Copyright Coverage of Computer Software

http://wendy.seltzer.org/brooklaw/07copyright/

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Copyright protection for software: Is copyright the right regime?

- How is computer software similar to literary works?
- How does it differ?

- Is software a "useful article"?

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Source and Object Code

- 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[]={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
```

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Source Code

C source file fact.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);
}
```

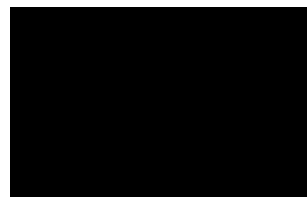David S. Touretzky, Carnegie Mellon University

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Object Code

```
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 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
...
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```

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Running Program

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Apple v. Franklin

- Franklin copied Apple programs, claimed they were "part of the machine"
- Is there an expression separable from the idea?

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Computer Associates International v. Altai

- Computer Associates CA-SCHEDULER allows IBM mainframe to schedule jobs, ADAPTER makes it work on different machines
- Altai clean-room developed OSCAR 3.5 to perform the same function
- How do we know whether non-literal elements infringe?

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Abstraction, Filtration, Analysis

- Choose "patterns," levels of abstraction
  - Overall function, modules, instructions
- Separate out the non-protectable elements at each level
  - Elements dictated by efficiency
  - Elements dictated by external factors
  - Elements taken from the public domain
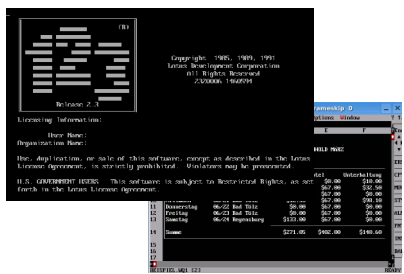- Compare the protectable elements between the two

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Softel v. Dragon Medical and Scientific Communications

- Non-literal copying of a collection of unprotectable elements
- Protectable compilation?

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Lotus v. Borland

Lotus v. Borland

- Lotus 1-2-3 is the preeminent spreadsheet program
  - operated by text menus and macros
  - "Copy," "Print," "Quit"
- Borland produces Quattro with its own menus and optional "Lotus Emulation Interface"
- Does the LEI copy protectable expression?

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Computer Software

- Generally designed to make a machine perform some function
- Often constrained by external factors
  - Compatibility with existing hardware and software
  - User demands for functions
  - Efficiency

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Copyright protection for software: Is copyright the right regime?

- Along with copyright, software elements may be protected by patent or trade secret.

- Should we have a *sui generis* software protection system instead?

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