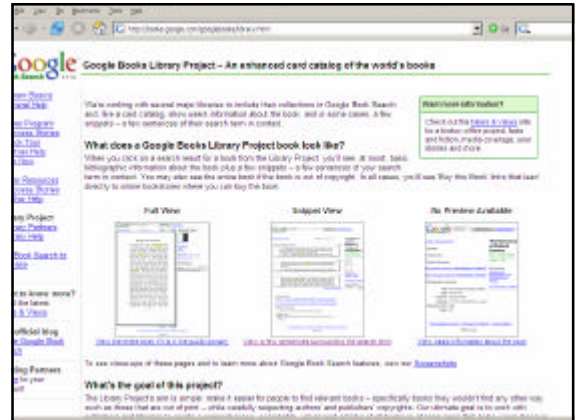## License: Closed and Open

The Contract Solution

- Not the "against the world" provisions of statute, but bilateral agreements
- Recall off-line contract law
  – offer and acceptance
  – battles of the forms

Shrinkwrap, Clickwrap, Browsewrap

- Vault v. Quaid
- ProCD v. Zeidenberg
- Specht v. Netscape

Vault

- Vault's PROLOK: "[y]ou may not ... copy, modify, translate, convert to another programming language, decompile or disassemble" the program.

- Quaid reverse engineers, and builds RAMKEY (which unlocks PROLOK)
  – Copyright infringement?
  – License violation?
  – License enforceable?

ProCD

- ProCD sells SelectPhone with "clickwrap" license: You may only use the application program and listings for non-commercial purposes.

- Zeidenberg re-sells access to phone lists.
  – Copyright infringement?
  – License violation?
  – License enforceable?

Preemption

- Statutory: 17 U.S.C. § 301
  - All legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106 …and come within the subject matter of copyright … are governed exclusively by this title.
- Constitutional: Art VI ¶ 2
  - This Constitution, and the laws of the United States … shall be Supreme Law of the land

Specht

- Netscape offers SmartDownload software for download, with hyperlinked license agreement: All disputes must be arbitrated.

- Plaintiffs bring class action lawsuit for privacy violations.
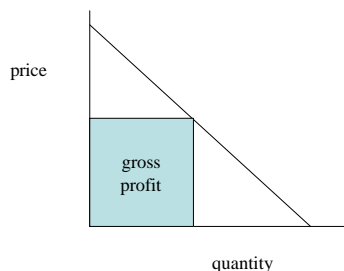 - Is there a license agreement?
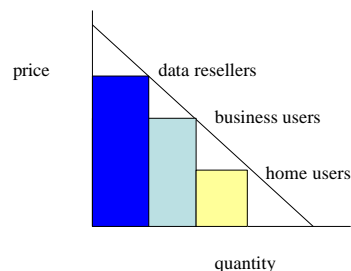 - License violation?

Netscape install, today
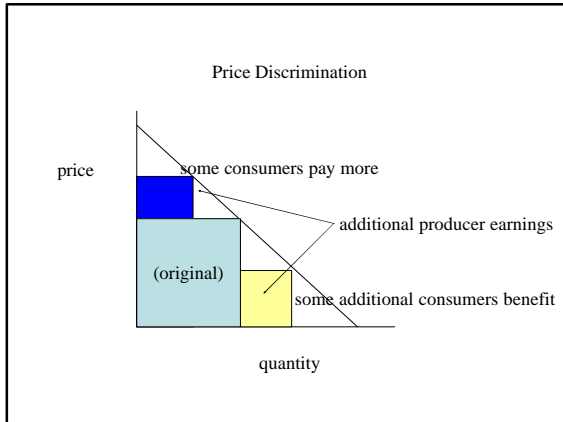
Uses of Contract

- Is K "equivalent" to ©?
- "The license is the product"
- Limit liability
- Protect investment
- Price discrimination
  - differentiate among users willing to pay for different levels of use
  - prevent arbitrage

One Price Fits All

price

gross profit

quantity

Price Discrimination

price — data resellers

business users

home users

quantity

Price Discrimination

price

some consumers pay more

additional producer earnings

(original)

some additional consumers benefit

quantity

The Market

- Does the market work?
- How many click-wraps do you read?
  - If the license is the product, are you an informed consumer?
- Should some policy goals be non-waivable?

Squashing arbitrage

- Macrosquish offers an Academic Version of its popular office suite for less than half the retail price. Can Bernie BigCo, CEO, send Sam Student to buy a copy and pay him $5 more than the academic cost as a delivery fee?
- Does it matter what the license agreement says? When a purchaser sees it?

- What if the license says "Licensee must not criticize Macrosquish products"?

