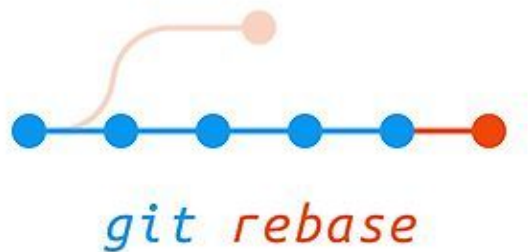


第10章 变基 (Rebase)

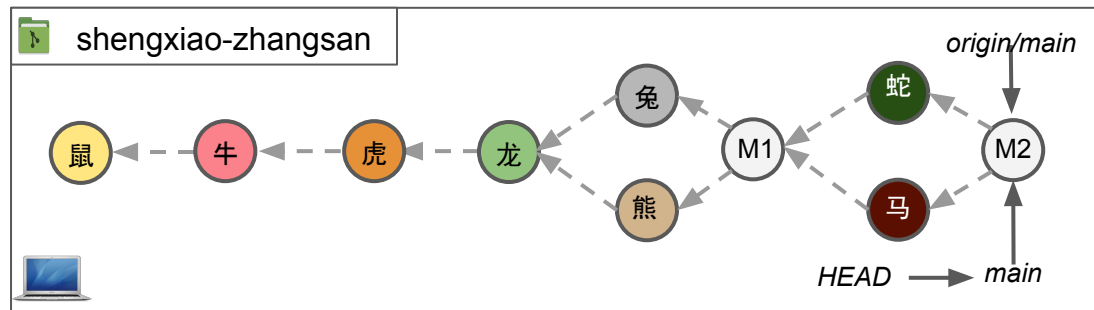
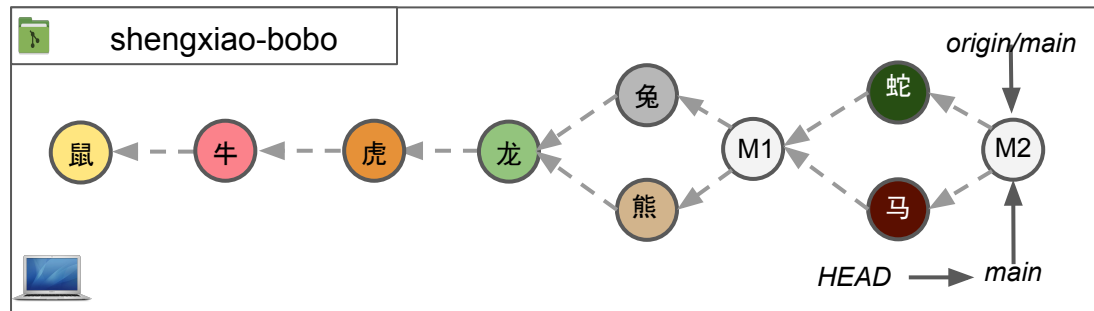
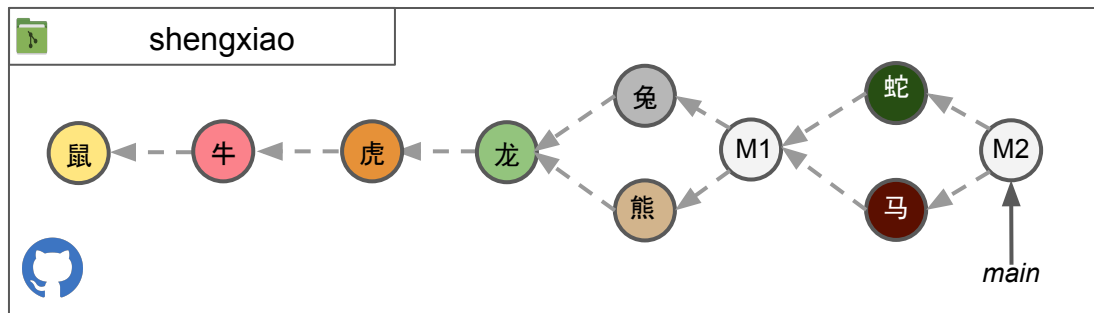


