

The Binary Black Box

On Democratic Values and Open
Software Technology

Democratic Technology?

- We live in a socio-technical life-world
- In the political field we believe in (some form of) the democratic model of representation of civilians
- In the technological field a democratic user representation is still exceptional
- Only choice users/consumers have is:
to buy or not to buy?

Possibilities for User Participation

Usually only mediated representation for participation in design through:

- Focus group studies (often limited to marketing)
- Test panels
- Ergonomic Experts
- Usability Experts

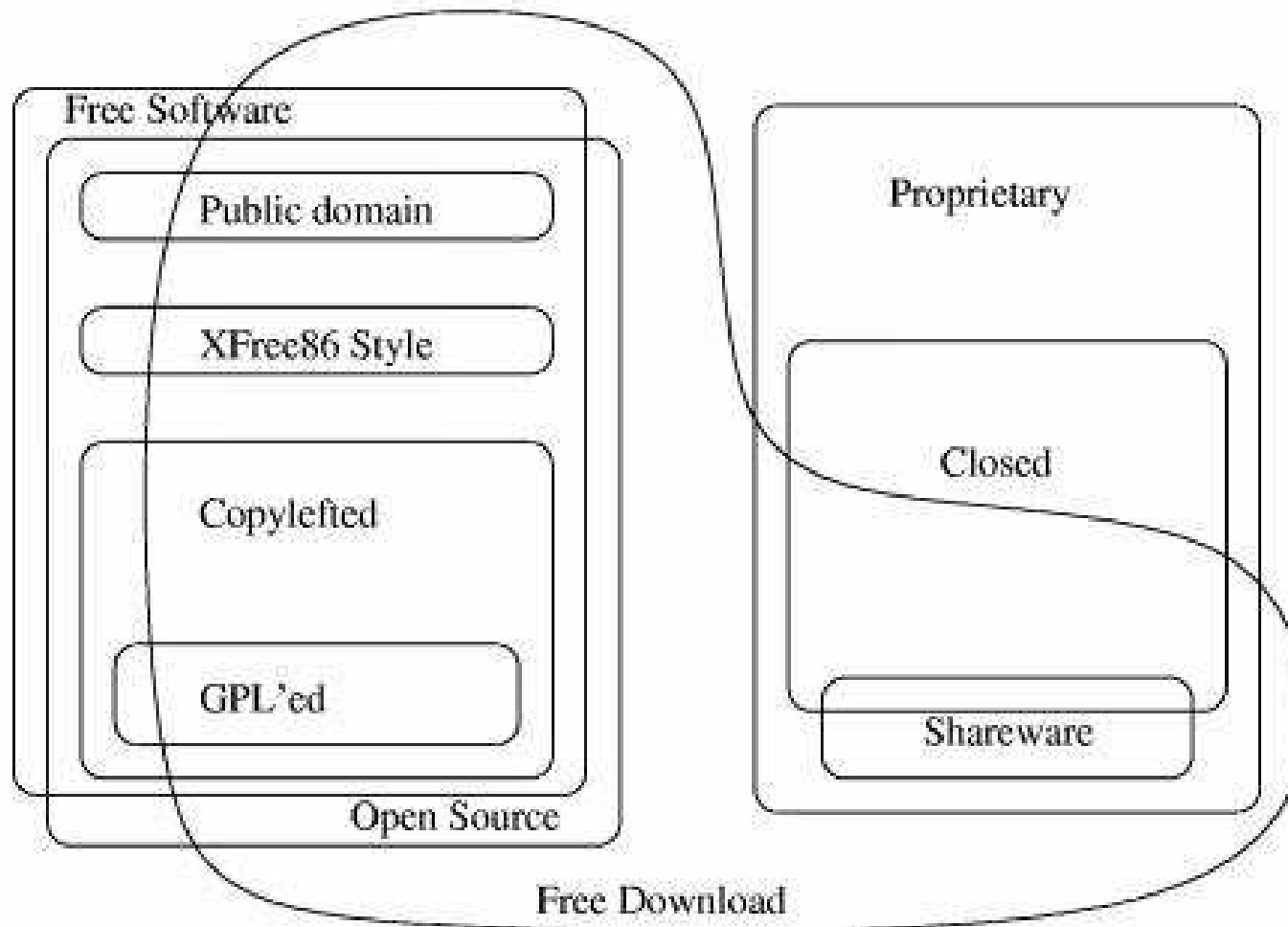
On Democratic Software

Software Technology as Case-Study for new models of direct User Participation

- User Participation during Design Phase?
- User Participation during Use Phase?

