

Exercise 4.74.

Alyssa P. Hacker proposes to use a simpler version of `stream-flatmap` in `negate`, `lisp-value`, and `find-assertions`. She observes that the procedure that is mapped over the frame stream in these cases always produces either the empty stream or a singleton stream, so no interleaving is needed when combining these streams.

a. Fill in the missing expressions in Alyssa's program.

```
(define (simple-stream-flatmap proc s)
  (simple-flatten (stream-map proc s)))

(define (simple-flatten stream)
  (stream-map <??>
    (stream-filter <??> stream)))
```

b. Does the query system's behavior change if we change it in this way.

Answer.

a.

```
(define (simple-flatten stream)
  (stream-map stream-car
    (stream-filter (lambda (s)
      (not (stream-null? s)))
      stream)))
```

b. The query system's behavior won't be changed by this simpler version of `stream-flatmap`, since `negate`, `lisp-value`, and `find-assertions` all employ it by means of data abstraction.

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