内容大纲

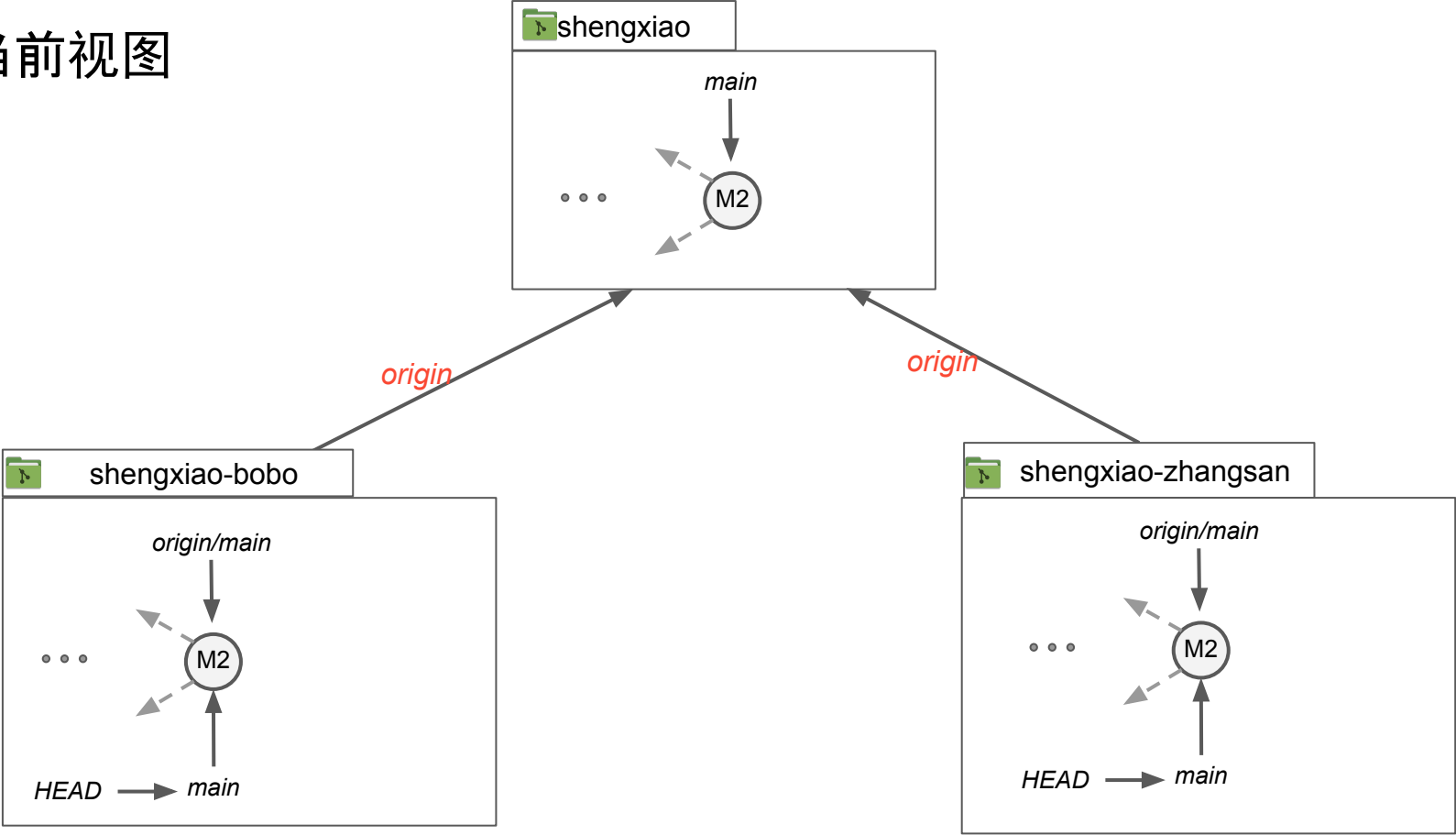
- 演示变基(rebase) + 冲突解决
- 变基过程的五个步骤



当前本地 和远程仓库 完整情况



当前视图

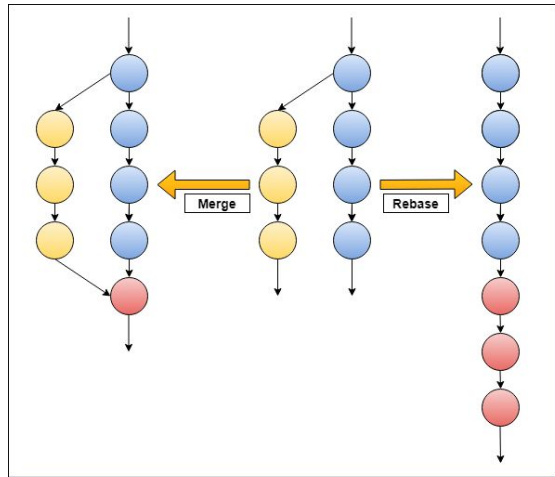


什么是变基？

- 三方合并 -> 非线性历史
- 有些团队或个人希望维持**线性**的项目提交历史 -> 简单清晰
- 变基可以维持**线性**提交历史
- 命令: ***git rebase <branch_name>***
 - 在另外一个分支上重新应用当前分支上的新提交



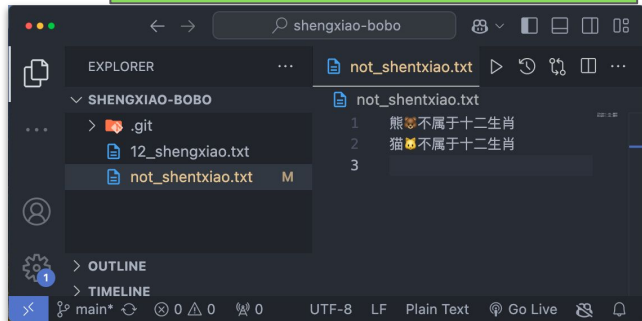
会产生新提交, 改变提交历史



波波准备变基场景 (shengxiao-bobo)

1

1. 添加猫 🐱 不属于十二生肖



2

2. add & commit & push

```
shengxiao-bobo git:(main) x git add not_shentxiao.txt
shengxiao-bobo git:(main) x git commit -m "猫"
[main 8b079f4] 猫
1 file changed, 1 insertion(+)
shengxiao-bobo git:(main) git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 10 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 314 bytes | 314.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/bytevigor/shengxiao.git
1255020d..8b079f4 main -> main
shengxiao-bobo git:(main)
```

3

3. git log

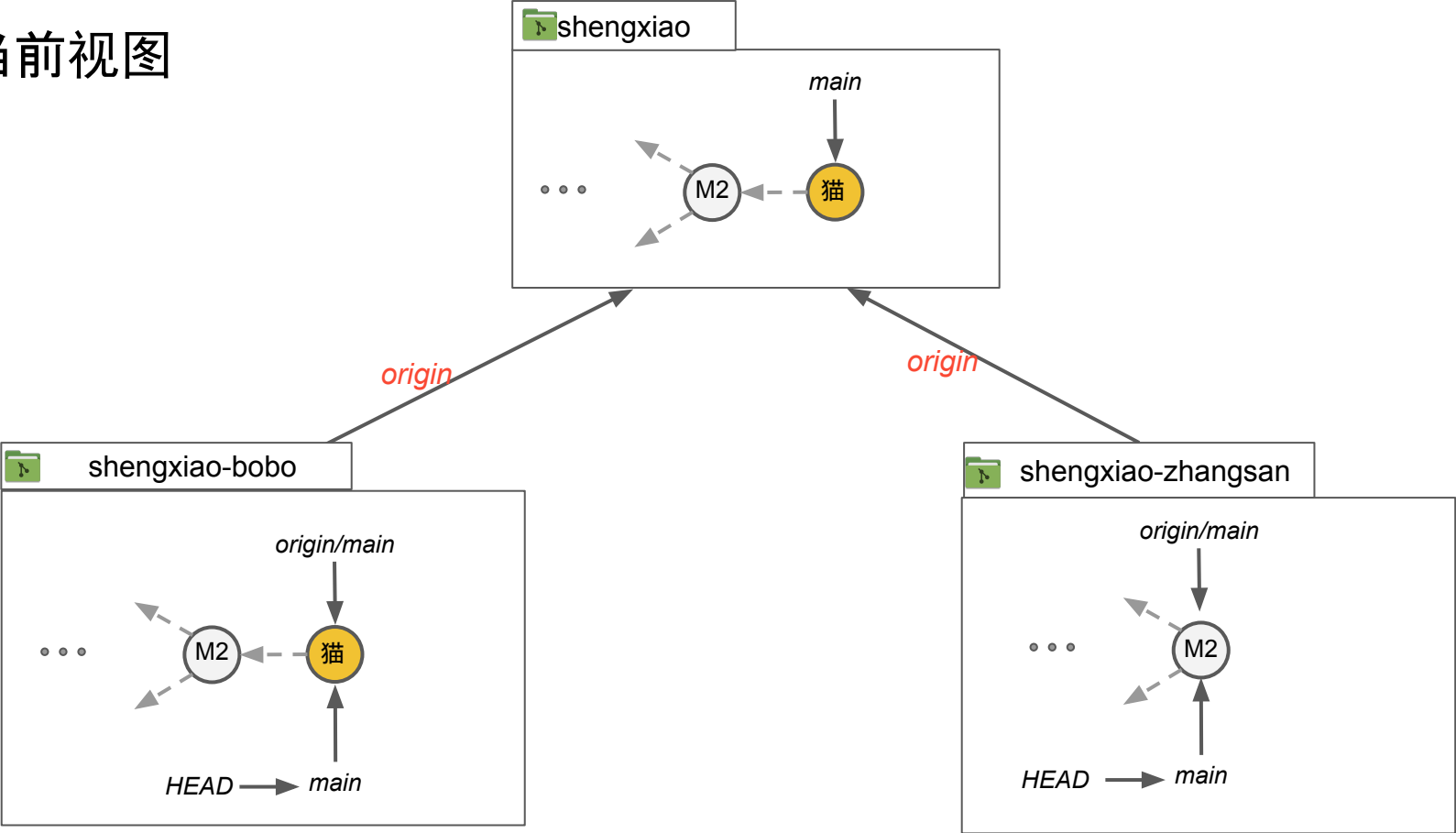
```
shengxiao-bobo git log --git --less -git log -- 63x15
commit 8b079f4b1b1c3188a38890a8f6f3a6d01517ef1a (HEAD -> main,
origin/main)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:06:33 2024 +0800

    猫

commit 1255020d71156185365dd86f0aeda987a2853d55
Merge: 7da9c37 f8013ed
Author: bobo <bobo@boboweike.cn>
Date: Mon Nov 4 12:22:47 2024 +0800

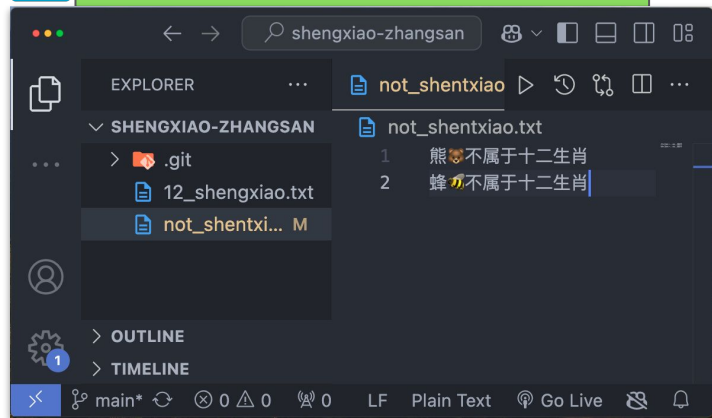
    merge commit 2
```

