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Extending our Understanding of MC Packages and Systems

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Agenda

- Recapping the package "vs." system discussion
  - Following Grabner & Moers (AOS 2013)
- Does it all matter?
- Some simple questions to clarify the differences
- Empirical and conceptual issues
- Research agenda

Where are we coming from?

- Contingency theory has a long tradition in Management Accounting and Control research
  - Criticized for its reductionist approach, i.e., focus on one MC practice at a time
    - Two streams of research have emerged
      1) Literature on the systems approach to contingency theory
      2) Literature on examining multiple MC practices in packages/systems/…

- These two streams claim to have moved away from the reductionist approach, but what is meant by a package/system/…?

MC as a system

- Some quotes:
  - Otley (AOS 1980)
    - *"…what constitutes an appropriate AIS will be influenced both by what the organization is attempting to achieve and by the other control processes that are complementary to the AIS"*
  - Chenhall (AOS 2003)
    - *"…if specific accounting controls are systematically linked with other organizational controls, studies that exclude or do not control for these elements within the research method may report spurious findings"*
- Quotes hint at a system in terms of interdependence among MC practices
  - MC practices form a ***system*** if these practices are interdependent and the design choice has taken these interdependencies into account

MC as a package

- Another quote:
  - Malmi & Brown (MAR 2008)
    - *"As a general conception, a management control systems (MCS) package is a collection or a set of controls and control systems."*

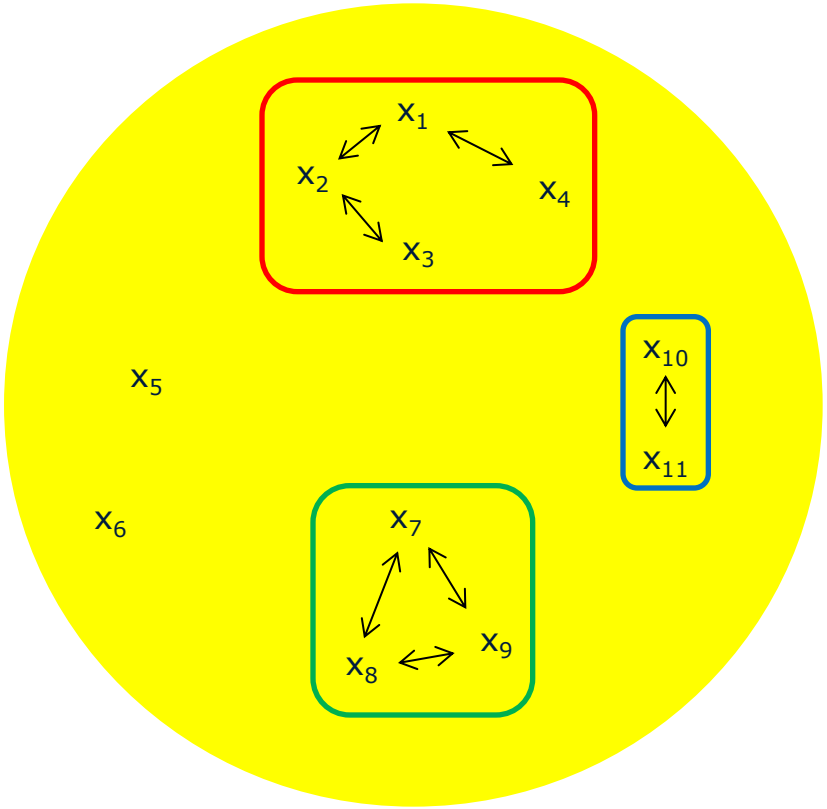
- This quote hints at providing a holistic view, not at interdependence
  - MC ***package*** is the complete set of MC practices in place, mirroring the firm's control environment

