

Basics of Copyrights, Data, and Software Intellectual Property

Daniel Dardani,
MIT Technology Licensing Office

MIT IAP

Jan 25 2019





“What exactly is a copyright?”

“Can I copyright my idea?”

“Can’t I just cut, paste and use content found on the internet?”

The Four Types of IP

- PATENTS
- COPYRIGHTS 
- TRADEMARKS
- TRADE SECRETS

In The Beginning...



The (Real) Beginning

- 1556, the first “copyright” law appears in England
 - By royal decree
 - Rights granted to Stationer’s Company
 - To control printing & sale of books, forever
- Statute of Anne, 1710
 - First to protect **Authors’ rights**, not Publishers’/Printers’
 - Required copies of manuscripts go to Royal library

Anno Octavo

Annæ Reginae.

An Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned.



Whereas Printers, Booksellers, and other Persons have of late frequently taken the Liberty of Printing, Reprinting, and Publishing, or causing to be Printed, Reprinted, and Published Books, and other Writings, without the Consent of the Authors or Proprietors of such Books and Writings, to their very great Detriment, and too often to the Ruin of them and their Families: For Preventing therefore such Practices for the future, and for the Encouragement of Learned Men to Compose and Write useful Books: May it please Your Majesty, that it may be Enacted, and be it Enacted by the Queens most Excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons in this present Parliament Assembled, and by the Authority of the same, That from and after the Tenth Day of April, One thousand seven hundred and ten, the Author of any Book or Books already Printed, who hath not Transferred to any other the Copy or Copies of such Book or Books, Share or Shares thereof, or the Bookseller or Bookellers, Printer or Printers, or other Person or Persons, who hath or have Purchased or Acquired the Copy or Copies of any Book or Books, in order to Print or Reprint the same, shall have the sole Right and Liberty of Printing such Book and Books for the Term of One and twenty Years, to Commence from the said Tenth Day of April, and no longer: and that the Author of any Book or Books already Composed and not Printed and Published, or that shall hereafter be Composed, and his Assignee, or Assigns, shall have the sole Liberty of Printing and Reprinting such Book and Books for the Term of Four-

6

C t t 2
teen

Back to the Future



United States Constitution: Article I Section 8 Clause 8

“To promote the progress of Science and the Useful Arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries”

IP's Ever Ongoing Challenge...

IP constantly strives to strike the right balance for:

- Protections for individual inventors/authors
- To induce and incentive innovation and creative works
- To progress the Commons of a society

Philosophical underpinning – The Individual's Rights

“as the Heavens and Earth belong to God, because they are works of his Word. . .so **the author of a book is its complete master, and as such can dispose of it as he chooses.**”

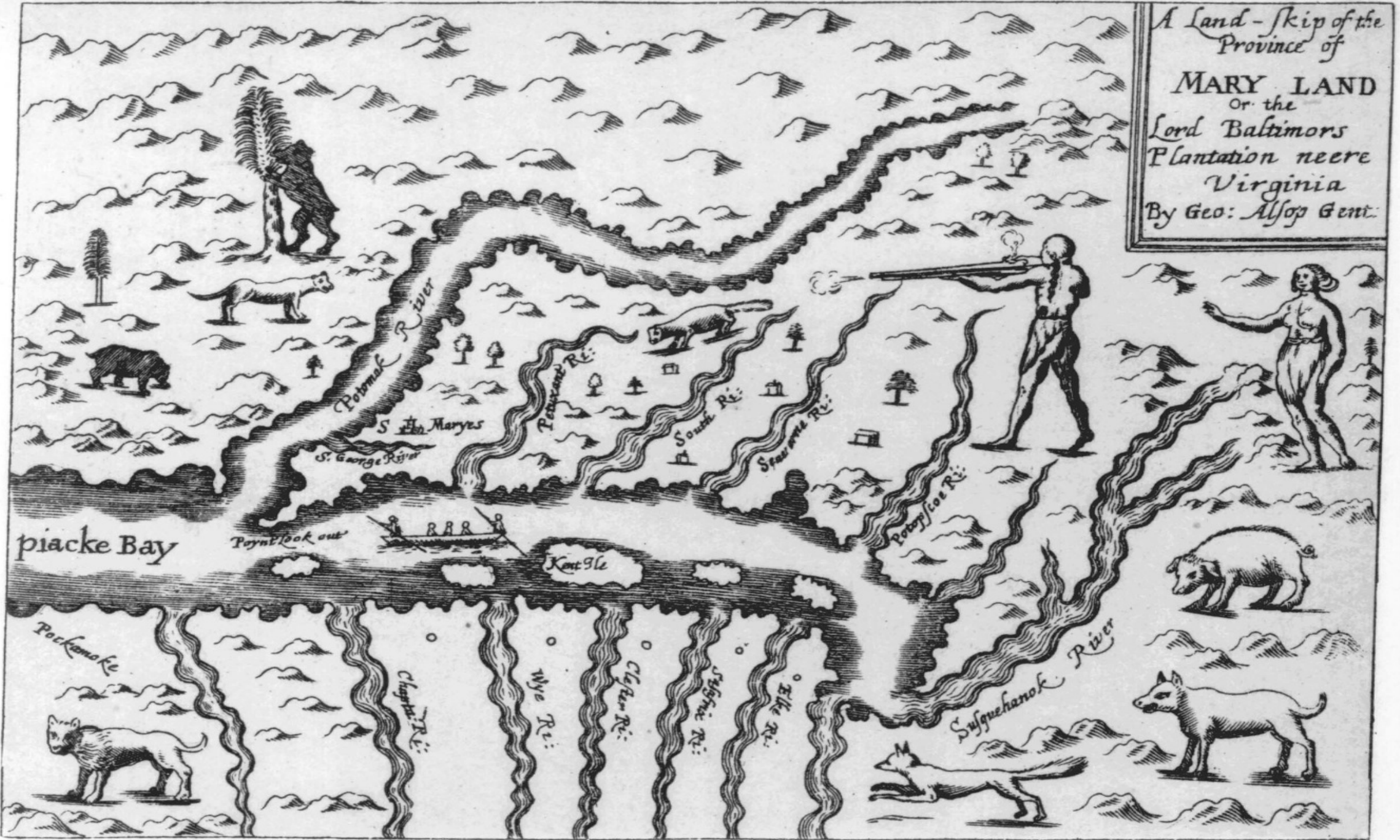
-Marion – sixteenth century French lawyer