当前视图

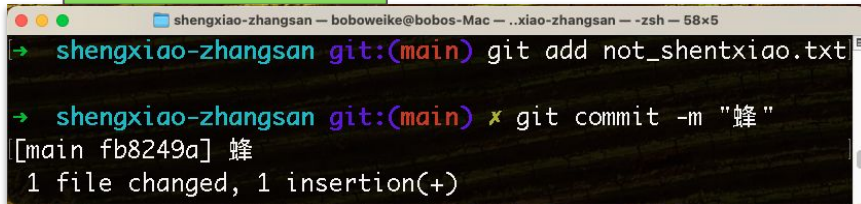


张三准备变基场景 - 提交1 (shengxiao-zhangsan)

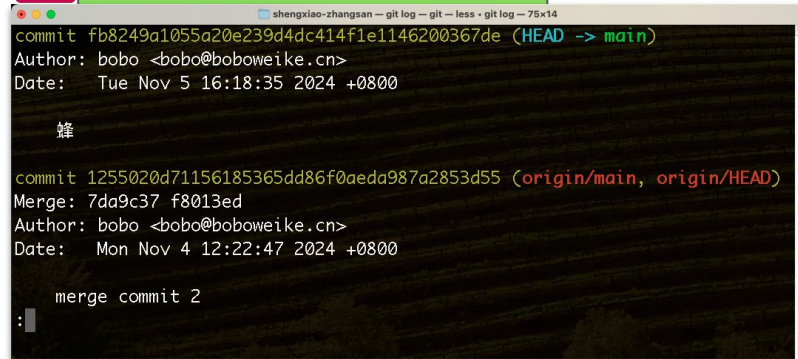
1. 添加蜂🐝不属于十二生肖



2. add & commit

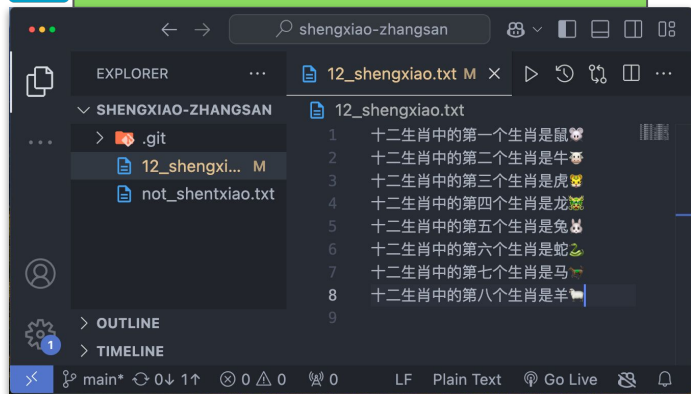


3. git log



张三准备变基场景 - 提交2 (shengxiao-zhangsan)

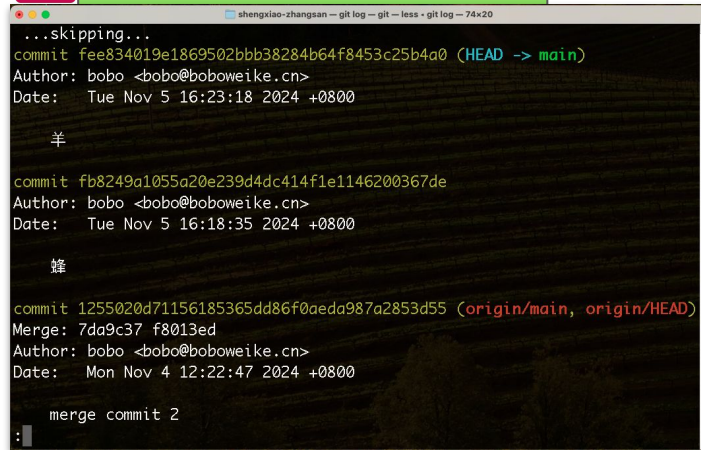
1. 添加十二生肖羊



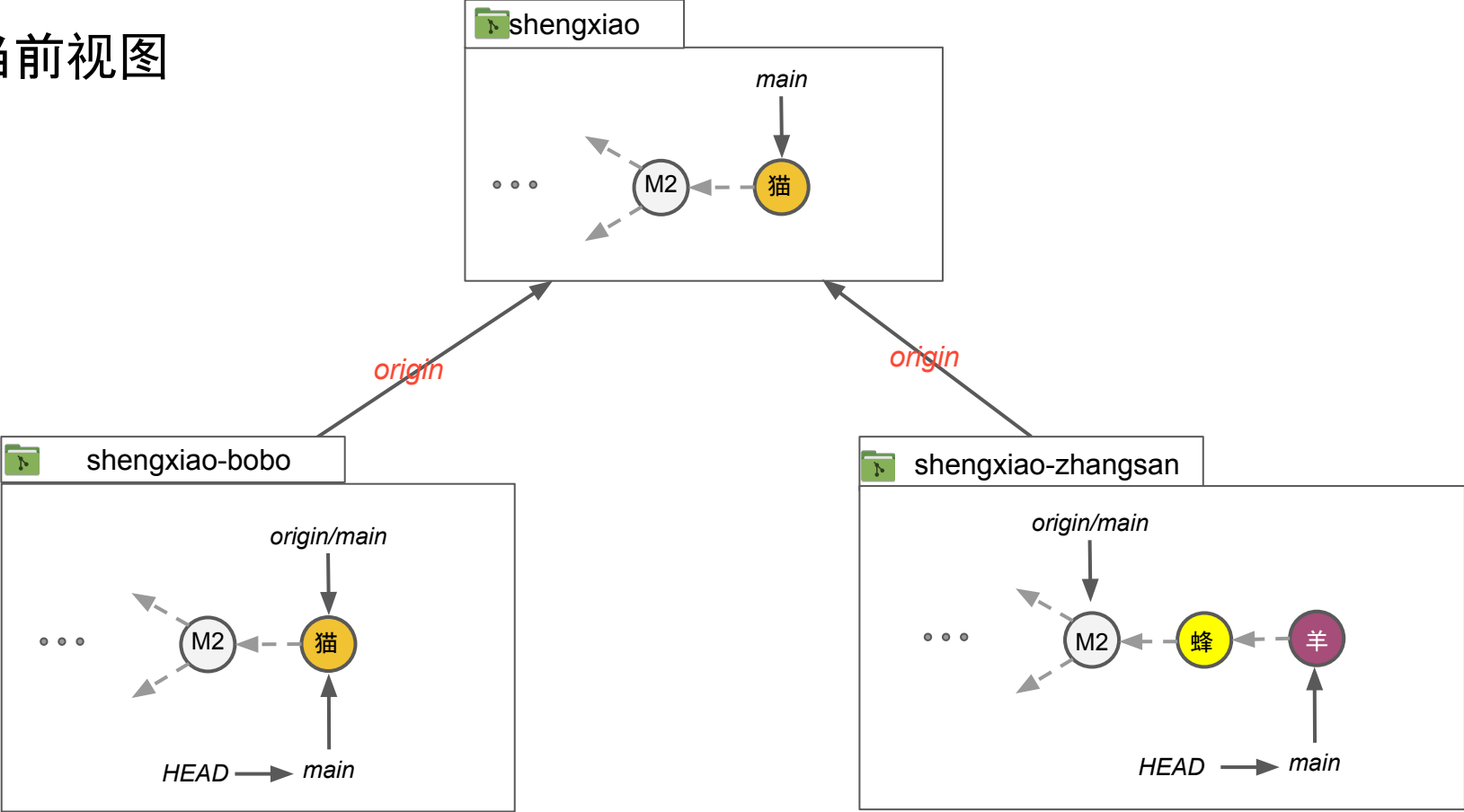
2. add & commit



3. git log



当前视图



张三拉取fetch远程变更 (shengxiao-zhangsan)

