



SWAT

Pending Evolution of Grammars

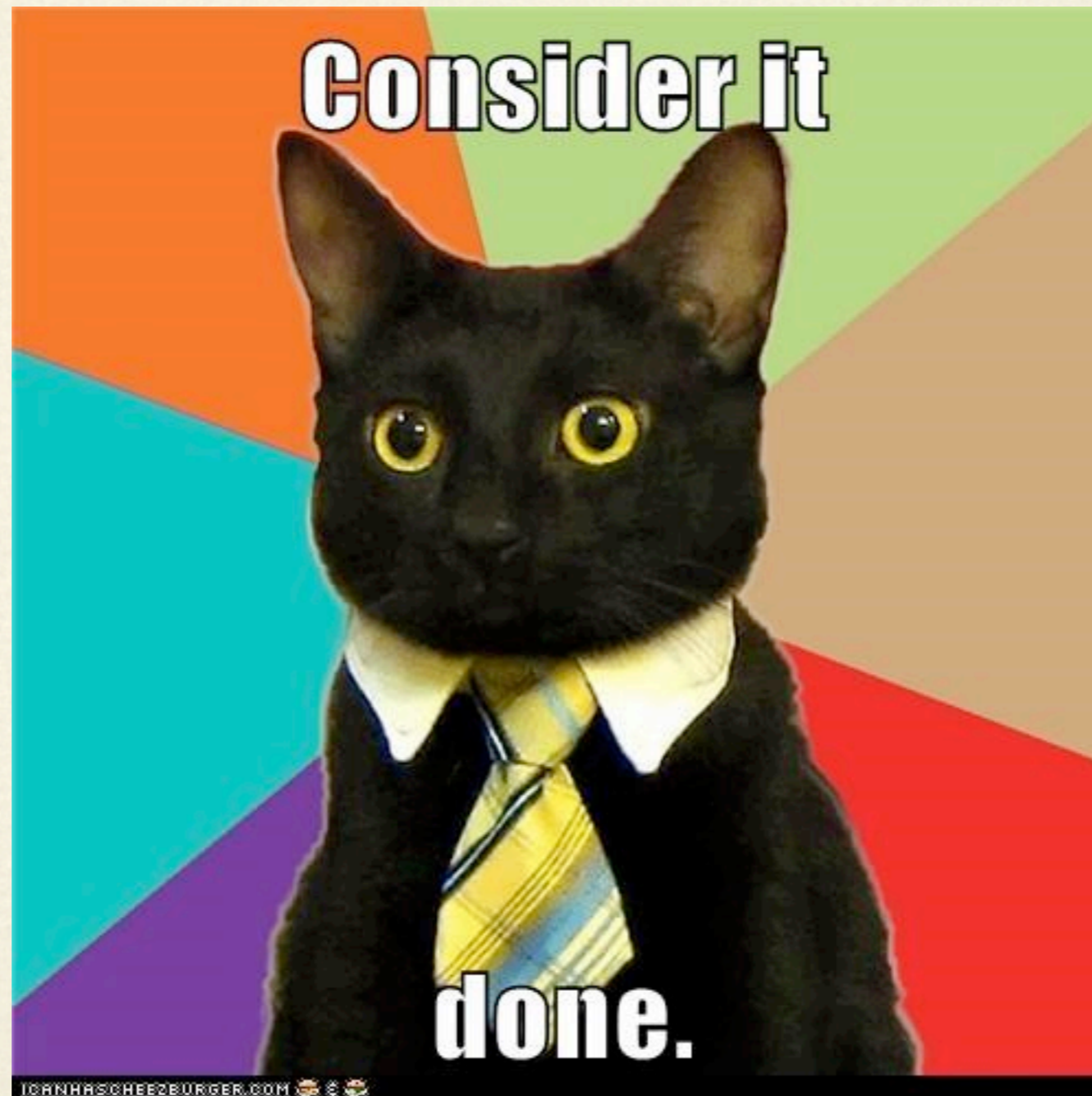
XM2013: Second Extreme Modelling Workshop
Dr. Vadim Zaytsev, SWAT, CWI

CC BY-NC-SA 2013

Why the problem is a problem

- ◆ Grammar evolution
is (meta)model transformation
- ◆ MDE doesn't work
- ◆ All MDE tools are crap
- ◆ Model transformation bores people
- ◆ We need more agility
- ◆ [citation needed] ← *also XM keynote by Jon Whittle*

Consider it done!

