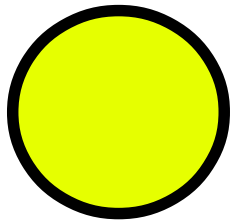
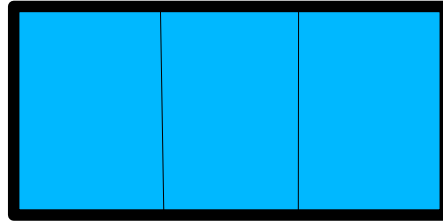
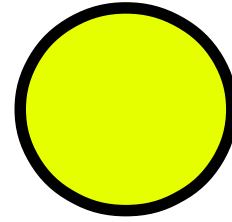


# Monitor with a Queue

Monitor

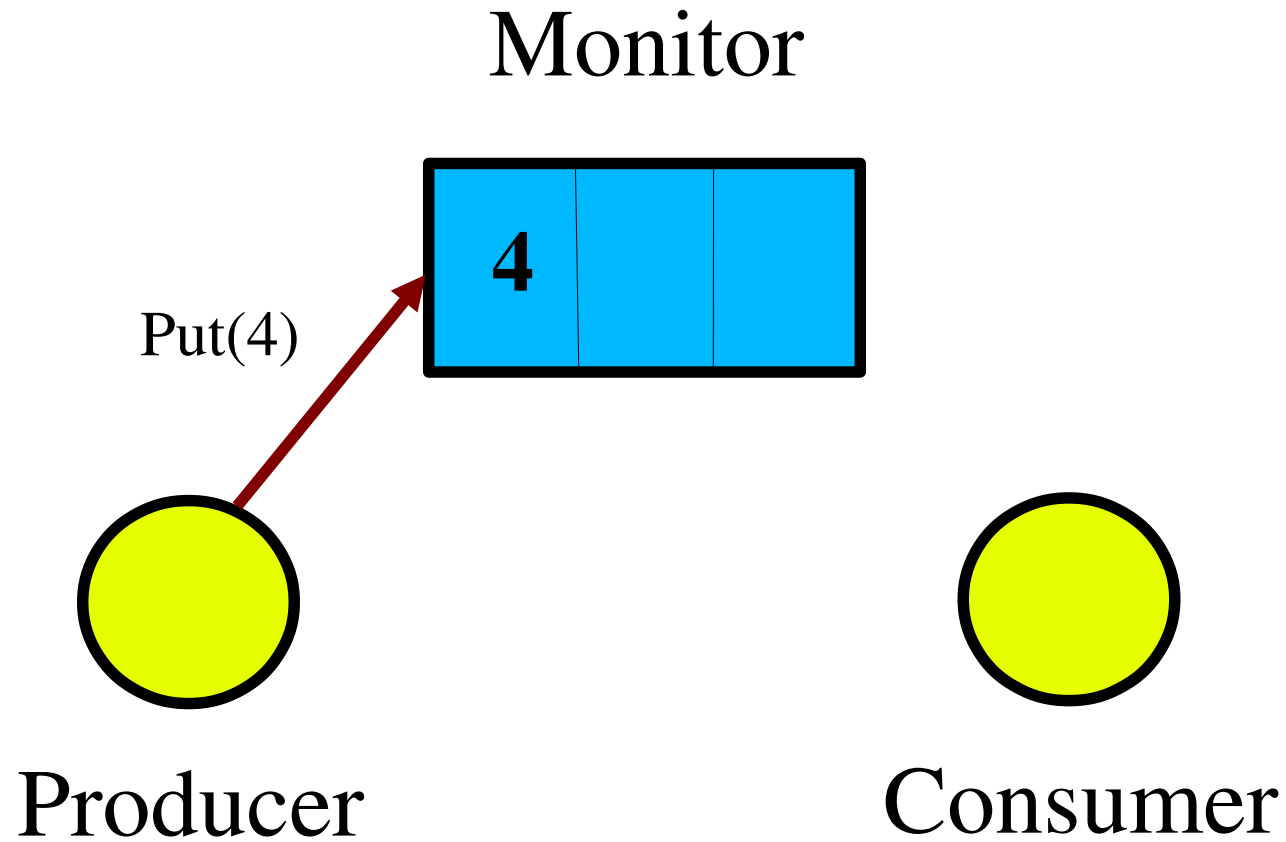


Producer



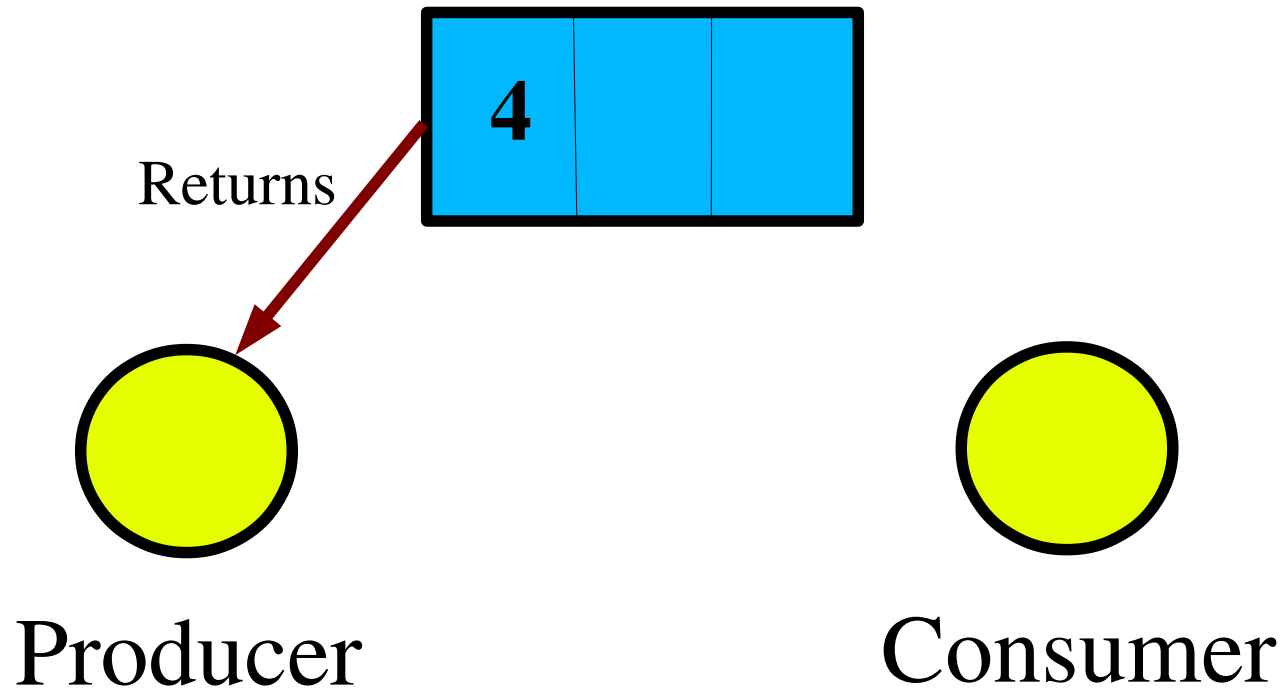
Consumer

Monitor uses a buffer capable of holding three tokens



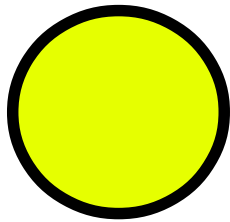
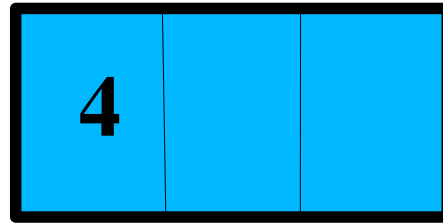
Producer tries to 'put' a token into the Monitor, Monitor accepts it

# Monitor

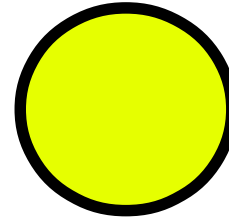


Producer continues computing more tokens

Monitor

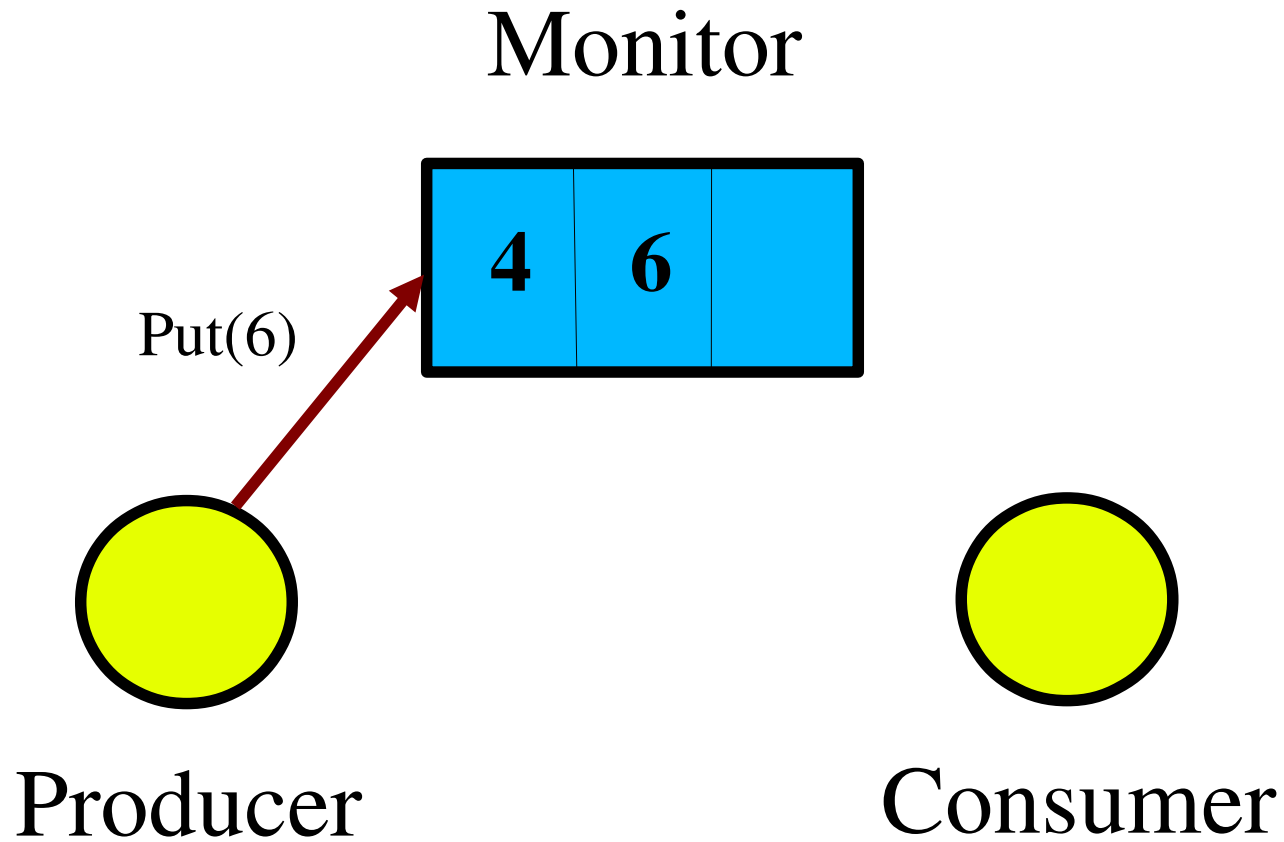


Producer



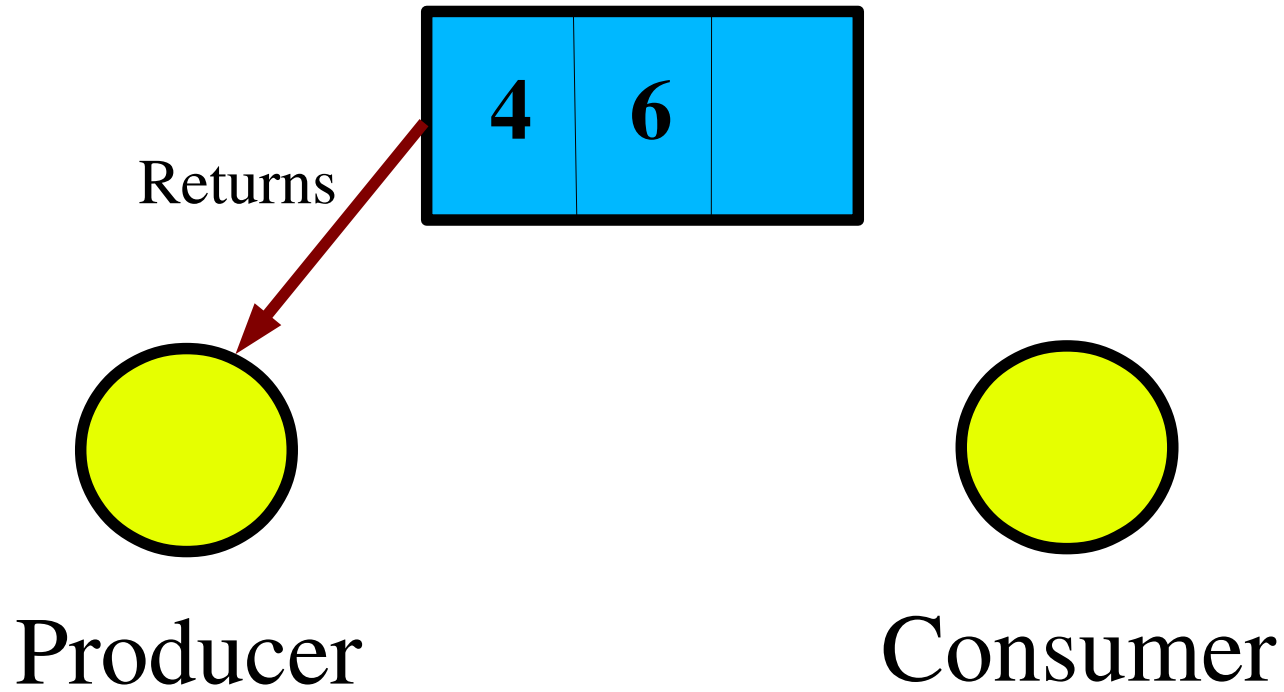
Consumer

Monitor buffer has two vacant positions



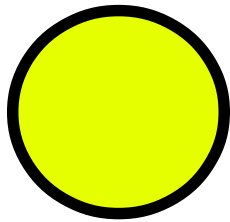
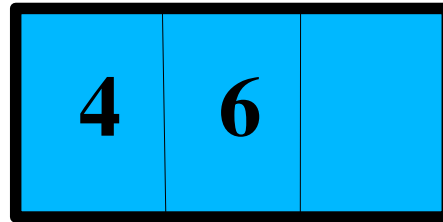
Producer tries to 'put' a token into the Monitor, Monitor accepts it