Philosophical underpinning – from the individual to the Public



- John Locke (1632 – 1704)
 - “sweat of the brow” doctrine
- Utilitarianists
 - Benefit is outward facing - to the public
 - To promote the *Arts* (aka Industry)
 - Maps & charts were among the earliest and important ©s
 - A de-emphasis on the moral rights
 - The “copying” right – it’s social by definition

A Land-skip of the
 Province of
MARY LAND
 Or the
 Lord Baltimors
 Plantation neere
 Virginia
 By Geo: Alsop Gent.



69204



Copyrights

Definition:

- “Copyright subsists for any **original work of authorship** fixed in a **tangible medium** of expression.”

Exclusive Rights of copyright holders:

- to reproduce (aka “to copy”); to prepare derivative works; to distribute by sale, transfer of ownership, or by rental, lease, or lending; to perform and/or display publicly;

Duration:

- Life of the Author plus 70 years

Copyrights (duration)

- Life of the Author plus 70 years
 - If you wrote novel today and then died unexpectedly, the © would expire 2088
- For corporate works, works made for hire, anonymous works, the 1st to occur of:
 - 95 years from publication; or
 - 120 years from creation
- Sonny Bono Copyright Term Extension Act, 1998
 - Added 20 years – “Mickey Mouse” Act