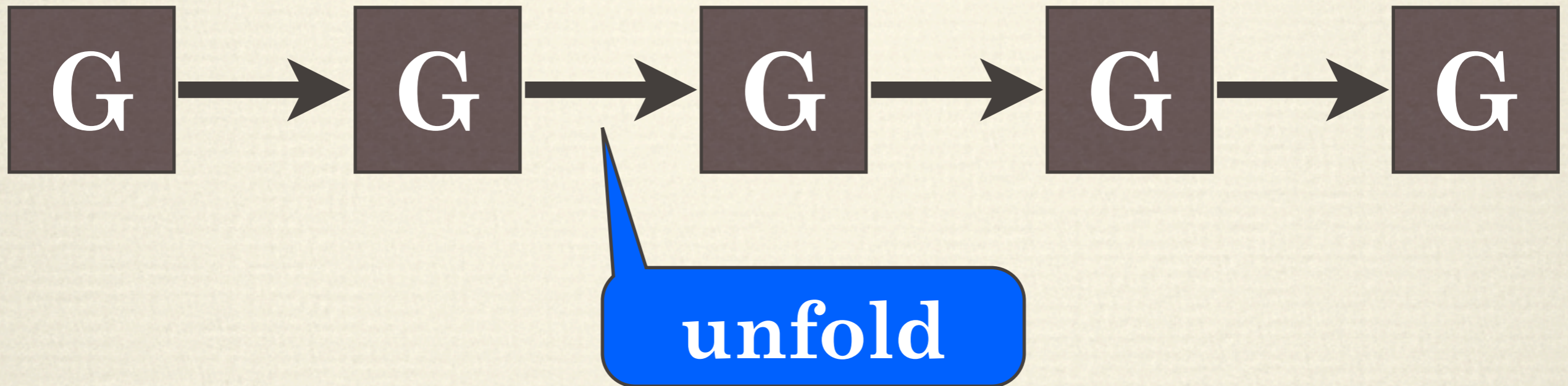


<http://cheezburger.com/6125443584>

Grammar evolution

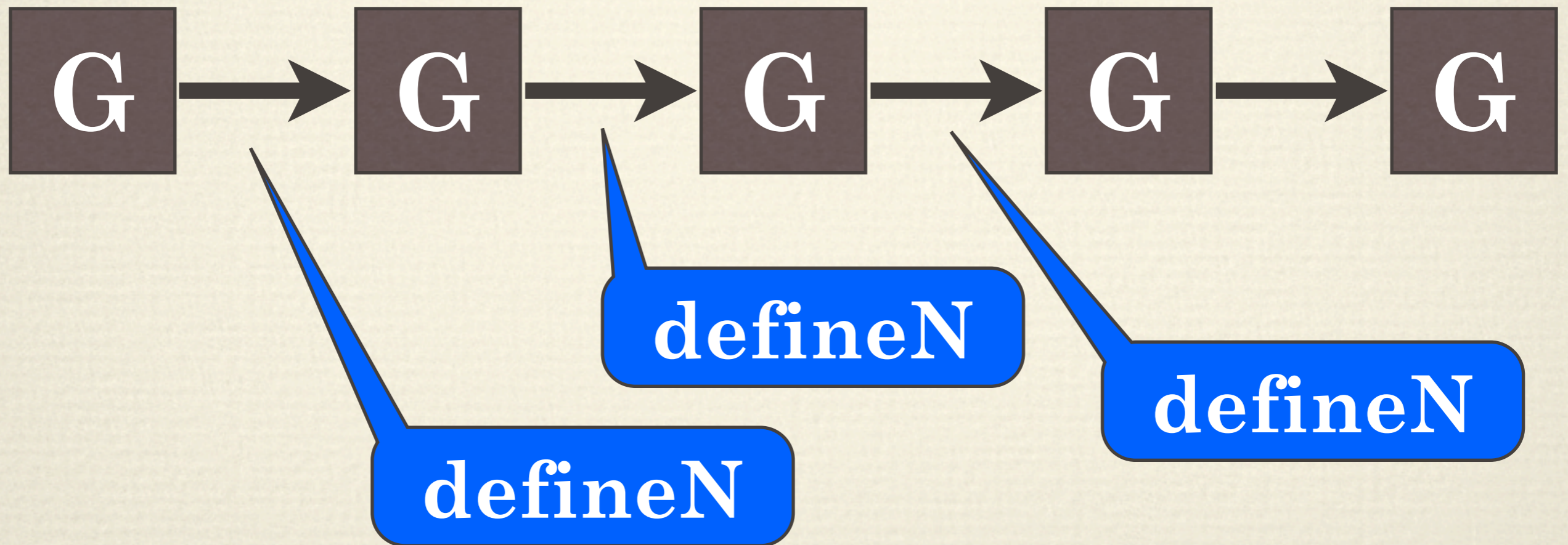


Grammar evolution

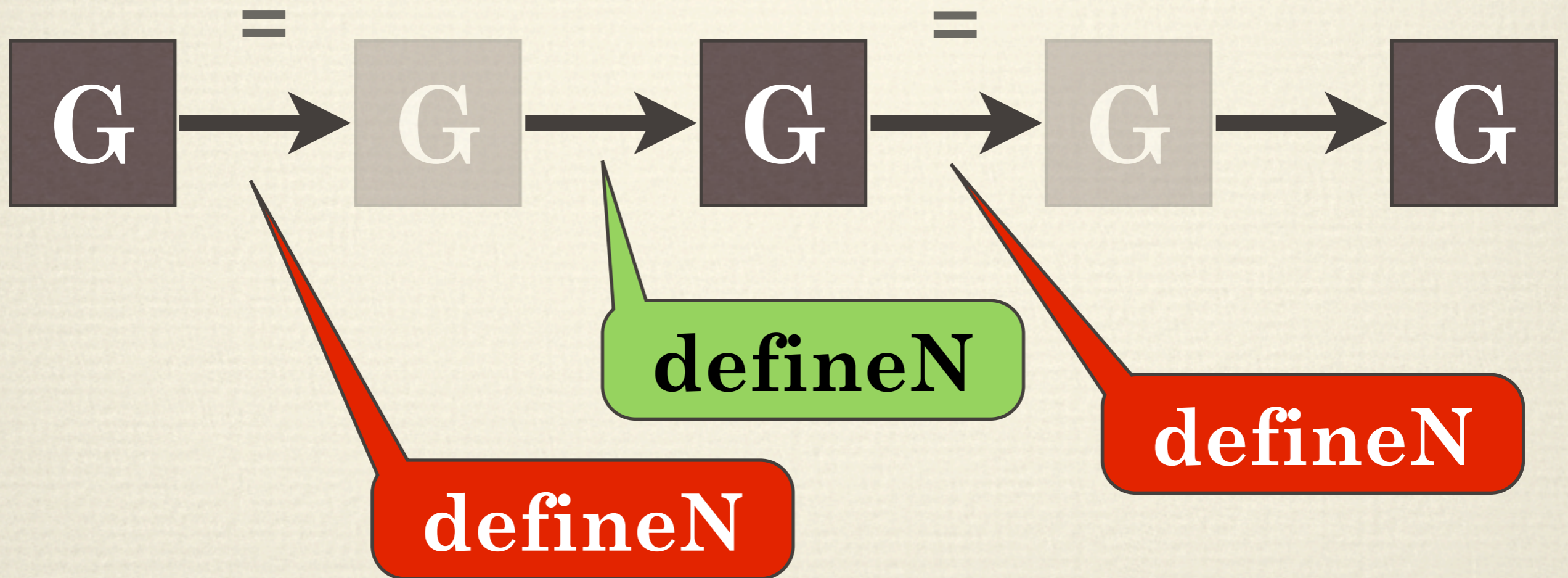


**Composable default
fragments**

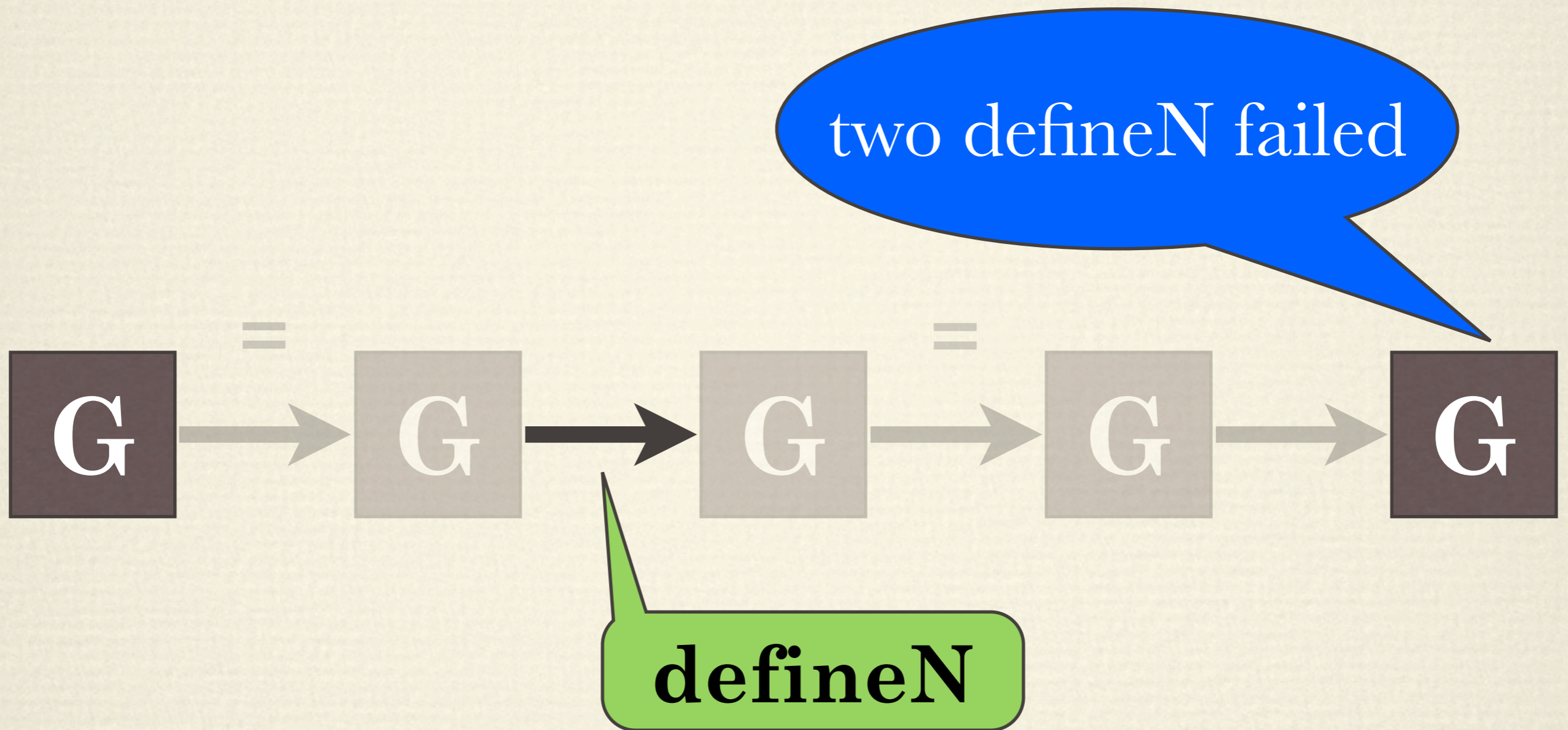
Composable default fragments



Composable default fragments

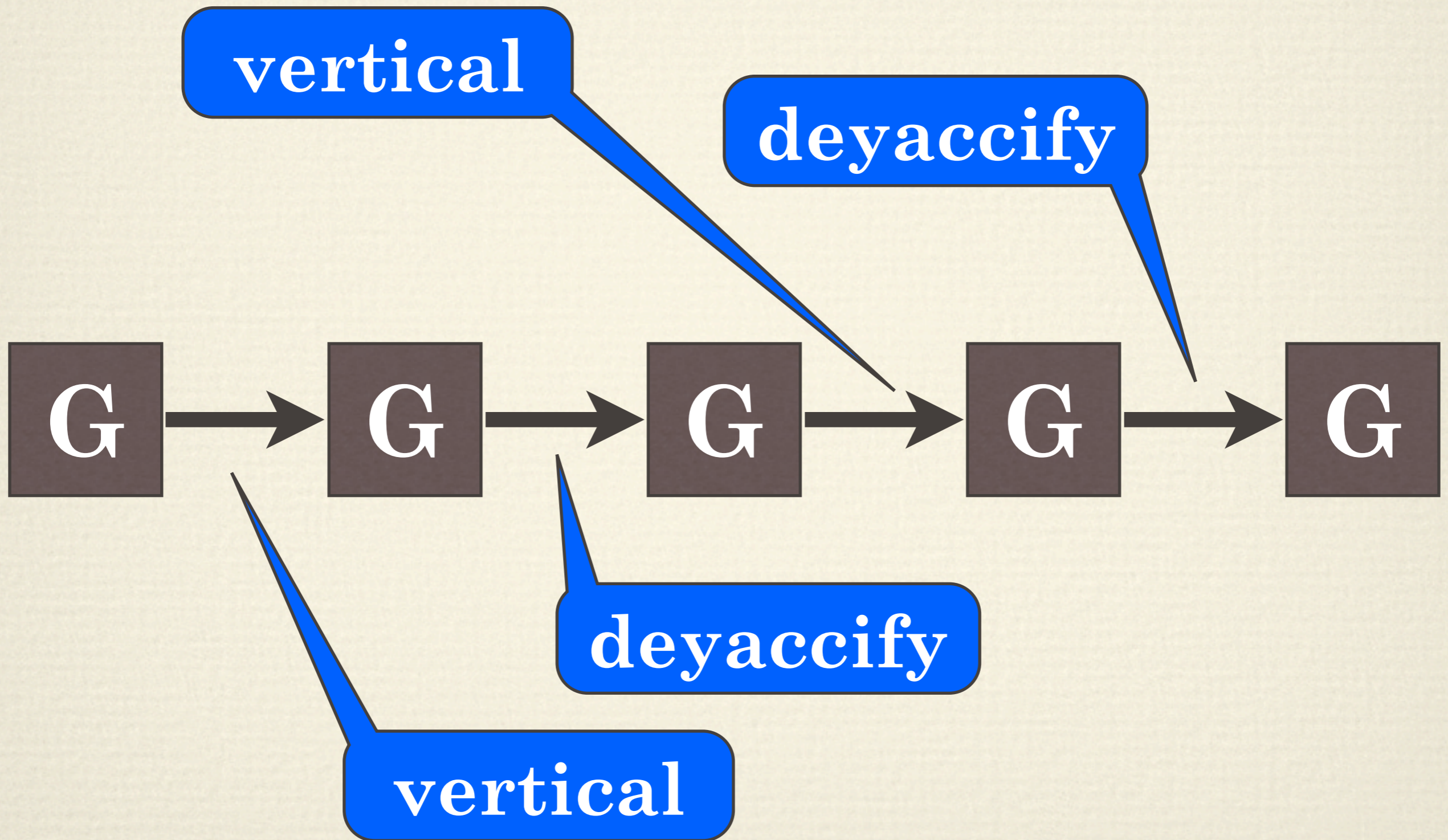


Composable default fragments

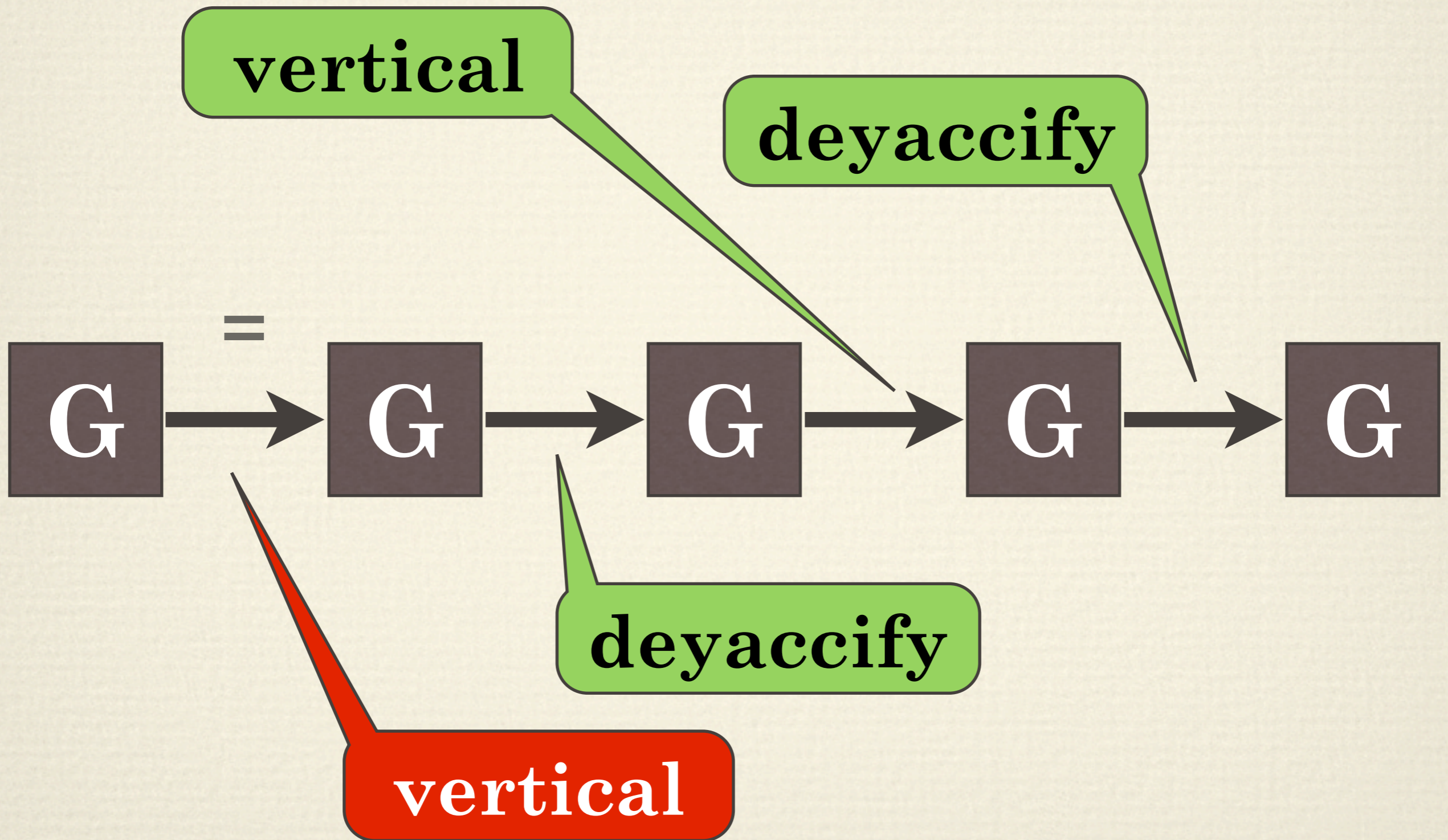


Asserting preconditions

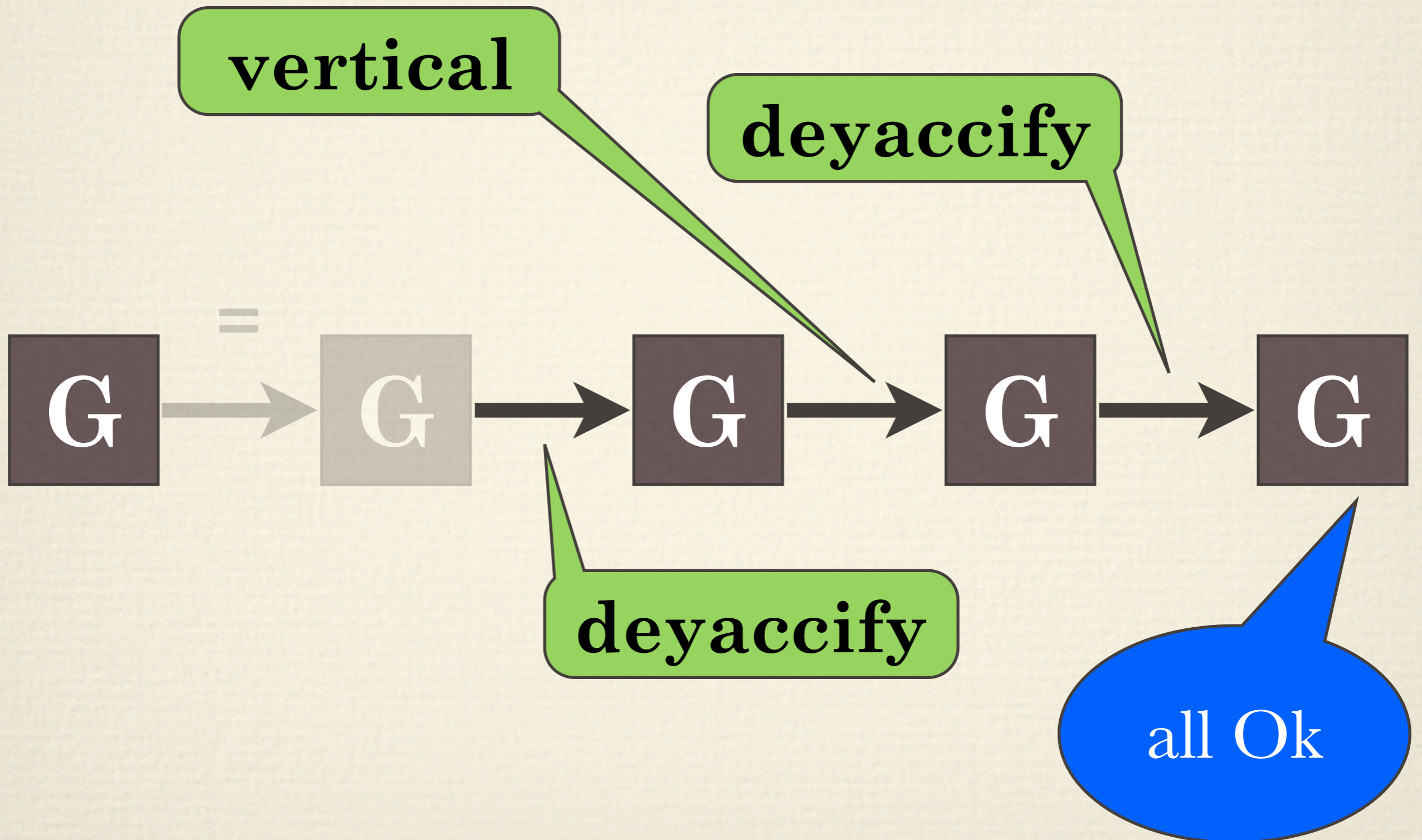
Asserting preconditions



Asserting preconditions