# Monitor

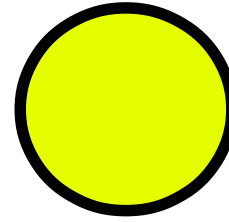


Producer continues computing more tokens

Monitor



Producer

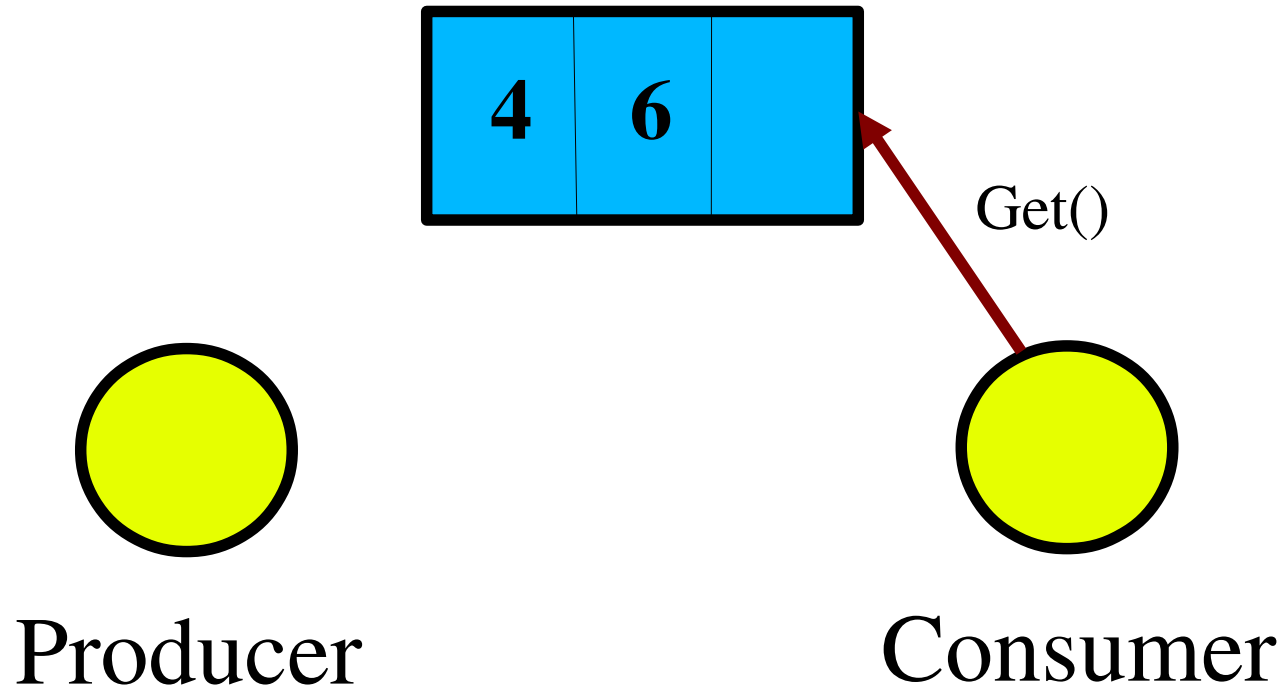


Consumer

Monitor's buffer has one available position remaining

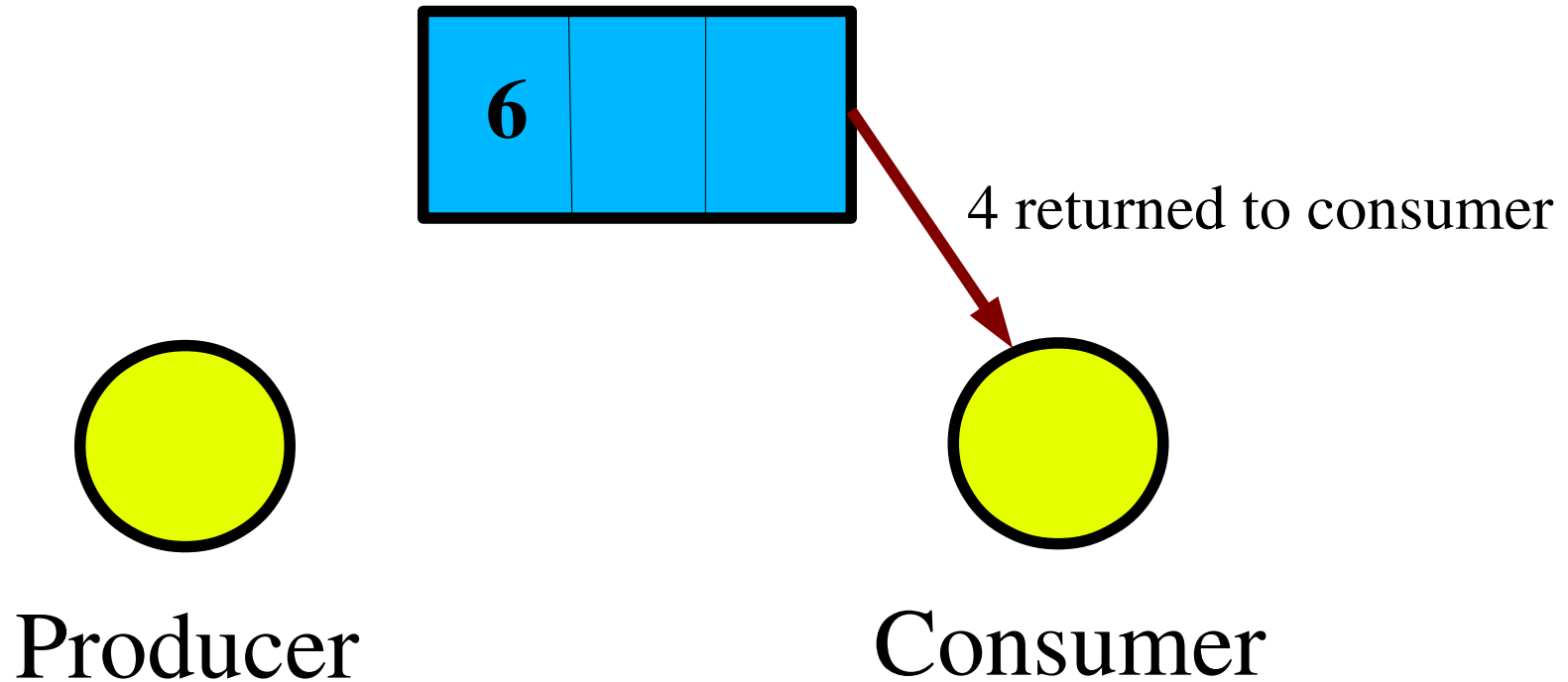


# Monitor



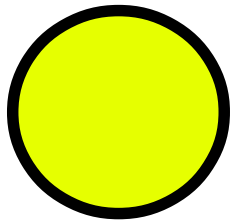
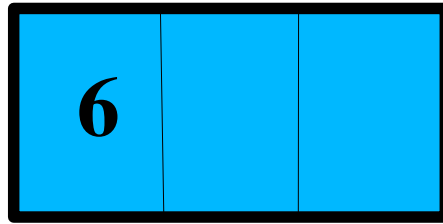
Consumer tries to 'get' a token from the Monitor

# Monitor

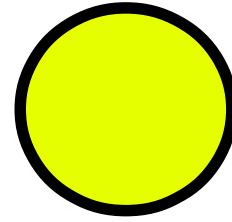


Consumer gets token from the buffer, buffer now has two available positions  
Consumer continues computing with token (4) in hand