1

1. git fetch

```
shengxiao-zhangsan — boboweike@bobos-Mac — ..xiao-zhangsan — zsh — 64x11
→ shengxiao-zhangsan git:(main) git fetch
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 294 bytes | 98.00 KiB/s, done.
From https://github.com/bytevigor/shengxiao
  1255020..8b079f4  main       -> origin/main
→ shengxiao-zhangsan git:(main)
```

2

2. git log --all

```
shengxiao-zhangsan — git log --all — git — less — git log --all — 77x25
commit fee834019e1869502bbb38284b64f8453c25b4a0 (HEAD -> main)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:23:18 2024 +0800

    羊

commit fb8249a1055a20e239d4dc414f1e1146200367de
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:18:35 2024 +0800

    蜂

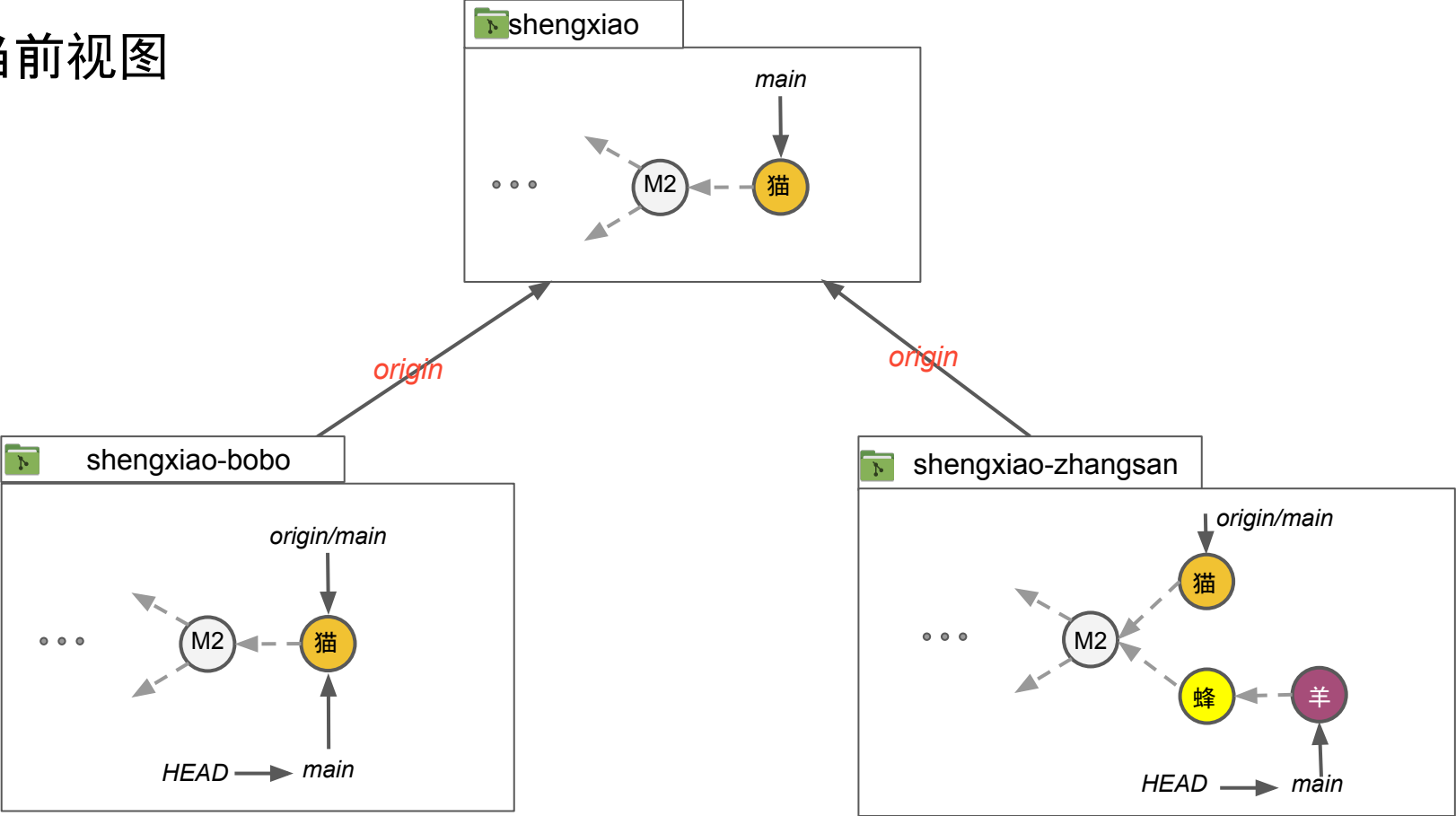
commit 8b079f4b1b1c3188a38890a8f6f3a6d01517ef1a (origin/main, origin/HEAD)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:06:33 2024 +0800

    猫

commit 1255020d71156185365dd86f0aeda987a2853d55
Merge: 7da9c37 f8013ed
Author: bobo <bobo@boboweike.cn>
Date: Mon Nov 4 12:22:47 2024 +0800

    merge commit 2
```

当前视图

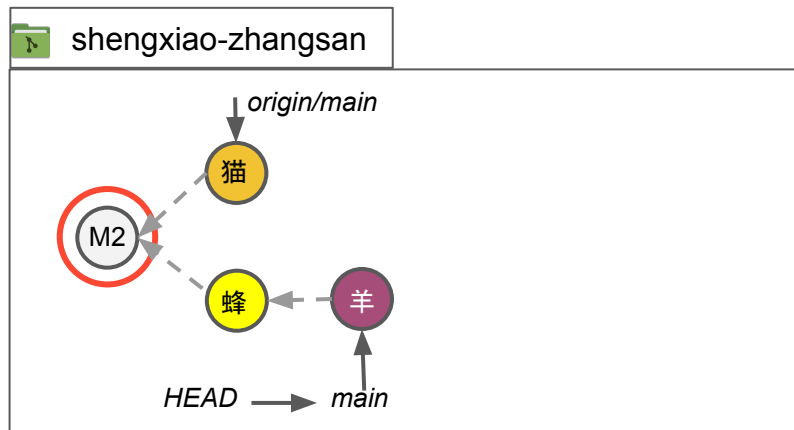


变基过程的五个步骤

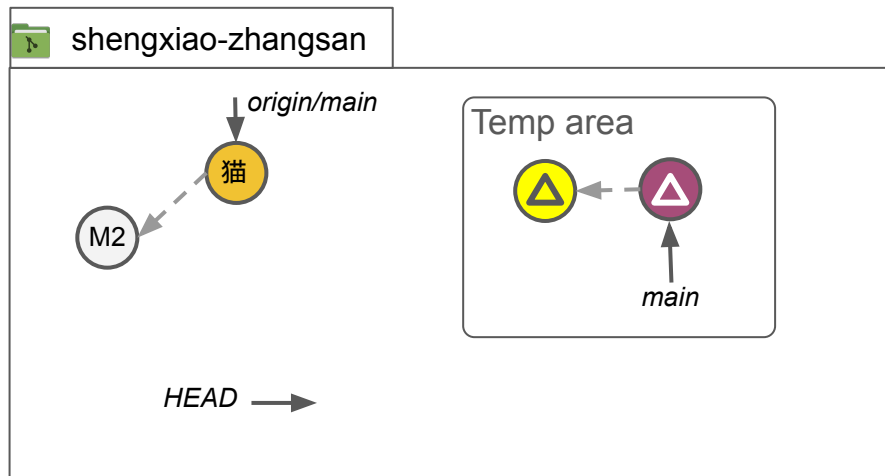
1. 找到共同祖先
2. 暂存要变基的分支信息
3. 重置HEAD
4. 应用+提交变更
5. 切换到变基后的分支