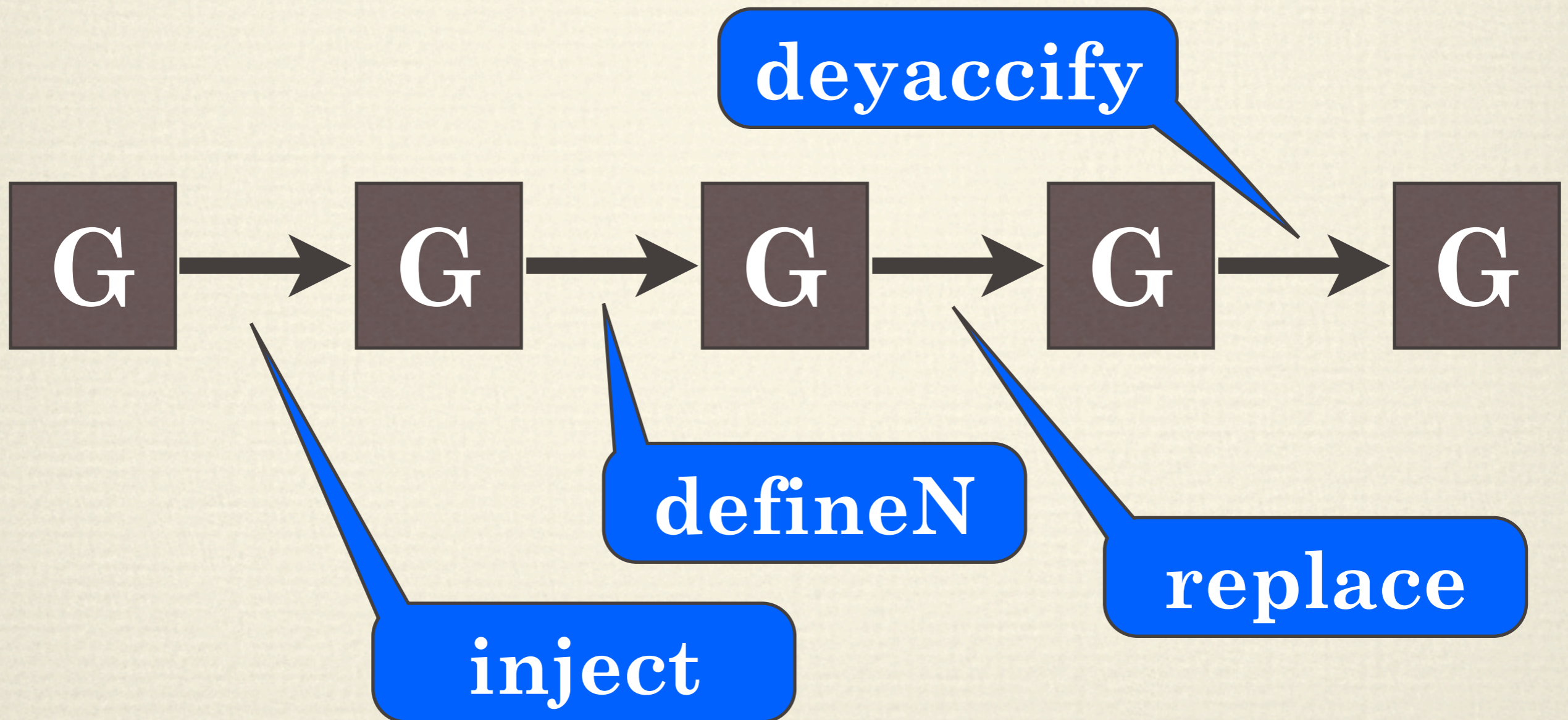


Asserting preconditions

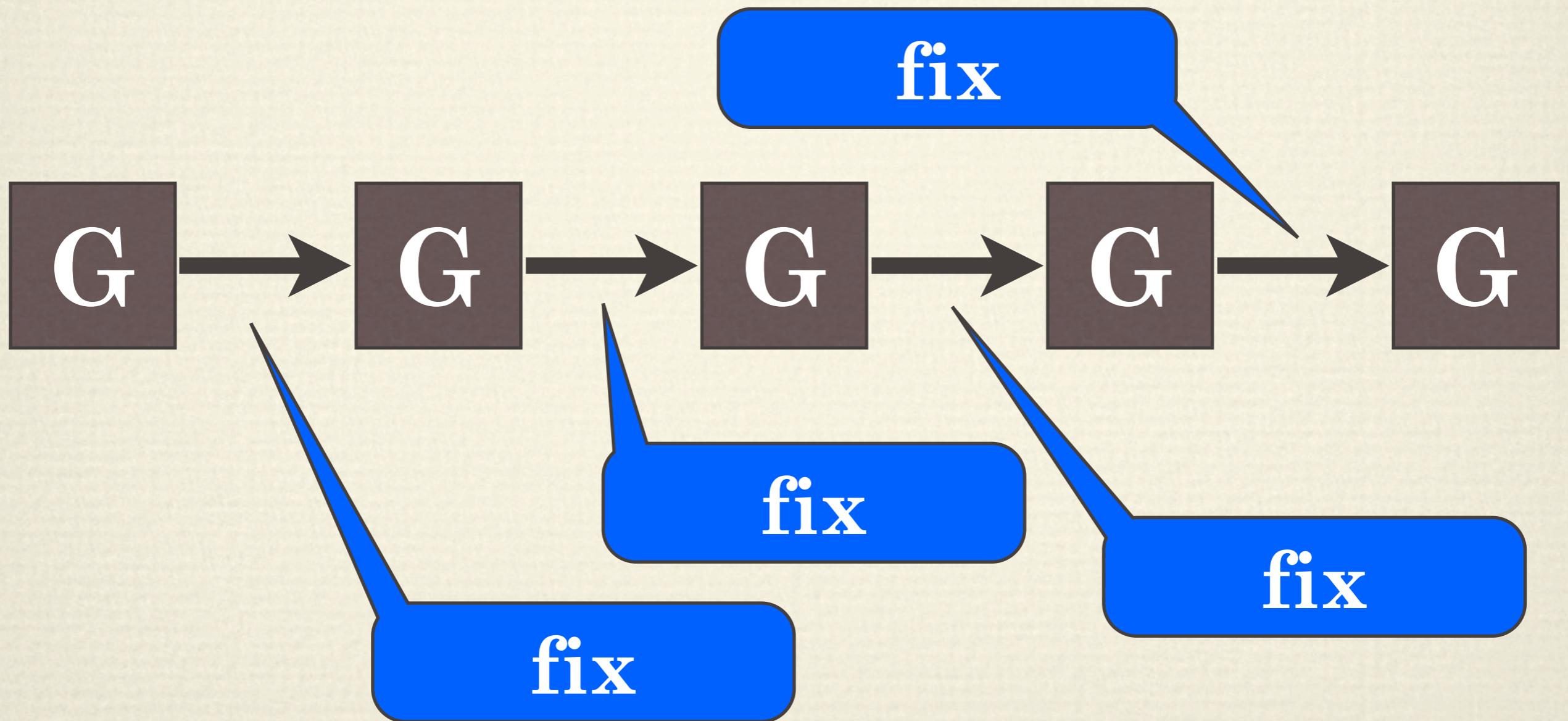


Bulk processing

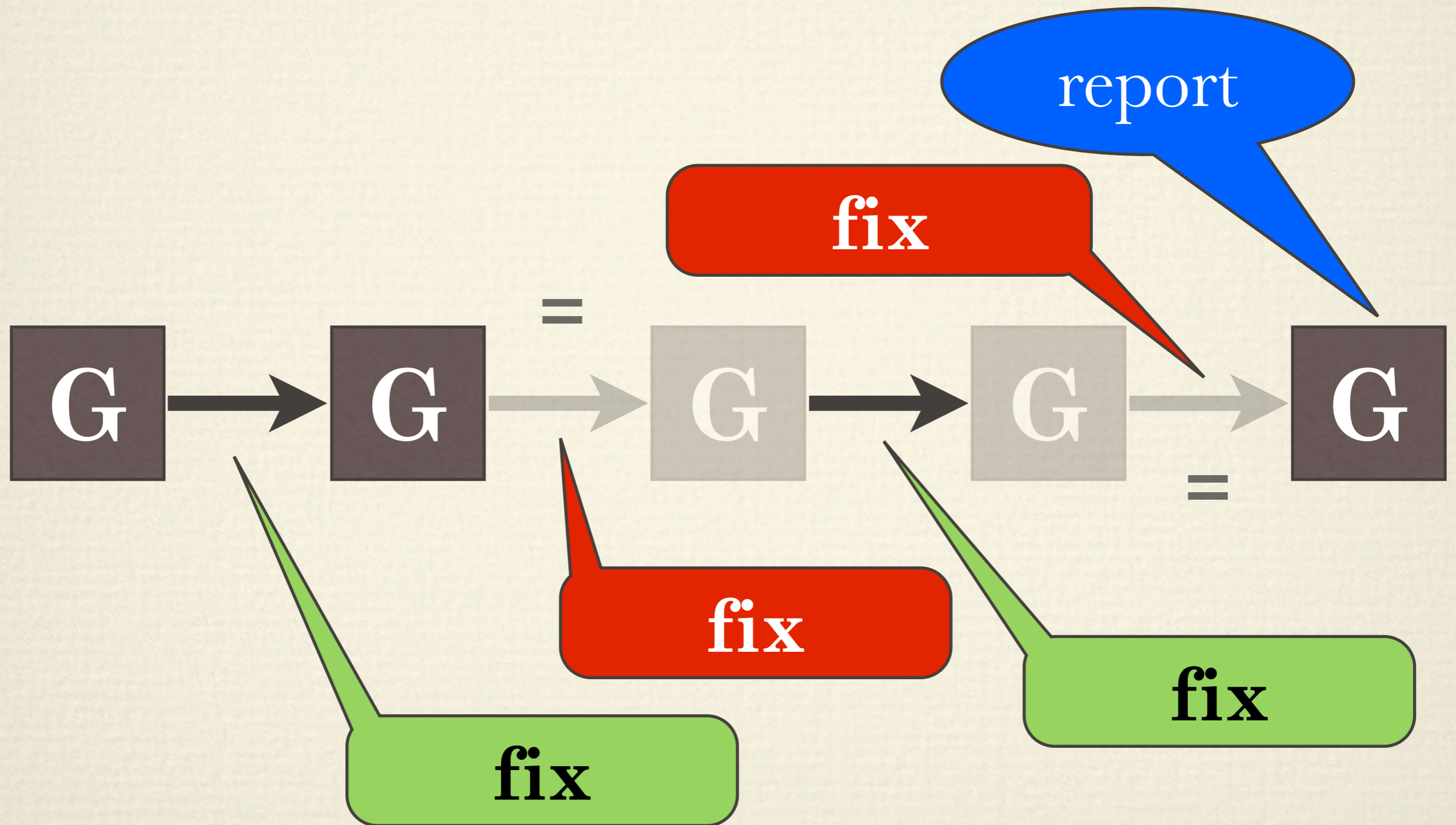
Bulk processing



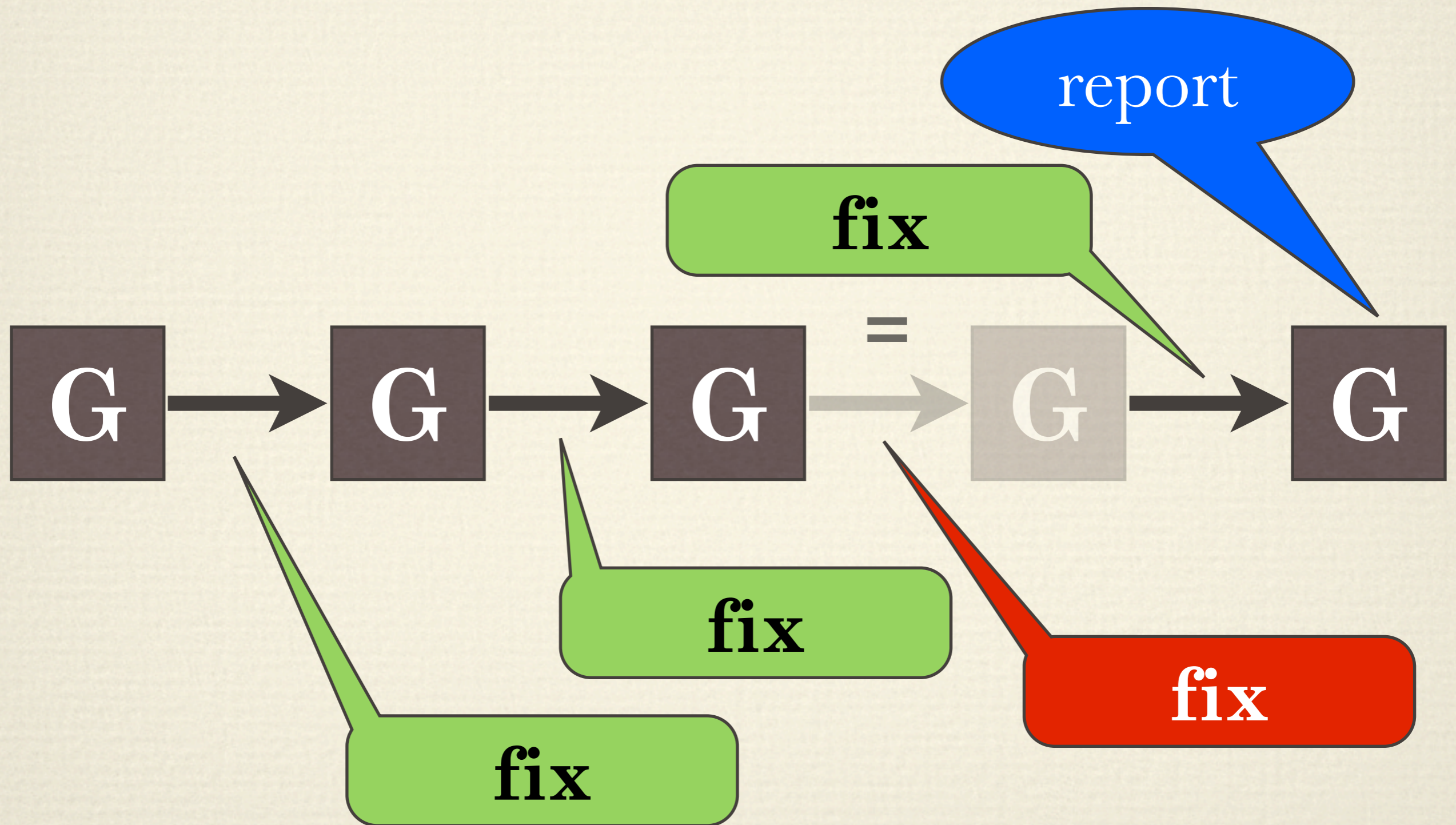
Bulk processing



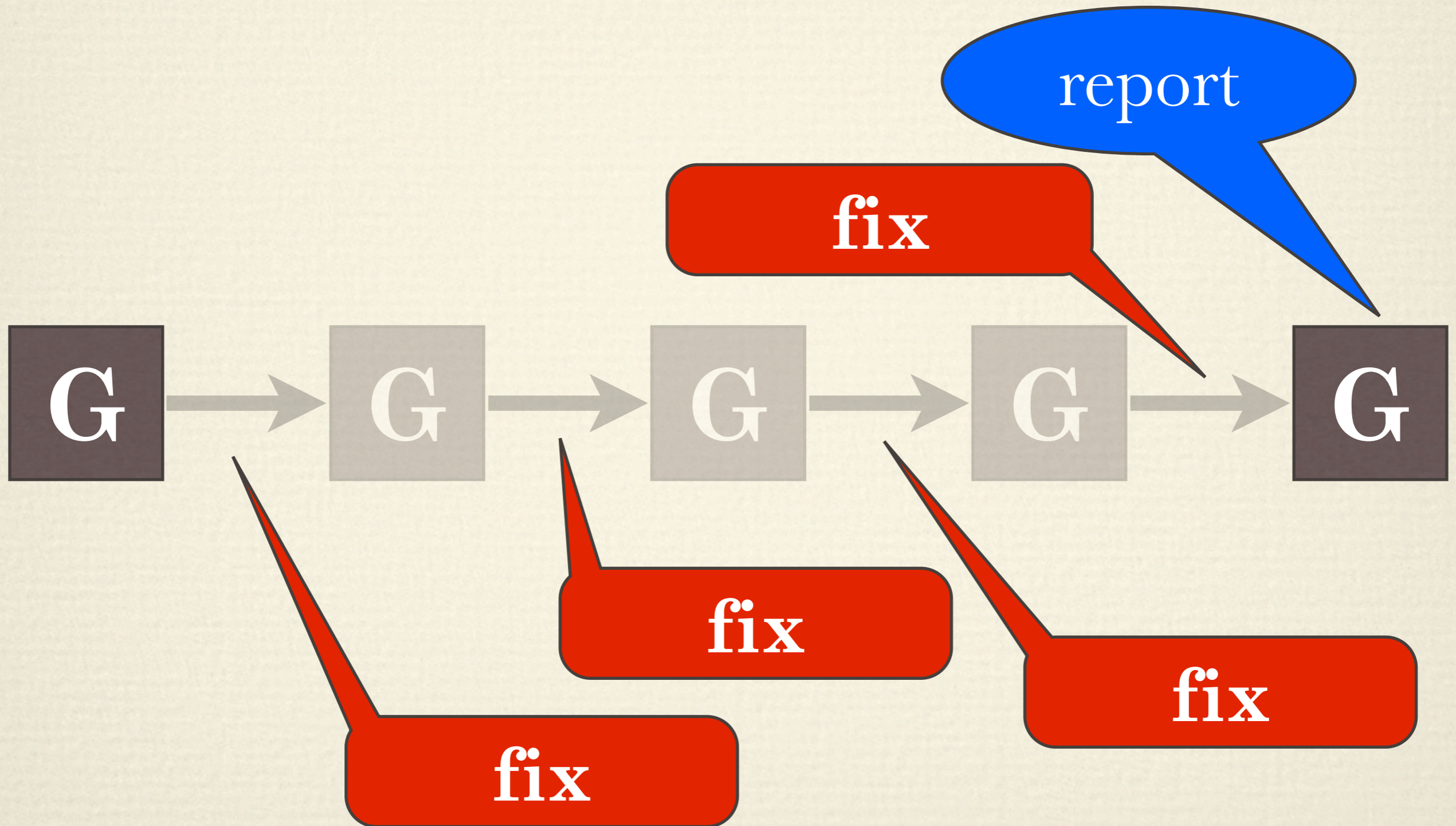
Bulk processing



Bulk processing

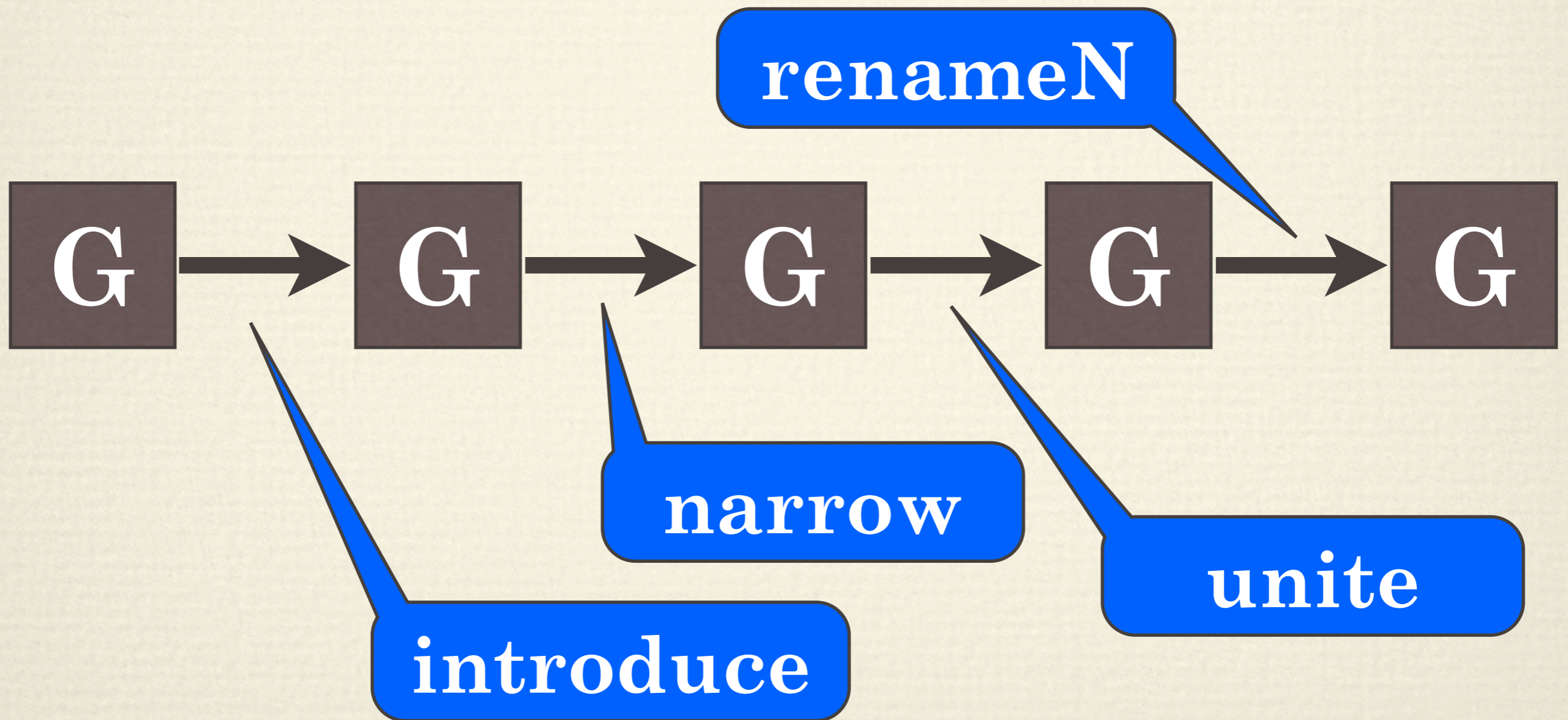


Bulk processing

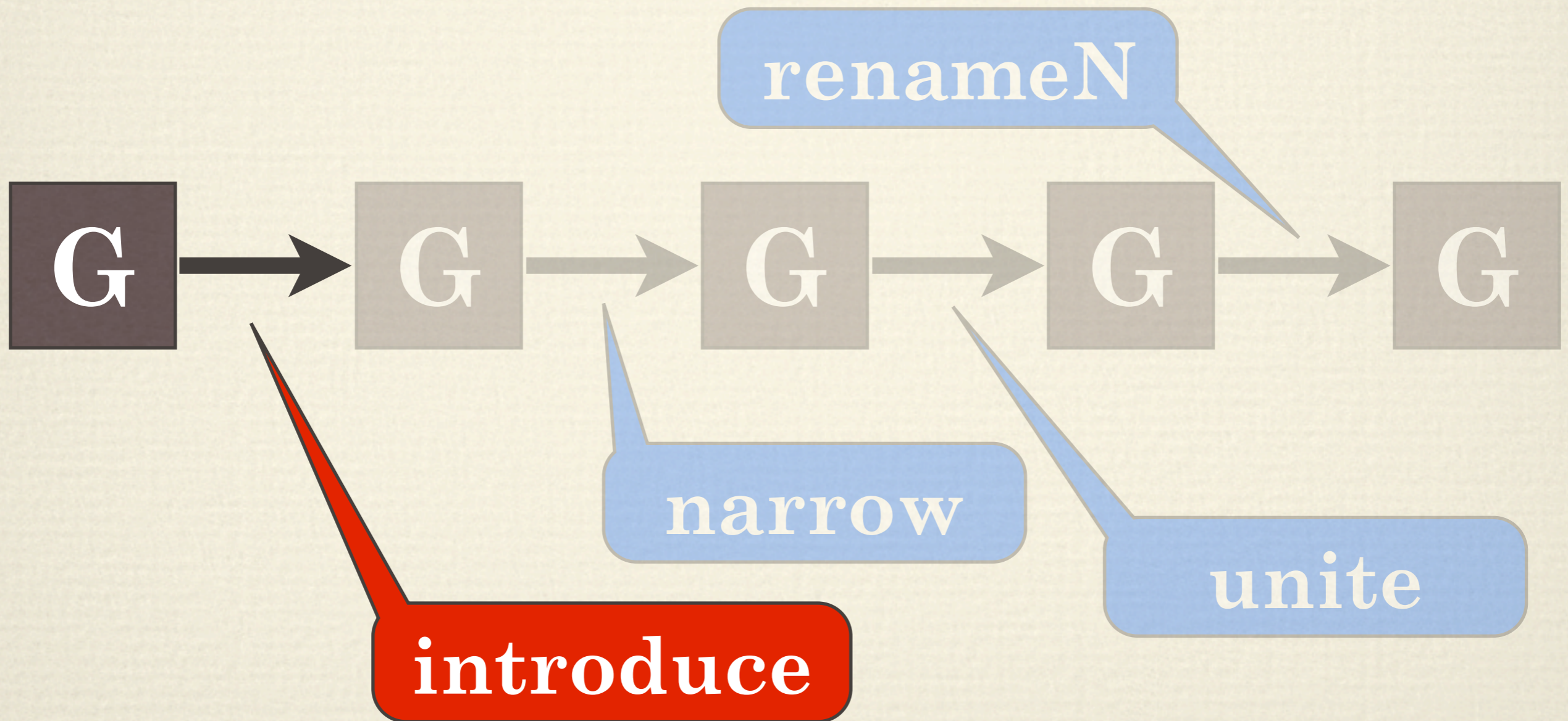


Pending failure

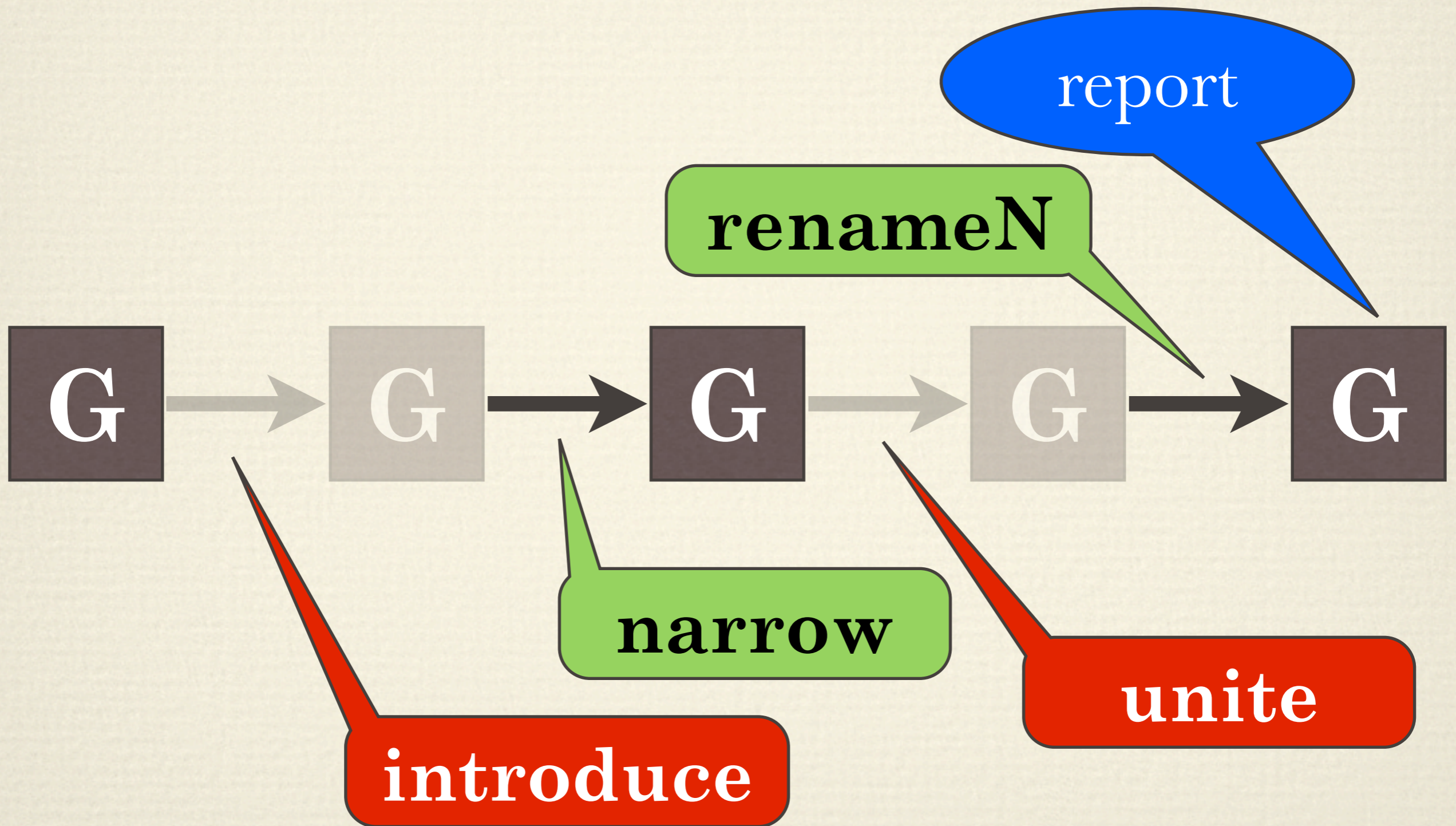
Pending failure



Pending failure



Pending failure

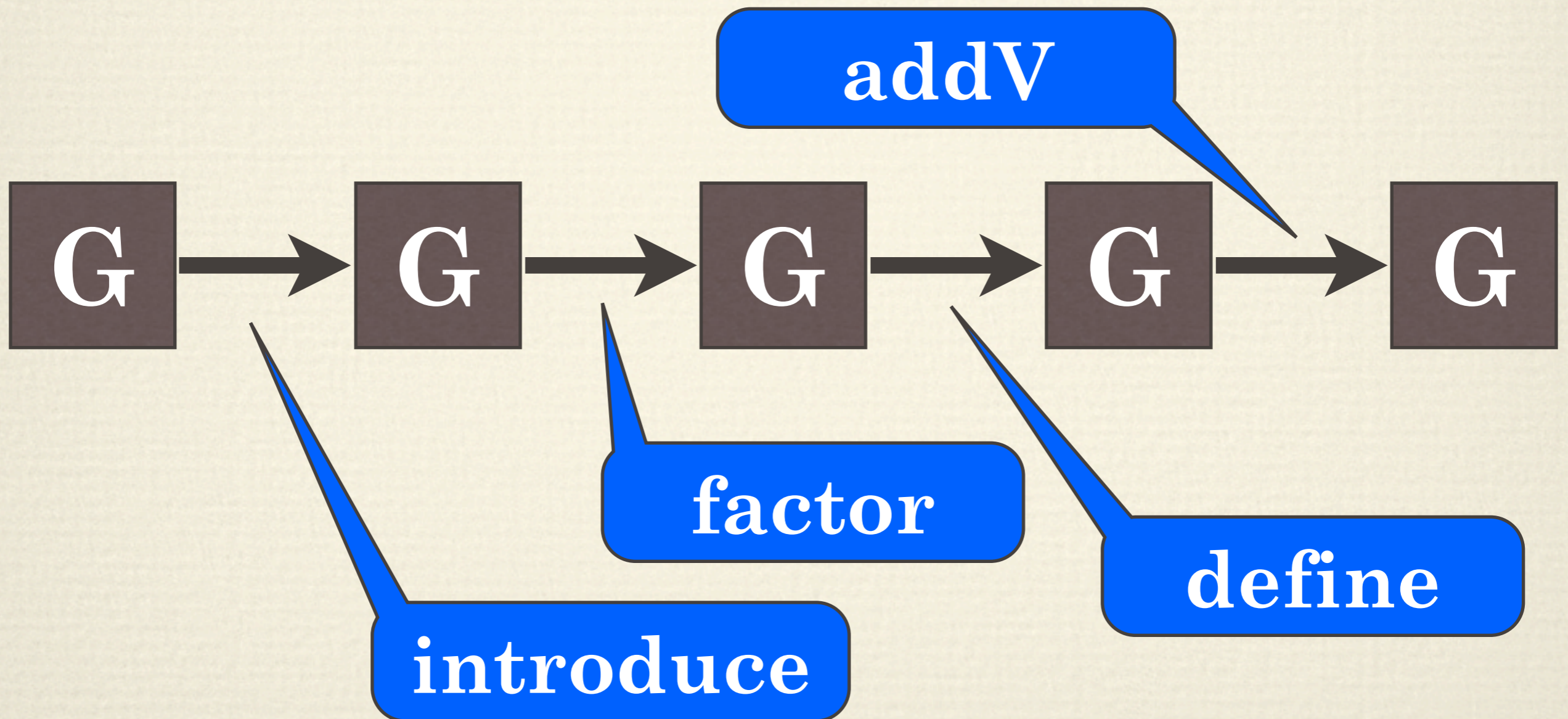


Pending failure