Monitor

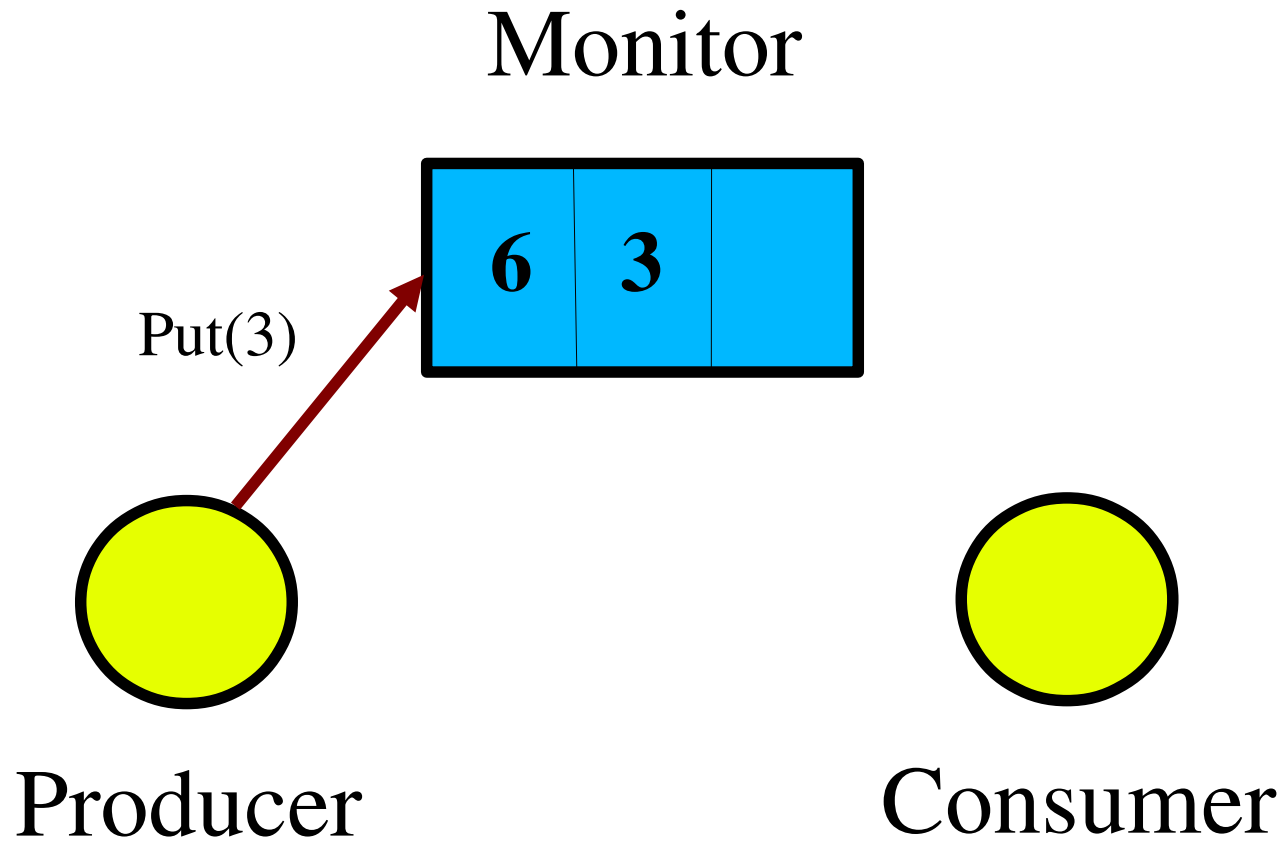


Producer



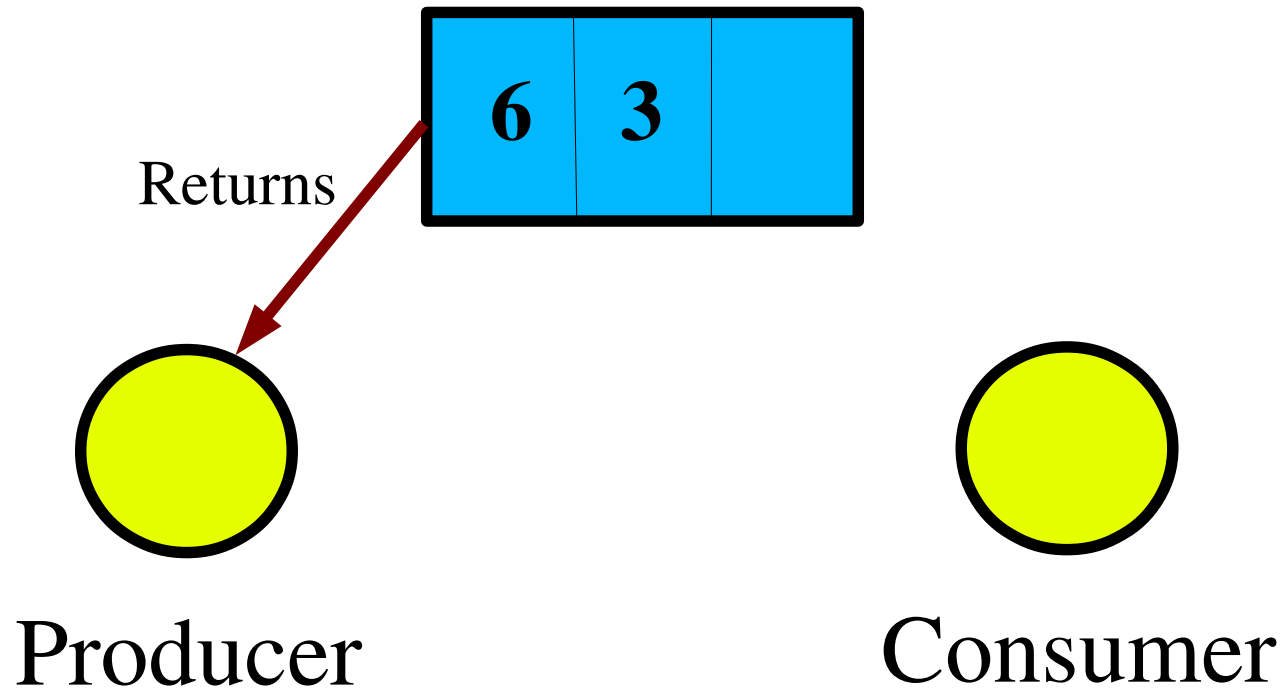
Consumer

Monitor's buffer has two available positions



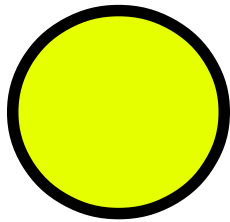
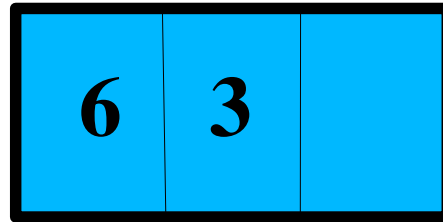
Producer tries to 'put' a token into the Monitor, Monitor accepts it

# Monitor

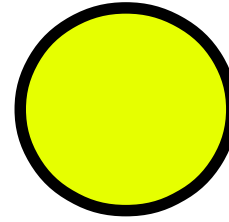


Producer continues computing more tokens

Monitor

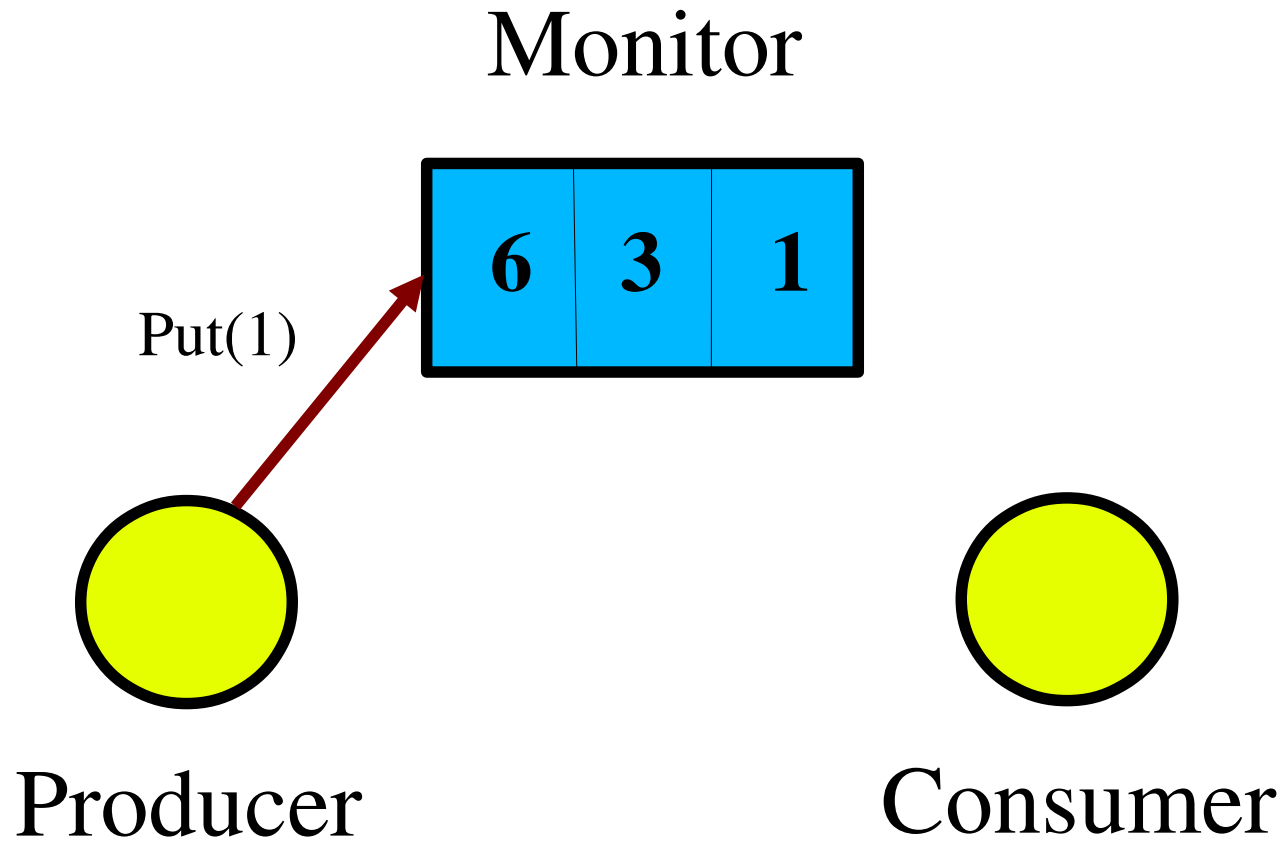


Producer



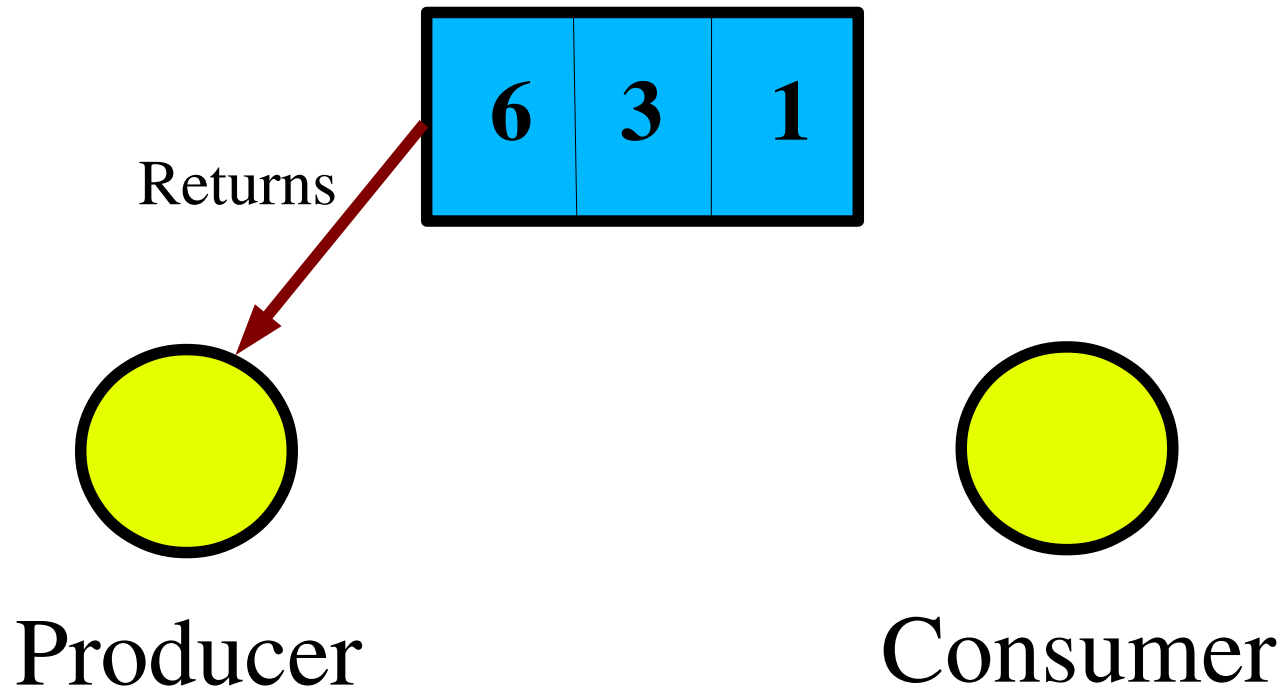
Consumer

Monitor's buffer has one available position



Producer tries to 'put' a token into the Monitor, succeeds

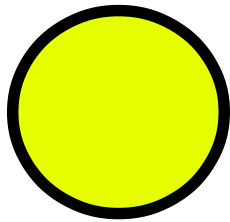
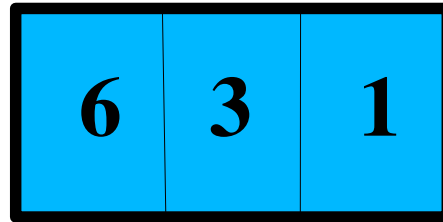
# Monitor



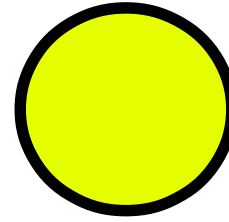
Producer continues computing more tokens



