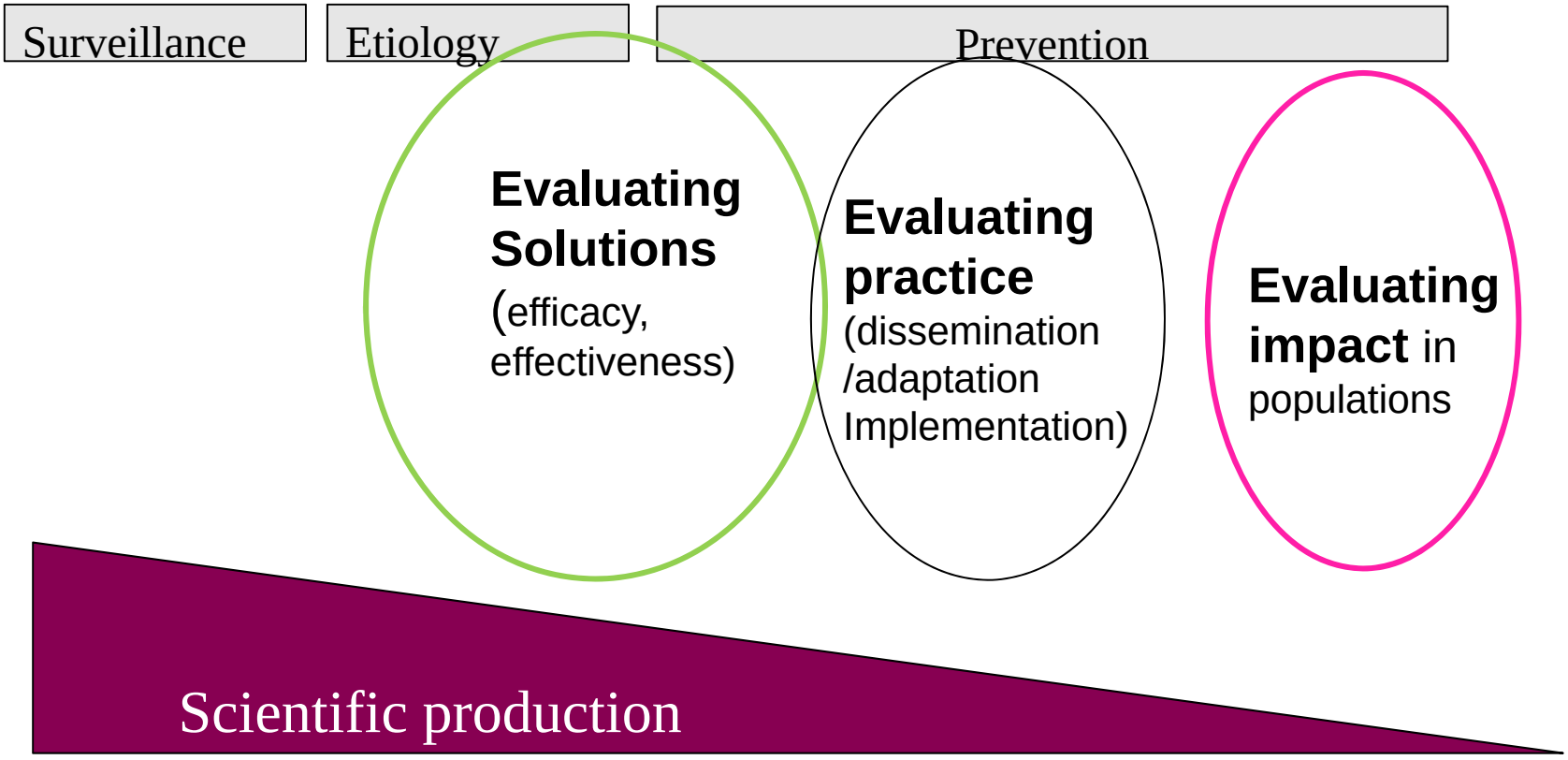
THE “NATURAL HISTORY” FRAME TO SELECT END-POINTS FOR INTERVENTION EVALUATION

Maria Rosaria Galanti
Department of Public Health Sciences, Karolinska institutet

In this presentation

- Concepts of etiognosis and prognosis
- How to design the natural history of a health problem
- Placement of actions and prediction on their effects
  - Dealing with uncertainty
  - Dealing with complexity
- Solving the antinomies between
  - Process and outcome
  - Prevention and health promotion

Prevention research in the PH continuum



Popular distinctions

- Outcome
- Process

- Final endpoint
- Intermediate endpoint
- Output

- Prevention
- Health promotion

Example:

In a community-based health- promoting intervention aimed at increasing physical activity, which is the appropriate endpoint for effectiveness evaluation?