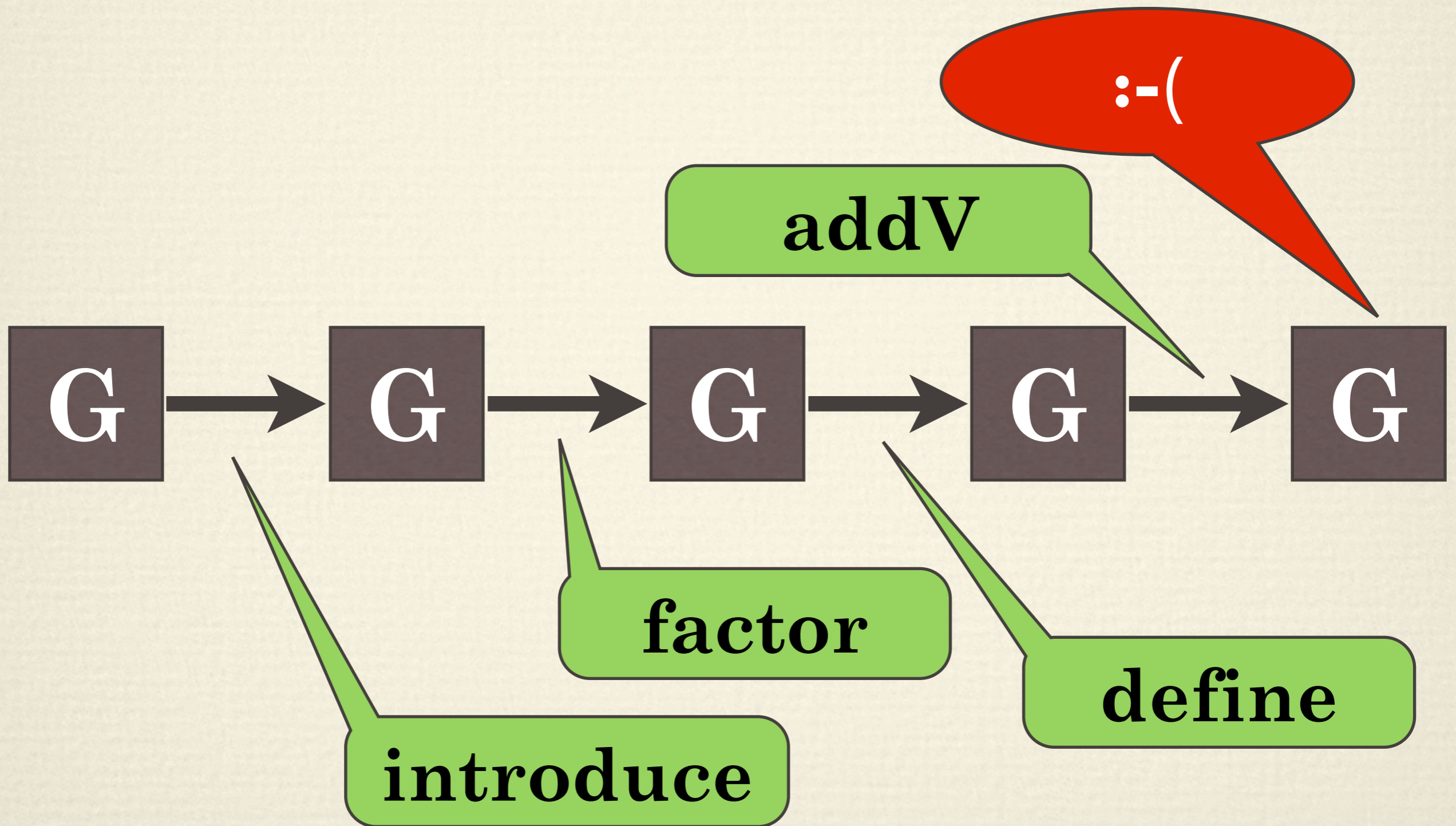


**Persistent
normalisation**

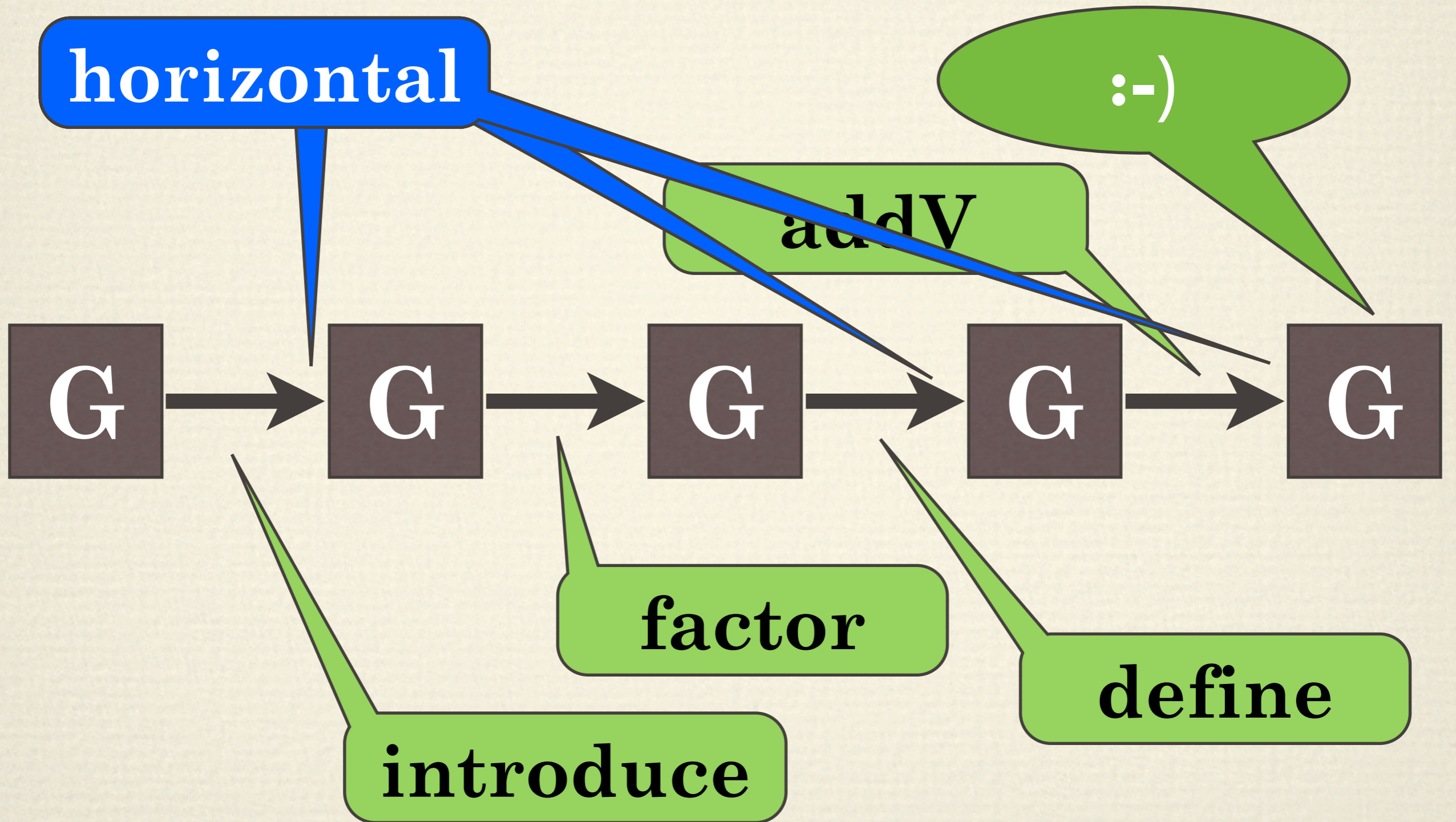
Persistent normalisation



Persistent normalisation

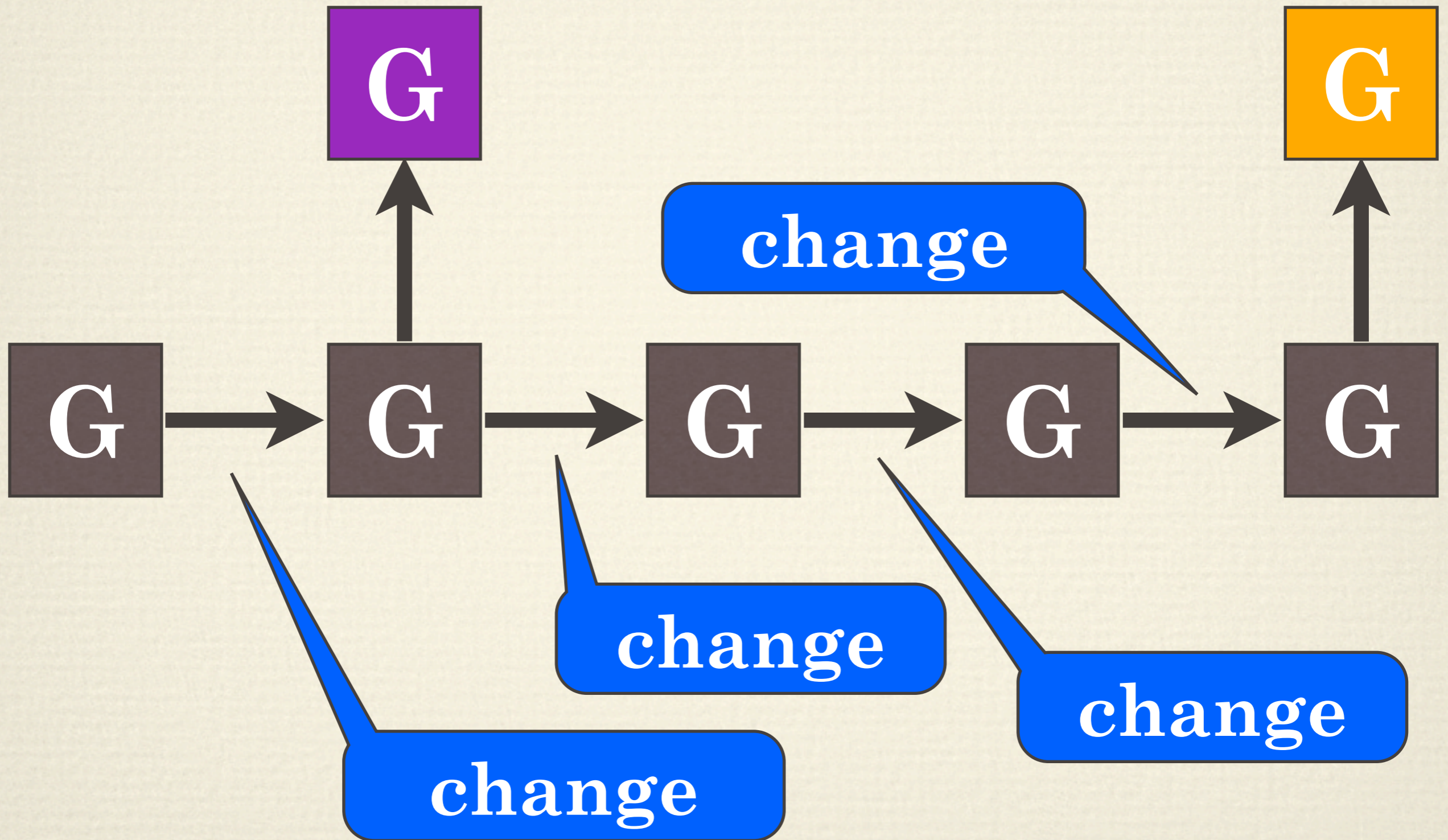


Persistent normalisation

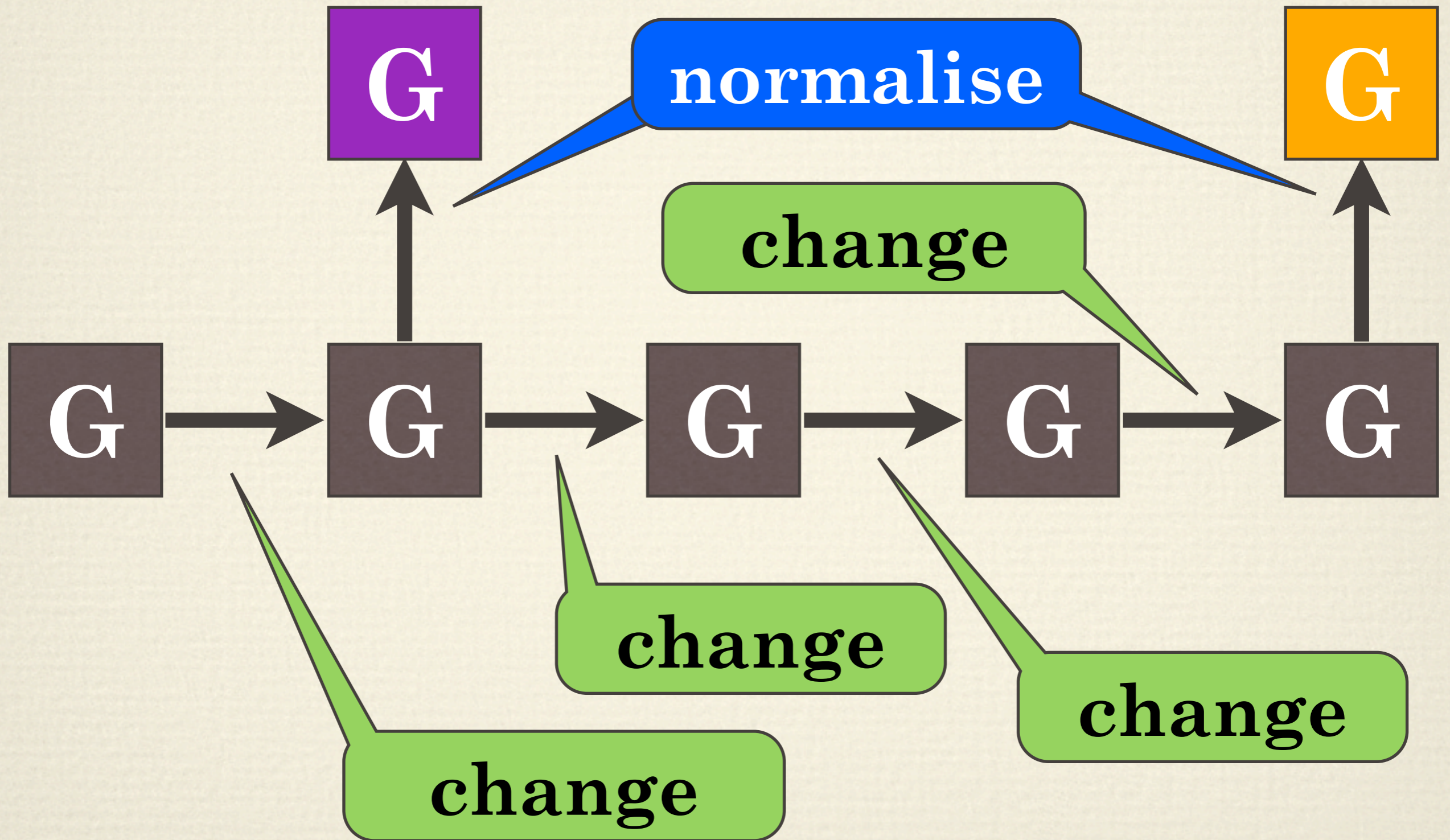


**Pre-export
normalisation**

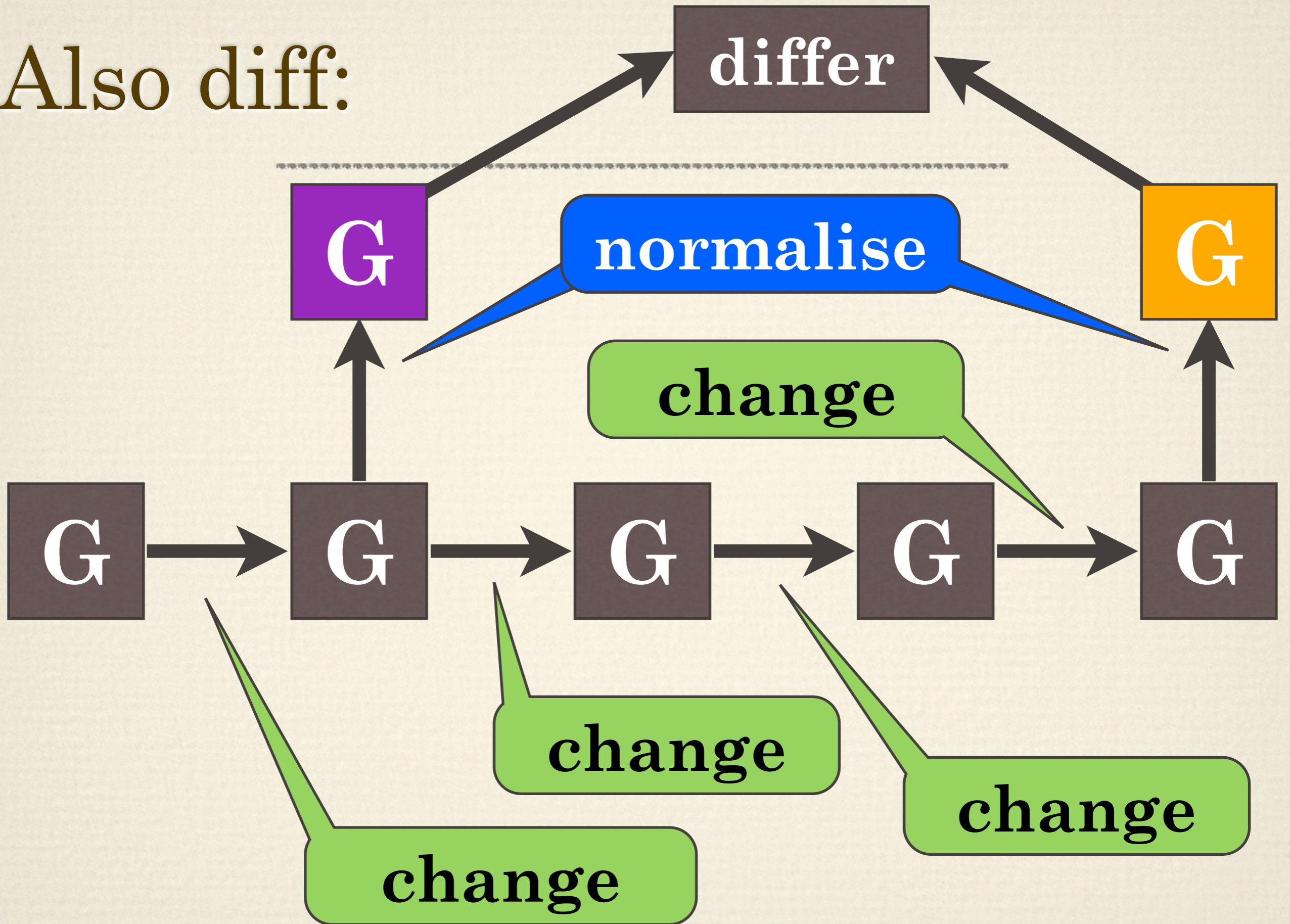
Pre-export normalisation



Pre-export normalisation



Also diff:



To summarise



- ◆ Don't do
- ◆ Consider it done
- ◆ Accumulate failures
- ◆ Plan beforehand
- ◆ Execute optionally
- ◆ ???
- ◆ PROFIT!



POWERED BY

GRAMMARLAB

vadim@grammarware.net