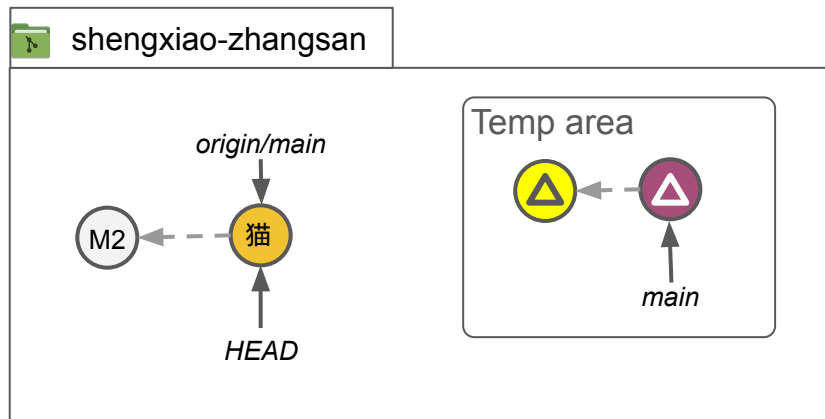
步骤一、找到共同祖先



步骤二、暂存要变基的分支信息

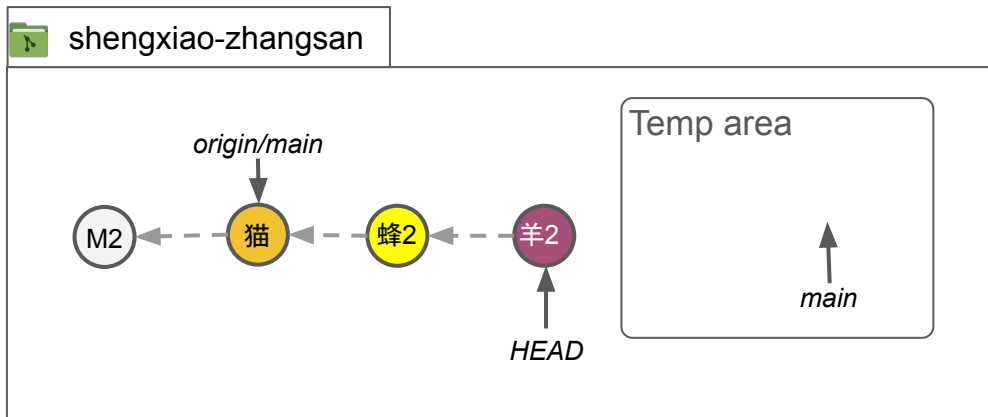
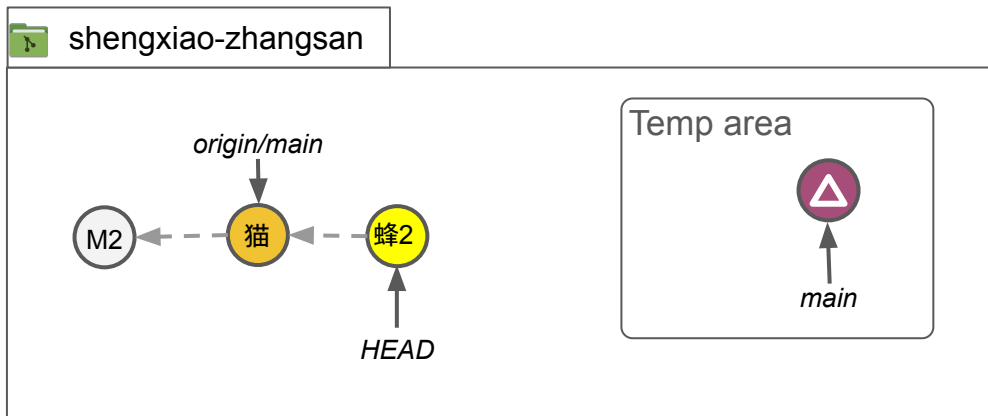


步骤三、重置HEAD

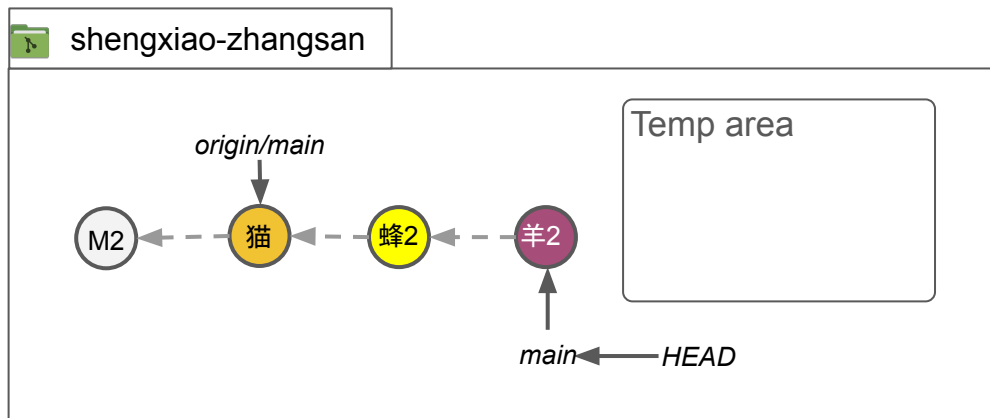


步骤四、应用+提交变更

有冲突时需
人工介入

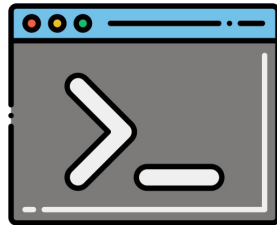


步骤五、切换到变基后的分支

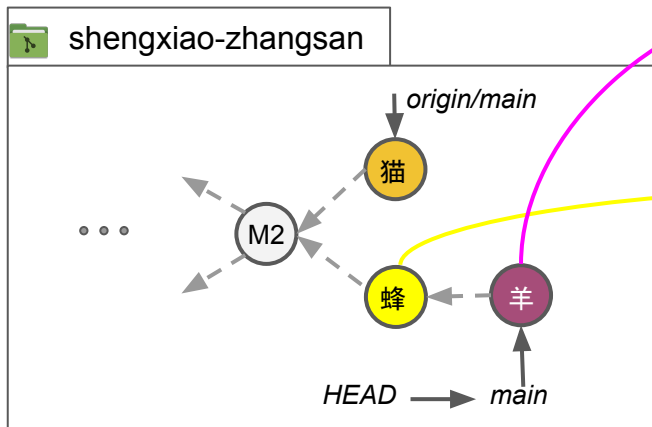


变基+合并冲突

- 冲突时需人工介入(类似三方合并)
 - 对同一文件的相同部分的 变更
 - 一删一改
- 可能会有多次冲突
- 每次解决冲突, 添加到暂存区(无需提交), 继续或撤销变基过程
- 命令
 - `git rebase --continue`
 - 解决冲突后继续变基过程
 - `git rebase --abort`
 - 撤销并回到变基前的状态