Monitor

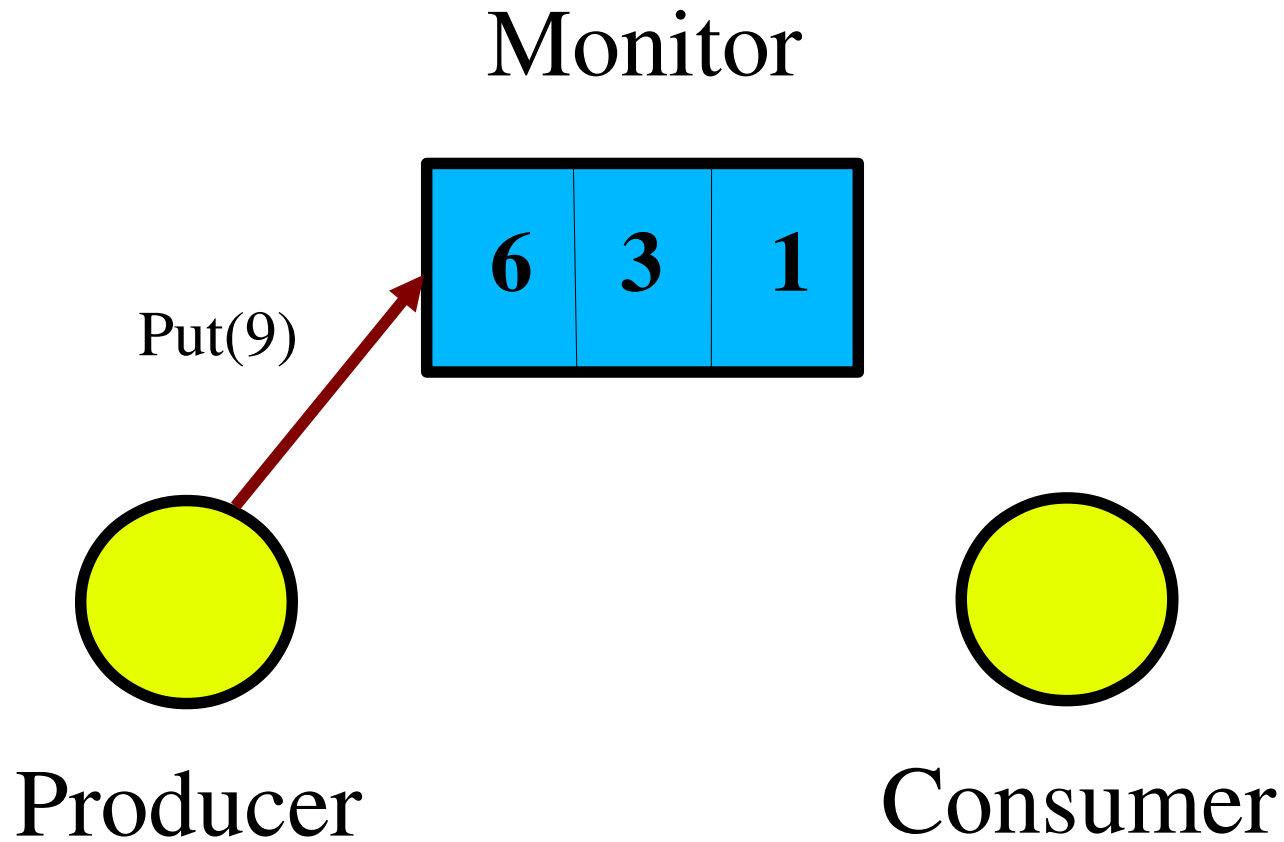


Producer

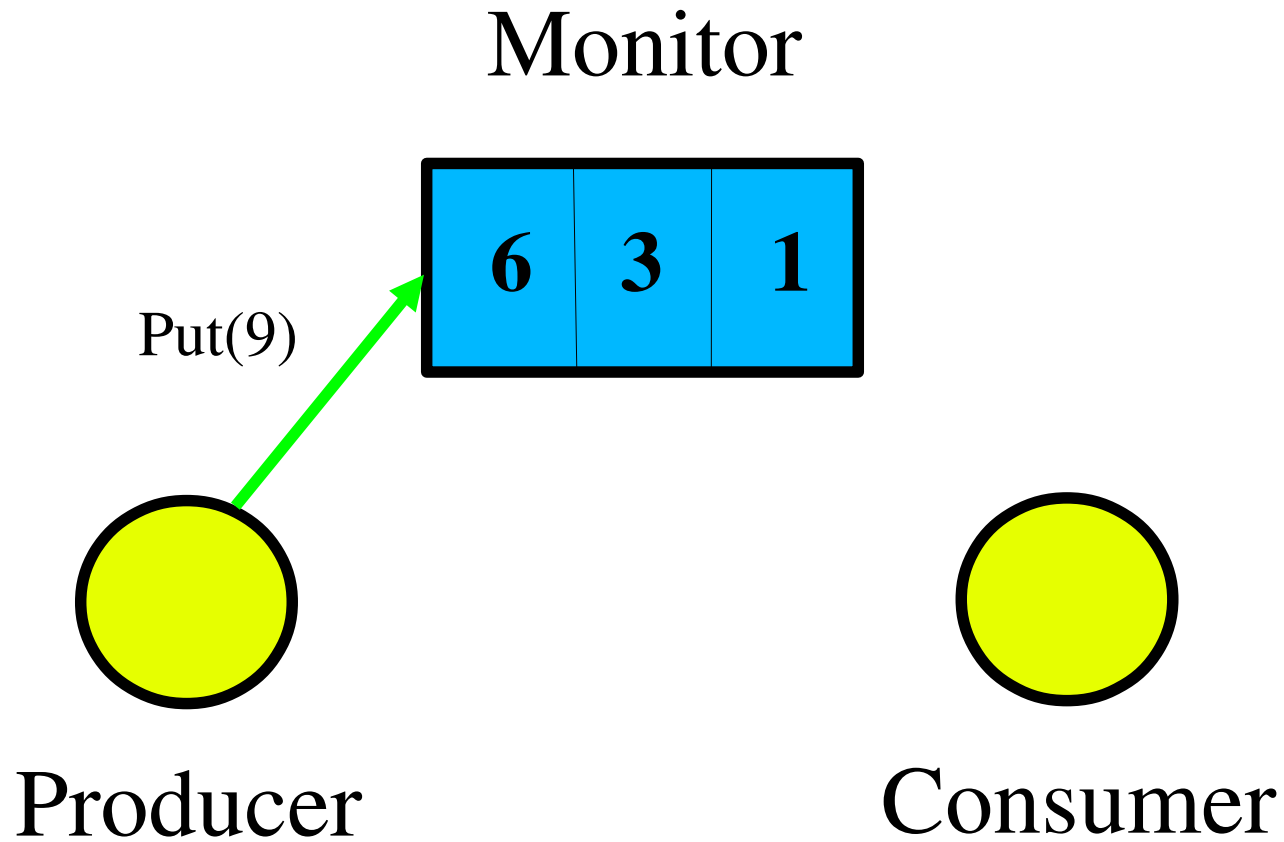


Consumer

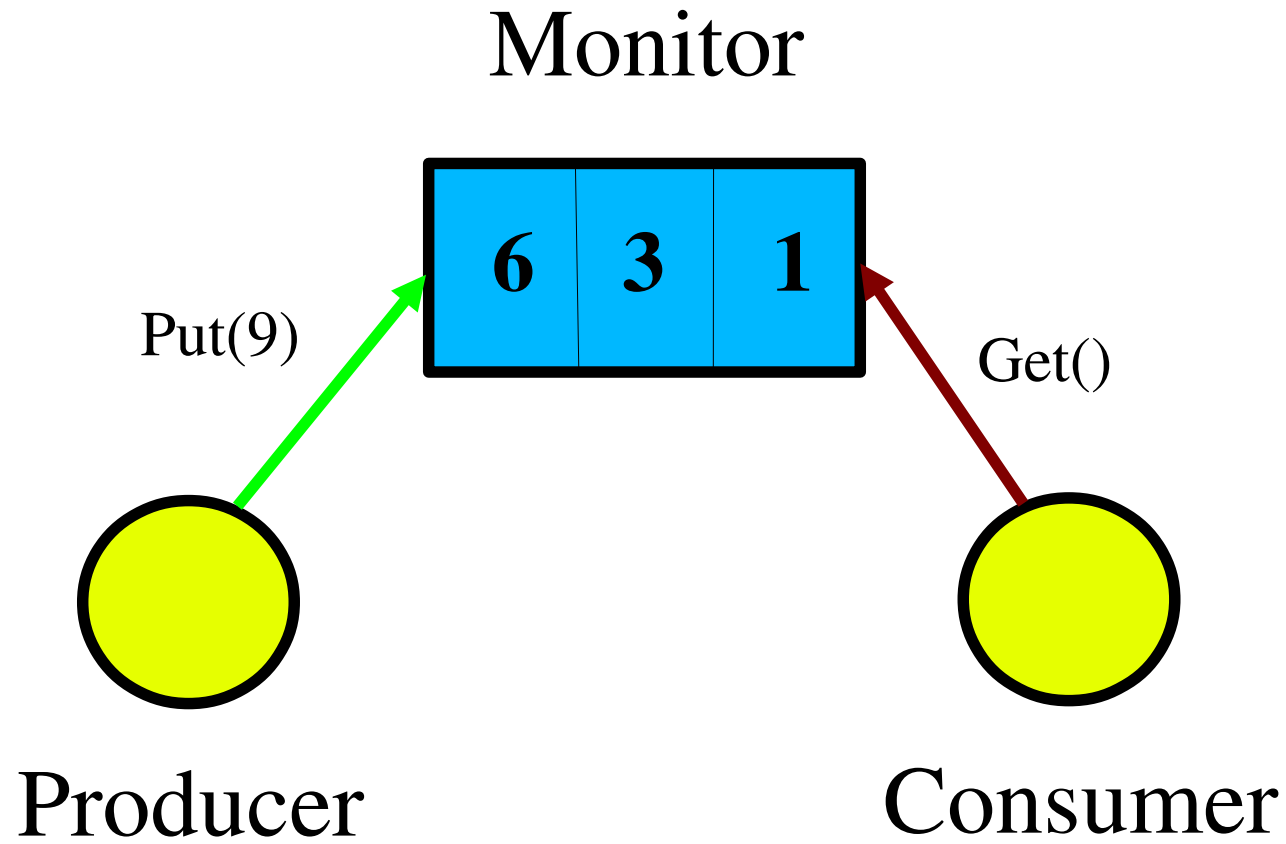
Monitor's buffer has no available positions



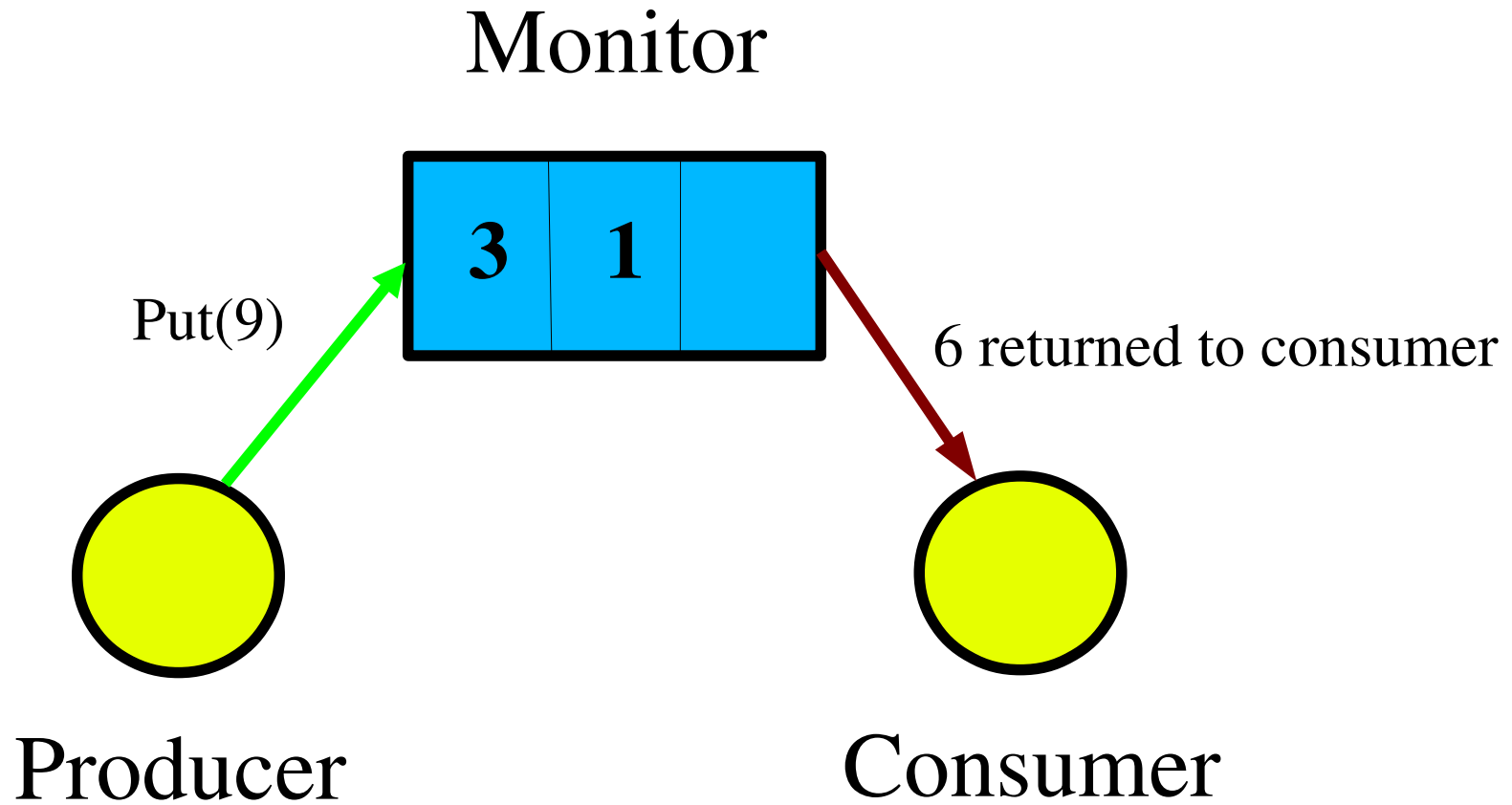
Producer tries to 'put' a token into the Monitor, fails (buffer full)



