

Common consumer goods create a race condition for consumers, who this way not necessarily be able to access so much quantity that they would like to. The author describes the problem with the following example:

Let's assume, that we advertise the opportunity of accessing free bread: there is a table at the center of a public square, and we put a kilo of bread on it. Then we publish the following statement:

The bread is available to anyone. (1)

However the first person who goes for bread can take a portion of it or even the whole of it, and the next person who goes for bread might say that statement (1) isn't true. As a matter of fact, the truth content in statement (1) isn't unambiguous: if it was completed as

The bread is available to anyone AT ANY TIME, (2)

then (2) wouldn't be true, because it runs out after a certain amount of time, or as

The FULL bread is available to anyone, (3)

then (3) would also not be true, because it runs out partially or in full after a certain amount of time. If we complete with both,

The FULL bread is available to anyone AT ANY TIME, (4)

then (4) had two false statements at the same time - but not completing with any of them doesn't make the original statement (1) true, because if someone would like to get the full bread but it had already run out partially or in full, then for that person "the bread" isn't available. Due to these there must be restrictions in the statement concerning the quantity and the time from the availability point of view. For we to know the still available quantity at a given point in time, we would need to know how much everyone else needed from it - due to this the statement can only target one consumer's need at a time, and for so long it can't target another consumer, as long as the previous one didn't decide permanently how much of the quantity they would like to reserve. This means two restrictions:

- except for the consumer targeted with the statement no other consumer can have exact information about the quantity (5)
- the consumer targeted with the statement must make a decision within a due deadline so that restriction (5) can be abolished for another consumer (6)

As we don't know when a consumer can make a decision, therefore it only worths to be targeted with the statement if they have already indicated that they've made a decision. Due to this besides using (5) and (6), the operational concept of a system implementing stock reservation is the following:

A consumer indicates that they've made a decision. At this point the system must check if they can have information about the quantity:

- yes, if no other consumer is reserving at the time, i.e. the indication happened at a point of time when no unexpired dedicated stock-reservation time limit exists (7)
- no, if another consumer is reserving at the time, i.e. the indication happened at a point of time when an unexpired dedicated stock-reservation time limit exists (8)

The system provides the following to the consumer after checking if they can have information about the quantity:

- if yes, then they can view the quantity and can reserve some of it, but are only able to do so within the stock-reservation time limit: if the time is up and a reservation didn't happen, then they can't reserve and later they must indicate again, that they've made a decision. At the point of time of the reservation the stock-reservation time is up, like when in lack of reservation the elapsed time reaches the dedicated time limit. Till the time is up the system must respond to all other consumers that they can't have information about the quantity. (9)
- if not, then they have to wait, and later they must indicate again, that they've made a decision - the system may give a feedback, when the dedicated stock-reservation time limit expires. (10)
- in any case, they can conditionally have information about the maximum quantity, so that they can get its bearings if they wouldn't like so much quantity that won't be available in the future due to specific rules. (11)

Such conditions and rules that make them possible:

- if there is no stock refill and it isn't possible to cancel a reservation, i.e. if the quantity can only change in a negative direction - in this case the maximum quantity equals the quantity available at the time of indication, i.e. the remaining quantity, even if another consumer is reserving at this point of time or not. (12)
- if a stock cap exists - in this case the maximum quantity equals the quantity of that. (13)

According to the judgement of the author no other such condition exists.

Cancellation of a reservation may happen independently of the above, depending on other conditions.