The scope of a preventive intervention?

- Remove causes
  - Example: Environmental protection
- Delay/avoid the onset -of disease(s)/problem(s)
  - Example: breast feeding promotion and infectious disease
- Alter the progression
  - Example: smoking cessation and COPD
- Avoid complications
  - Example: mandatory seat belts and injury

An intervention ....

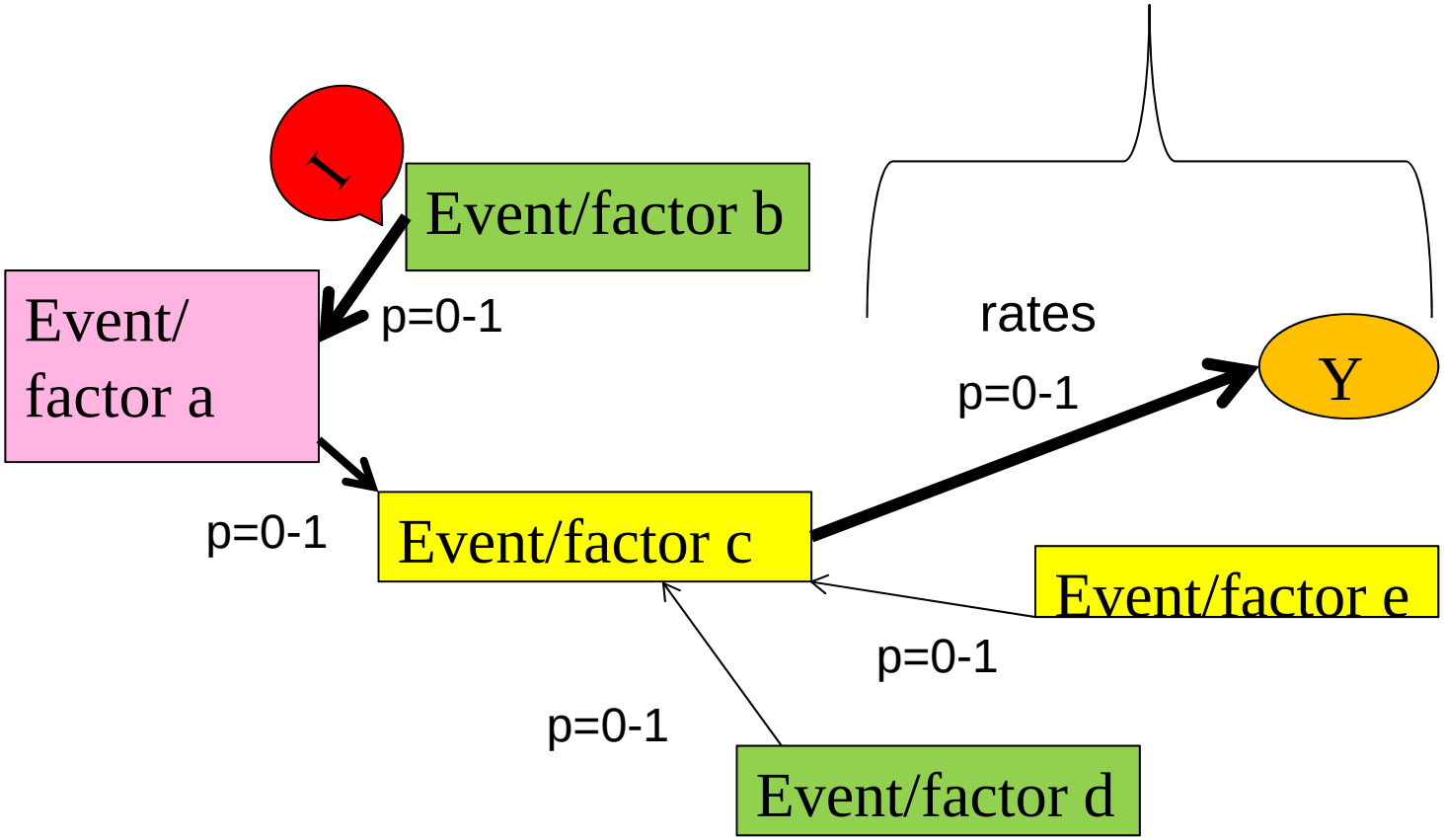
- An intervention alters the course
- Of a pathologic process
- For those who are exposed to it
- In a probabilistic fashion
- In other words, the prognosis of a health problem (in an individual or community)