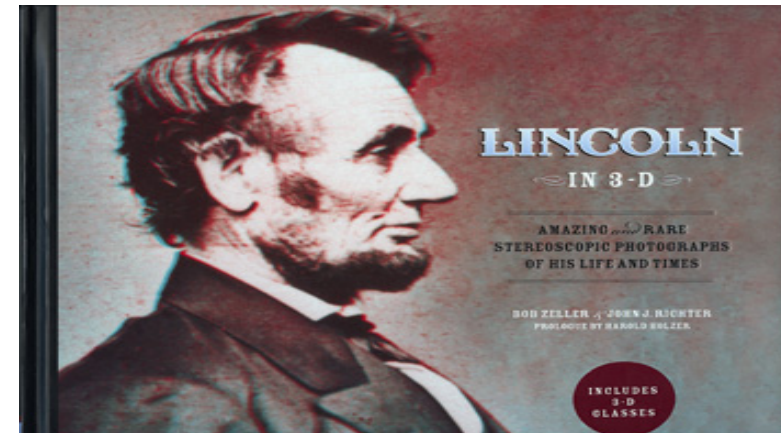
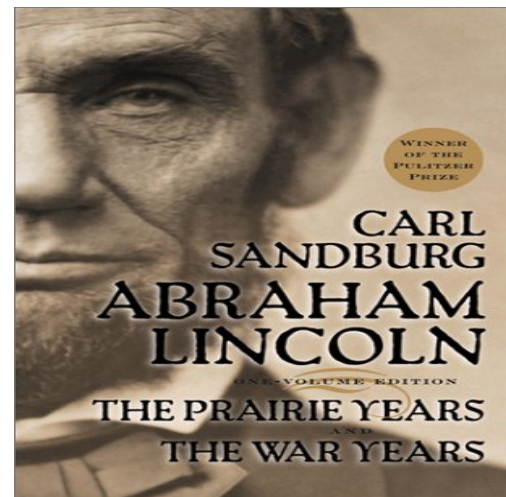
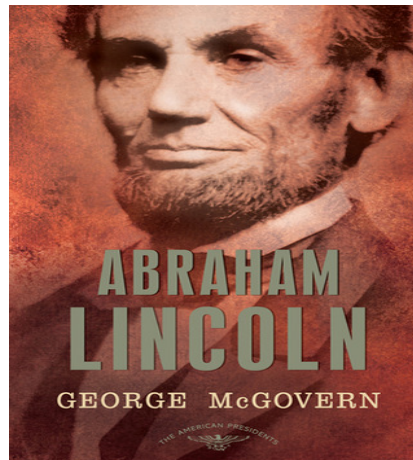
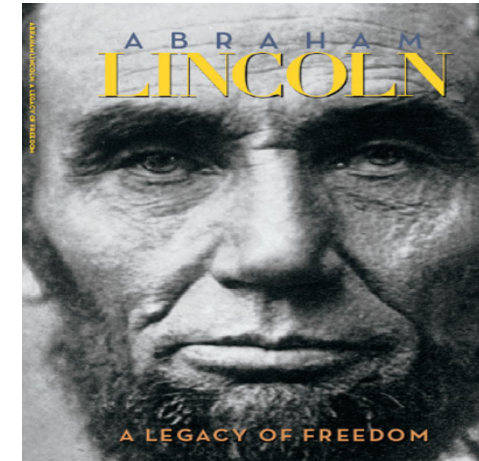
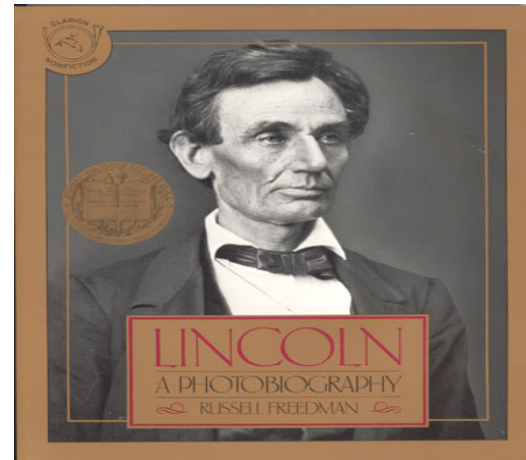
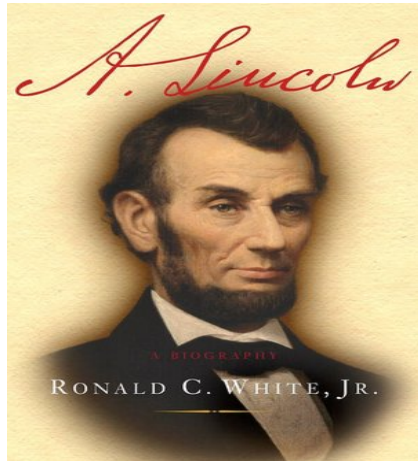
Copyrights (cont'd)

- Copyright subsists for any **original work of authorship** fixed in a **tangible medium** of expression.
- Rights present upon fixation
 - No printed “©” necessary
 - Formal registration not mandated (unless bringing suit)
 - \$35 registration fee online US Copyright Office
- Sample Notice
 - “Copyright YEAR. NAME. All Rights Reserved.”

Works of Authorship

- (1) literary works;
 - (2) musical works, including any accompanying words;
 - (3) dramatic works, including any accompanying music;
 - (4) pantomimes and choreographic works;
 - (5) pictorial, graphic, and sculptural works;
 - (6) motion pictures and other audiovisual works;
 - (7) sound recordings; and
 - (8) architectural works.
-
- Not protected:
 - **facts**, ideas, titles, procedures, processes, methods of operation, concepts, principles, discoveries or functional items.
 - any work of the United States Government

Titles are not copyrightable



What is original?

