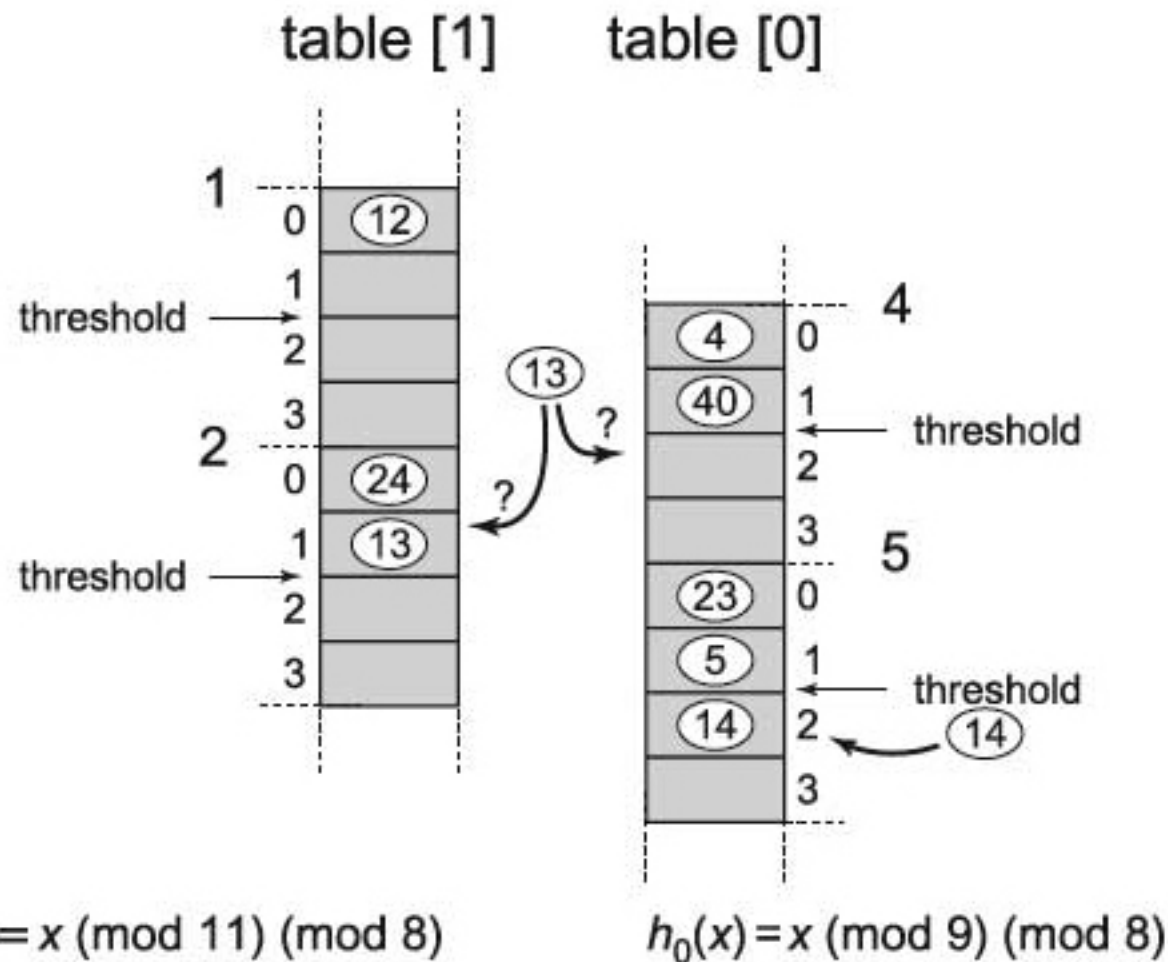


(a)



**FIGURE 13.23A** The `PhasedCuckooHashSet<T>` class: `add()` and `relocate()` methods. The figure shows the array segments consisting of eight probe sets of size 4 each, with a threshold of 2. Shown are probe sets 4 and 5 of `Table[0][]` and 1 and 2 of `Table[1][]`. In part (a), an item with key 13 finds `Table[0][4]` above threshold and `Table[1][2]` below threshold, so it adds the item to the probe set `Table[1][2]`. The item with key 14, on the other hand, finds that both of its probe sets are above threshold, so it adds its item to `Table[0][5]` and signals that the item should be relocated. In part (b), the method tries to relocate the item with key 23, the oldest item in `Table[0][5]`. Since `Table[1][1]` is below threshold, the item is successfully relocated. If `Table[1][1]` were above threshold, the algorithm would attempt to relocate item 12 from `Table[1][1]`, and if `Table[1][1]` were at the probe set's size limit of four items, it would attempt to relocate the item with key 5, the next oldest item, from `Table[0][5]`.