张三记录commit hash(shengxiao-zhangsan)



```
shengxiao-zhangsan -- git log -- git -- less - git log -- 63x23
commit 22e0f2952baa5f1b22c89132d885ef1403e8c2e5 (HEAD -> main)
Author: bobo <bobo@boboweike.cn>
Date: Thu Nov 7 11:40:19 2024 +0800

羊

commit fdb62e8283ddfffb99d15e35650147fc889b74db5
Author: bobo <bobo@boboweike.cn>
Date: Thu Nov 7 11:38:19 2024 +0800

蜂

shengxiao-zhangsan
commit 0c9d37c2f99bfb2f66d224fe525be95c74b62415
Merge: b4607a7 77d4a4d
Author: bobo <bobo@boboweike.cn>
Date: Mon Nov 4 22:38:05 2024 +0800

M2

commit b4607a78a055b3902294bfd7396df9705fcbad8
Author: bobo <bobo@boboweike.cn>
Date: Mon Nov 4 22:29:59 2024 +0800

:

```

张三开始变基过程(shengxiao-zhangsan)

1

1. git rebase origin/main

```
shengxiao-zhangsan git:(main) git rebase origin/main
Auto-merging not_shentxiao.txt
CONFLICT (content): Merge conflict in not_shentxiao.txt
error: could not apply fb8249a... 蜂
hint: Resolve all conflicts manually, mark them as resolved with
hint: "git add/rm <conflicted_files>", then run "git rebase --cont
inue".
hint: You can instead skip this commit: run "git rebase --skip".
hint: To abort and get back to the state before "git rebase", run
"git rebase --abort".
Could not apply fb8249a... 蜂
→ shengxiao-zhangsan git:(8b079f4) *
```

2

2. git log --all

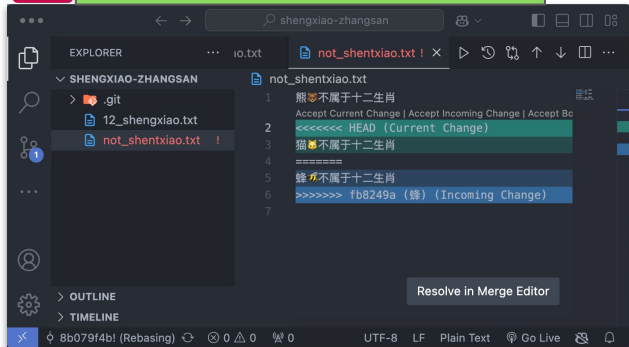
```
shengxiao-zhangsan git:(8b079f4) * git status
interactive rebase in progress; onto 8b079f4
Last command done (1 command done):
  pick fb8249a 蜂
Next command to do (1 remaining command):
  pick fee8340 羊
(use "git rebase --edit-todo" to view and edit)
You are currently rebasing branch 'main' on '8b079f4'.
(fix conflicts and then run "git rebase --continue")
(use "git rebase --skip" to skip this patch)
(use "git rebase --abort" to check out the original branch)

Unmerged paths:
  (use "git restore --staged <file>..." to unstage)
  (use "git add <file>..." to mark resolution)
    both modified:   not_shentxiao.txt

no changes added to commit (use "git add" and/or "git commit -a")
→ shengxiao-zhangsan git:(8b079f4) *
```

3

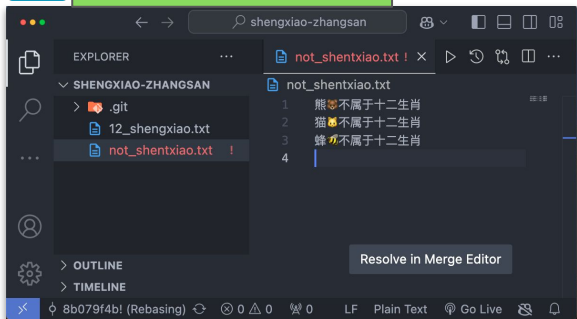
3. 检查冲突



张三解决冲突(shengxiao-zhangsan)

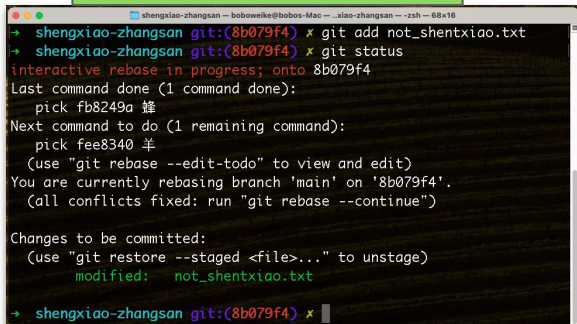
1

1. 编辑解决冲突



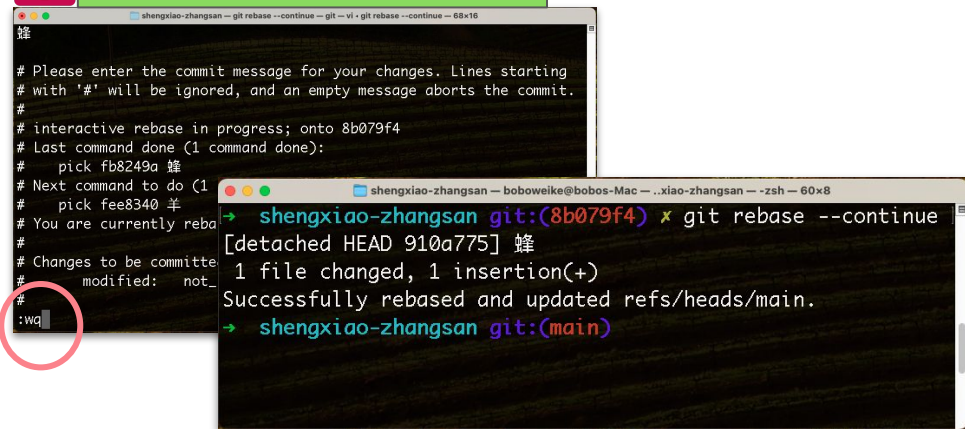
2

2. git add & status



3

3. git rebase --continue



张三变基成功 (shengxiao-zhangsan)