- "Licensee must not build products that compete with Macrosquish software"?
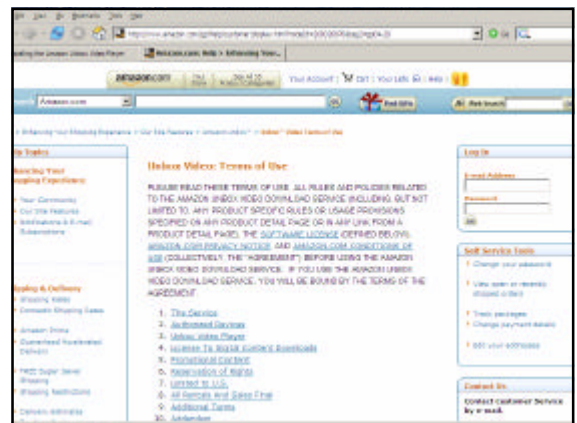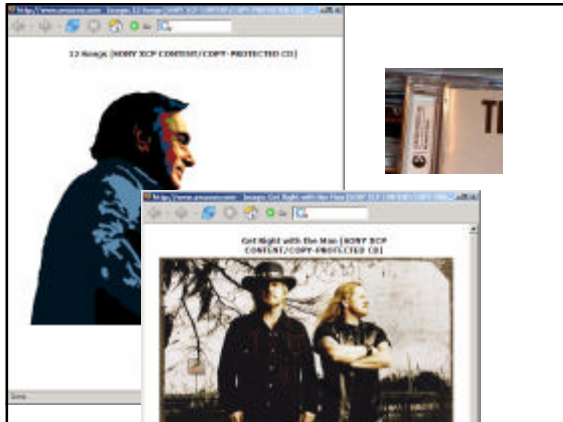
The SonyBMG Rootkit

- You buy Van Zant's "Get Right with the Man" and put it into your PC. A dialog pops up saying "the CD will automatically install a small proprietary software program onto YOUR COMPUTER." (Even before you click "Accept," the CD has installed several files.) You just want to hear the music. Have you agreed to let Sony add kernel-level drivers to your computer?
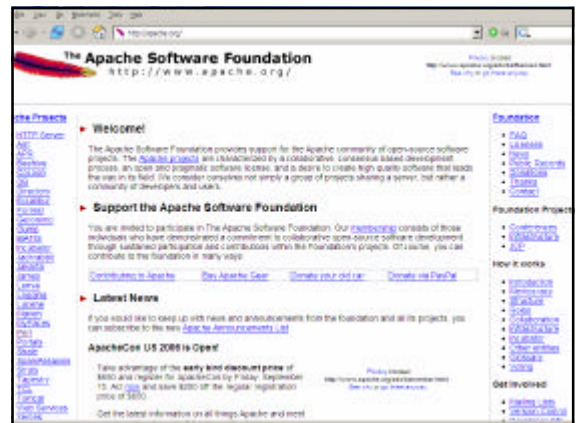
Popular Free or Open Source software

- GNU/Linux operating system
- Apache webserver
- Sendmail email server
- Mozilla web browser
- BIND nameserver
- Major users include: IBM, HP, banks, even law firms

Free Software / Open Source

- Source Code:
  - human readable, "best form for making modifications"

```
void CSSdecrypttitlekey(unsigned char *tkey,unsigned char *dkey)
{
    int i;
    unsigned char im1[6];
    unsigned char im2[6]={0x51,0x67,0x67,0xc5,0xe0,0x00};
    for(i=0;i<6;i++)
        im1[i]=dkey[i];
    CSStitlekey1(im1,im2);
    CSStitlekey2(tkey,im1);
}
```

- Object Code:
  - compiled, executable, much harder to read or modify

`0000120 6d74 6162 002e 7374 7274 6162 002e 7265`

Source Code

APPENDIX A: C source file fact.c

```c
#include <stdio.h>
void main(int argc, char *argv[]) {
 int i, result;
 result = 1;
 for (i = 1; i<6; i++) {
  result = result * i;
 }
 printf ("Result is: %d.\n",result);
}
```

David S. Touretzky, Carnegie Mellon University

Object Code

APPENDIX C: binary file fact.o (produced by: gcc -c fact.c;
  dumped by: od -x fact.o)
```
0000000 7f45 4c46 0102 0100 0000 0000 0000 0000
0000020 0001 0002 0000 0001 0000 0000 0000 0000
0000040 0000 0234 0000 0000 0034 0000 0000 0028
0000060 0008 0001 002e 7368 7374 7274 6162 002e
0000100 7465 7874 002e 726f 6461 7461 002e 7379
0000120 6d74 6162 002e 7374 7274 6162 002e 7265
0000140 6c61 2e74 6578 7400 2e63 6f6d 6d65 6e74
0000160 0000 0000 9de3 bf88 f027 a044 f227 a048
0000200 9010 2001 d027 bfe8 9010 2001 d027 bfec
...
```
David S. Touretzky, Carnegie Mellon University

Free Software Definition

- "Free software'" is a matter of liberty, not price. [free speech, not free beer]
- "Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:
  - The freedom to run the program, for any purpose (freedom 0).
  - The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.
  - The freedom to redistribute copies so you can help your neighbor (freedom 2).
  - The freedom to improve the program, and release your improvements to the public, so that the whole community benefits. (freedom 3). Access to the source code is a precondition for this.

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Viral or Antibiotic?

- Sysco Cistems writes embedded networking software. A programmer finds that someone else has written the function she needs, so she incorporates that code into her program. Sysco sells the product without including source code or any reference to third-party code.
- What liability if the code is copyrighted?
- What liability if the code is copyrighted and licensed under the GPL?
- What options does Sysco have in each case?

GPL
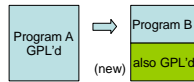
Program A GPL'd ⟹ (new) Program B / also GPL'd

Source code must be made available to anyone to whom the program is given or sold

GPL

Program A GPL'd ⟹ (new) also GPL'd
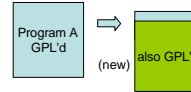
Source code must be made available to anyone to whom the program is given or sold

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