- Only a “modicum of **originality**” required

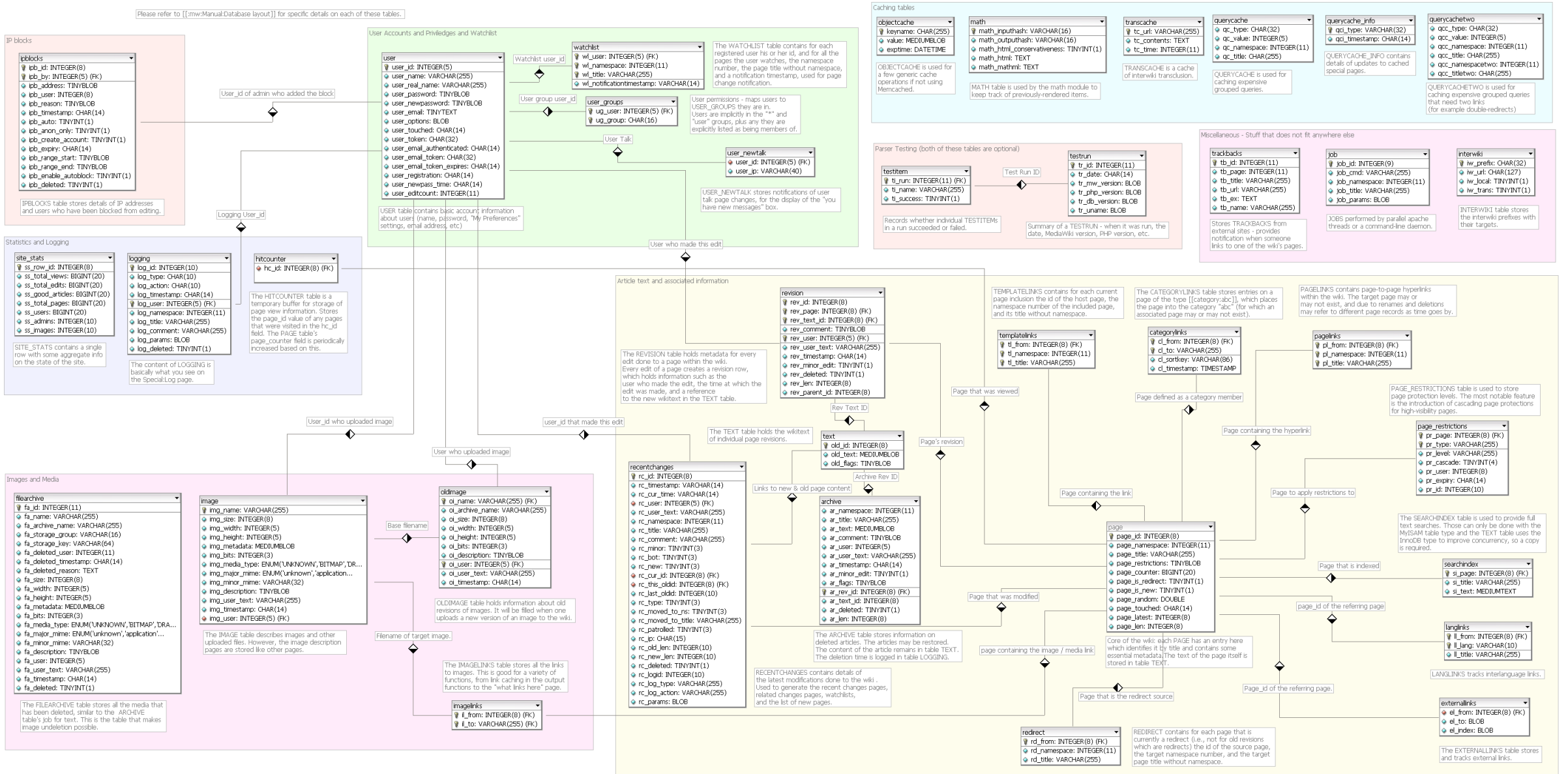
Supreme Court Case: Feist Publications v. Rural Telephone Service (1991)

Last Name, First Name, Middle, Town, Telephone Number

- Subscriber data deemed not original enough
- Novelty and Importance have no bearing whatsoever
 - Vast majority of works do qualify “no matter how crude, humble or obvious”
- Facts are never protected; Compilations of facts are protected
 - Yellow pages, Almanacs, ...Databases...

	Column Name	Data Type	Length	Allow Nulls
	SourceIP	int	4	✓
	ClientTimeStamp	int	4	✓
	ClientMS	int	4	✓
	ServerTimestamp	int	4	✓
	SessionID	int	4	✓
	Component	varchar	255	✓
	EventID	int	4	✓
	Severity	int	4	✓
	Grouping	int	4	✓
	Originator	varchar	255	✓
	OriginatorType	int	4	✓
	Target	varchar	255	✓
	TargetType	int	4	✓
	SubTarget	varchar	255	✓
	Text1	varchar	255	✓
	Text2	varchar	255	✓
	Text3	varchar	255	✓
	Value1	int	4	✓
	Value2	int	4	✓
	Value3	int	4	✓
	MIMEType	int	4	✓
	DataSize	int	4	✓
	Data	image	16	✓
	Signature	varchar	255	✓

Please refer to [[mw:Manual:Database layout]] for specific details on each of these tables.



