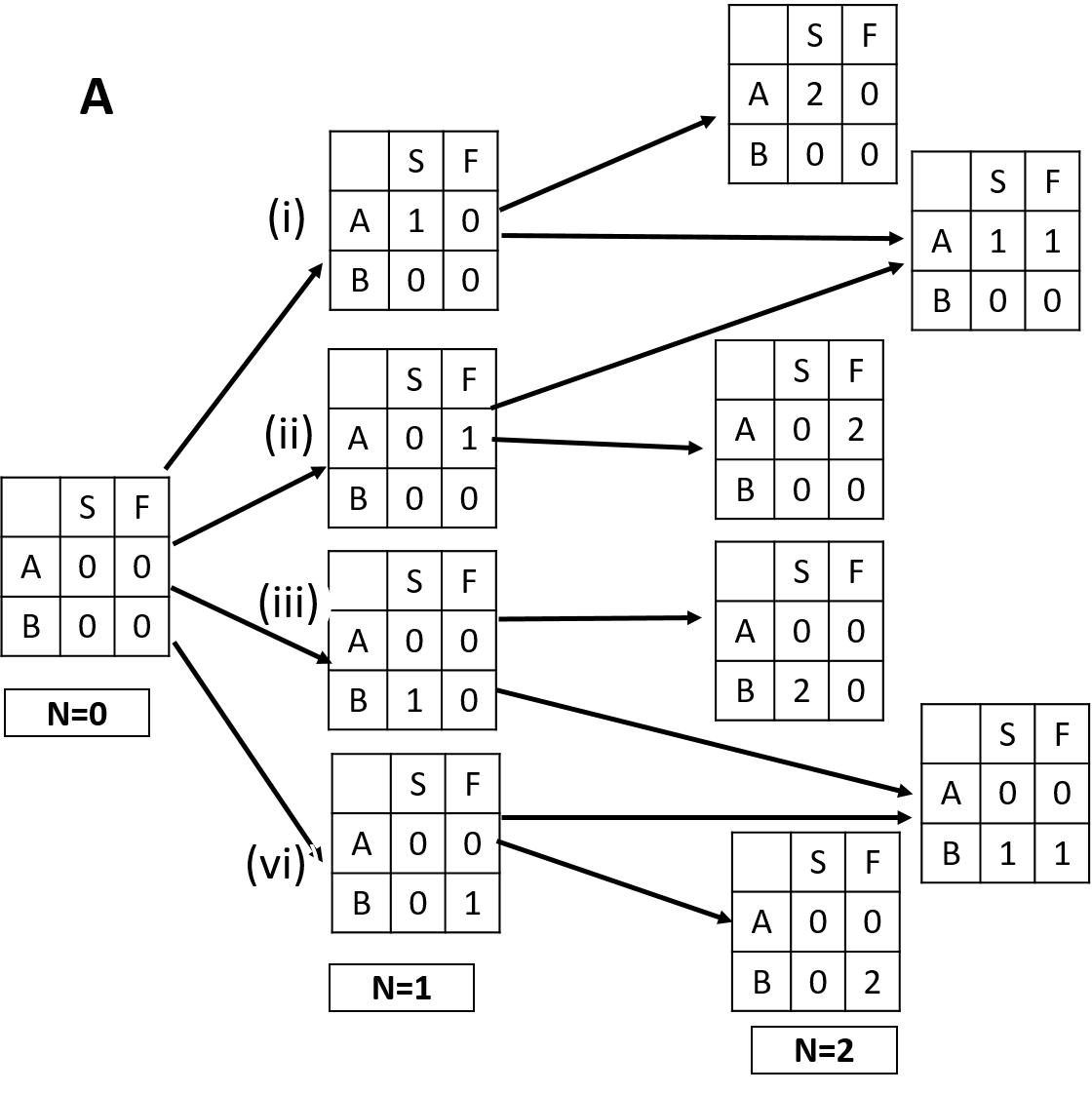
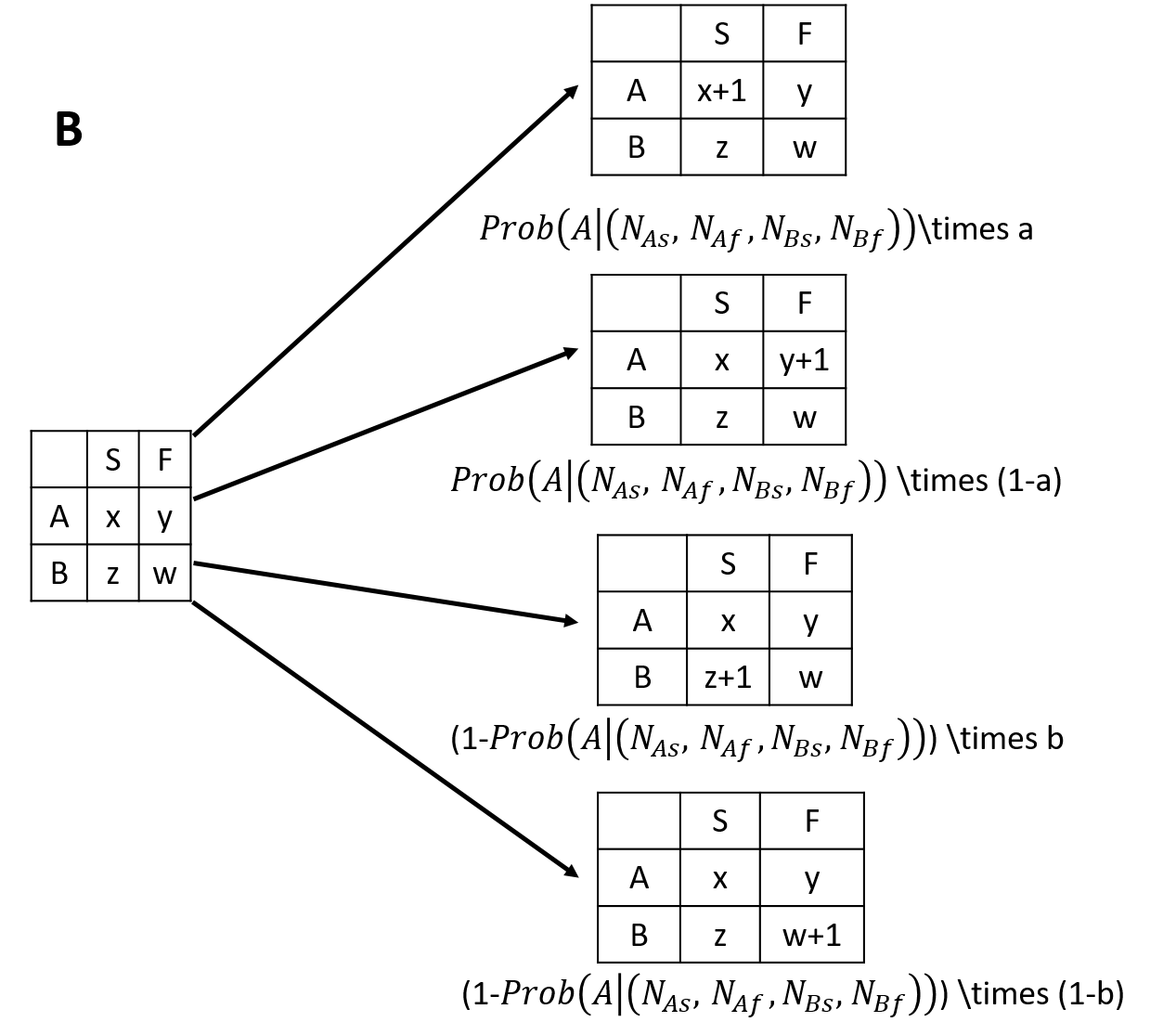
**Supplementary note 2**

**The transition of tables and their probability.**

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**Legend:** The panel A indicates the transition of tables. It starts from the left table with four cells all zero due to no outcomes of patient’s selection at the state of . When a new patient is enrolled, the state should be shifted to right by one step. For each step, there are four possible events when a patient is enrolled; (i) it selects A and turns out to be a success, (ii) it selects A and turns out to be a failure, (iii) it selects B and turns out to be a success and (iv) it selects B and turns out to be a failure. When the second patient entries there are 8 possible events but six types of tables shown as the right side at the state of total patient number . Each arrow indicates each possible event and shows connection between the occurred event table and its prior table. Similarly, the number of possible states consisted of table increases with the increase of the number of patients as shown. The panel B indicates the four possible events and their transition probabilities. When is explicitly given, the occurrence probability of every table can be calculated exactly. is explicitly given for *E.st* population and also for *T.st* population with fixed *w* values. Therefore, the exact probability of all table states is calculable for them. In case of with heterogeneous optimism/pessimism attitudes, values vary among individuals and vary among individuals stochastically, that makes the calculation of exact probability of each tables impossible.