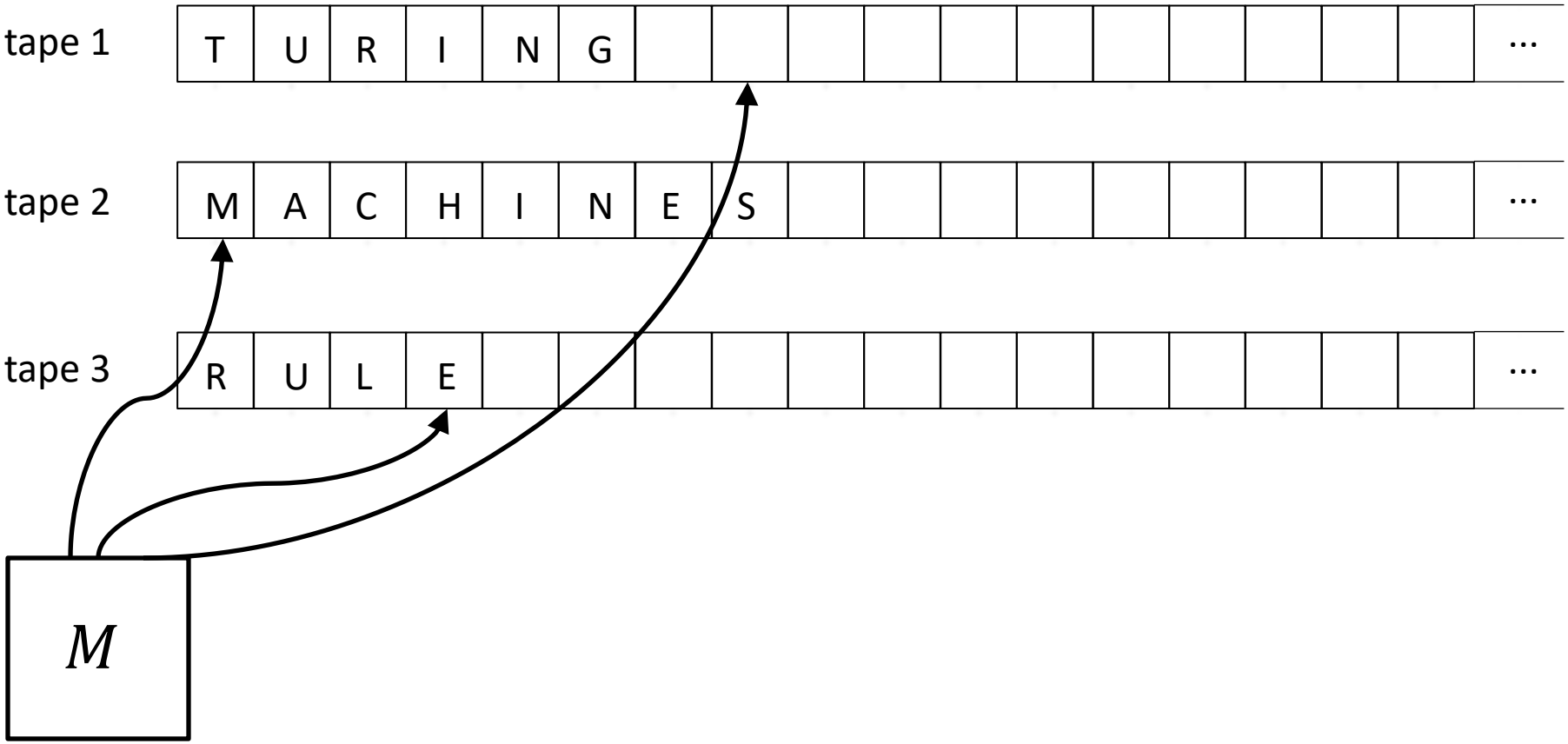
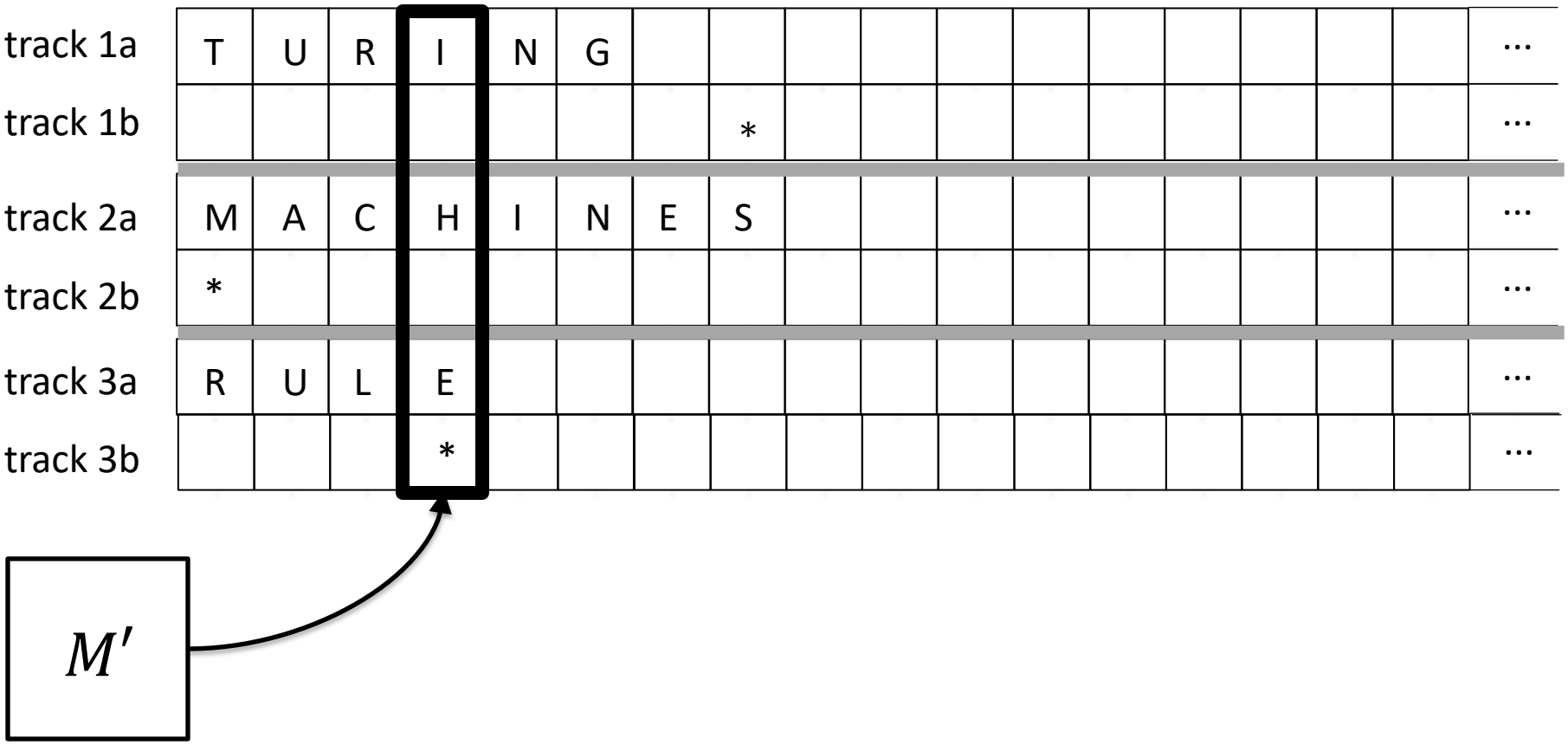
Simulation of multitape TMs



Simulation of multitape TMs



Single-tape TM M' simulating k -tape TM M

1. Transform input to $2k$-track format, and return to leftmost cell.
2. Remember the state of M.
3. Scan to the right looking for * in the b-tracks and remembering the symbol above the * for each track, until all k *s are seen.

[continued on next slide]

Single-tape TM M' simulating k -tape TM M

4. Using the state transition of M determine and remember:
    - the new state of M and,
    - for each tape, the symbol to replace the symbol above the * and the direction in which the tape head should move. If the new state of M is accept or reject, do the same.
5. Scan to the left, looking for * in the b-tracks, making the appropriate symbol changes in the a- and b-tracks, eventually returning to the leftmost cell.
6. Go to step 3.