Machine Code



Source Code

```
functions.php
$showmanykilled = 1;
$count = 1;
$match_string = "killed";
$ti = 0; //the temp index
$title_ar = explode(" ", $string);
foreach ($title_ar as $i => $item) {
    $ti = $i;
    if ($title_ar[$i] == $match_string) { //once we find $match_string, work backward through the array
        while ($ti > 0) {
            $ti=$ti-1;

            //this checks to see if there is a number right after $match_string.
            //If there is, then we will use that one.
            if (is_numeric($title_ar[$i+1])) {
                $showmanykilled = $title_ar[$i+1];
                break;
            }
            if (is_numeric($title_ar[$ti])) {
                if (($i-$ti) <= $index_offset){
                    //echo "-dr>good to go!-dr>";
                    $showmanykilled=$title_ar[$ti];
                } else {
                    //echo "-dr> to far away-dr>";
                    $showmanykilled = 1;
                } //end if...else
            }
            break;
        }
    }
} //end while
} //end if
} //end foreach
if ($showmanykilled > $limit) {
    $showmanykilled = 0;
}
return $showmanykilled;
} // end FUNCTION: getKilled

//FUNCTION: countKilled()
function countKilled($database_mysql_db, $mysql_db, $write = TRUE) {
    //This will add up the total number of people reported killed that this program finds.
    //and write it to the "total" table of the database if $write is TRUE, if $write is FALSE it won't
    $totalKilled = 0;
    mysql_select_db($database_mysql_db, $mysql_db);
    $query_EBK_DB = "SELECT 'killed' FROM news";
    $EBK_DB = mysql_query($query_EBK_DB, $mysql_db) or die(mysql_error());
    $killed_ar = mysql_fetch_assoc($EBK_DB);
    $totalRows_EBK_DB = mysql_num_rows($EBK_DB);
    do {
        $totalKilled += $killed_ar['killed'];
    } while ($killed_ar = mysql_fetch_assoc($EBK_DB));
}
```

Are they the Same?

Literature

As Robert Frost once stated "Two roads diverged in a yellow wood, and I took the one less traveled by, and that has made all the difference." I believe that in order to insure the environmental safety and beauty of Methuen, we need to do something that has never been done before. The road that I am taking to insure the environmental safety and beauty of Methuen for future generations is to be a beekeeper, and educate others to become keepers. Honeybees make many contributions to the environment. If more residents of Methuen kept honeybees, there would be less pollution, more exquisite flowers and trees, and healthier people. Although this method may seem unrealistic, I plan to educate our town and make it a place that future generations want to live.

Having been an avid beekeeper for 8 years, I plan to continue my quest to make the city I live in a place that other people would want to live in. My honeybees help to pollinate my gardens and orchards, as well as the numerous gardens of all my neighbors. Pollination helps in the growth and reproduction of numerous vegetables, flowers, and trees. The more trees and flowers that populate our town, the more natural beauty that exists. With growth in number and stature of new trees, our air will become cleaner and healthier. The trees take in carbon dioxide and produce clean oxygen for us to breathe. Whenever people find out I am a beekeeper, they tend to ask me many questions. I always invite them over to look at my beehives. Once they see my bees, they are fascinated and wish to start their own hives. There are not many beekeepers in Methuen at the present time, but I believe that each person I reach out to will decide that it a good idea to either attend Bee School (at the Topsfield Fairgrounds) or read more on the topic.

Many residents in Methuen understand the advantages of keeping bees. That is why my family has helped others by putting beehives in their yards and farms to pollinate their flowers, fruit orchards, and various crops. I have figured out that if we place 25 beehives in various parts of Methuen, then each hive will be able to reach some part of Methuen, leaving no place without pollination by honeybees. Along with pollination, which gives Methuen a more beautiful landscape, pollination and nectar collecting give us the reward of honey and wax. Honey is healthy for people because of the antioxidants and natural herbs it contains. There are also several studies which have been done which state that having a teaspoon of honey a day can reduce chronic allergies. This is possible because the honeybees collect nectar from various flowers and plants in your neighborhood, and when you swallow a teaspoon of honey, you are building up a tolerance to the pollen of that flower or plant from which the bee collects. I plan to educate as many people as I can about beekeeping in hopes that more people will see the advantages and possibilities that come along with becoming beekeepers.

Although the idea of putting more beehives around the town may seem impractical, I can assure you that it is not. If people weren't afraid of honeybees, they'd come to realize that they are gentle creatures that are only there to work for our benefit. Being part of the *Essex County Beekeepers Association* as their *2006 Honey Ambassador*, I have come to appreciate these little creatures. While working in the Bee Building at the Topsfield Fair, I have educated many children and adults from different towns about the environmental

