```
MINGW64:/c/Users/k1e7l/gffrr ×
$ git init gline
Initialized empty Git repository in C:/Users/k1e7l/gline/.git/
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~
$ cd gline
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (main)
$ echo 111 > f
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (main)
$ git add f
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (main)
$ git commit -m 1
[main (root-commit) 107717b] 1
1 file changed, 1 insertion(+)
create mode 100644 f
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (main)
$ git switch -c topic
Switched to a new branch 'topic'
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ echo aaa > g
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ git add g
$ git commit -m A
[topic 1de7fea] A
1 file changed, 1 insertion(+)
create mode 100644 g
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ echo bbb >> g
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ git commit -am B
[topic 7ee3c71] B
1 file changed, 1 insertion(+)
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ git log --all --graph --oneline
* 7ee3c71 (HEAD -> topic) B
* 1de7fea A
* 107717b (main) 1
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ git config --global alias.lgag1 'log --all --
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ git config --global alias.lgag1 'log --all --graph --oneline'
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ git lgag1
* 7ee3c71 (HEAD -> topic) B
* 1de7fea A
* 107717b (main) 1
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gline (topic)
$ cd ..
```

```
MINGW64:/c/Users/k1e7l/gffrr × + v
$ cp -r gline gffm
  k1e7l@BOOK-V2TI5OAE9C MINGW64 ~
 $ cd gffm
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
* 7ee3c71 (HEAD -> topic) B
* 1de7fea A
* 107717b (main) 1
  k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ cd ..
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~</pre>
$ cp -r gline gffm
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~</pre>
$ cd gffm
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
$ git lgag1
* 7ee3c71 (HEAD -> topic) B
* 1de7fea A
* 107717b (main) 1
  k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
 $ git switch main
Switched to branch 'main'
  (1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git merge topic
 Updating 107717b..7ee3c71
Fast-forward
 g | 2 ++
 1 file changed, 2 insertions(+)
  create mode 100644 g
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git lgag1
* 7ee3c71 (HEAD -> main, topic) B
* 1de7fea A
* 107717b 1
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (main)</pre>
$ git lgag1
* 7ee3c71 (HEAD -> main, topic) B
* 1de7fea A
 * 107717b 1
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
 $ git reset --hard 107717b
 HEAD is now at 107717b 1
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git lgag1
* 7ee3c71 (topic) B
* 1de7fea A
 * 107717b (HEAD -> main) 1
  <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (main)</pre>
 $ git lgag1
* 7ee3c71 (topic) B
* 1de7fea A
```

```
MINGW64:/c/Users/k1e7l/gffrr ×
  1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git reset --hard 107717b
HEAD is now at 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (main)</pre>
$ git lgag1
* 7ee3c71 (topic) B
* 1de7fea A
* 107717b (HEAD -> main) 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git merge topic --ff-only
Updating 107717b..7ee3c71
Fast-forward
 q | 2 ++
 1 file changed, 2 insertions(+) create mode 100644 g
 (1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (main)
* 7ee3c71 (HEAD -> main, topic) B
* 1de7fea A
* 107717b 1
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git reset --hard 3d00e27
fatal: ambiguous argument '3d00e27': unknown revision or path not in the working tree.
Use '--' to separate paths from revisions, like this:
 'git <command> [<revision>...] -- [<file>...]'
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git lgag1
* 7ee3c71 (HEAD -> main, topic) B
* 1de7fea A
* 107717b 1
  1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git lgag1
* 7ee3c71 (HEAD -> main, topic) B
 * 1de7fea A
 * 107717b 1
  1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git merge topic --no-ff
Already up to date.
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</p>
$ git lgag1
* 7ee3c71 (HEAD -> main, topic) B
* 1de7fea A
 * 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git merge --no-ff topic
Already up to date.
  1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git reset --hard
HEAD is now at 7ee3c71 B
  1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git reset --hard 107717b
HEAD is now at 107717b 1
```

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MINGW64:/c/Users/k1e7l/gffrr ×
$ git lgag1
* 7ee3c71 (topic) B
* 1de7fea A
* 107717b (HEAD -> main) 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git lgag1
* 7ee3c71 (topic) B
* 1de7fea A
* 107717b (HEAD -> main) 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git merge topic --no-ff -m 'merge --no--ff'
Merge made by the 'ort' strategy.
 g | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 g
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
 * Ob9cee8 (HEAD -> main) merge --no--ff
  * 7ee3c71 (topic) B
* 1de7fea A
 * 107717b 1
 <1e7l@BOOK-V2TI50AE9C MINGW64 ~/gffm (main)</pre>
$ git reset --hard 107717b
HEAD is now at 107717b 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git lgag1
* 7ee3c71 (topic) B
* 1de7fea A
* 107717b (HEAD -> main) 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ echo 222 >> f
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git commit -am 2
[main 963db84] 2
 1 file changed, 1 insertion(+)
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git lgag1
* 963db84 (HEAD -> main) 2
| * 7ee3c71 (topic) B
   * 1de7fea A
 * 107717b 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ ls
f gline/
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git lgag1
* 963db84 (HEAD -> main) 2
| * 7ee3c71 (topic) B
  * 1de7fea A
 * 107717b 1
```

```
MINGW64:/c/Users/k1e7l/qffrr × + v
$ git merge topic -m '3-awy merge'
Merge made by the 'ort' strategy.
g | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 g
 1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
* 63b5d67 (HEAD -> main) 3-awy merge
  * 7ee3c71 (topic) B
 * 1de7fea A
    963db84 2
* 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git reset --hard 63b5d67
HEAD is now at 63b5d67 3-awy merge
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git lgag1
* 63b5d67 (HEAD -> main) 3-awy merge
  * 7ee3c71 (topic) B
 * 1de7fea A
* 963db84 2
* 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git merge topic -m msg
merge: -m - not something we can merge
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git lgag1
   63b5d67 (HEAD -> main) 3-awy merge
  * 7ee3c71 (topic) B
 * 1de7fea A
   963db84 2
* 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</p>
$ git merge --squash topic
Already up to date. (nothing to squash)
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)</pre>
$ git commit -m 'Squash merge 3AB'
On branch main
Untracked files:
  (use "git add <file>..." to include in what will be committed)
nothing added to commit but untracked files present (use "git add" to track)
 le7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git lgag1
* 63b5d67 (HEAD -> main) 3-awy merge
  * 7ee3c71 (topic) B
  * 1de7fea A
* 963db84 2
```

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MINGW64:/c/Users/k1e7l/gffrr ×
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ ls
f g gline/
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (main)
$ git switch topic
Switched to branch 'topic'
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ git lgag1
* 63b5d67 (main) 3-awy merge
  * 7ee3c71 (HEAD -> topic) B
| * 1de7fea A
* | 963db84 2
* 107717b 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ git log --oneline
7ee3c71 (HEAD -> topic) B
 1de7fea A
107717b 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (topic)
$ ls
f g gline/
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (topic)
$ git lgag1
   63b5d67 (main) 3-awy merge
  * 7ee3c71 (HEAD -> topic) B
  * 1de7fea A
* | 963db84 2
* 107717b 1
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (topic)
$ git switch -Switched to branch 'main'
error: unknown switch 'S'
usage: git switch [<options>] [<branch>]
    -c, --create <branch> create and switch to a new branch
     -C, --force-create <branch>
                           create/reset and switch to a branch
                           second guess 'git switch <no-such-branch>'
     --quess
                           throw away local modifications
    --discard-changes
     -q, --quiet
                           suppress progress reporting
     --recurse-submodules[=<checkout>]
                           control recursive updating of submodules
    --progress
                           force progress reporting
    -m, --merge
                           perform a 3-way merge with the new branch
    --conflict <style>
                          conflict style (merge, diff3, or zdiff3)
    -d, --detach
                          detach HEAD at named commit
    -t, --track[=(direct|inherit)]
                           set branch tracking configuration
                           force checkout (throw away local modifications)
    -f, --force
    --orphan <new-branch> new unparented branch
     --overwrite-ignore update ignored files (default)
    --ignore-other-worktrees
                           do not check if another worktree is holding the given ref
```

```
MINGW64:/c/Users/k1e7l/gffrr ×
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (topic)</pre>
$ git lgag1
* 63b5d67 (main) 3-awy merge
  * 7ee3c71 (HEAD -> topic) B
  * 1de7fea A
  963db84 2
* 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
$ git reset --hard HEAD~
HEAD is now at 1de7fea A
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
$ git lgag1
* 63b5d67 (main) 3-awy merge
  * 7ee3c71 B
  * 1de7fea (HEAD -> topic) A
  963db84 2
* 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/qffm (topic)</pre>
$ cat f
111
k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ echo 333 >> f
k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ git status
On branch topic
Changes not staged for commit:
 (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
Untracked files:
 (use "git add <file>..." to include in what will be committed)
no changes added to commit (use "git add" and/or "git commit -a")
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
$ git merge topic -m '3-way merge'
Already up to date.
k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ git status
On branch topic
Changes not staged for commit:
 (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
Untracked files:
 (use "git add <file>..." to include in what will be committed)
no changes added to commit (use "git add" and/or "git commit -a")
```

```
MINGW64:/c/Users/k1e7l/qffrr ×
 <1e7l@BOOK-V2TI50AE9C MINGW64 ~/gffm (topic)</pre>
$ git merge topic -m '3-way merge'
Already up to date.
 k1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)
$ git status
On branch topic
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
   (use "git restore <file>..." to discard changes in working directory)
Untracked files:
  (use "git add <file>..." to include in what will be committed)
 no changes added to commit (use "git add" and/or "git commit -a")
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
$ git lgag1
* 63b5d67 (main) 3-awy merge
  * 7ee3c71 B
 | * 1de7fea (HEAD -> topic) A
* | 963db84 2
 * 107717b 1
 <1e7l@BOOK-V2TI5OAE9C MINGW64 ~/gffm (topic)</pre>
```