To Do:

1. Prove loop invariant holds at (1) and (2) — Name 1:
2. Assume it holds at (3) and (4) — Name 2:
3. Prove ensures clause for appendV3 — One CM:

```
void appendV3 (QueueOfT& r, QueueOfT& g) // Using r for receiver, g for giver
//! updates r
//! clears g
//! ensures r = #r * #g
```

S	Code	Assume		Confirm
0				
	`Integer k;`			
1		`k1 = 0`	`Unchanged r, g`	(1)

	`while(k < g.length()) {`
	`//! updates k, g, r`
	`//! maintains`
	`//! r * g = #r * #g`
	`//!`
	`//!`
	`//! decreases |g|`			

2		`k2 < |g2|` (3)		
	`T y;`			
3		`T.Init(y3)`	`Unchanged k, r, g`	`g3 /= <>`
	`g.dequeue(y);`			
4		`g4 = g3[1,|g3|) ^ <y4> = prefix of g3`	`Unchanged k, r`	
	`r.enqueue(y);`			
5		`T.Init(y5) ^ r5 = r4 * <y4>`	`Unchanged k, g`	
	`k++;`			
6		`k6 = k5 + 1`	`Unchanged y, r, g`	`|g6| < |g2|` (2)
	`}`			
7		`~(k7 < |g7|)` (4)		`r7 = r0 * g0 ^ g7 = <>`
8				
9				