

Open source software

Research software summer school: going beyond notebooks

June 30 2026

Centre for Digital Humanities, Utrecht University

Julian Gonggrijp

Outline

- Terminology
- History
- What is “free”?
- Picking a license
- The open source workflow

“Open source”

- **NOT: “the source is publicly viewable”**
 - (that’s “source available”)
- **Has an elaborate definition with 10 criteria, e.g.**
 - Redistribution of source is allowed
 - Derivative works are allowed
 - Non-discriminatory



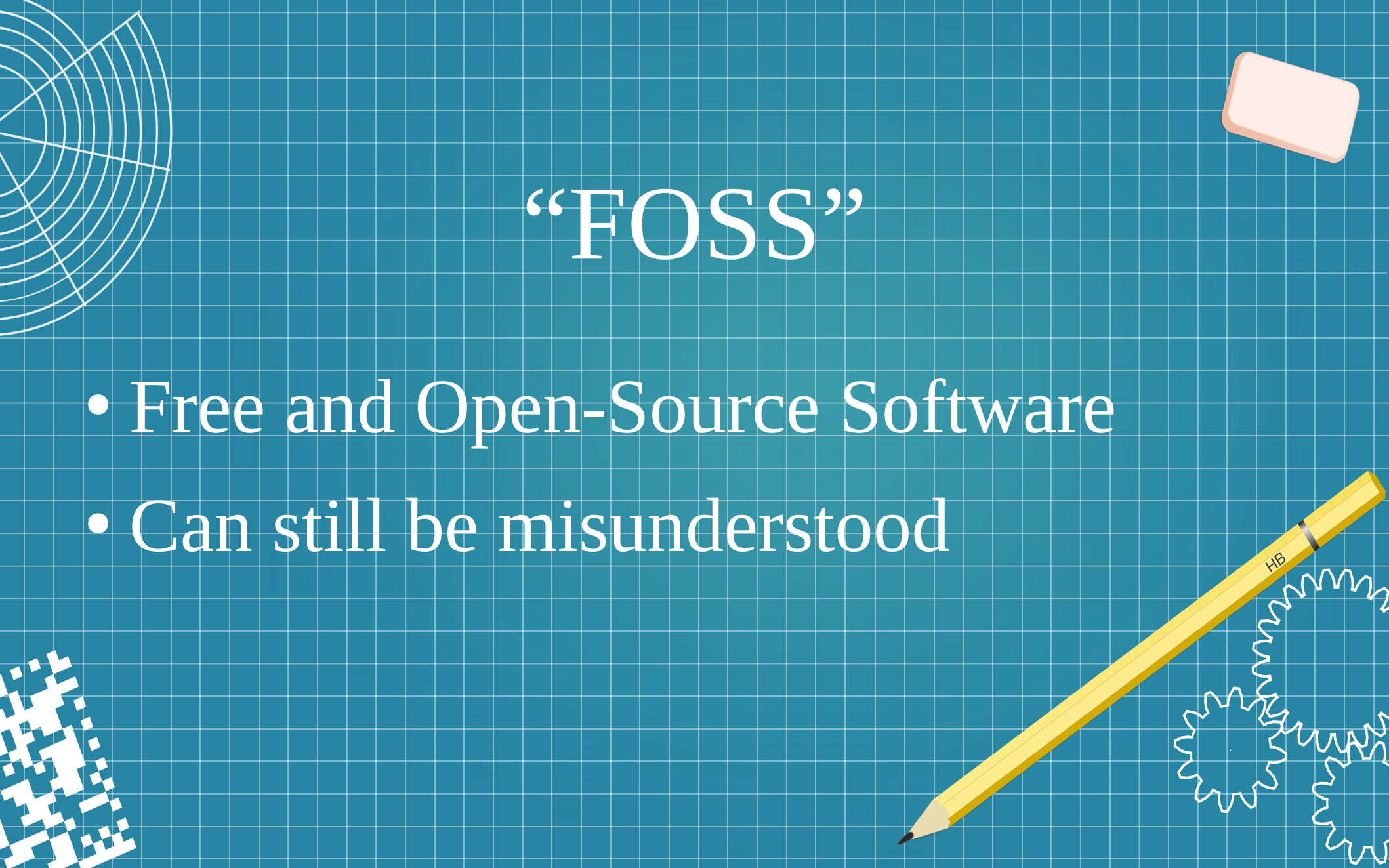
“Free software”

- NOT: software that you can obtain gratis
 - (that’s “freeware”)
- NOT: software that enjoys freedom
- Rather: software that gives freedom to the user
 - Based on Four Essential Freedoms

“Libre”

Not “free” as in beer (gratis),
but “free” as in speech (libre).