MC system vs. MC package

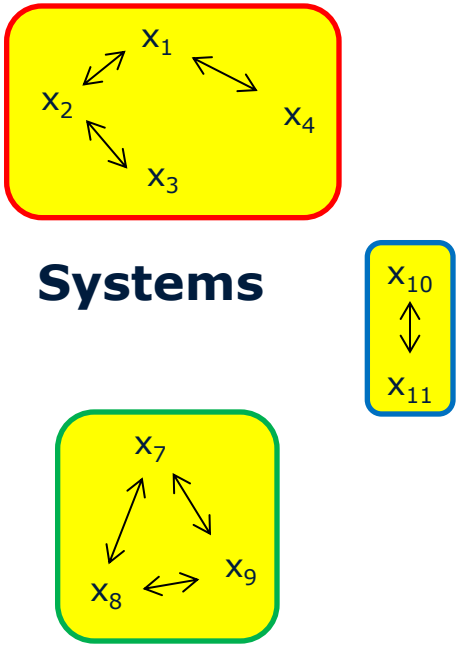
- A final quote
  - Feirreira & Otley (MAR 2009)
    - *"…it should be noted that it is not assumed that an extant PMS will be coherent. Otley (1980) discussed control 'packages' rather than control 'systems' because he had found that they tended to be composed of sets of loosely coupled elements. These were often designed by different people, in different parts of an organization, at different times."*
- Implies that…
  - MC package can be composed of a set of MC systems and/or a set of independent MC practices
  - Examining interdependence among MC practices requires to take, at the outset, a MC as a ***system*** perspective!

MC package and systems graphically

- Package
- System A
- System B
- System C



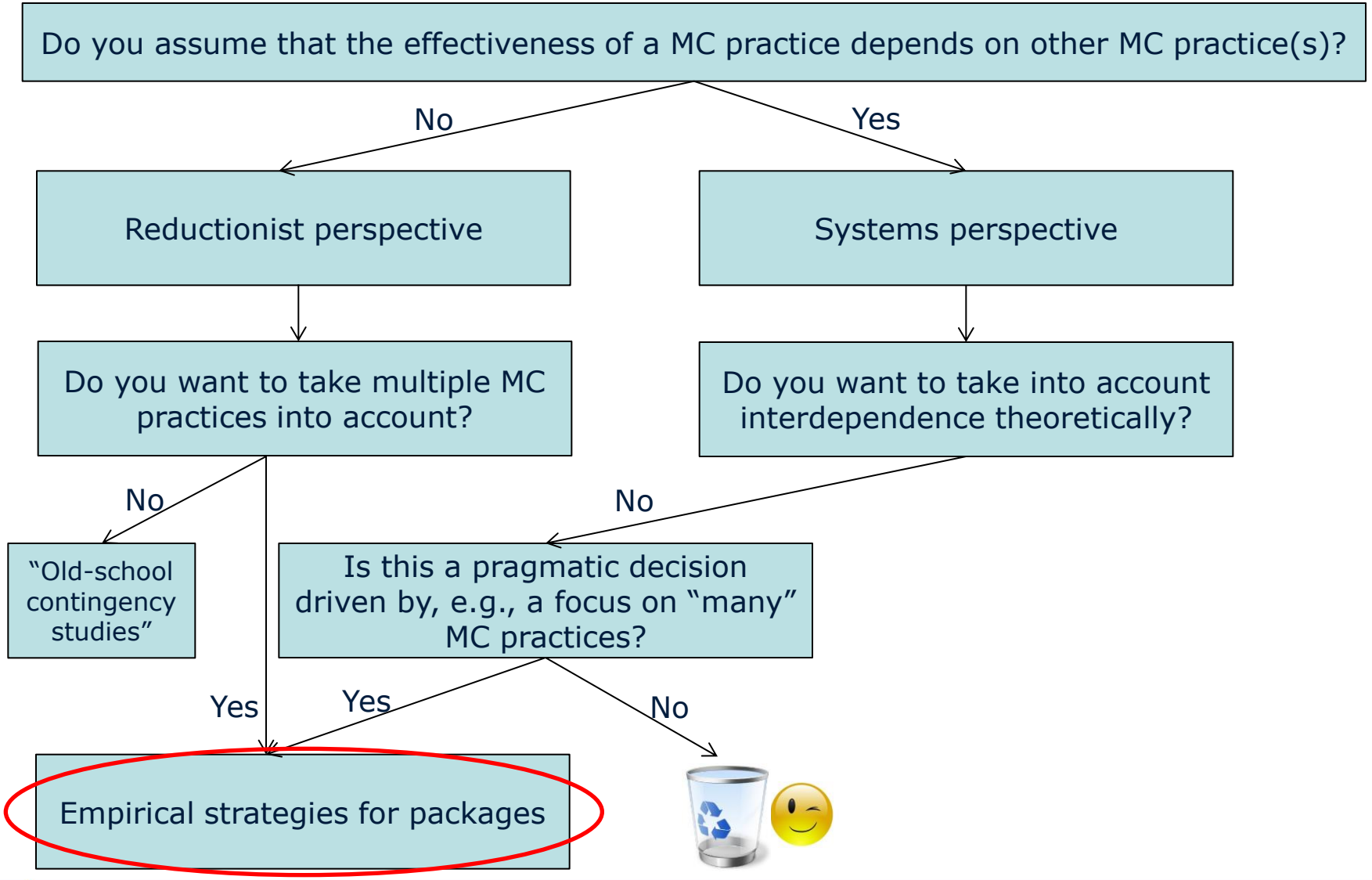
Reductionist and systems approach graphically



