How Git Works

Git Is Not What You Think

We’re going to talk aboutthe
internals of Git.

“Porcelain” Commands

- git add
- git commit
- git push
- git pull
- git branch
- git checkout
- git merge
- git rebase
- …

“Plumbing” Commands

- git cat-file
- git hash-object
- git count-objects
- …

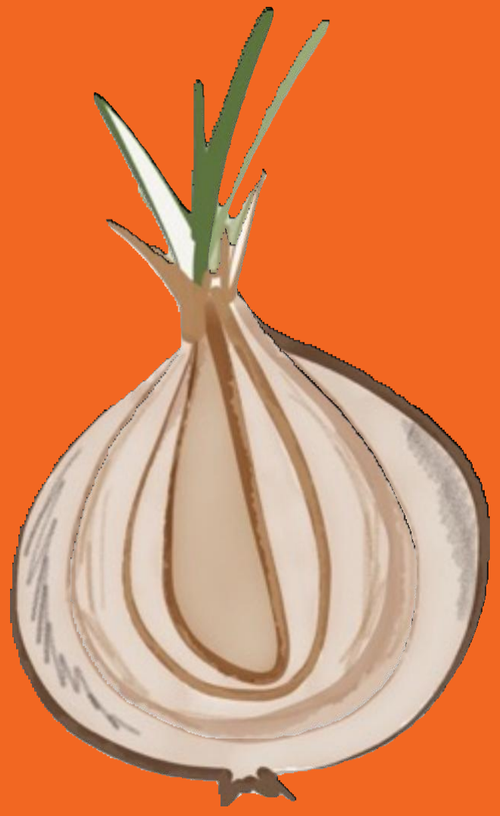
If you want to master Git, don't worry about learning the commands.

Instead, learn the model.

Git

Git Is..

…a Distributed Revision Control System



Git Is..

…a Revision Control System

Git Is..

…a Stupid Content Tracker

Git Is..

…a Persistent Map

Values and Keys

Any sequence of bytes

SHA1 hash

Values and Keys

“Apple Pie”

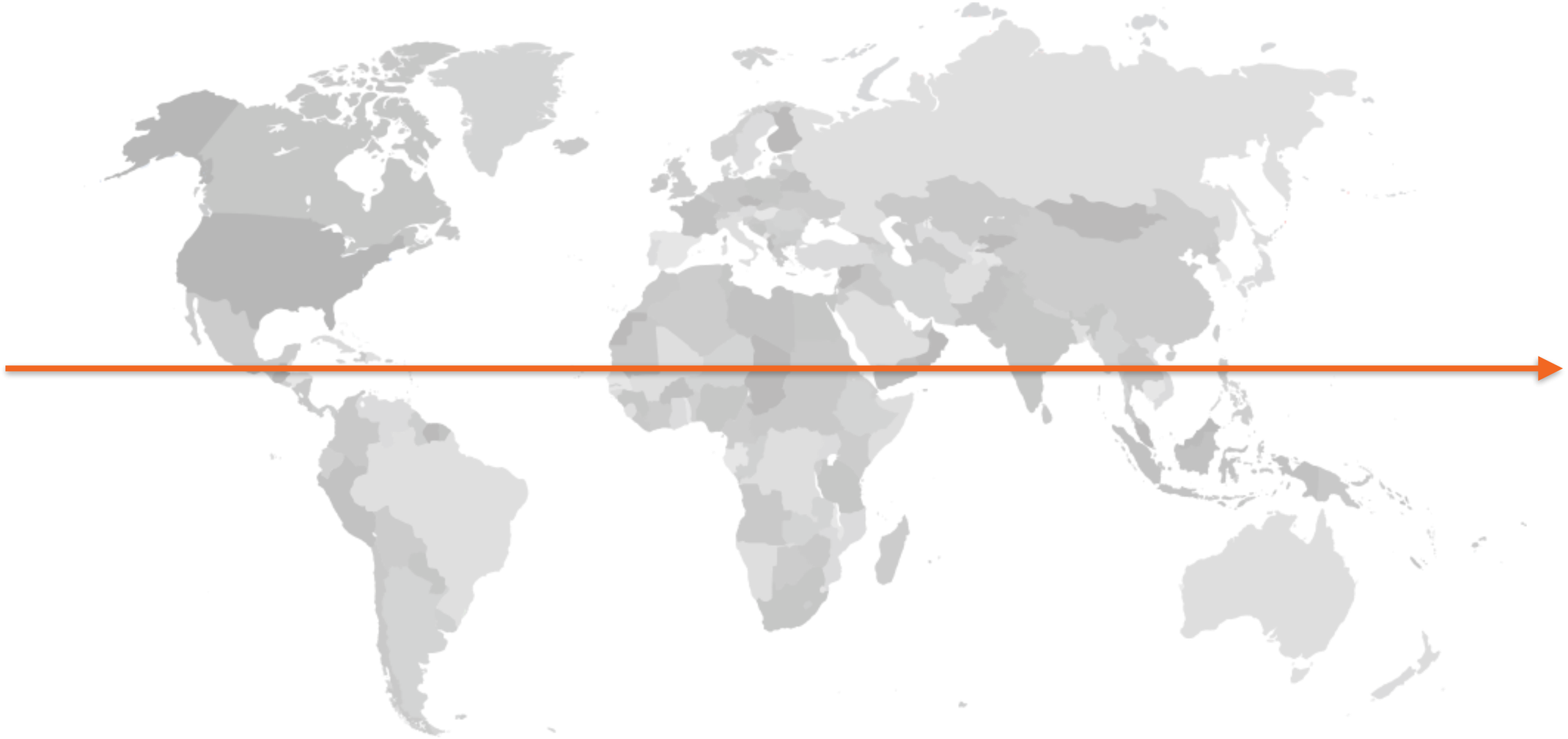
23991897e13e47ed0adb91a0082c31c82fe0cbe5

