Snowball sampling N estimator

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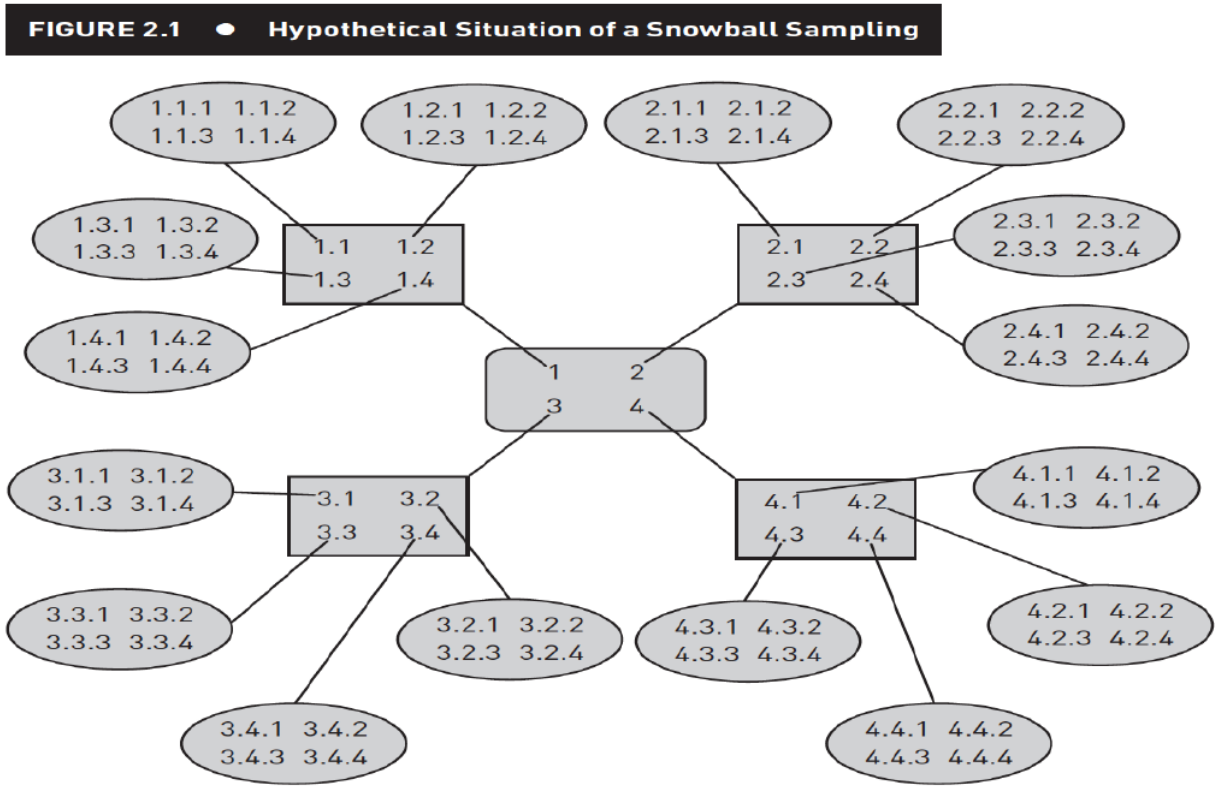
Previous formula: assuming n is the starting # and # of people each round of nomination, k is the step

Snowballing: $N = n^1 + n^2 + n^3 + \ldots n^k$



More generic formula without forcing n to be both the starting # and each round #

The total number of people involved after k steps is:

$$\text{Total} = N_0 \sum_{i=0}^{k} r^i$$

Where:

- N_0 = (starting people)
- r = (each person nominates r others)
- k = (number of snowball steps)

An example

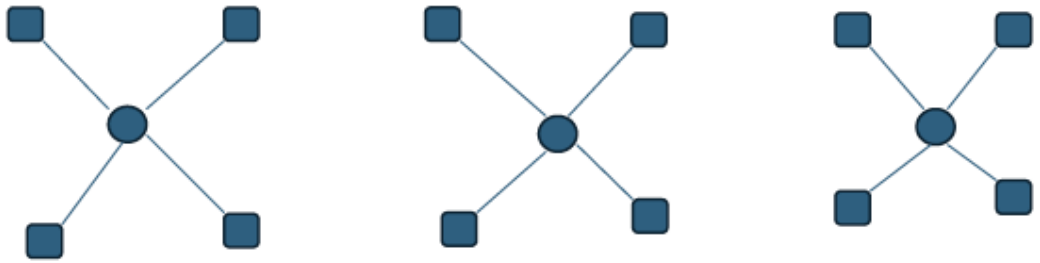
Assuming researchers start with 3 persons, who nominated 4 persons each round, and it goes 1 step

N_0 = (starting people) = 3

r = (each person nominates r others) = 4

k = (number of snowball steps) = 1

$$\text{Total} = N_0 \sum_{i=0}^{k} r^i = 3 \times (4^0 + 4^1) = 15$$



exercises

- Researcher A starts with 5 persons, each nominates additional 7 people, and it goes out 3 steps. How many people (N) will be in Researcher A’s final snowball sample?
- Researcher B starts with 15 persons, each nominates additional 3 people, and it goes out 5 steps. How many people (N) will be in Researcher B’s final snowball sample?