Does it all matter?

- Does the difference between a MC package and MC system really matter at the end of the day?
  - Yes
- Downside: ignoring this difference will not push the literature forward
- Upside: the difference can be embraced and exploited to push the literature forward

Some simple questions to clarify the differences (to be able to then exploit them)


Do you assume that the effectiveness of a MC practice depends on other MC practice(s)?
No
Yes
Reductionist perspective
Systems perspective
Do you want to take multiple MC practices into account?
Do you want to take into account interdependence theoretically?
No
No
"Old-school contingency studies"
Is this a pragmatic decision driven by, e.g., a focus on "many" MC practices?
Yes
Yes
No
Empirical strategies for packages

Empirical strategies for packages

- Descriptive statistics of observed MC practices
  - What MC practices do firms implement?
  - Disadvantage: difficult to get an overview when examining many firms
- Cluster analysis
  - Do we observe particular "configurations"?
    - E.g., Chenhall & Langfield-Smith (AOS 1998), Gerdin (AOS 2005)
  - Disadvantage: are all MC practices equally relevant?
- Fuzzy-set Qualitative Comparative Analysis (fsQCA)
  - Do we observe particular configurations and are all MC practices equally relevant for performance?
    - E.g., Bedford et al. (SSRN 2014), Erkens & Vd Stede (SSRN 2014)
  - Disadvantage: …

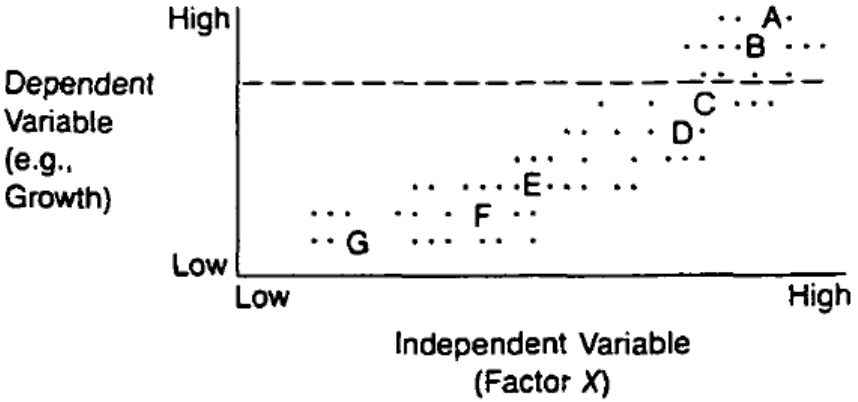
fsQCA

- The method is, by construction, more exploratory than explanatory
  - It does not directly test a theoretical configuration, but it searches for empirical configurations (like cluster analysis)