Every object in Git has its own SHA1.
So, what if they collide?

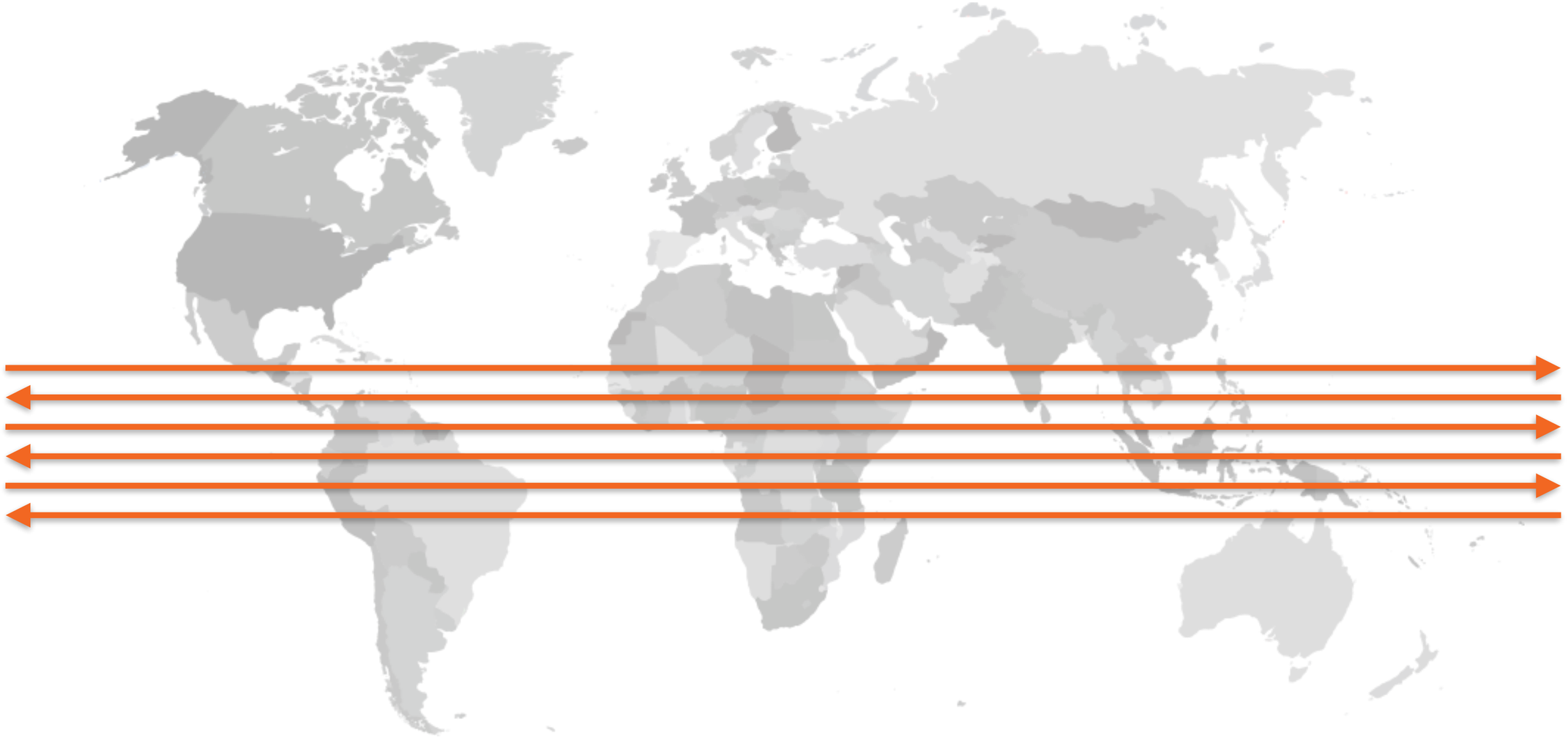
Winning the Jackpot

1 chance in 175.000.000

Winning the Jackpot



Chances of Two SHA1s Colliding



SHA1s are unique in the universe.