“FOSS”

- Free and Open-Source Software
- Can still be misunderstood

“FLOSS”

- Free/Libre and Open-Source Software
- Can *still* be misunderstood

“Cooperative software”?

- Suggestion by yours truly
- *Reusing*, rather than *repeating*, the work of others

History

ENIAC, ~1950

Glenn Beck

Betty Snyder-
Holberton

Unix @ Bell Labs, 1970



DEC PDP-11/70

Kozan, Public domain, via Wikimedia Commons



Ken Thompson

Dennis Ritchie

Unix philosophy:
the advent of
reusable software

1974

The US Commission on New Technological
Uses of Copyrighted Works (CONTU)
decides that **software is subject to copyright.**

From then on, **software shipped with a
license.**

Berkely Software Distribution

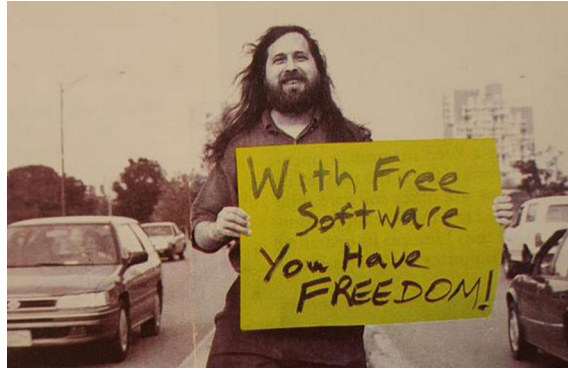
- Started from a copy of “research Unix” obtained in 1974
- First published in 1978
- Permissive license (BSD)
- Replaced all AT&T code to avoid copyright
- Foundation for many OSs (e.g. macOS)



1983

An antitrust case against AT&T is settled,
removing the final barrier for AT&T to **sell**
Unix for big money.

1983: GNU



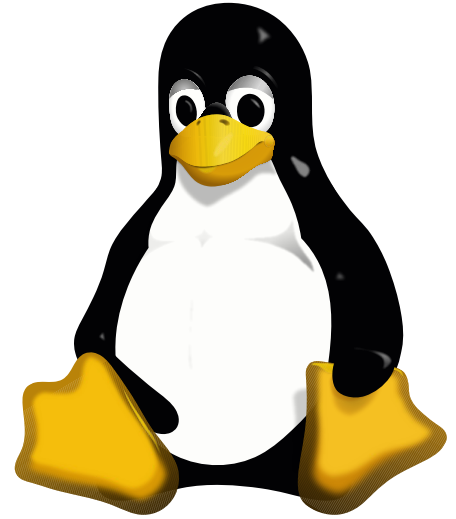
- Richard Stallman: user freedom is **moral obligation**, non-free software is **injustice**
- *Avoid duplicate effort, advance the state of the art*
- “GNU’s Not Unix!” (but a drop-in replacement)
- GNU Public License (GPL): “copyleft” ©
- Free Software Foundation founded in 1985

Four Essential Freedoms

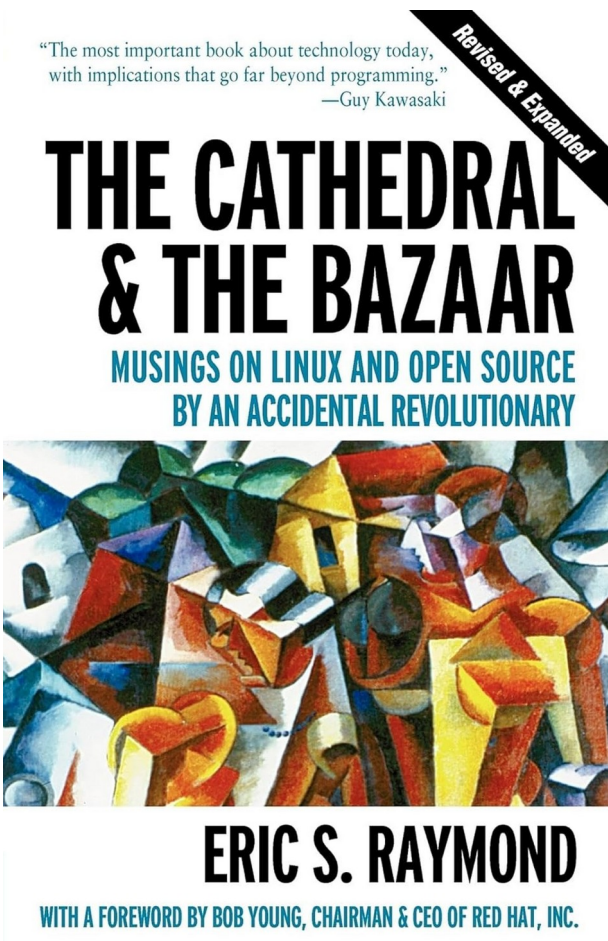
- 1.To use a program for any purpose.
- 2.To study the mechanics and modify it.
- 3.To redistribute copies.
- 4.To redistribute your modified versions.