变基改变提交历史

```
shengxiao-zhangsan — git log — git — less · git log — 66x18
commit fee834019e1869502bbb38284b64f8453c25b4a0 (HEAD -> main)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:23:18 2024 +0800

羊

commit fb8249a1055a20e239d4dc414f1e1146200367de
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:18:35 2024 +0800

蜂

commit 1255020d71156185365dd86f0aeda987a2853d55
Merge: 7da9c37 f8013ed
Author: bobo <bobo@boboweike.cn>
Date: Mon Nov 4 12:22:47 2024 +0800

:
```

```
shengxiao-zhangsan — git log — git — less · git log — 80x27
commit 7bd7bd5d08a5ddbc39053aa121eaf3ab40954a3b (HEAD -> mai
n)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:23:18 2024 +0800

羊

commit 910a77585768d6daf5e6431a7e6c0b8bfb5c3915
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:18:35 2024 +0800

蜂

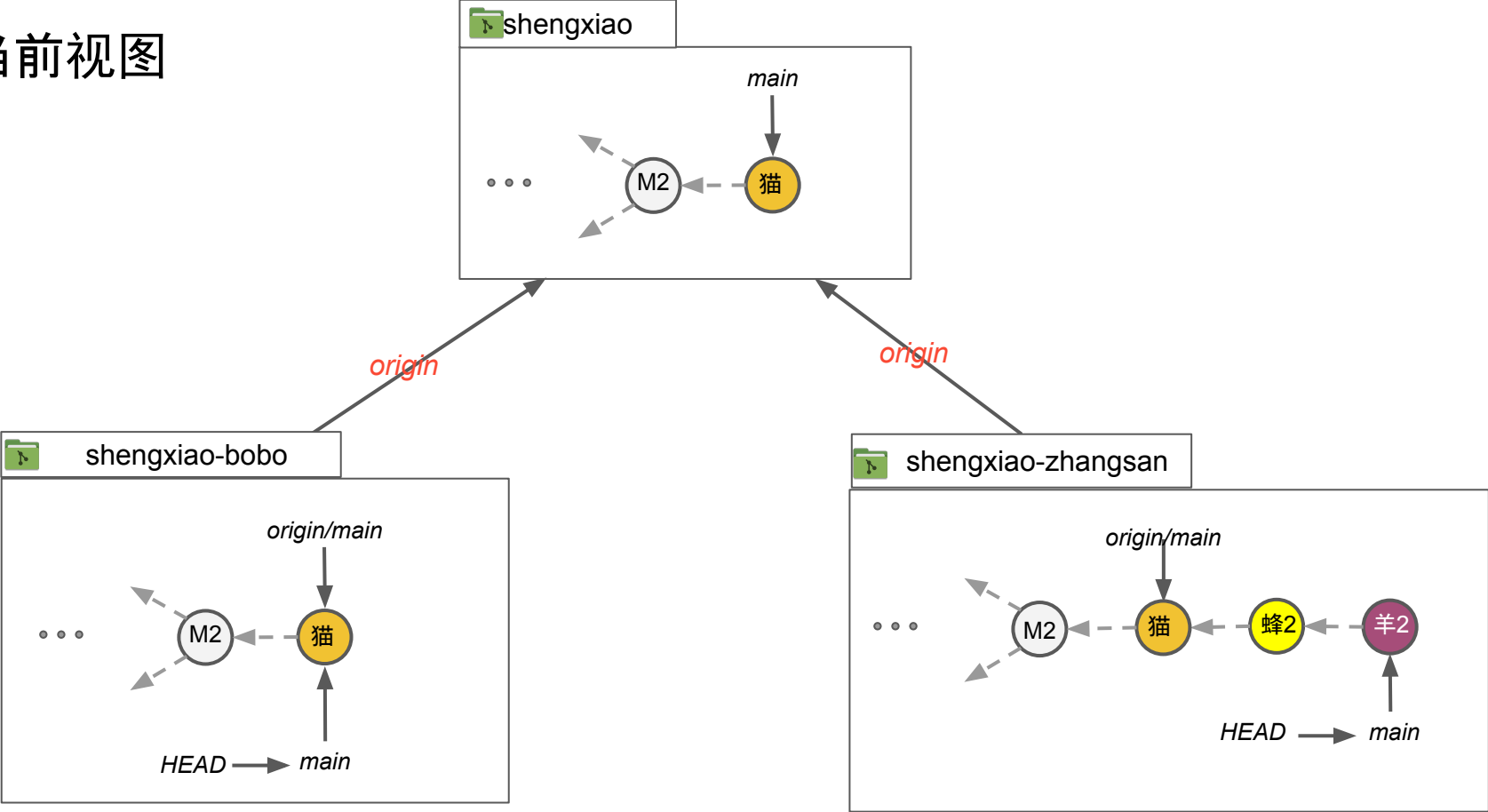
commit 8b079f4b1b1c3188a38890a8f6f3a6d01517ef1a (origin/main
, origin/HEAD)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:06:33 2024 +0800

猫

commit 1255020d71156185365dd86f0aeda987a2853d55
Merge: 7da9c37 f8013ed
Author: bobo <bobo@boboweike.cn>
Date: Mon Nov 4 12:22:47 2024 +0800

:
merge commit 2
:
```


当前视图



张三推到(push)远程仓库(shengxiao-zhangsan)

1

1. git push

```
shengxiao-zhangsan — boboweike@bobos-Mac — ...xiao-zhangsan — zsh — 60x13
→ shengxiao-zhangsan git:(main) git push
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 10 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 628 bytes | 628.00 KiB/s, done.
Total 6 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local
object.
To https://github.com/bytevigor/shengxiao.git
 8b079f4..7bd7bd5 main -> main
→ shengxiao-zhangsan git:(main)
```

2

2. git log

```
shengxiao-zhangsan — git log — less — git log — 63x19
commit 7bd7bd5d08a5ddbc39053aa121eaf3ab40954a3b (HEAD -> main,
origin/main, origin/HEAD)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:23:18 2024 +0800

    羊

commit 910a77585768d6daf5e6431a7e6c0b8bfb5c3915
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:18:35 2024 +0800

    蜂

commit 8b079f4b1b1c3188a38890a8f6f3a6d01517ef1a
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:06:33 2024 +0800

    猫

:
```

波波拉取(pull)合并到本地(shengxiao-bobo)

1

1. git pull

```
shengxiao-bobo — boboweike@bobos-Mac — ..hengxiao-bobo — zsh — 63x19
→ shengxiao-zhangsan git:(main) cd ..
→ prep cd shengxiao-bobo
→ shengxiao-bobo git:(main) ls
12_shengxiao.txt  not_shentxiao.txt
→ shengxiao-bobo git:(main) git pull
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 6 (delta 1), reused 6 (delta 1), pack-reused 0 (from 0)
Unpacking objects: 100% (6/6), 608 bytes | 101.00 KiB/s, done.
From https://github.com/bytevigor/shengxiao
  8b079f4..7bd7bd5  main      -> origin/main
Updating 8b079f4..7bd7bd5
Fast-forward
 12_shengxiao.txt | 1 +
not_shentxiao.txt | 1 +
 2 files changed, 2 insertions(+)
→ shengxiao-bobo git:(main)
```