Git Is..

…a Persistent Map

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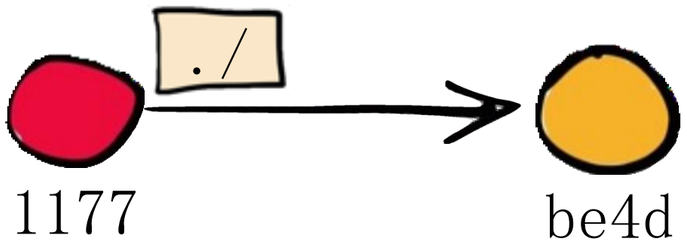
The Object Database



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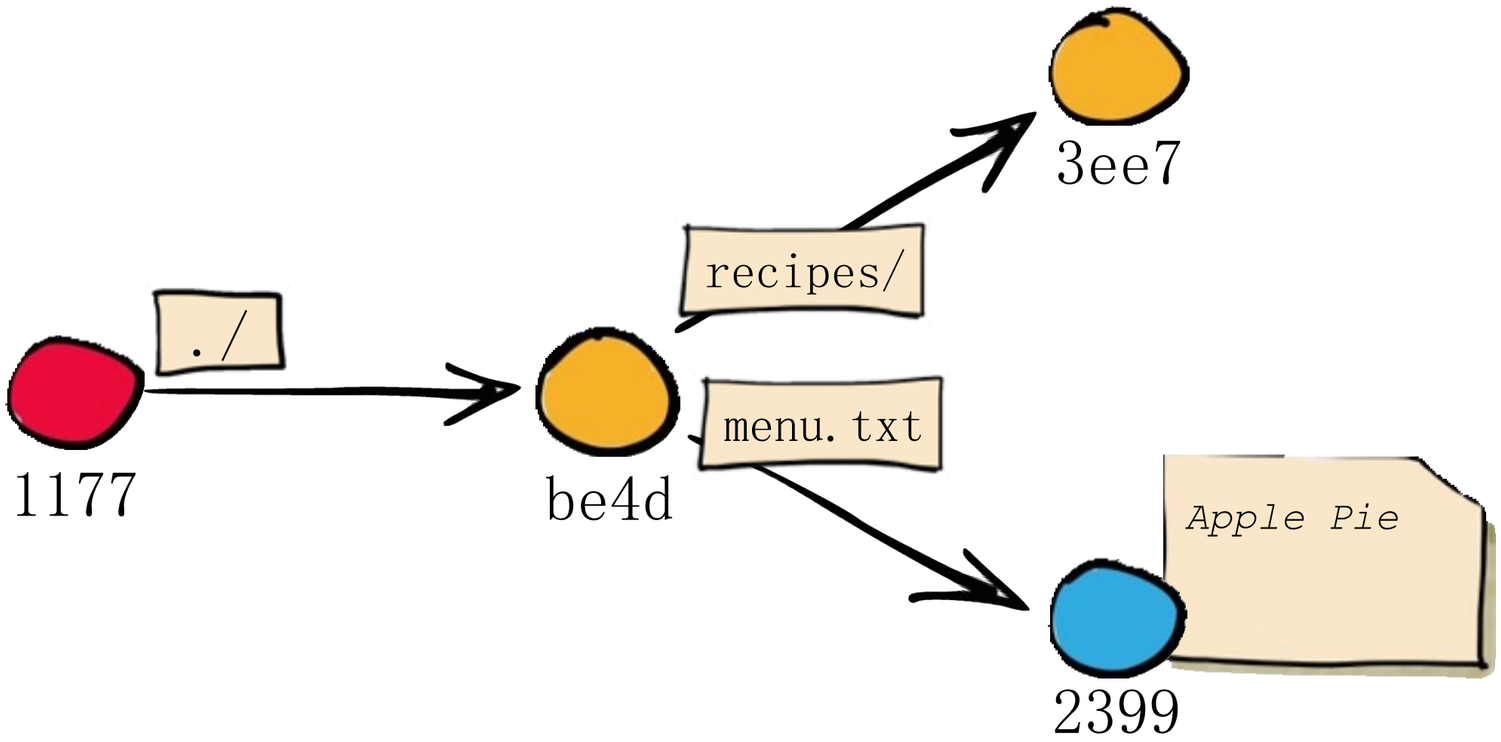