1991: Linux

- By Linus Torvalds, student
- *Just for fun*
- Open process from the start
 - MINIX mailing list
- Missing kernel for GNU: GNU/Linux



1997: *The Cathedral and the Bazaar*



- Cathedral: GNU
- Bazaar: Linux
- Influential
- Essay expanded to book form in 1999

1998: Open Source Initiative

- Bruce Perens and Eric Raymond (!)
- Trigger: Netscape publishing source code
- Motivation: terminology and adoption
- *The Open Source Definition*
- Base: *Debian Free Software Guidelines*

The logo of the Open Source Initiative, featuring a large green letter 'O' with a white keyhole shape in the center.

open source
initiative®

Rise of DVCSs*



2000



2003



2003



2001



2005



2005



Bazaar
2005

*) Distributed Version Control Systems

Social coding



1999



Google Code
2006



GitHub
2008

ATLASSIAN



Bitbucket
2008



GitLab

2011



Gitea

2016

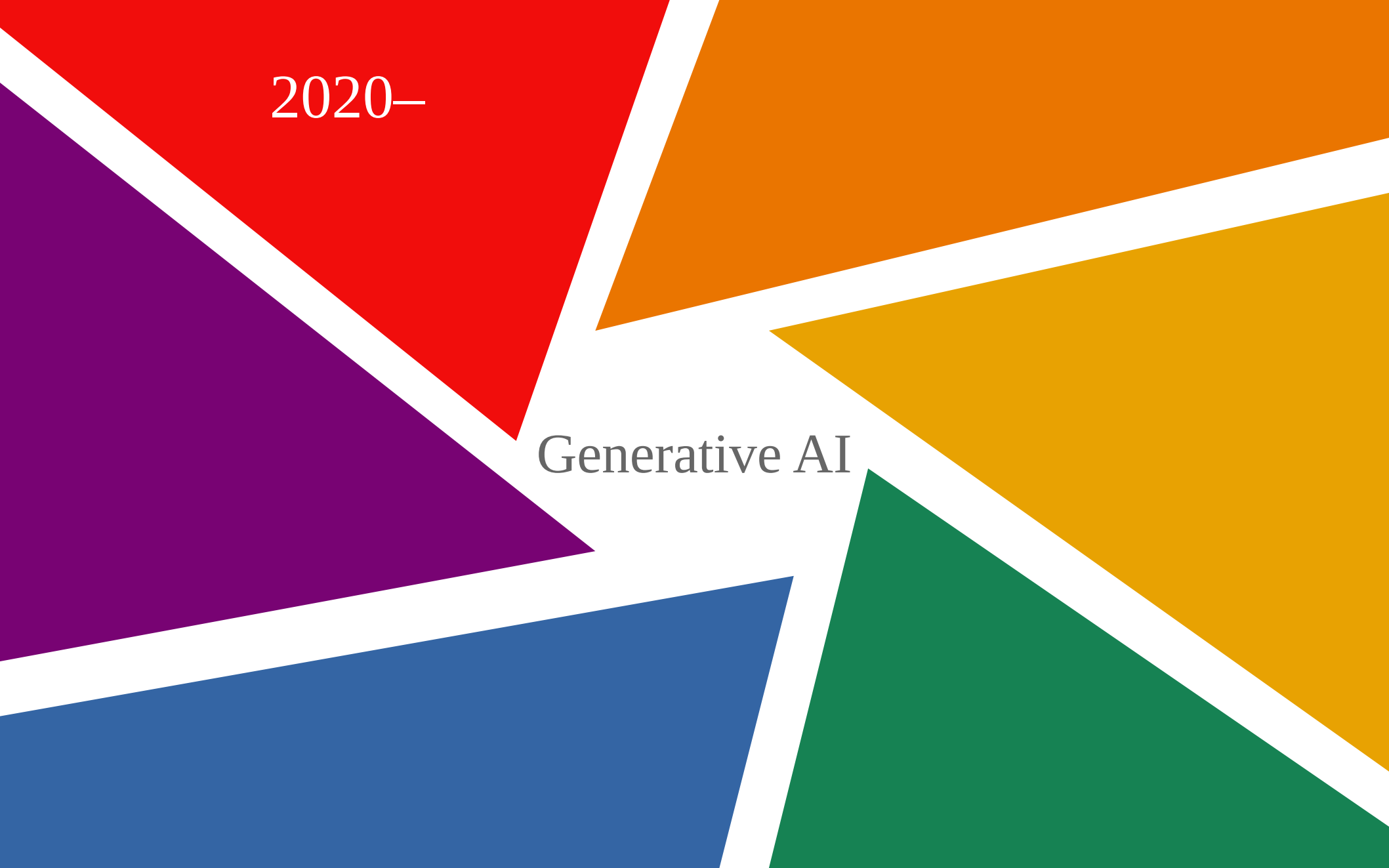


Codeberg

2018



2022



2020–

Generative AI

License flavors: quick recap

- < 1974 : all software is public domain
- ≥ 1974 : copyright
- ≥ 1978 : permissive licenses (copyleft)
- ≥ 1989 : copyleft

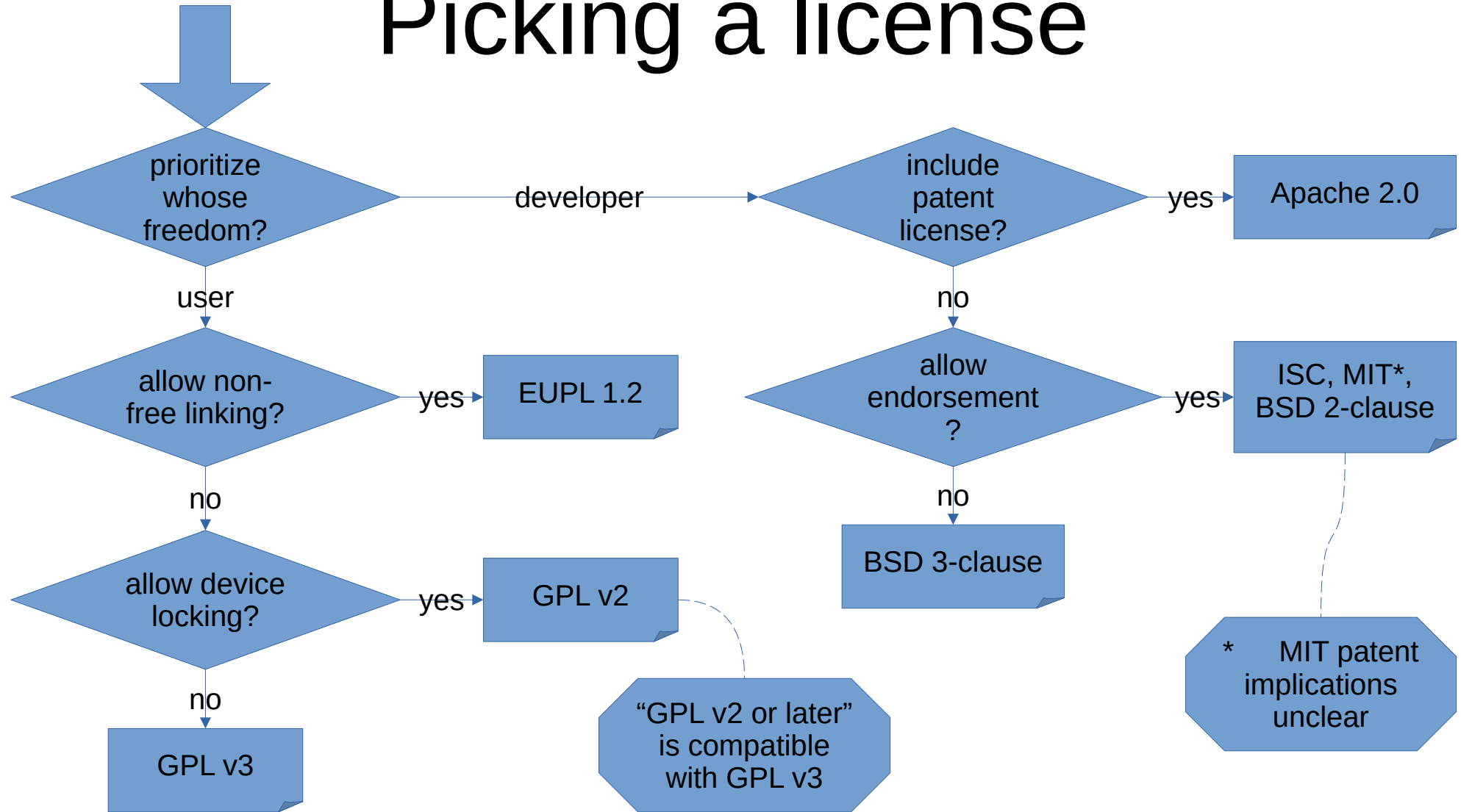
What is “freedom”?