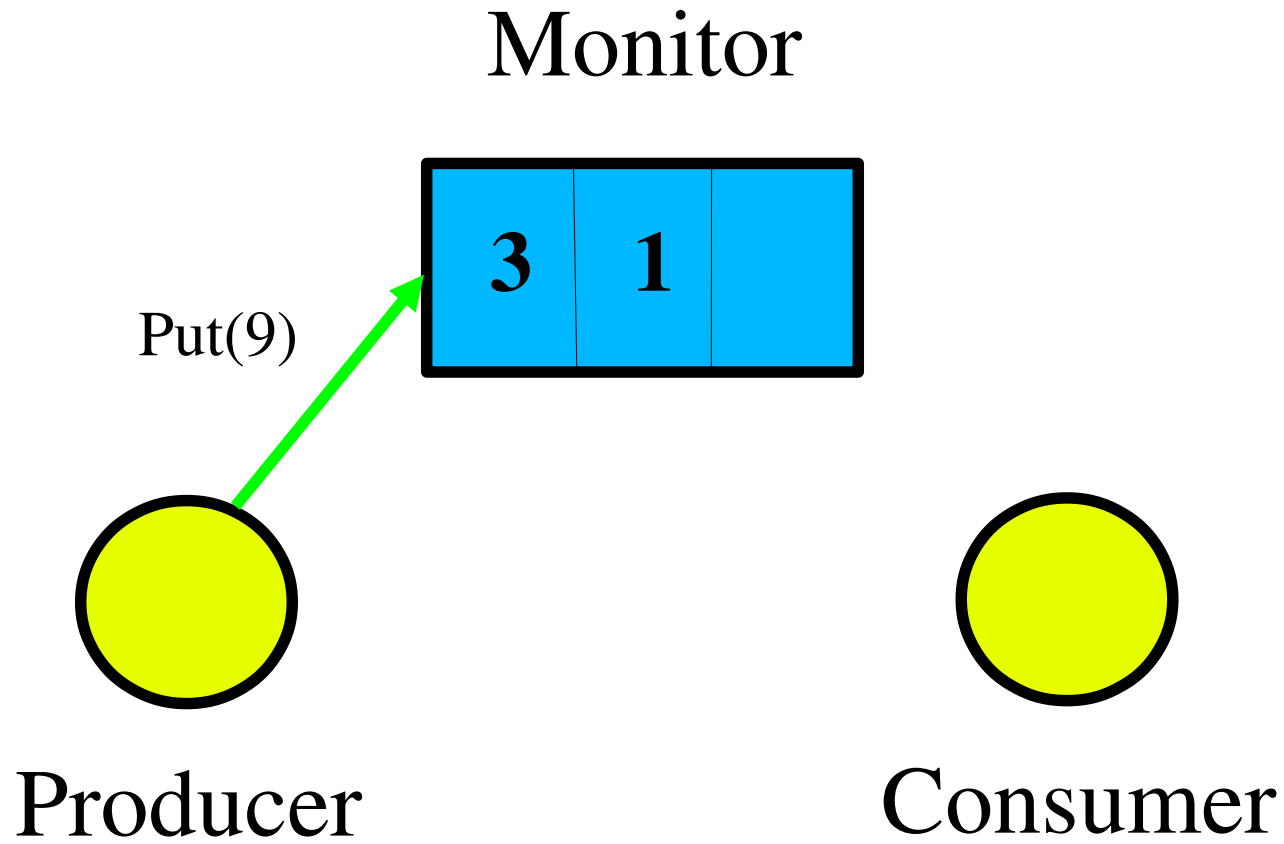
Producer is suspended pending a request from the Consumer for a token



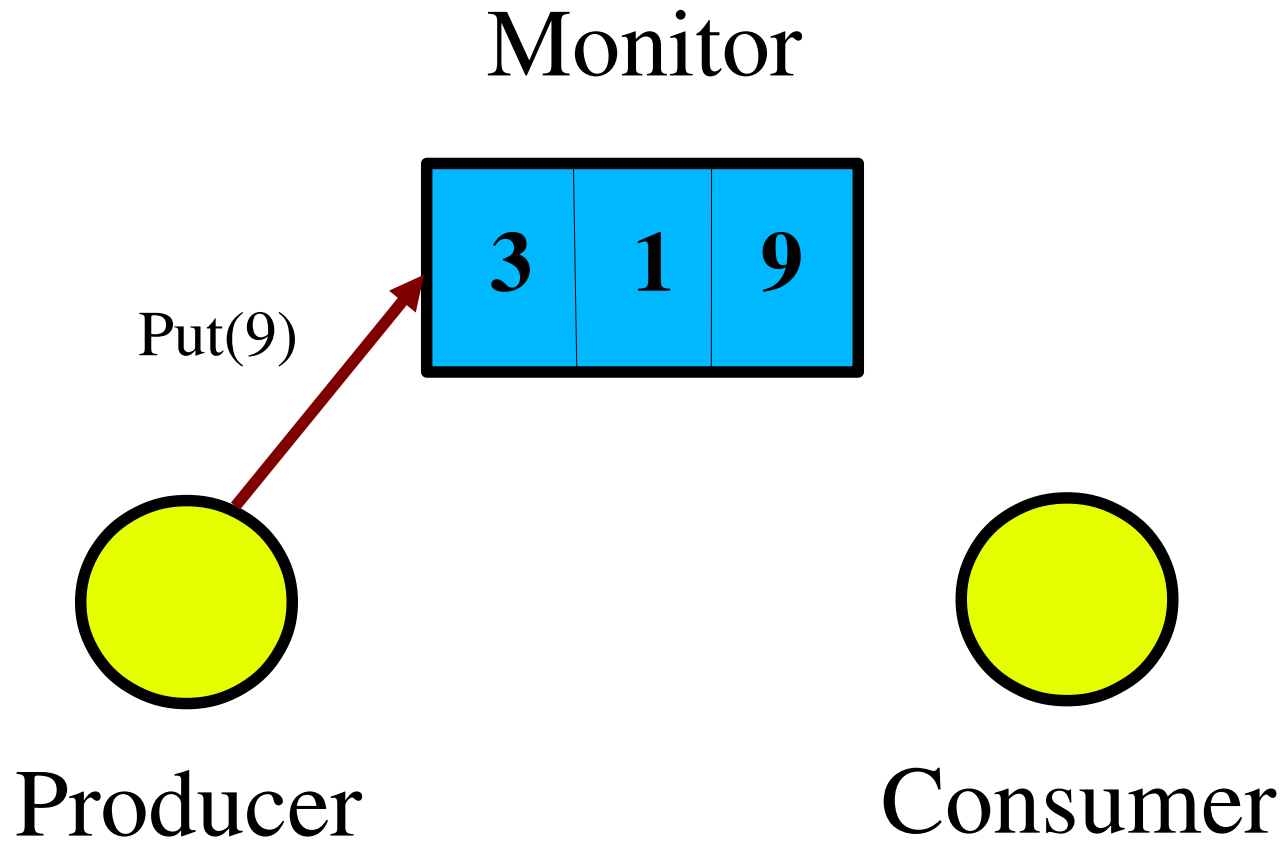
Consumer requests a token via 'get' from the Monitor



Monitor sends token (6) to the Consumer  
Consumer continues computing with (6) in hand

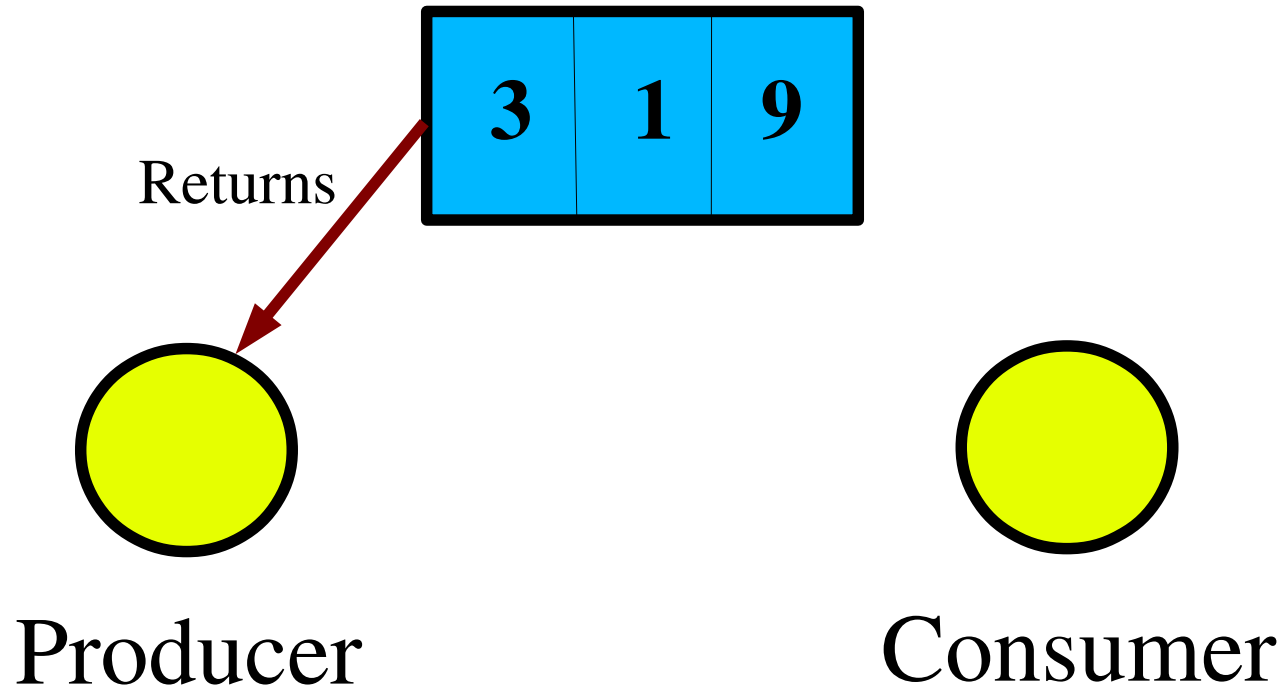


Monitor's buffer has one available position



Producer resumes, tries to 'put' a token into the Monitor, succeeds

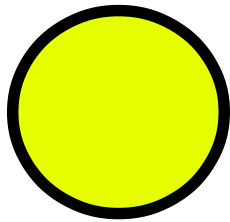
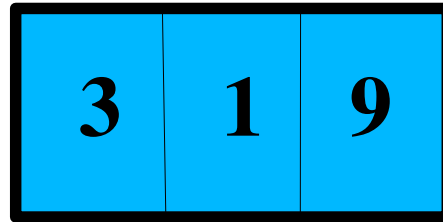
# Monitor



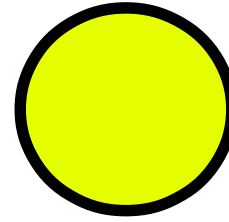
Producer continues computing more tokens