2

2. git log

```
shengxiao-bobo — git log — git — less · git log — 63x19
commit 7bd7bd5d08a5ddbc39053aa121eaf3ab40954a3b (HEAD -> main,
origin/main)
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:23:18 2024 +0800

    羊

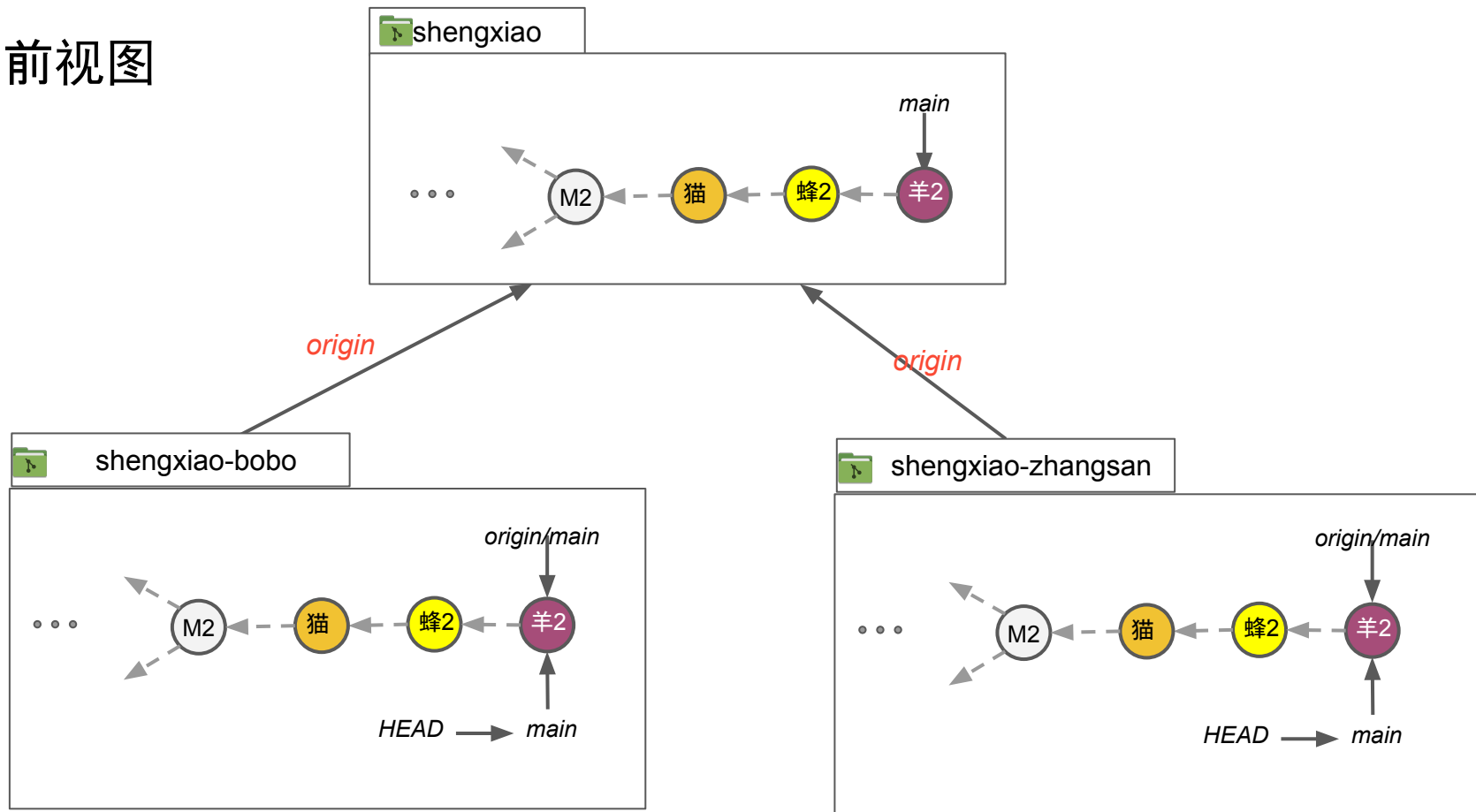
commit 910a77585768d6daf5e6431a7e6c0b8bfb5c3915
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:18:35 2024 +0800

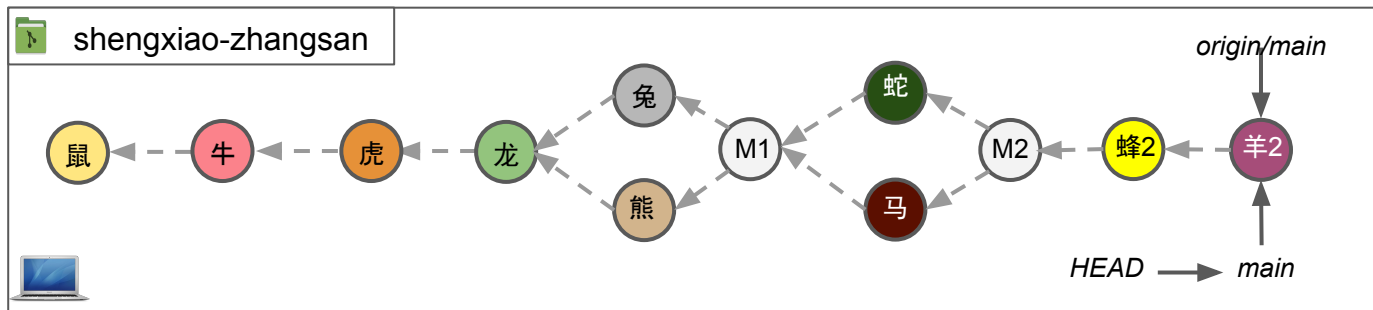
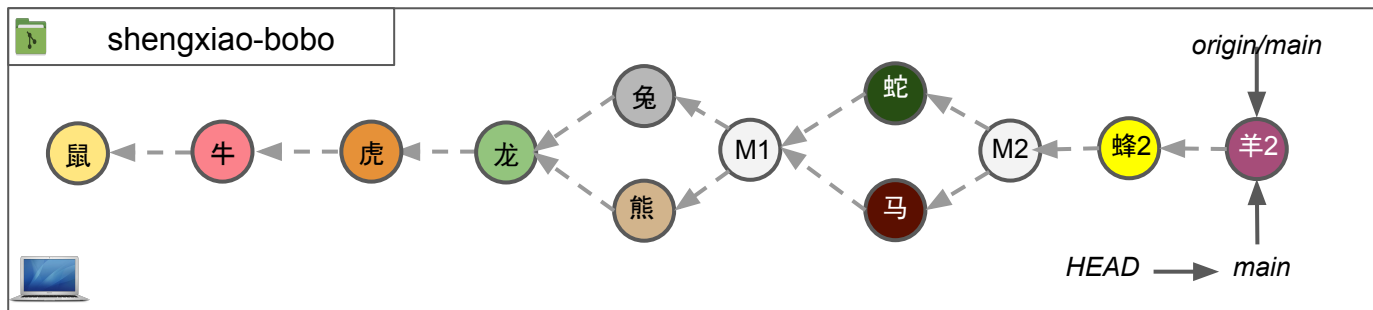
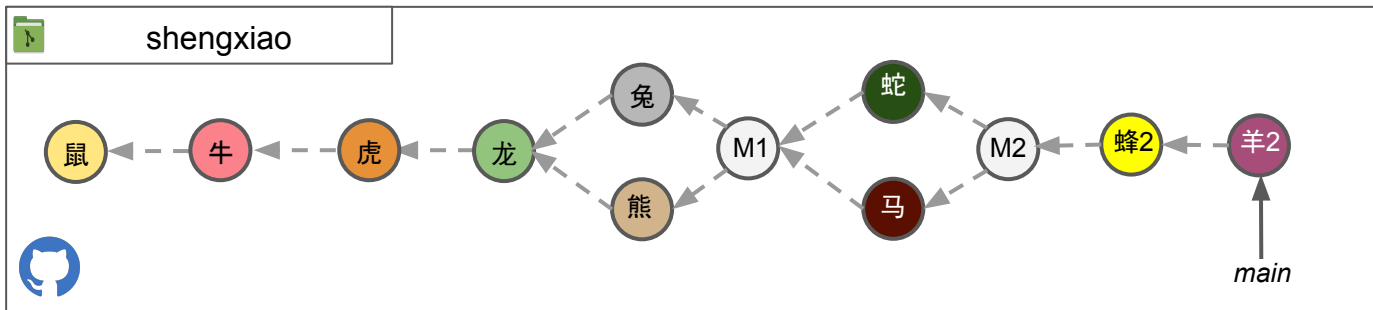
    蜂

commit 8b079f4b1b1c3188a38890a8f6f3a6d01517ef1a
Author: bobo <bobo@boboweike.cn>
Date: Tue Nov 5 16:06:33 2024 +0800

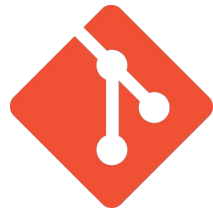
    猫
:
```

当前视图





本课小结



- 演示变基(rebase)+冲突解决
 - 变基可以保持线性提交历史, 但是会改变提交历史
 - 变基的五个步骤
- 变基的黄金法则
 - 不要对他人可能已基于其工作的分支 进行rebase
 - 可rebase的情况
 - 你的本地分支 还未被推到远程仓库
 - 你的本地分支 已经被推到远程仓库, 但是你100%确信其他人还没有在这个分支上工作/贡献
- 下节课预览
 - 合并请求(pull request)