty rules and a few other improvements.
 - Software vendors get an exclusion: Article 2 is not applicable to transactions in “information.” Pushes software out of Article 2 even in states in which UCITA doesn’t apply
 - Apparently, chaos across the states is preferable to software vendors over sales rules that have worked for a century in the United States, making our markets the best markets for consumers in the world--and pretty good for most sellers
 - Nobody likes the new Article 2 though some of us (including me) think it improves the law slightly more than the damage it causes.
 - Probably it will not pass in any state.

Current Status?

- Substantial customer dissatisfaction, products shipped with known defects (undisclosed) and with major security flaws
- Significant customer losses, almost no vendor liability
- Minimal competition in the marketplace
- Cynics (of which I am one) suspect that security architecture of the future will serve as much to kill interoperability (reinforce or create monopolies) as to actually protect customers
- In the mass market, virtually no competition on warranty, tech support, integrity of service
- The rest of the outrageous terms are commonplace

This will not be / cannot be / a stable state.

- Dramatic decline in discretionary software purchases
- Dramatic change in press coverage of the software industry, software products
- No quality-related or accountability-related reasons to prefer local (U.S.) software products/services to imports, American industry is besieged by foreign competition

What Should We Do?

- I've been talking about UCITA as U.S.-software industry suicide since 1997
 - I predicted the growth of foreign competition
 - I predicted the reduction in consumer demand
 - I predicted the development of harsh regulation of the industry
- Sadly, contract rules that merely push disclosure (strengthen the buyer's ability to make informed choices), will not work:
 - they work well in competitive markets
 - we don't have competitive markets

What Should We Do?

- Two classes of proposal
 - Create malpractice liability
 - Unfortunately, we don't have sufficient agreement in the field for this to work
 - And the personal service model doesn't fit a corporate development effort well
 - Create regulatory liability
 - Proposals in development to modify deceptive practices acts
 - deceptive to ship product with nondisclosed known defects
 - deceptive to bar publication of bad news, etc.