Monitor



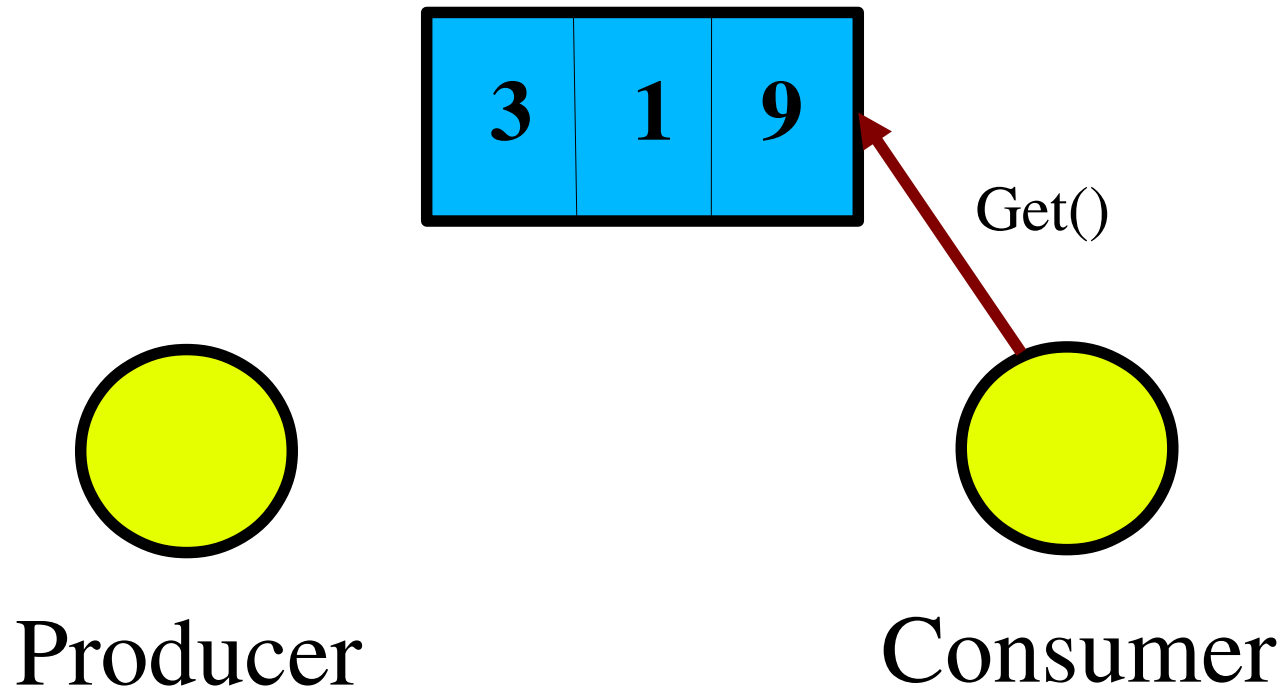
Producer



Consumer

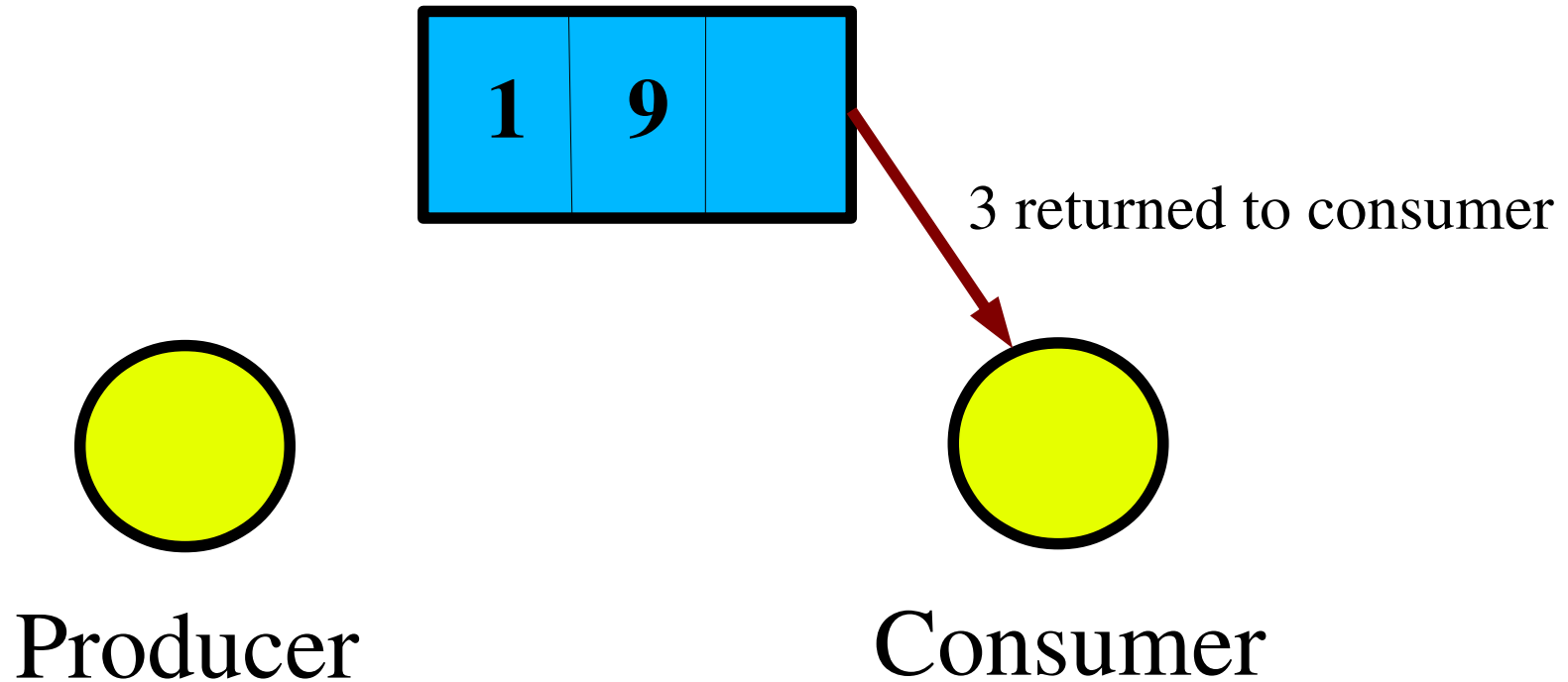
Monitor's buffer has no available positions

# Monitor



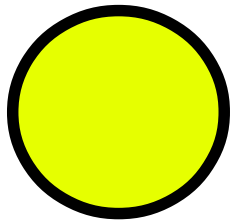
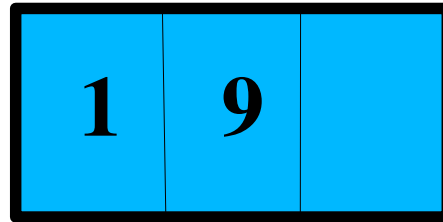
Consumer attempts to 'get' a token from the Monitor

# Monitor

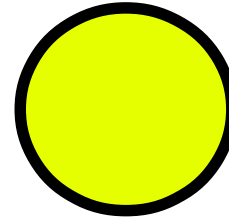


Monitor send a token (3) to the Consumer  
Consumer continues computing with token (3) in hand

# Monitor



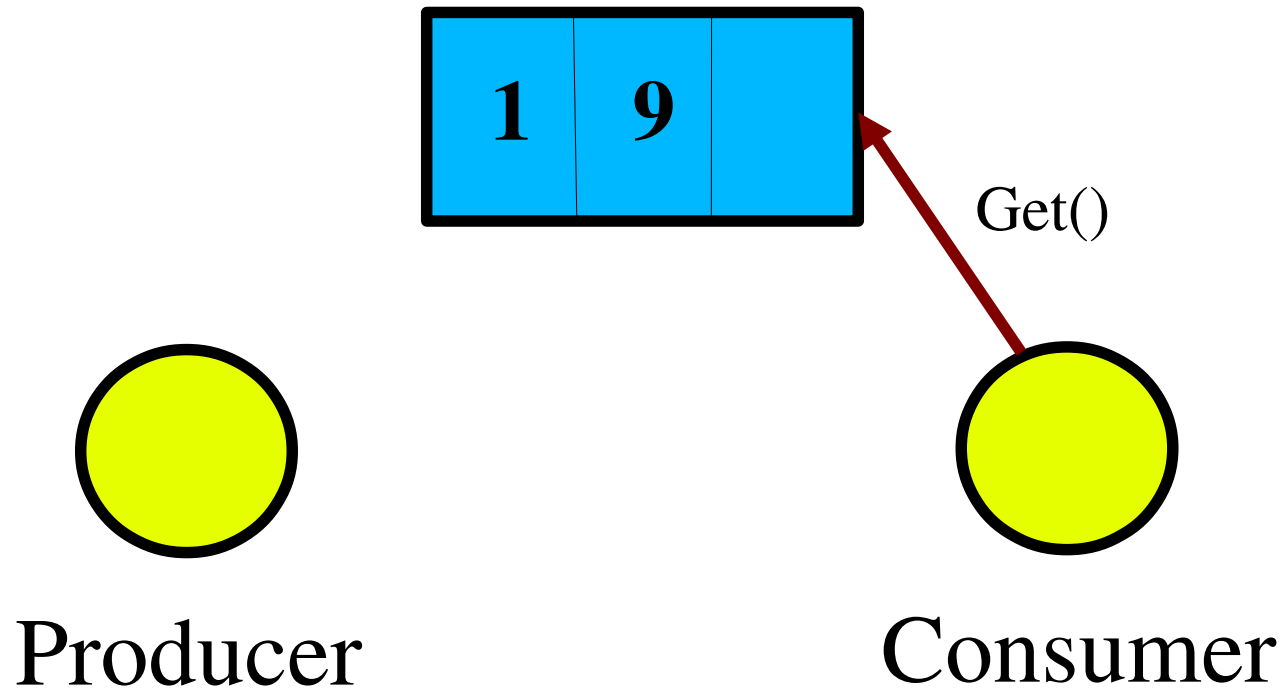
Producer



Consumer

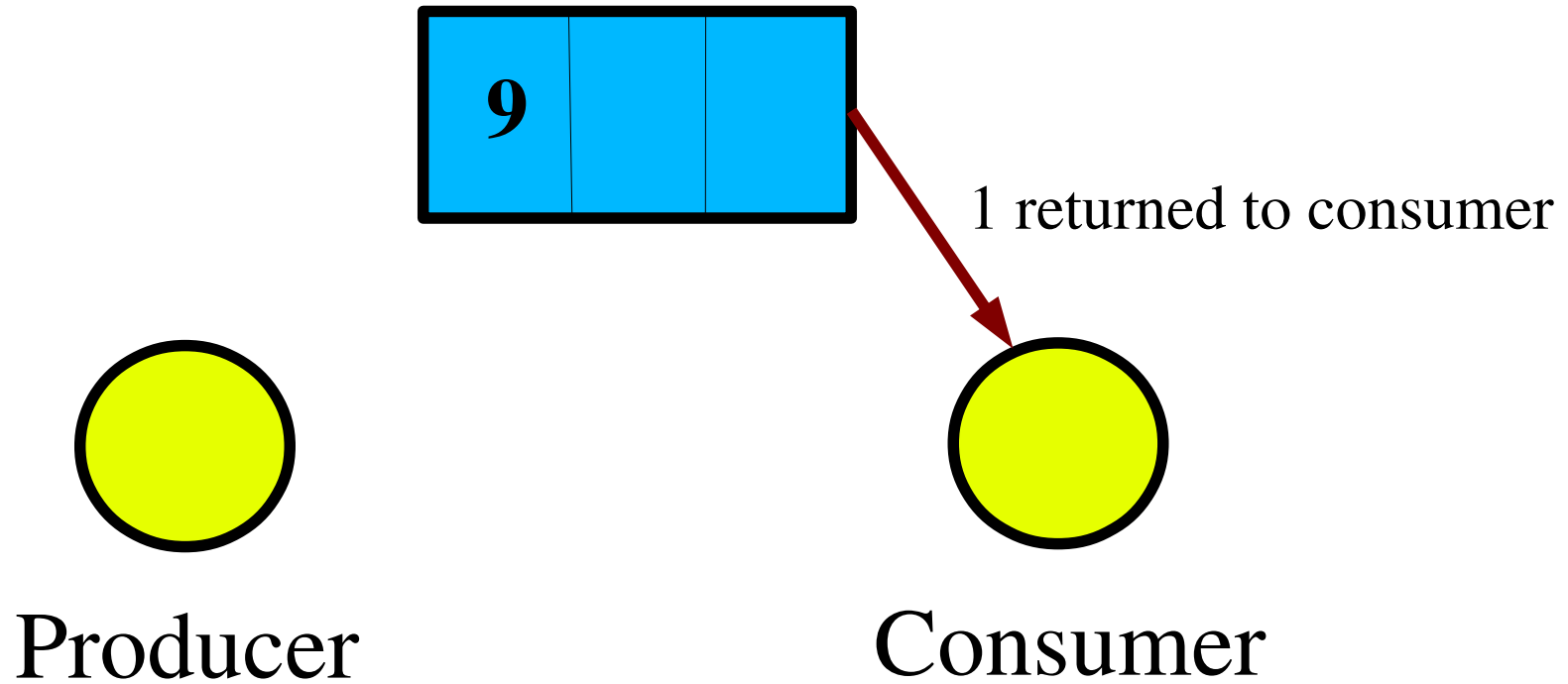
Monitor's buffer has one available position

# Monitor



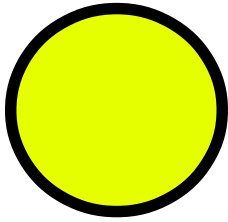
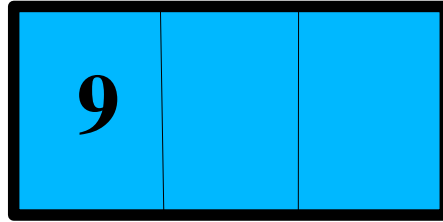
Consumer attempts to 'get' a token from the Monitor

# Monitor

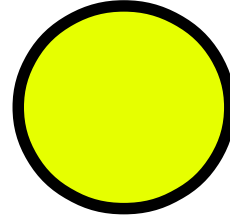


Monitor send s token (1) to the Consumer  
Consumer continues computing with token (1) in hand