- Open Source Software / Free Software as revolutionary new model for user participation in development and use?

Software Categories



Hypothesis

- Can we say that Open Software is more democratic in the sense that users can become more easily involved in development and use of a particular computer program?
- Open = democratic?
- Closed = authoritarian?

Two types of Computer programs:

Closed Software: Computerprogram as a:

- Commodity product (purpose: making profit)
- Closed artefact (black box)

Open Software: Computerprogram as a:

- dynamic social network activity (user = producer, user toolkits for innovation)
- Open artefact (source code is available)

What makes software open?

The scale between open and closed programs is continuous, depending on:

- Open use
- Open standards
- Open source code
- Open license
- Open development model

On Openness

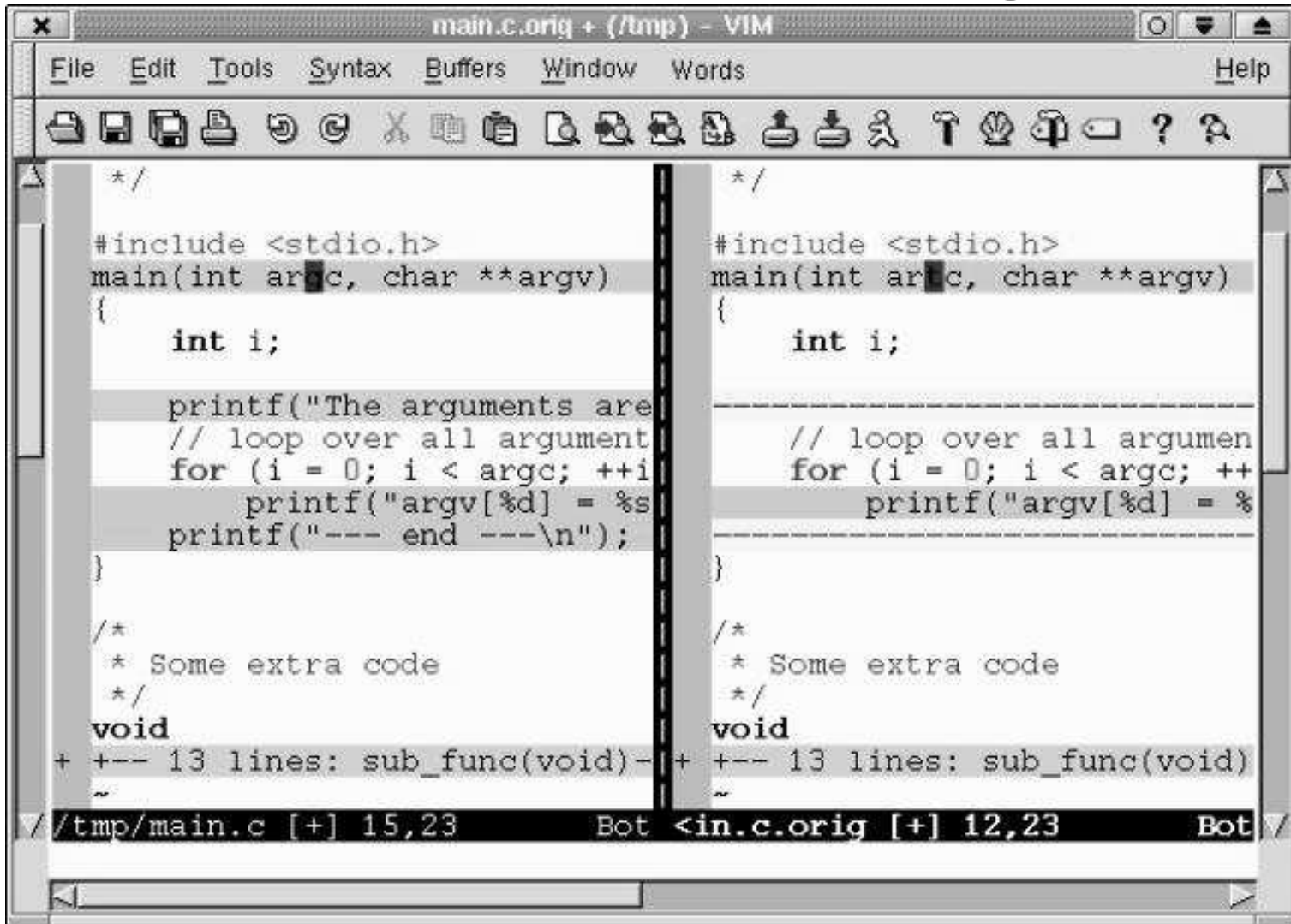
- I define Openness in relation to Software as the degree in which any user can participate in software development and the ease with which any user can adjust and control the use of a particular computer program in a fundamental and structural way.

