```
void appendV1 (QueueOfT& r, QueueOfT& g) // Using r for receiver, g for giver
//! updates r
//! clears g
//! ensures r = #r * #g
```

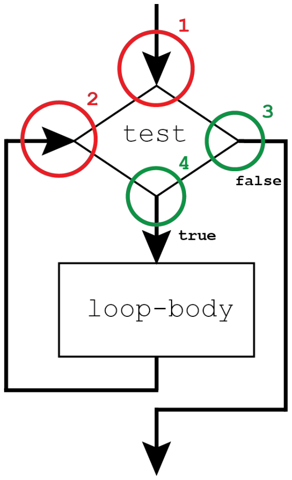
S	Code	Assume		Confirm
0				r0 * g0 = r0 * g0
	while(g.length() > 0) { //! updates g, r //! maintains //! r * g = #r * #g //! decreases |g|			
1		|g1| > 0 ^ r1 * g1 = r0 * g0		
	T y;			
2		T.Init(y2)	Unchanged r, g	g2 /= <>
	g.dequeue(y);			
3		g3 = g2[1,|g2|) ^ <y3> = prefix of g2	Unchanged r	
	r.enqueue(y);			
4		T.Init(y4) ^ r4 = r3 * <y3>	Unchanged g	|g4| < |g1| ^ r4 * g4 = r0 * g0
	}			

5		~(|g5| > 0) ^
		r5 * g5 = r0 * g0
				r5 = r0 * g0 ^
				g5 = <>

7				

Loop invariant related reasoning:

- Must confirm it holds at 1 and 2
- Get to assume it holds at 3 and 4
- Allows us to reason about the loop as if it were a single statement


1
2
test
3
4
false
true
loop-body