Monitor



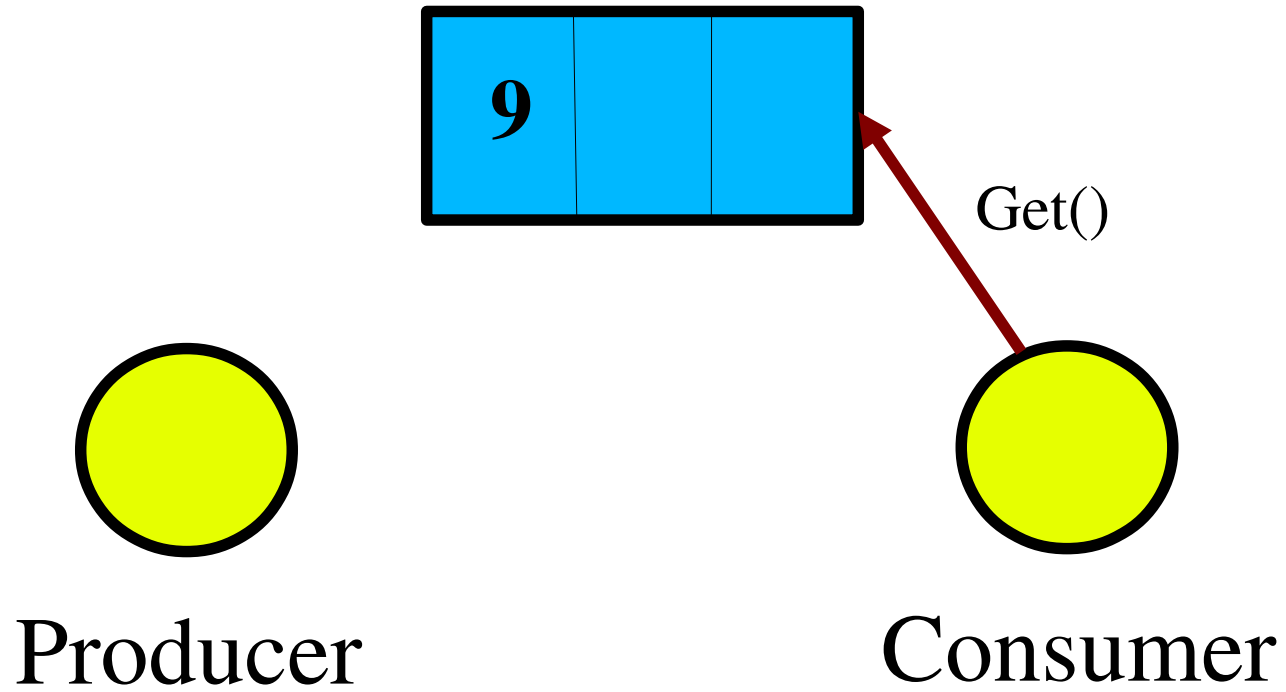
Producer



Consumer

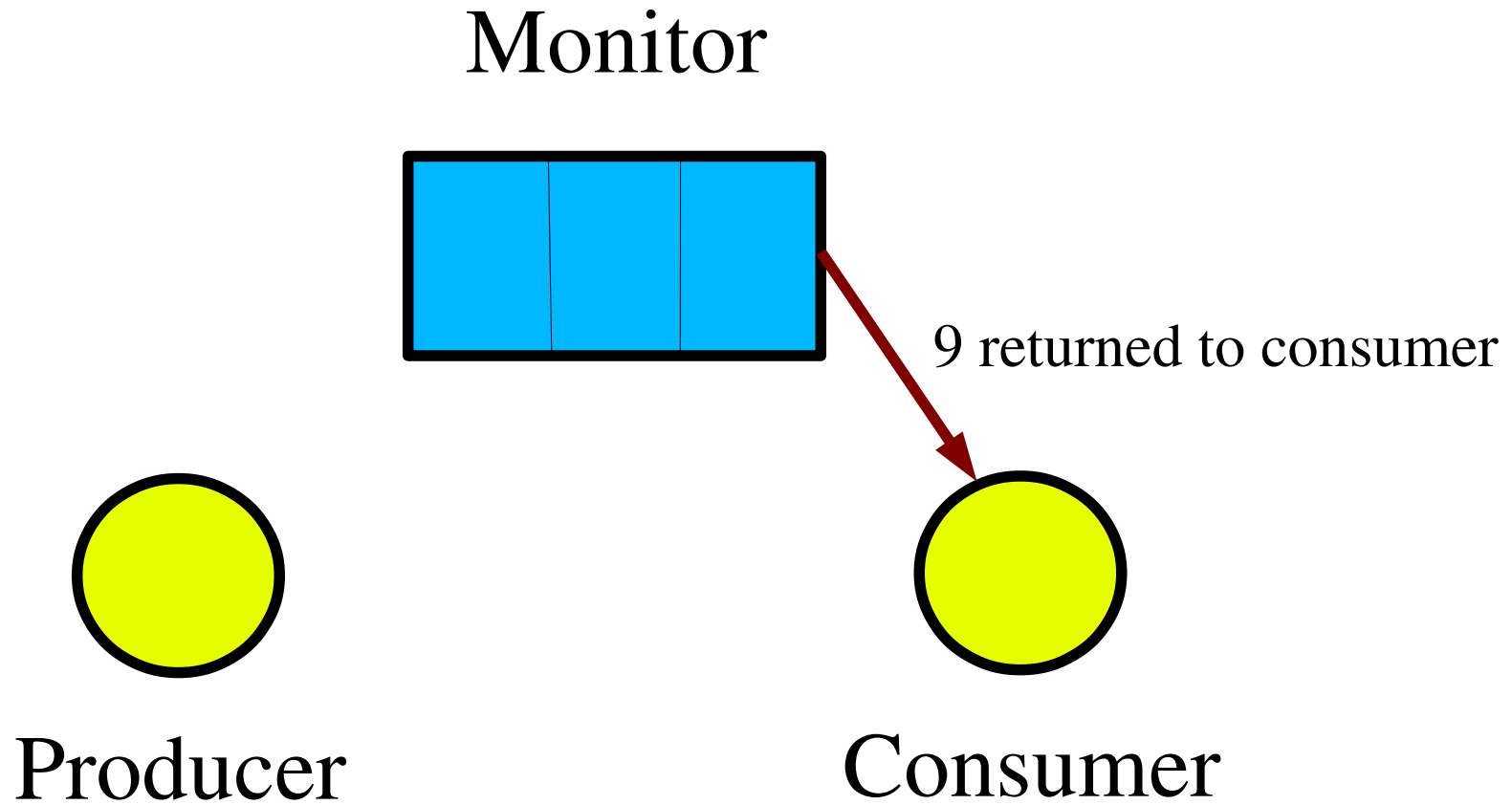
Monitor has two available positions

# Monitor



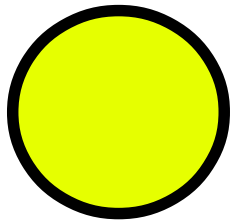
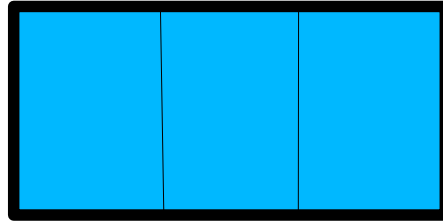
Consumer tries to 'get' a token from the Monitor



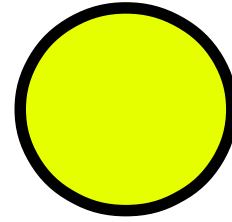


Monitor sends a token (9) to the Consumer  
Consumer continues computing with (9) in hand