Source Code

```
functions.php
$showmanykilled = 1;
$count = 1;
$match_string = "killed";
$i = 0; //the temp index
$title_ar = explode(" ", $string);
foreach ($title_ar as $i => $item) {
    $i = $i;
    if ($title_ar[$i] == $match_string) { //once we find $match_string, work backward through the array
        while ($i > 0) {
            $i = $i - 1;

            //this checks to see if there is a number right after $match_string.
            //if there is, then we will use that one.
            if (is_numeric($title_ar[$i+1])) {
                $showmanykilled = $title_ar[$i+1];
                break;
            }
            if (is_numeric($title_ar[$i])) {
                if (($i-$i) <= $index_offset) {
                    //echo "dir>good to go! dir>";
                    $showmanykilled = $title_ar[$i];
                } else {
                    //echo "dir> to far away dir>";
                    $showmanykilled = 1;
                } //end if...else
            }
        }
    }
} //end while
} //end if
} //end foreach
if ($showmanykilled > $limit) {
    $showmanykilled = 0;
}
return $showmanykilled;
} // end FUNCTION: getKilled

//FUNCTION: countKilled()
function countKilled($database_mysql_db, $mysql_db, $write = TRUE) {
    //This will add up the total number of people reported killed that this program finds.
    //and write it to the "total" table of the database if $write is TRUE, if $write is FALSE it won't
    $totalKilled = 0;
    mysql_select_db($database_mysql_db, $mysql_db);
    $query_EBK_DB = "SELECT 'killed' FROM news";
    $EBK_DB = mysql_query($query_EBK_DB, $mysql_db) or die(mysql_error());
    $killed_ar = mysql_fetch_assoc($EBK_DB);
    $totalRows_EBK_DB = mysql_num_rows($EBK_DB);
    do {
        $totalKilled += $killed_ar['killed'];
    } while ($killed_ar = mysql_fetch_assoc($EBK_DB));
}
```

Copyright for Code

- In 1980, Congress amended the 1976 Copyright Act to include a definition of “computer program.”
- In a Third Circuit Court of Appeals case, the court in *Apple Computer, Inc v. Franklin Computer Corp.* (1983), confirmed that computer programs are in fact literary works protected under the Copyright Act.
- The court held that a computer program, “whether in object code or source code, is a ‘literary work’ and is protected from unauthorized copying, whether from its object or source code version.”

Copyrights (Mediums)

- **Tangible Mediums** include:
 - Traditional Media (paper, canvass, materials)
 - Non Traditional Media (machines, databases, servers, networks, RAM/ROM) count for fixation
- “now known or later developed”
 - Perceived, reproduced, or otherwise communicated directly or the aid of a machine or device

Idea Expression Dichotomy



- Ideas are never protected; just their expression
- The Merger Doctrine
 - Sweepstakes, recipes, how to's



Infringement/Limitations/Remedies

- Infringement requires:

- (1) Access; and
- (2) Substantive Similarity

BUT

- Independent creation allowed – no access thus no copying
- *de minimis* copying allowed – meager, insignificant trifles
- However, “unconscious copying” is not a defense.
 - Software developers beware
 - Musicians beware – “George Harrison” case