**Tutorial on Tuesday
(1 October 2013, 8:30)**

Pending Evolution of Grammars

Vadim Zaytsev

Software Analysis & Transformation Team,
Centrum Wiskunde & Informatica,
Amsterdam, The Netherlands

Abstract. The classic approach to grammar manipulation is based on instant processing of grammar edits, which limits the kinds of grammar evolution scenarios that can be expressed with it. Treating transformation preconditions as guards poses limitations on concurrent changes of the same grammar, on reuse of evolution scripts, on expressing optionally executed steps, on batch processing and optimization of them, etc. We propose an alternative paradigm of evolution, where a transformation can be scheduled for later execution based on its precondition. This kind of extreme evolution can be useful for expressing scenarios that are impossible to fully automate within the classic or the negotiated transformation paradigms.

1 Introduction

A colloquial expression ‘*consider it done*’ means that the subject of the conversation is either indeed already done, or will be done in the very near future — in either case, the receiver of such a message can rest assured that the subject will take place if it has not already, and is expected to act as if it has indeed happened. The technique of *pending evolution* that we introduce in this paper, is similar to that expression, and the benefits of it are not unlike the subtle differences between considering something done and it having been done.

As it turns out, the pending evolution scheme allows us to efficiently model scenarios of grammar evolution, deployment and maintenance that are impossible to model within the traditional grammar transformation paradigm, which is briefly explained in §2. The method is introduced in §3. Since the most profits hide deep in the details, we spend the rest of the paper (§4) by motivating the use of pending evolution for grammars instead of classical evolution scripts, by concrete examples. §5 concludes the paper by summarizing its contributions and discussing related work.

2 GrammarLab

GrammarLab is a codename for a grammar manipulation project that is currently being migrated from the Software Language Processing Suite¹ initiative

¹ V. Zaytsev, R. Lämmel, T. van der Storm, L. Renggli, G. Wachsmuth. Software Language Processing Suite, 2008–2013. <http://slps.github.io>.