Case Study:

Vim program:

- Written by the Dutch Bram Moolenaar who started this project in 1989
- Initially written for his own use
- Clone of the Vi-text editor (used in Unix)
- Nowadays available for virtually every operating system and in a few dozens languages
- User base: estimated on (ten)thousands of users

Screenshot Vim program



The screenshot displays the Vim text editor interface. At the top, the title bar reads "main.c.orig + (/tmp) - VIM". Below the title bar is a menu bar with "File", "Edit", "Tools", "Syntax", "Buffers", "Window", "Words", and "Help". A toolbar with various icons is located below the menu bar. The main editing area is split into two vertical panes. The left pane shows a C program with the following code:

```
*/
#include <stdio.h>
main(int argc, char **argv)
{
    int i;

    printf("The arguments are
// loop over all argument
for (i = 0; i < argc; ++i
    printf("argv[%d] = %s
printf("--- end ---\n");
}

/*
 * Some extra code
 */
void
+ +-- 13 lines: sub_func(void)-
~
```

The right pane shows a similar C program with the following code:

```
*/
#include <stdio.h>
main(int argc, char **argv)
{
    int i;

    -----
    // loop over all argumen
    for (i = 0; i < argc; ++
        printf("argv[%d] = %
    -----
}

/*
 * Some extra code
 */
void
+ +-- 13 lines: sub_func(void)
~
```

At the bottom of the editor, a status bar shows the current cursor position and file name for both panes: "/tmp/main.c [+] 15,23" on the left and "<in.c.orig [+] 12,23" on the right, with "Bot" indicating the bottom of the file.

Research Methodology

- Initially online questionnaire, but that didn't work: no responses
- Virtual Focus Group Study within online Vim developers and users community
- Intensive e-mail interviews with 21 persons (including main author Bram Moolenaar) for about 4 weeks.
- Posting of initial findings on Vim E-mail list.

Findings: how open is Vim?

Vim is really open on:

- Use (almost completely customizable, special mode for beginners: vim-easy, gui/cli, terminal)
- Standards (fully compliant)
- Source code (fully open)
- License (open source, even permits commercial use)

Closed Development model

- Regarding the development model Vim suddenly seemed to be much more closed than expected.
- Or as one vim user stated:
“As a user I was pretty satisfied with Vim. The horror came when I discovered the source.”

Moolenaar as benevolent dictator?

- All changes to the Vim source code had to go through the main author Bram Moolenaar.
- No direct interaction with the source code was possible
- Moolenaar became a Obligatory Point of Passage in getting access to the Vim source code

Closed Development

- Moolenaar didn't allow direct access to the source code.
- This made getting changes to the source code a very energy consuming activity, because every small change had to be discussed with Moolenaar

“Moolenaar is coding alone, and now I see why.”

Findings:

- Open Source Programs are not necessarily more democratic regarding their development model than commercial closed programs.
- That being said, you can always take the source code and start your own project.

Moolenaar: “Since Vim is open source you don’t need my permission to branch off and implement all the nice ideas that you have.”

Conclusion

So open software is only democratic for certain users.

- You have to be able to interact in a social network (having internet access is a necessary condition)
- You have to be technically savvy
- You need to invest (a lot of) time and energy to get things changed

Closed versus Open software

- Closed software: participation in or influence on development and use is limited by money
- Open software: participation is limited by technological expertise and the amount of resources (expressed in time and energy) users can invest.