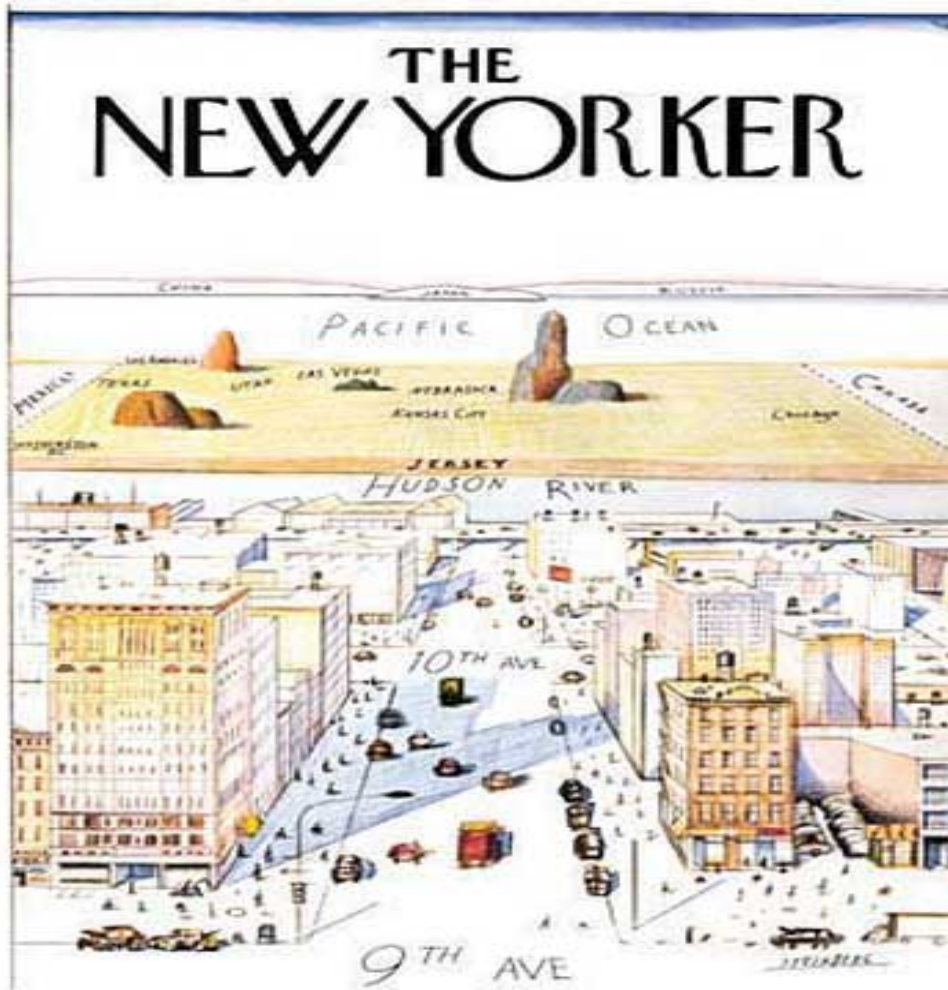
Distinction from Plagiarism

- © Infringement \neq Plagiarism
- Legal infraction vs. academic infraction

Non Literal Infringement

- Levels of Abstraction
- *Scenes a faire*
 - Common Elements, Stock Characters
- Abstraction/Filtration/Comparison Test
 - Filter out Elements Dictated by: Efficiency, External Factors, and Public Domain Elements

Substantive Similarity?



Limitations – Fair Use

- the fair use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching, scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include —
 - (1) the purpose and character of the use - commercial v. non commercial purposes
 - (2) the nature of the copyrighted work - fiction v. non fiction
 - (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
 - (4) the effect of the use upon the potential market for or value of the copyrighted work

Fair Use (Cont'd)

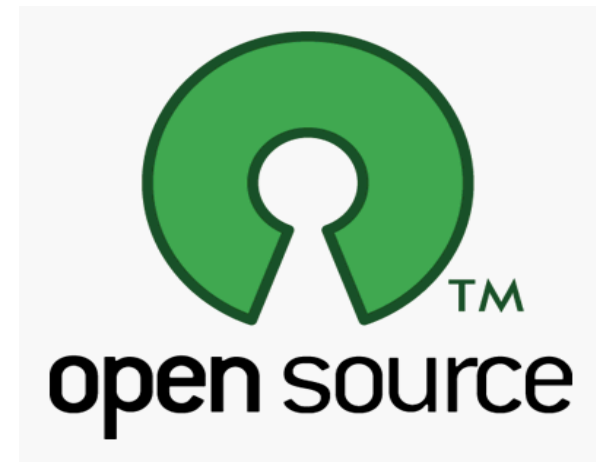
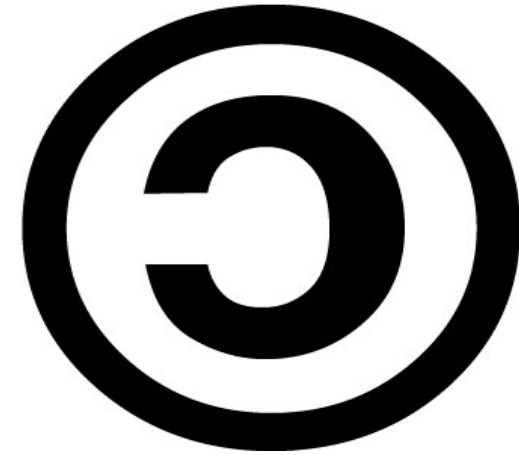


- The “Gerry Ford Case” – Harper & Row v. The Nation, Supreme Court, 1985
 - Key parts of Ford’s memoirs “lifted”
 - Court rejected the “public figure” defense
 - Court rejected the “news” defense
 - Court rejected the “non fiction” defense
 - Court rejected the amount defense <1%
 - Court deemed effect upon the potential market the most significant factor and found against The Nation.
- Fair Use is not a quantitative safe harbor. It’s qualitative.
- Parody gets special consideration


Remedies


- Injunctive relief
- Destruction of infringing pieces
- Damages (actual or potential)
 - Statutory - no need to prove actual losses via evidence
 - Up to \$150,000 for willful infringement – per infraction
- Criminal prosecution

Public Defenders



Open Source

Home From The Board Contact Donate Search this website... 



Open Source Initiative

ABOUT ▾ LICENSES & STANDARDS ▾ MEMBERSHIP ▾ COMMUNITY ▾ RESOURCES ▾ NEWS & EVENTS ▾

Licenses by Name

The following licenses have been approved by the OSI via the License Review Process. (For questions about the Public Domain, please see here.)