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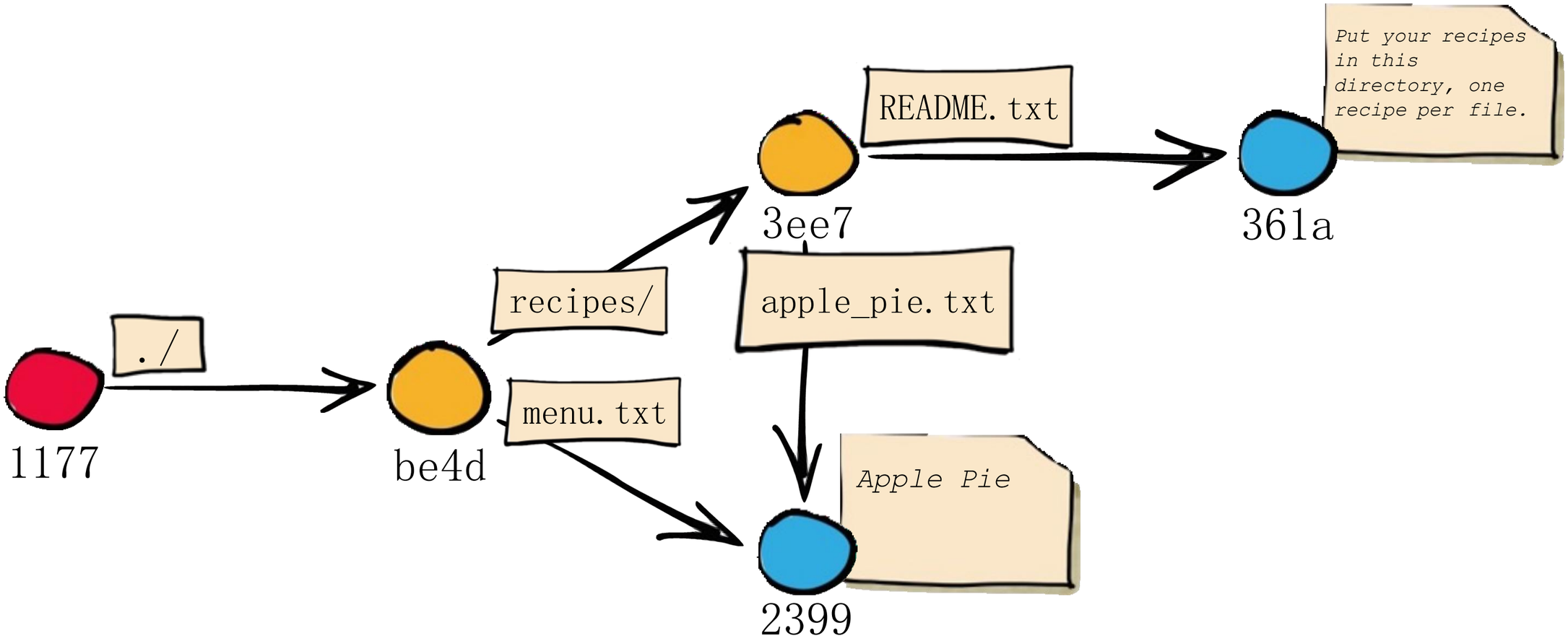
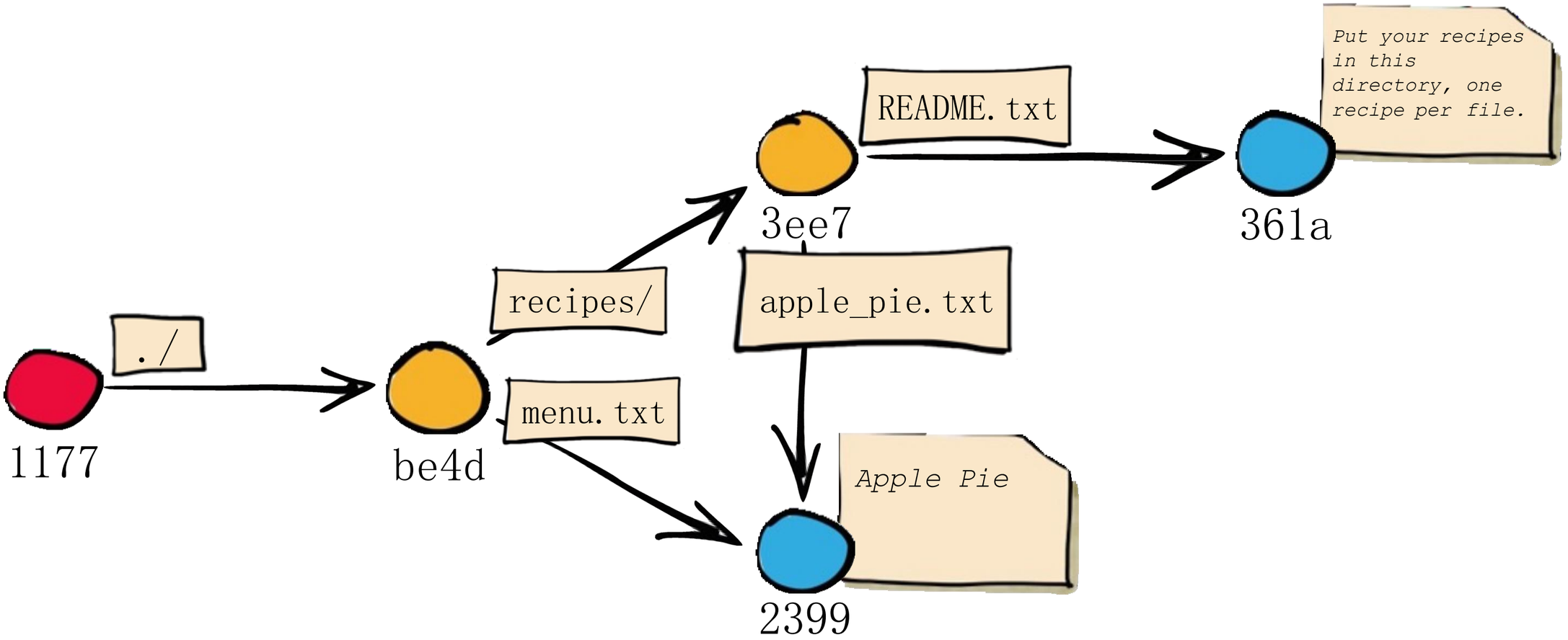