Two paradigms (Miettinen, 2010)

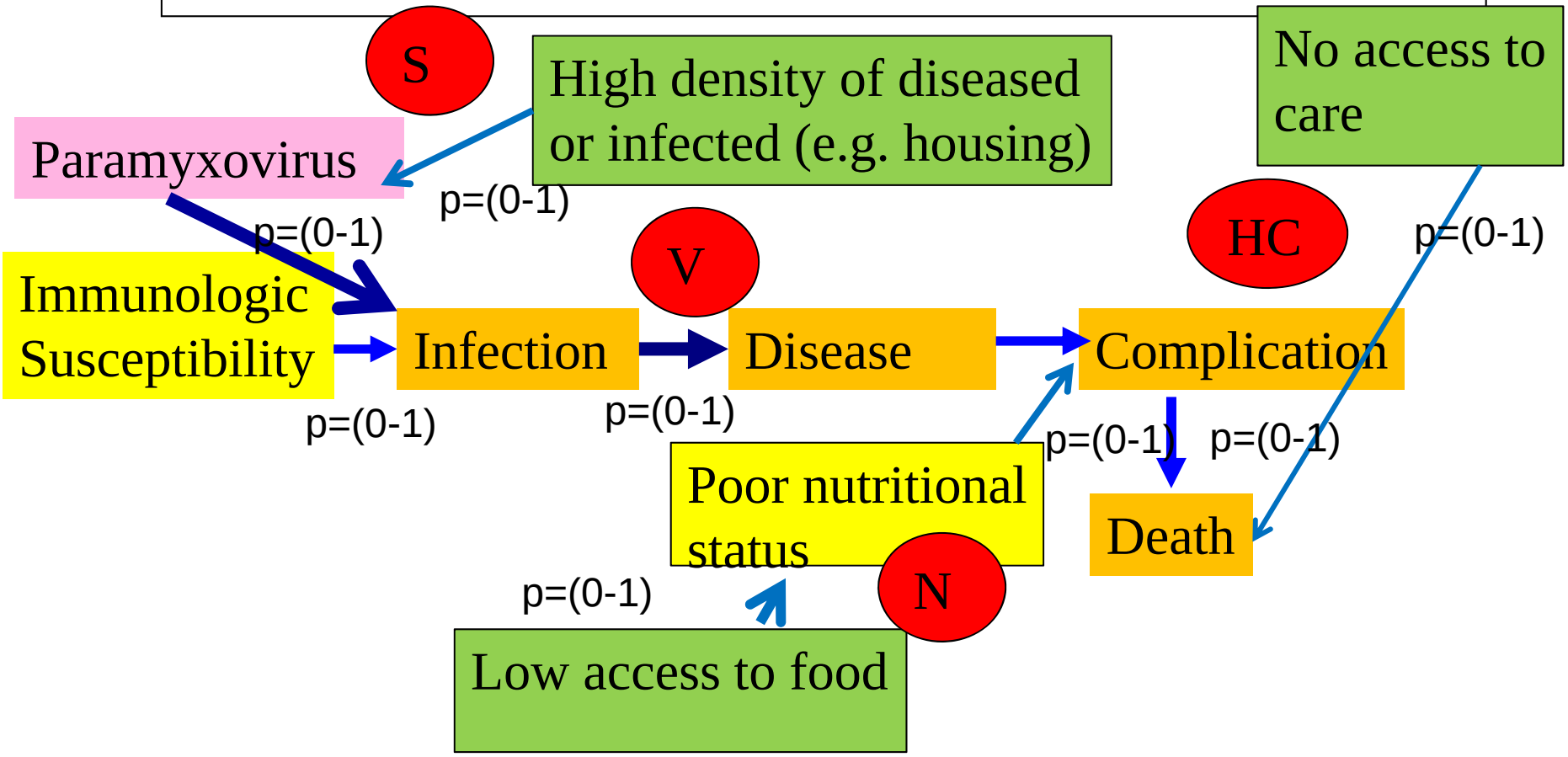
- Studying causality is inherently different in the two types of study
  - Etiologic=retrospective= disease is given
  - Intervention=prospective, anticipatory=cause is given (prognosis)
- Clinical trial as paradigm of perfect etiologic study?