- Academic Free License 3.0 (AFL-3.0)
- Affero General Public License: See *GNU Affero General Public License 3.0 (AGPL-3.0)*
- Adaptive Public License (APL-1.0)
- Apache License 2.0 (Apache-2.0)
- Apple Public Source License (APSL-2.0)
- Artistic license 2.0 (Artistic-2.0)
- Attribution Assurance Licenses (AAL)
- BSD 3-Clause "New" or "Revised" License (BSD-3-Clause)
- BSD 2-Clause "Simplified" or "FreeBSD" License (BSD-2-Clause)
- Boost Software License (BSL-1.0)
- CeCILL License 2.1 (CECILL-2.1)
- Computer Associates Trusted Open Source License 1.1 (CATOSL-1.1)
- Common Development and Distribution License 1.0 (CDDL-1.0)
- Common Public Attribution License 1.0 (CPAL-1.0)
- CUA Office Public License Version 1.0 (CUA-OPL-1.0)
- EU DataGrid Software License (EUDatagrid)
- Eclipse Public License 1.0 (EPL-1.0)
- eCos License version 2.0
- Educational Community License, Version 2.0 (ECL-2.0)
- Eiffel Forum License V2.0 (EFL-2.0)
- Entessa Public License (Entessa)
- European Union Public License, Version 1.1 (EUPL-1.1) (*links to every language's version on their site*)

The MIT or BSD License

- Copyright (c) <YEAR>, <OWNER>
All rights reserved.
- Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the <ORGANIZATION> nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
- THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"

GNU General Public License (GPL v2)

- **2.** You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
 - (a) You must cause the **modified files to carry prominent notices** stating that you changed the files and the date of any change.
 - (b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be **licensed as a whole at no charge to all third parties under the terms of this License**.
 - ...
- **3(a)** **Accompany it with the complete corresponding machine-readable source code**, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

CC Non Comm Attribution

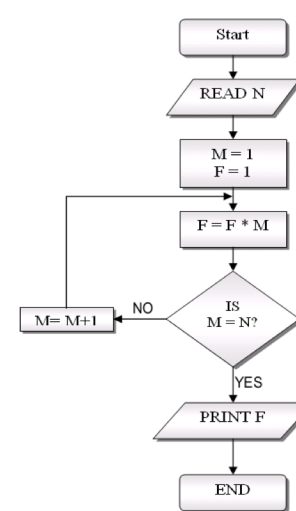
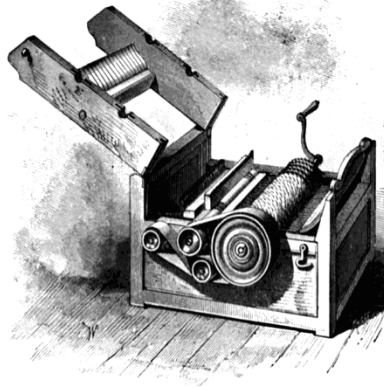
- **You may not** exercise any of the rights granted to You in Section 3 above in any manner that is primarily intended for or directed toward **commercial advantage or private monetary compensation**. The exchange of the Work for other copyrighted works by means of digital file-sharing or otherwise shall not be considered to be intended for or directed toward commercial advantage or private monetary compensation, provided there is no payment of any monetary compensation in connection with the exchange of copyrighted works.
- **If You Distribute, or Publicly Perform** the Work or any Adaptations or Collections, **You must, keep intact all copyright notices** for the Work and provide, reasonable to the medium or means You are utilizing: (i) **the name of the Original Author** (or pseudonym, if applicable) (ii) the title of the Work if supplied; (iii) to the extent reasonably practicable, the URI, if any, that Licensor specifies to be associated with the Work,, (iv) consistent with Section 3(b), in the case of an Adaptation, **a credit** identifying the use of the Work in the Adaptation (e.g., "French translation of the Work by Original Author," or "Screenplay based on original Work by Original Author"). ..You may not implicitly or explicitly assert or imply any connection with, sponsorship or endorsement by the Original Author, Licensor and/or Attribution Parties, as appropriate, of You or Your use of the Work, without the separate, express prior written permission of the Original Author, Licensor and/or Attribution Parties.

Protection of Software Inventions

Copyright law aims to protect expression over functionality, but computer software is unique in that it is a creation that incorporates both **functionality** and **expression**.

Patents on Software?

- The issue with software, algorithms, and methods of doing business centers around what constitutes an unpatentable idea



- Computer Processes
 - A process may be patentable if it is tied to a particular machine or apparatus (aka a computer or device), or
 - If it is Transformative
 - AKA not just an abstract idea applied to a computer

Software IP

- Explicit code is covered by ©
 - Will not protect against clean room coding
- Functional ideas and algorithms can be protected by patents
 - Prevents non literal competition
 - Controversial

...BUT THAT'S A STORY FOR ANOTHER IAP

Thank You!

Questions?

ddardani@mit.edu

Twitter: @IPManDan

<https://www.linkedin.com/in/danieldardani>