The Git Object Model



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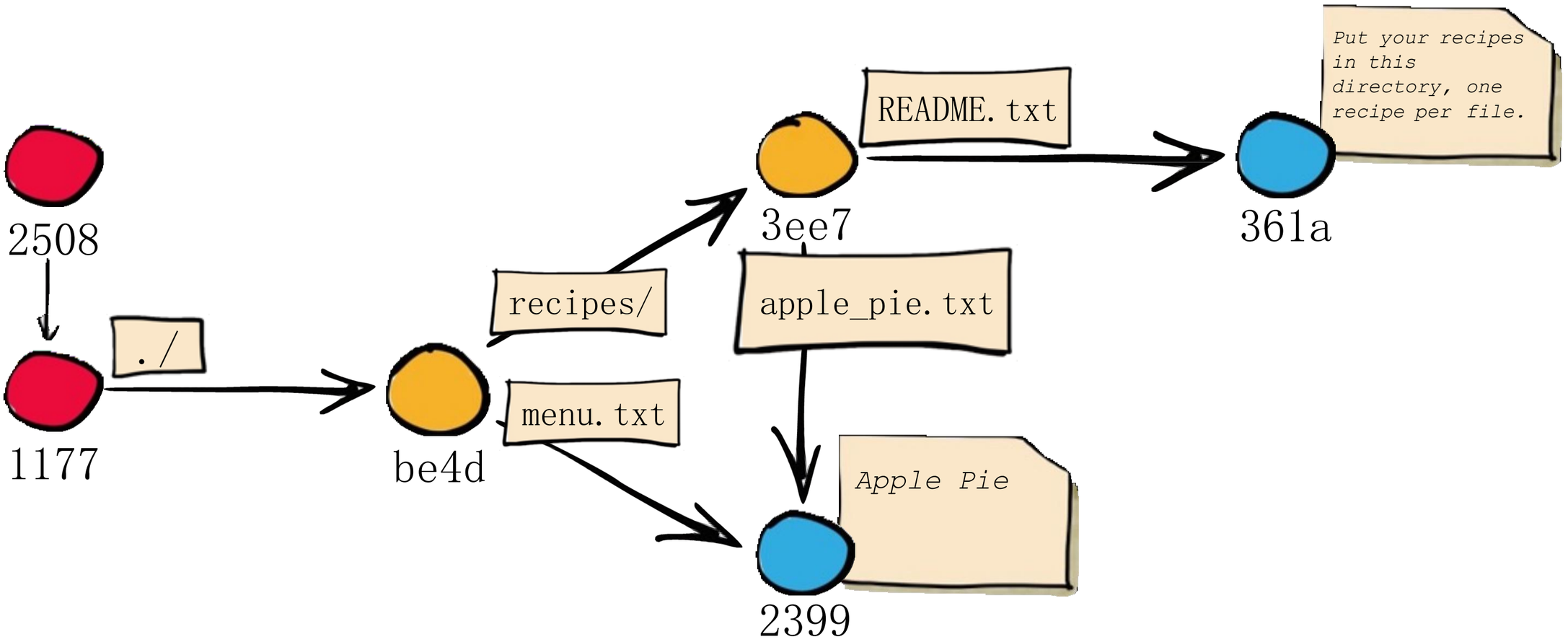

