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6. Systems.
Exercise 4.2 *Supermarkets (I).* You are asked to narrate and formalise a
concept, such as you see it, of a supermarket, with shelves, price-tagged
merchandise on shelves, a backup store from where near-empty or empty shelves
can be replenished, consumers being in the supermarket, selecting merchandise
from shelves and checking these out at a check counter. Assume each shelf
to be typed with the merchandise it displays or is supposed to display.
What of the above, i.e., which entities of your model, constitute a (daily)
context, and which constitutes the current state?

Context:
The supermarket has shelves s:S that can have a set of a predetermined
merchandise m:M, that is specified by the shelving document sd:SD.. It has s
Storage room Shelves rs:RS that also has finite sets of merchandise for restocking
the shelves, merchandise stored here is also specified by the shelving document.
The merchandise has a predetermined price p:P.
State:
The supermarket has Clients c:C that can modify the contents of these Shelves by
taking merchandise from them. This affects the amount in the set of Merchandise
m:M in the shelf.
type
        S, M, R, P, C
        [SuperMarket : Configuration]
        SuperMarket = π x ∑

        [π : Context]
        π = (S ->m SD) x (RS ->m SD)
        SD = mkSD(m:M-set , p:P)

        [∑ : State]
        ∑ = S ->m M-set

        TkItm = takeItem(c:C x m:M)
        reStck = restock(sd:SD x s:S x M-set) | restock (sd:SD x rs: RS x M-set)