Miettinen, O. S. (2010). Etiologic study vis-a-vis intervention study. Eur J Epidemiol, 25(10), 671-75

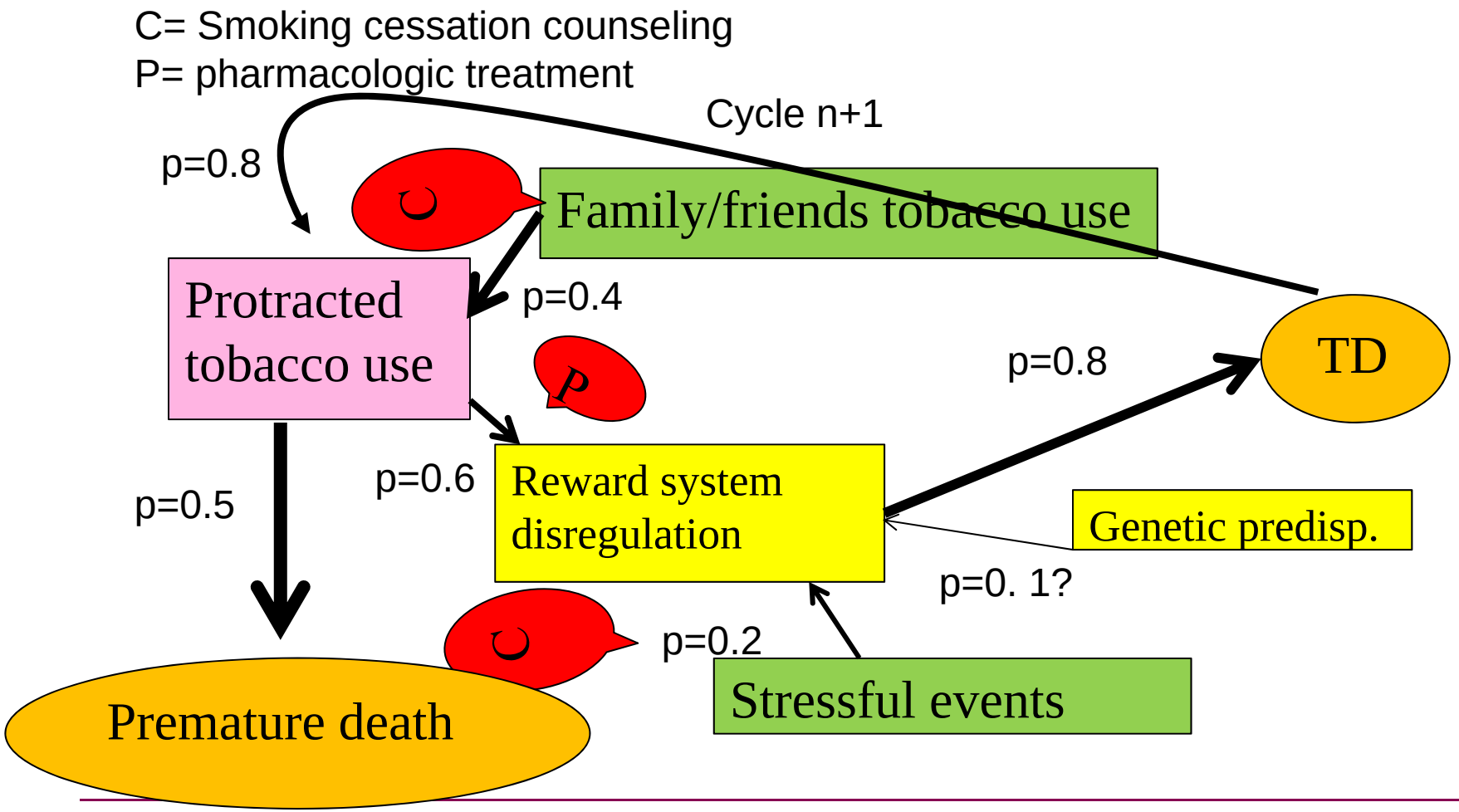
The natural (-social) history of (a) disease Y



Example 1: measles prevention



Example 2: Tobacco cessation



Conclusions

- The ”natural history frame” is a conceptual/visual tool in prevention (evaluation) research, usable for:

→ identifying end-points along a continuum

- Downstream strength of evidence
- Availability of information
- Probability of end-point occurrence in a given time frame

→ making prognoses about sizes of effects

- Strength of the association between subsequent events

Conclusions

- The ”natural history frame” is a conceptual tool in prevention (evaluation) research, usable for

→ identifying potential effect modifiers
  - Individual level
  - Group (environmental) level

→ identifying potential mediators

→ predicting potential side effects

→ facilitating the communication with practitioners and stakeholders

Thank you!

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