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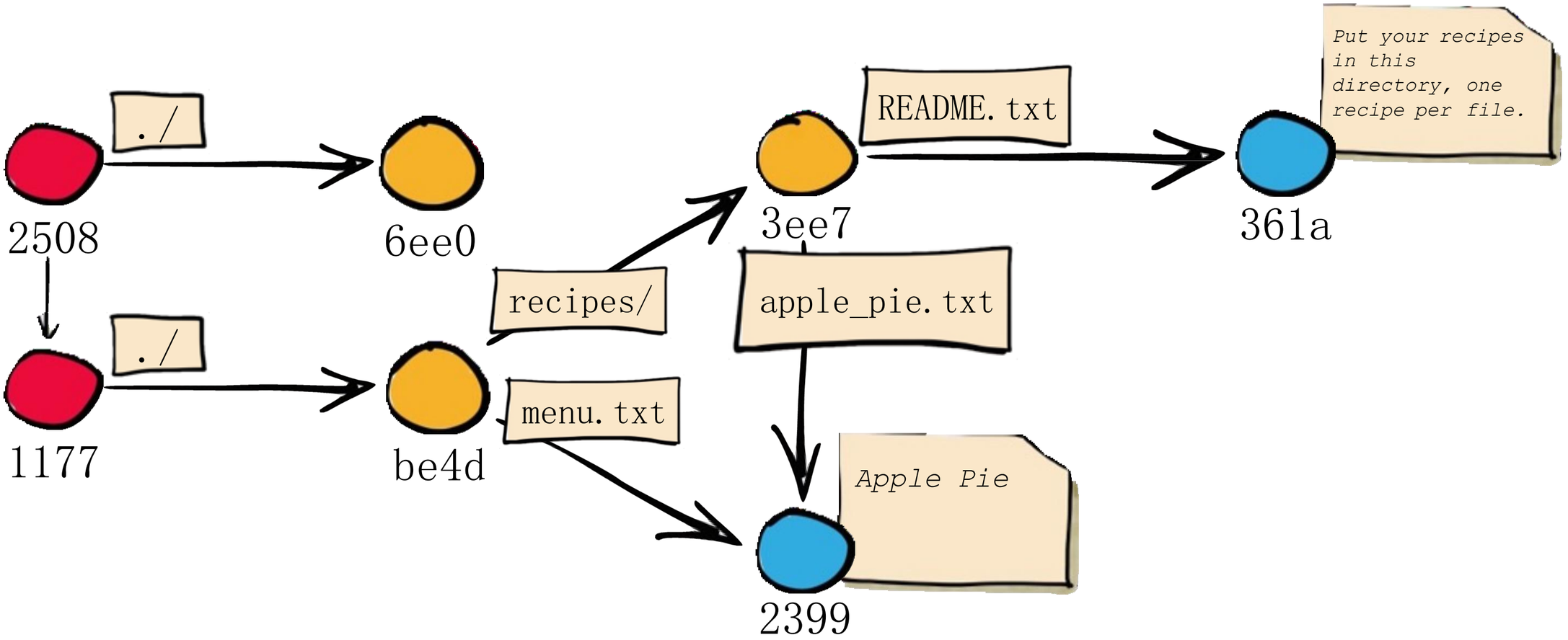

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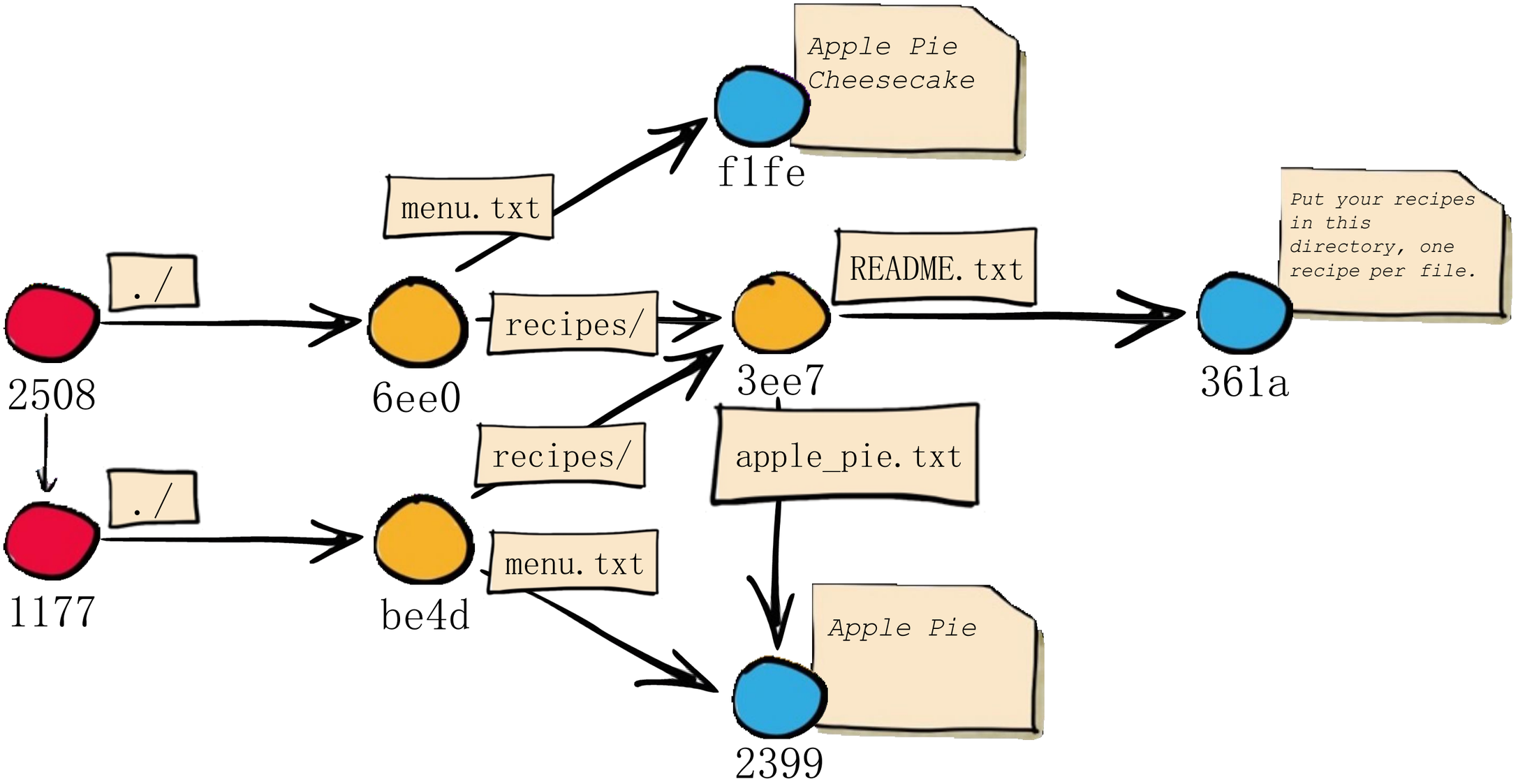