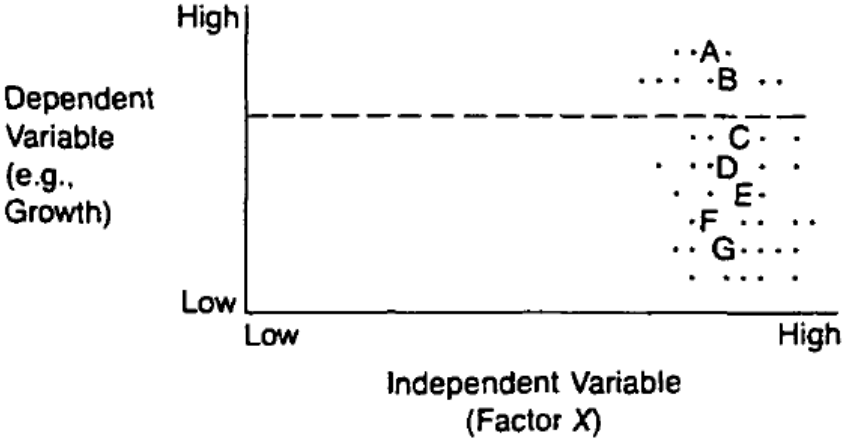
- The method suffers from a "selecting on the DV problem"
  - any inferences one draws about the *causes* of such a DV (in this case performance) will then, in a strict sense, be *invalid*