Monitor

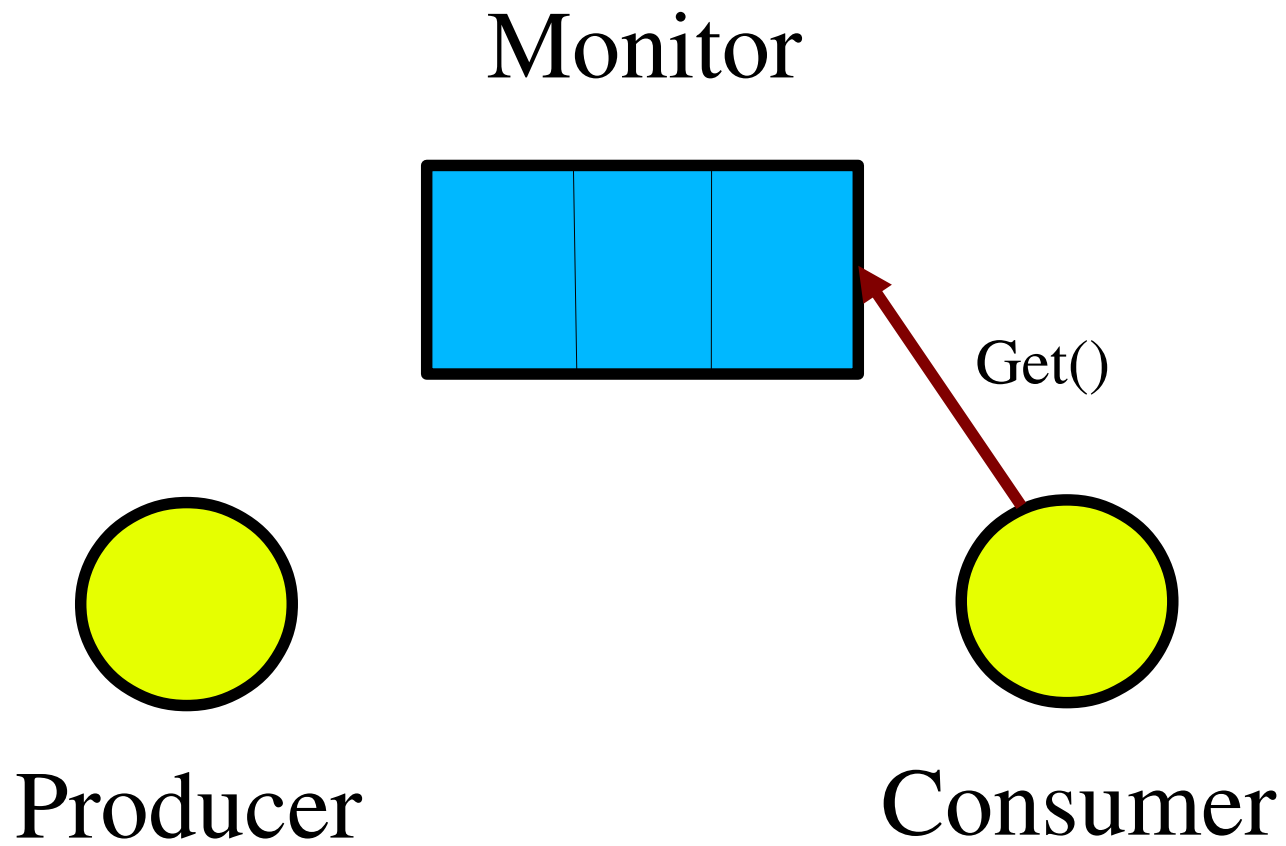


Producer

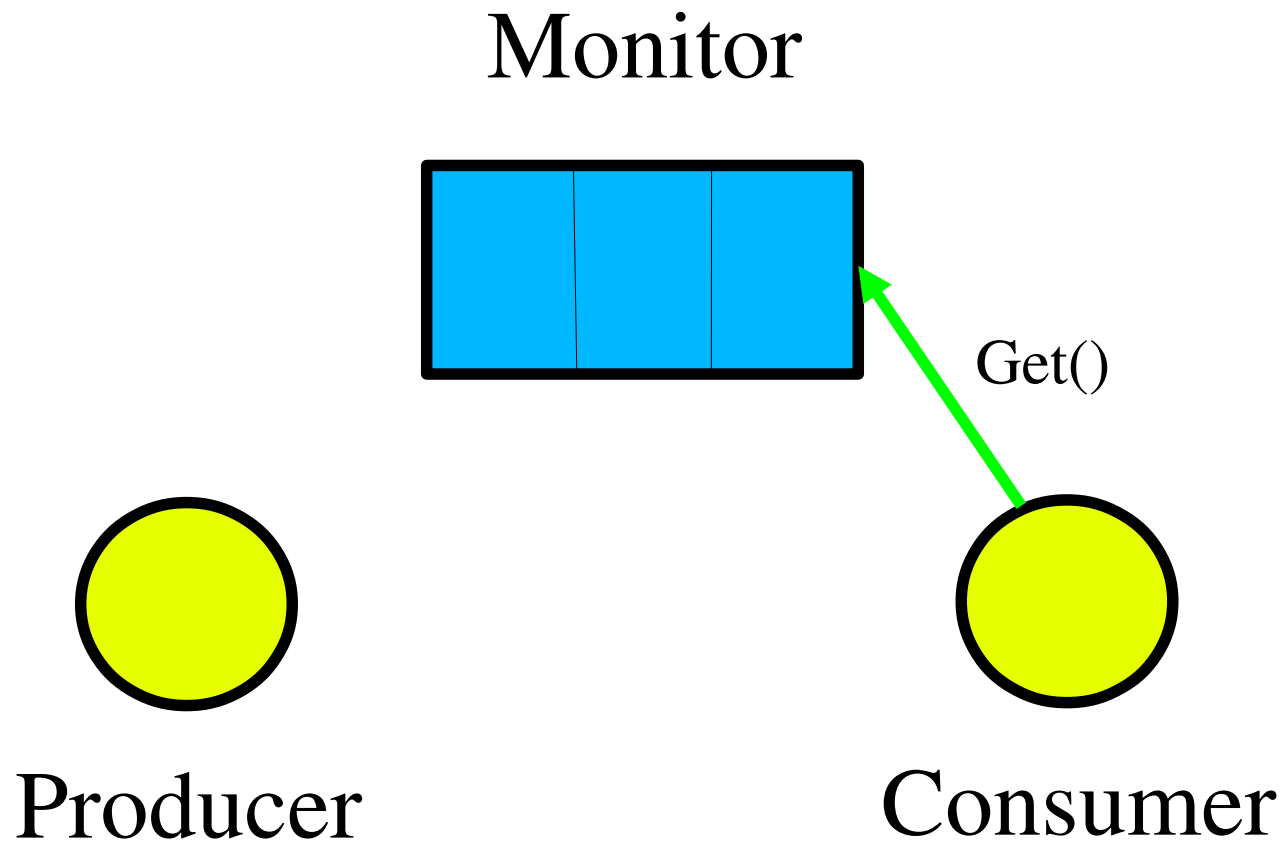


Consumer

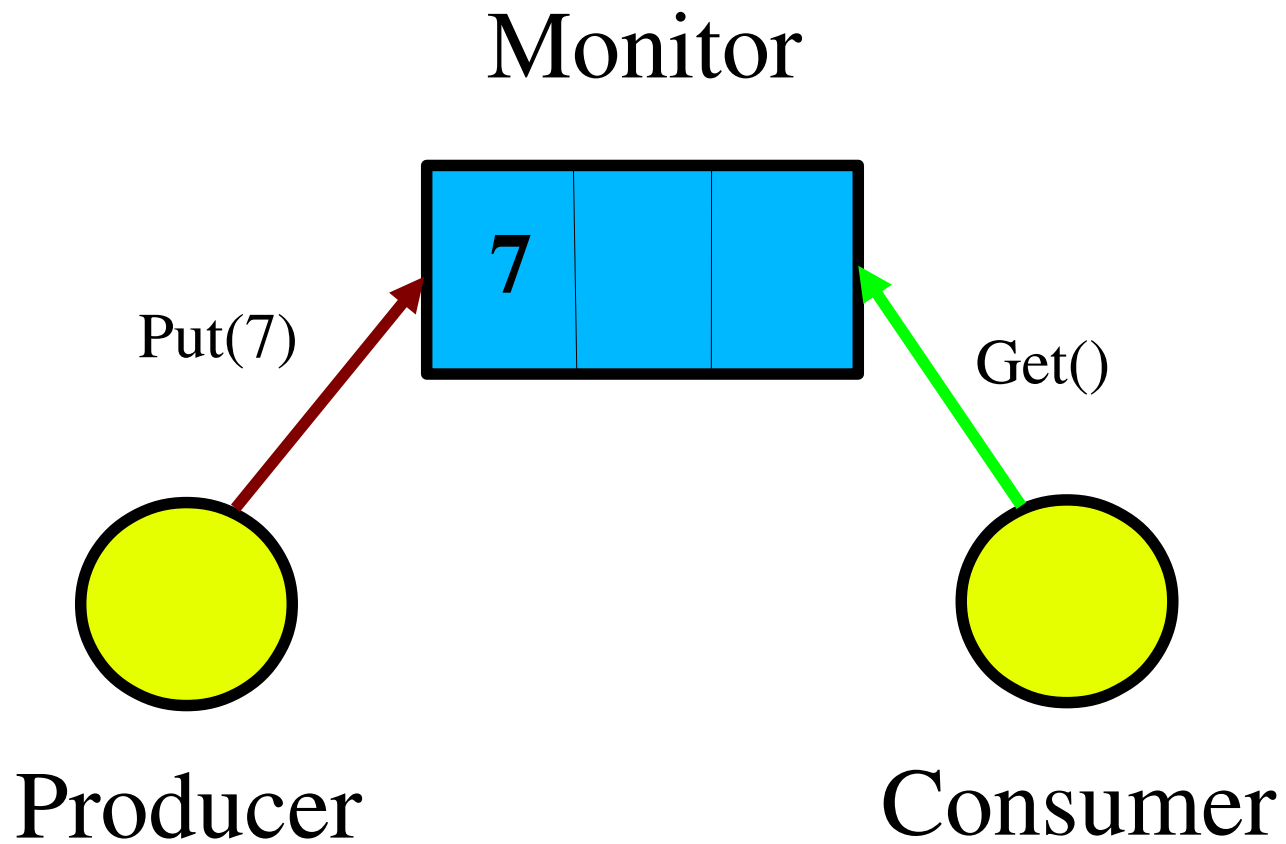
Monitor's buffer has no available positions



Consumer tries to 'get' a token from the Monitor

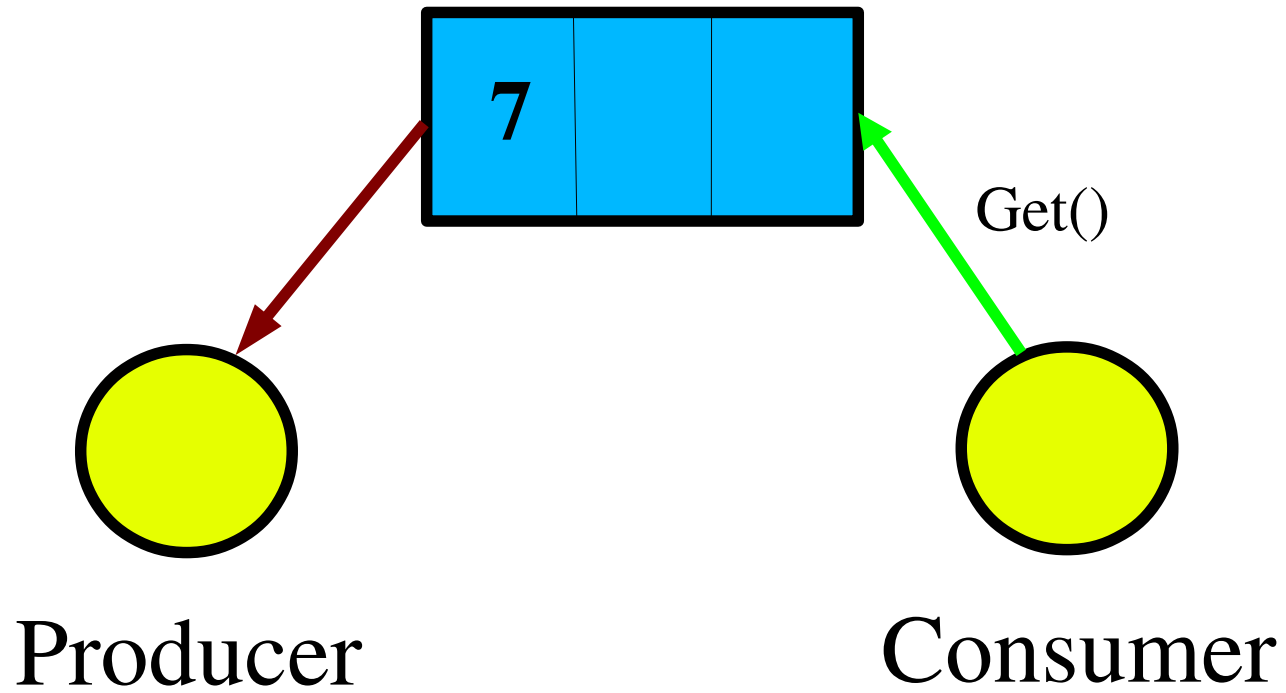


Consumer is suspended pending a 'put' from the producer



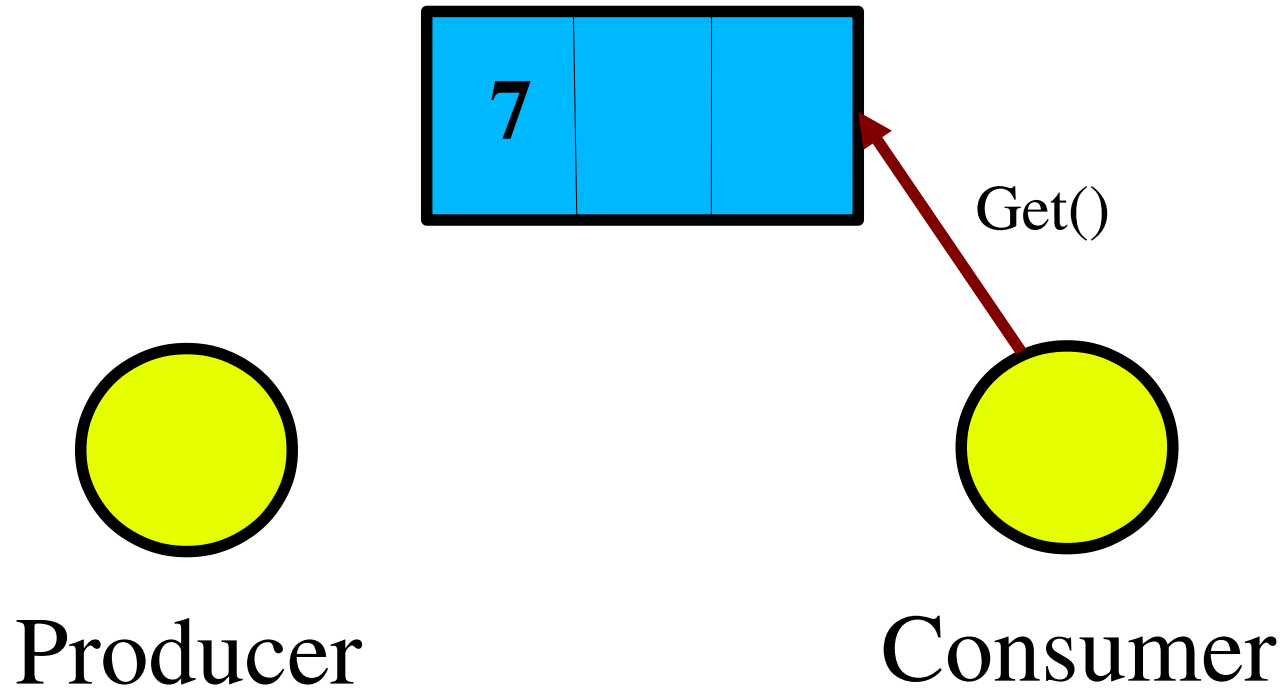
Producer tries to 'put' a token into the Monitor

# Monitor

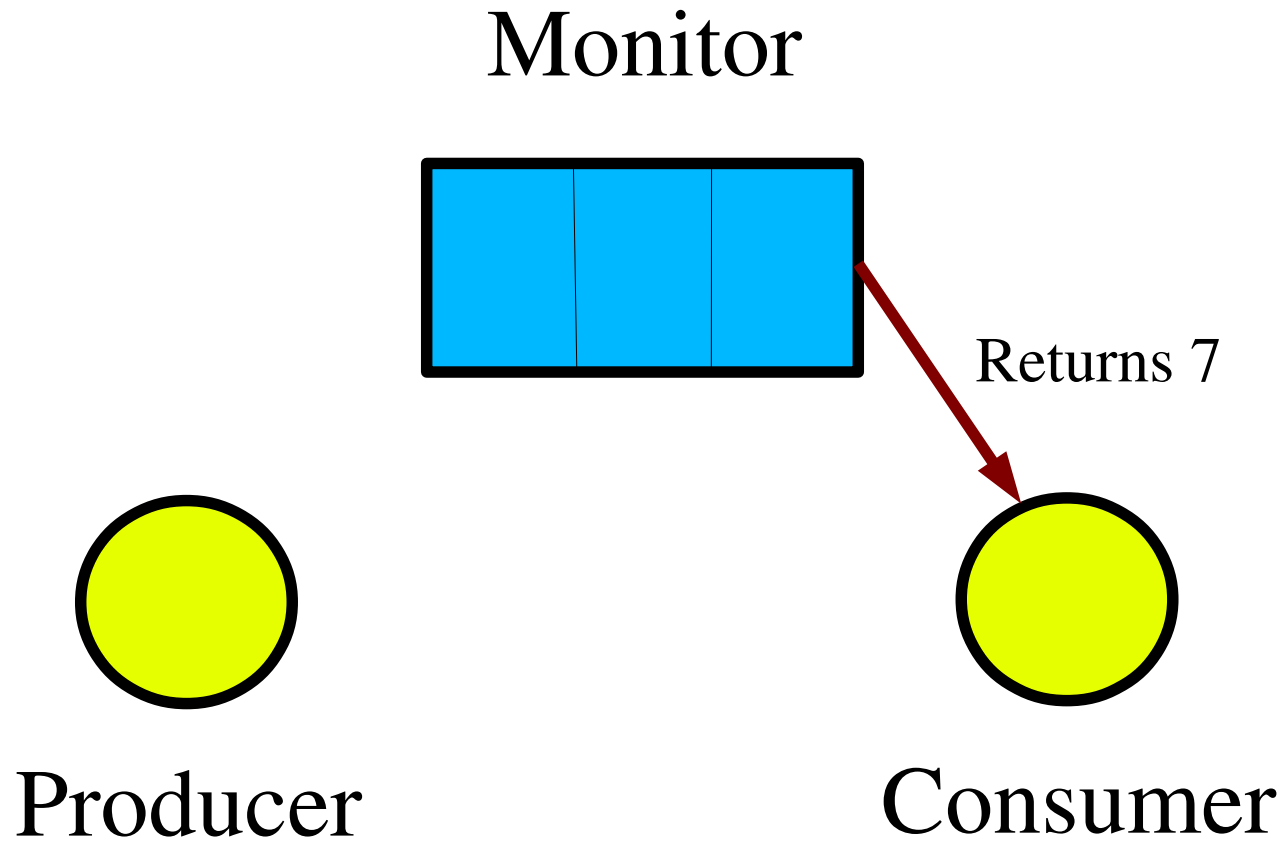


Producer continues to compute more tokens

# Monitor



Consumer resumes getting a token from the Monitor



Consumer continues computing with token (7) in hand