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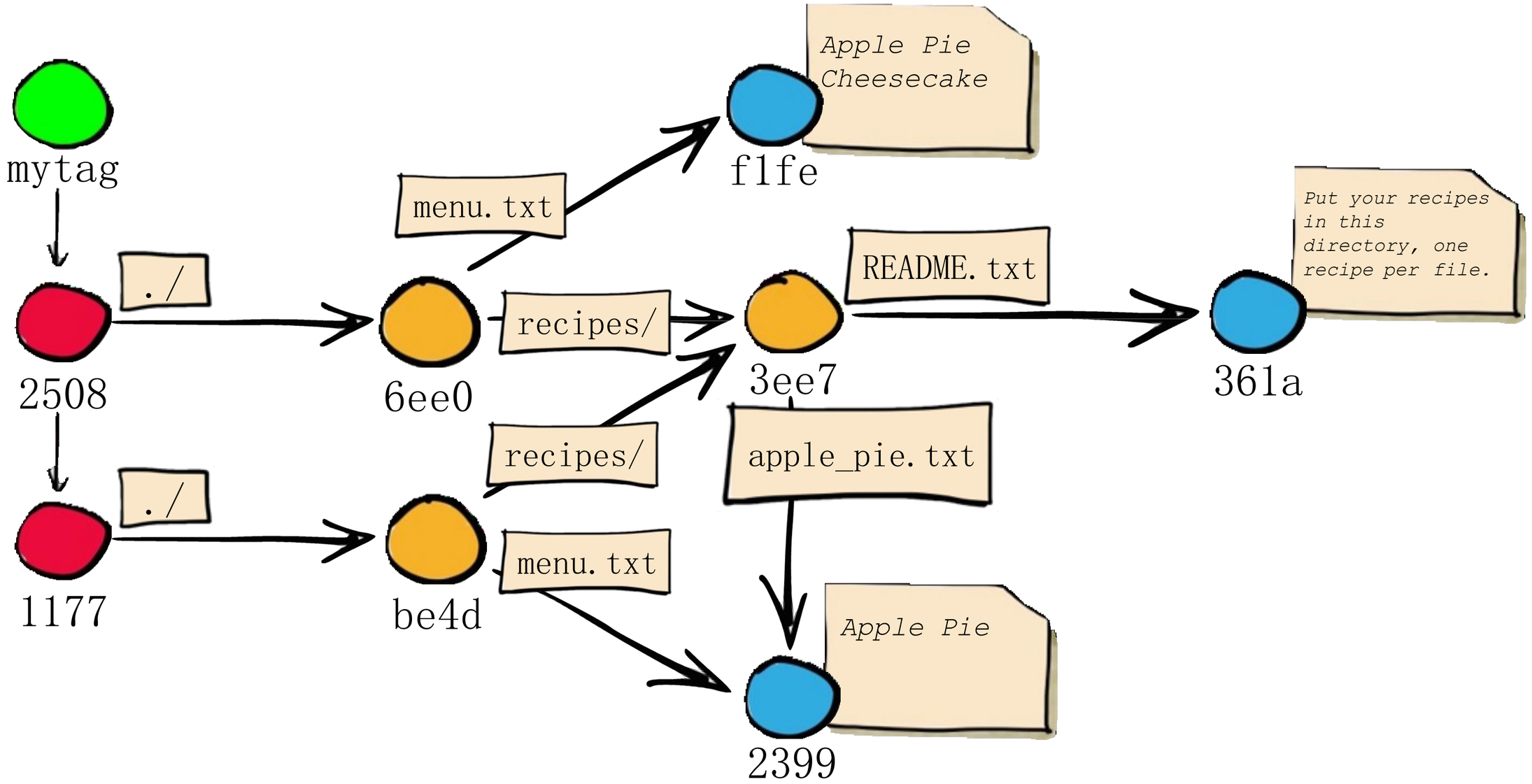
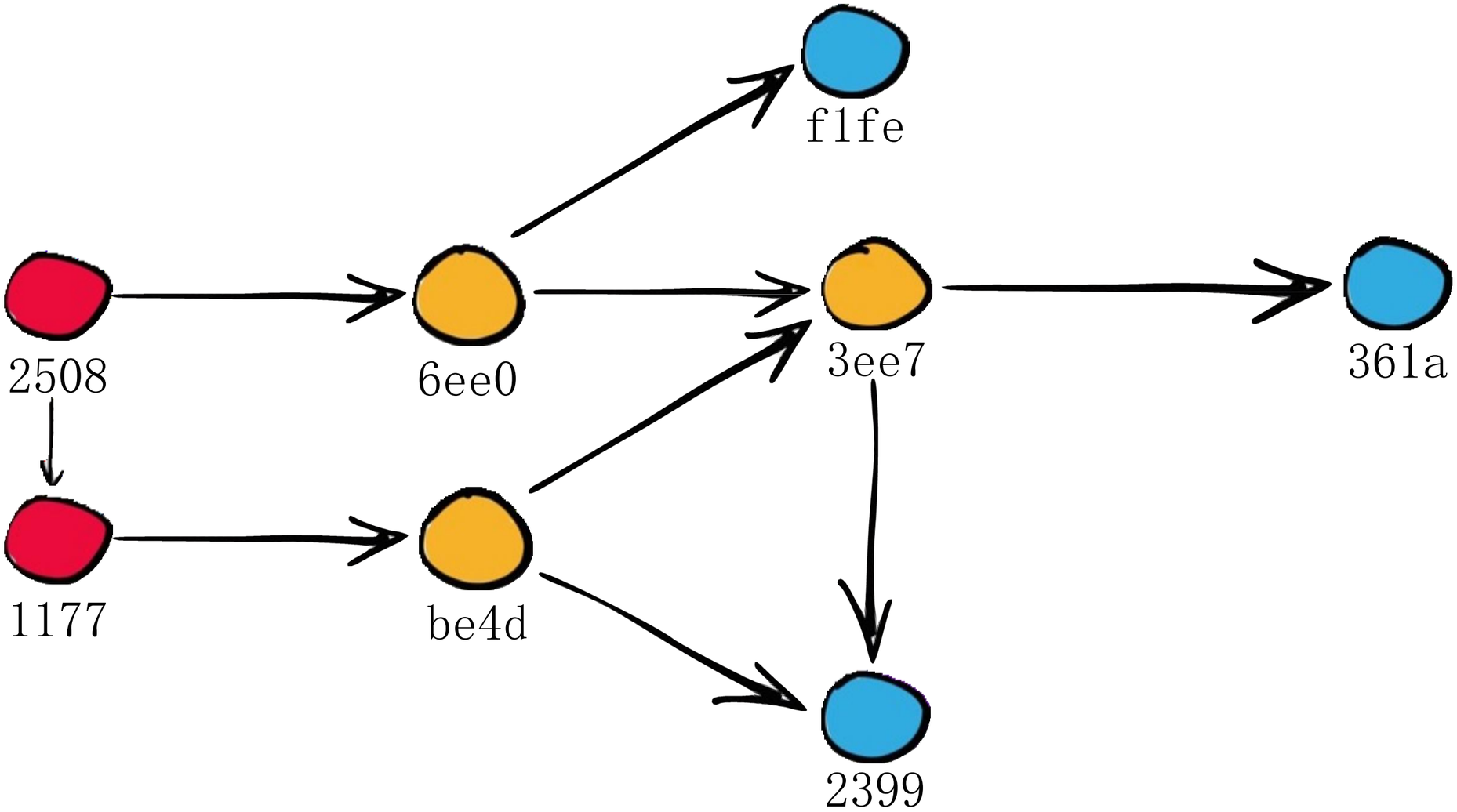


Git Objects

- Blobs
- Trees
- Commits
- Annotated Tags

What Git Really Is



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