Selection bias

- Econometrics

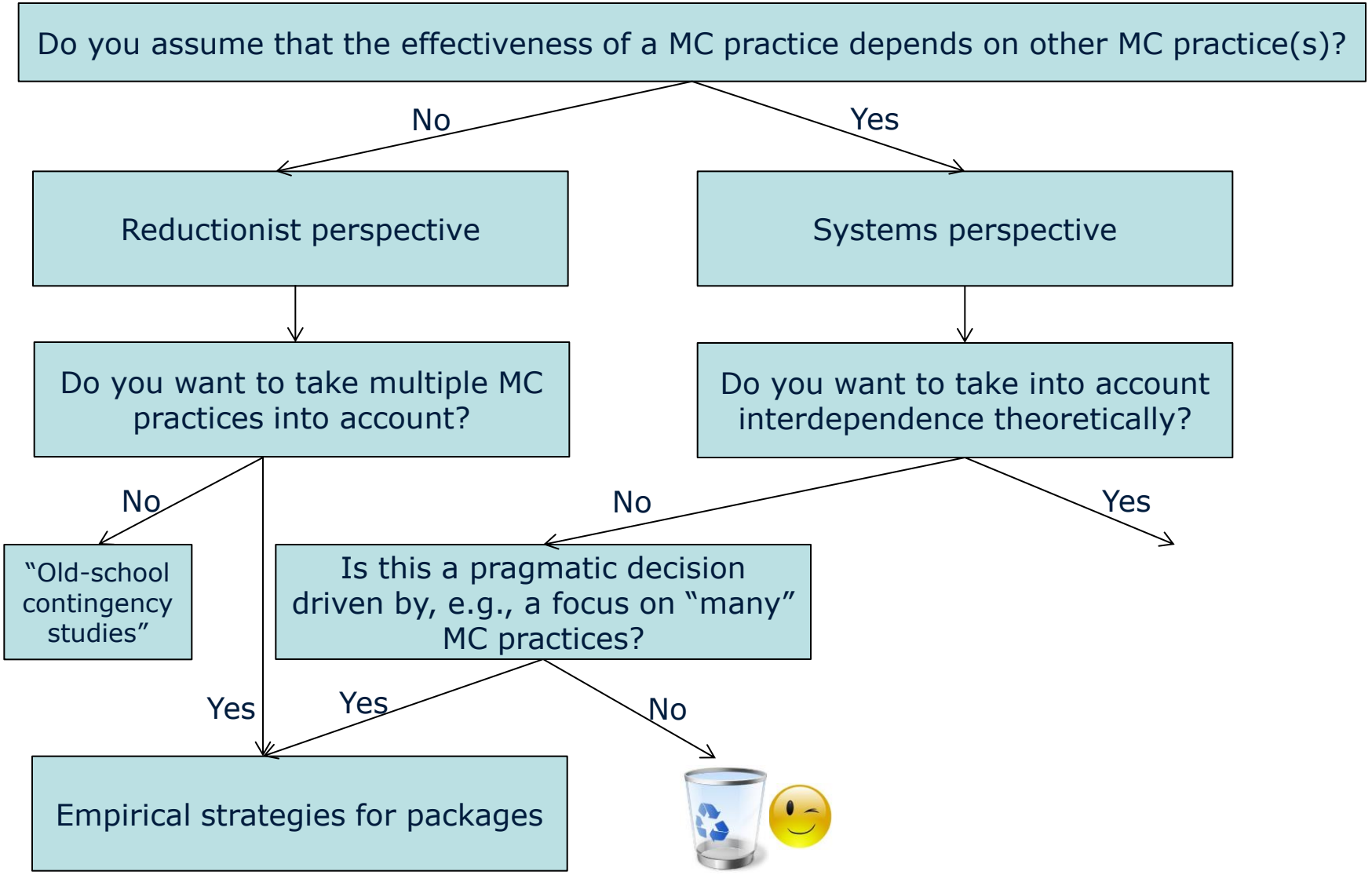


- Comparative analysis



Empirical strategies for packages: takeaway

- All the empirical strategies for packages are exploratory in nature
- They describe what MC practices are being used
- The fact that multiple MC practices are jointly observed does not, however, imply that these practices are interdependent
  - Though the results could inform research on systems!!!
- Focuses on more aggregated conceptualizations of MC practices (cf. Friis et al. EAR 2014)
  - Examines a larger number of MC practices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Empirical strategies for packages

What theory to use for the systems perspective?

- Complementarity theory
  - Explicitly addresses how a decision maker tries to maximize "performance" by simultaneously deciding on multiple choice variables
  - Fits perfectly with the MC as a system perspective

- Two types of interdependence

  - Complements: the benefits of one MC practice increase with the use of another MC practice, *and vice versa*

  - Substitutes: the benefits of one MC practice decrease with the use of another MC practice, *and vice versa*

Critical conceptual questions

- What are the specific control practices I want to investigate, and can I order each MC practice in a meaningful way?
- Does increasing (decreasing) one MC practice not prohibit increasing (decreasing) any other MC practice, i.e., are they really choices?
- How and why do the returns of one MC practice depend on the use of other MC practices and vice *versa*, i.e., what does the profit/production function look like and why?
- What causes the optimal MC system to vary in a cross-section and/or over time?
  - Is there variation in the separate adoption costs of the MC practices?
  - What are the practice-specific contextual factors?
  - What are the system-specific contextual factors?