Freedom for whom?

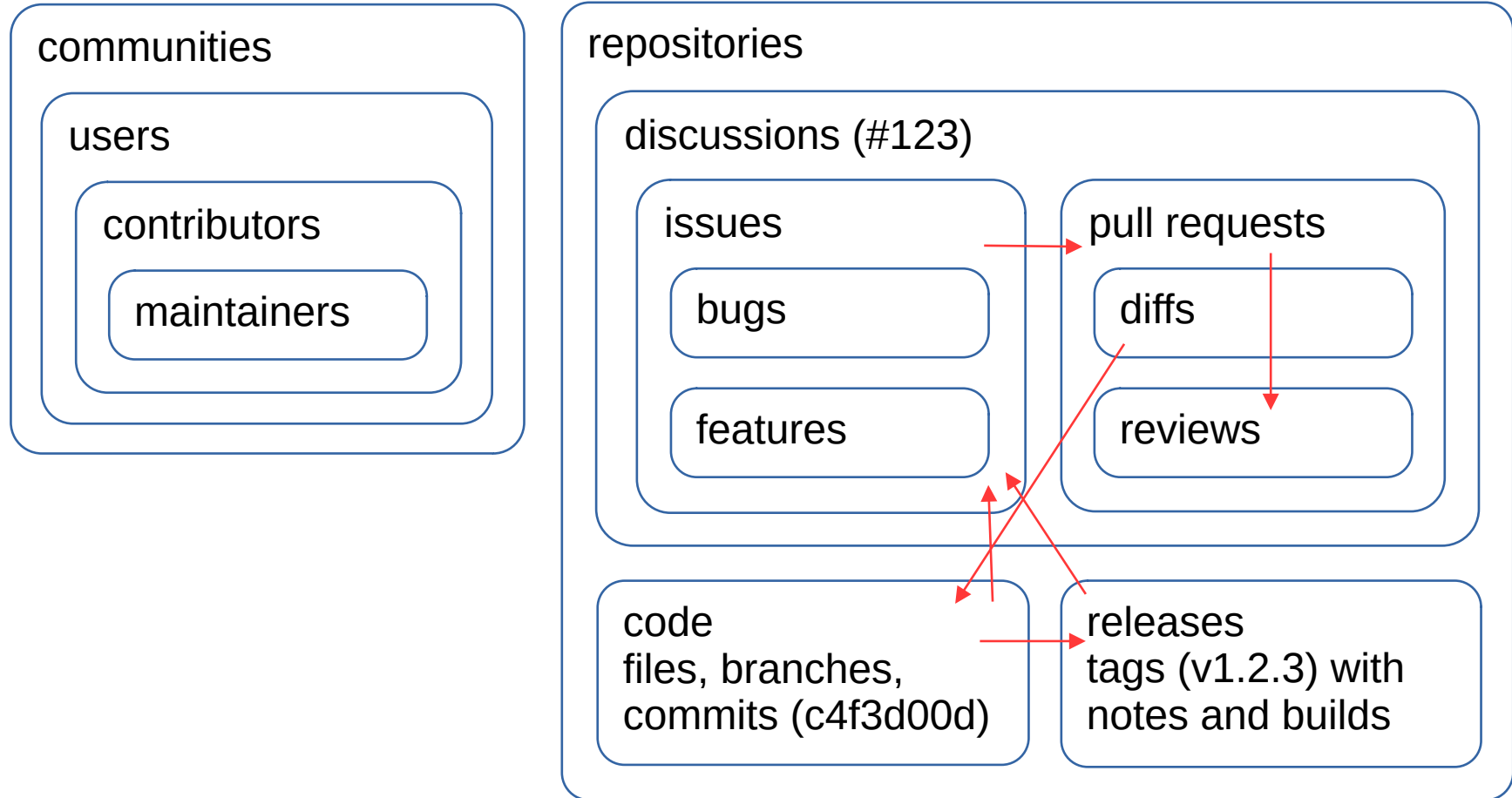
Copyleft	Copycenter (permissive)
GPL, EUPL	BSD, MIT, Apache
Derivative works guaranteed to be free	Derivative works may be proprietary
Freedom for the user	Freedom for the developer



Picking a license



Bazaar project workflow





Thank you for listening!

Let's discuss.

j.gonggrijp@uu.nl