Explaining cross-sectional variation

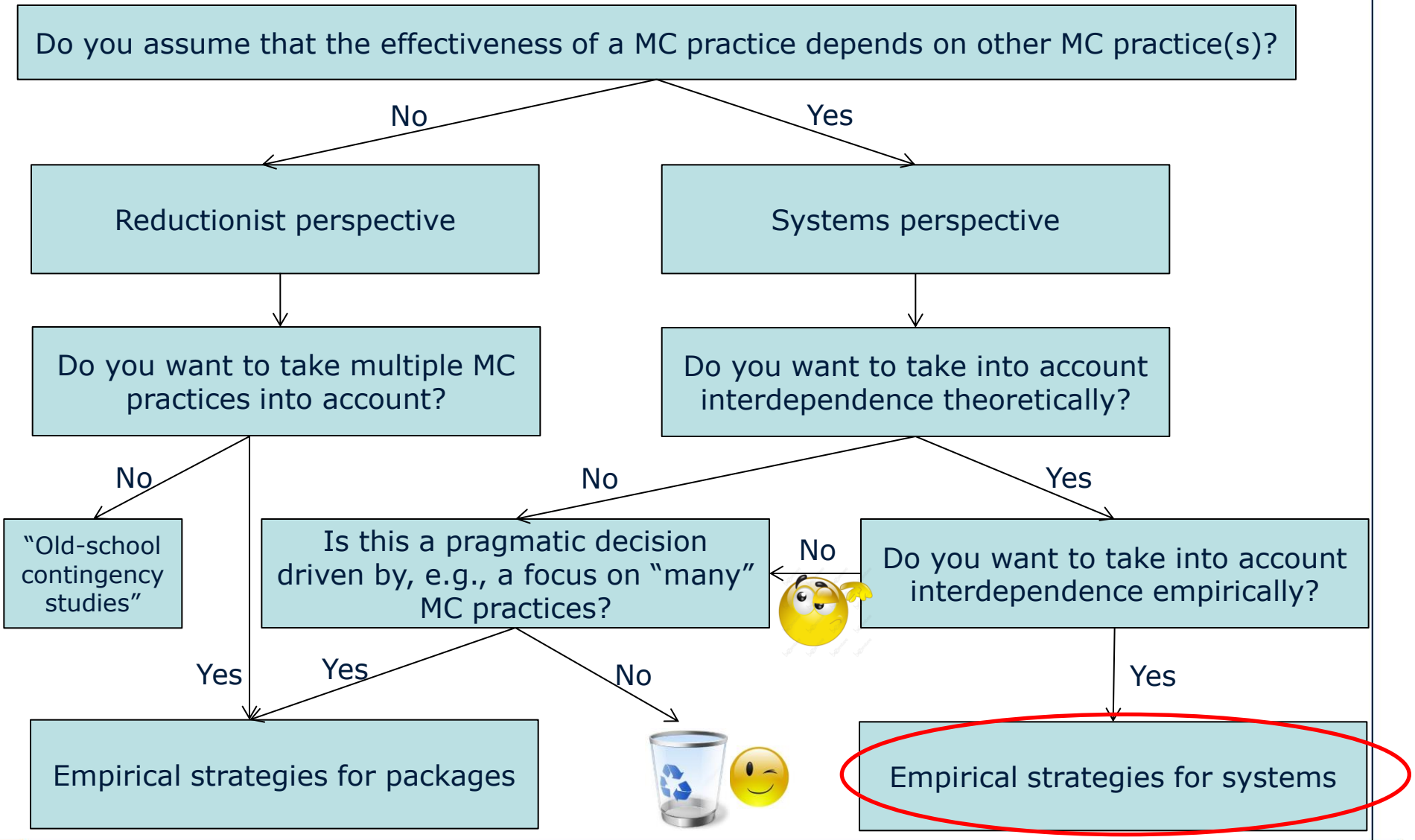
- If two MC practices are complements, then *in the absence of any costs*, all firms would adopt "High-High"
  - what explains cross-sectional variation in the choice of MC practices, i.e., why do not all firms have "High-High"?

i. Cross-sectional variation in costs
   - Adopting/implementing MC practices is costly and these costs are likely to vary across firms

ii. Cross-sectional variation in benefits
   - A natural extension of contextual variables affecting the benefits of individual MC practices is contextual variables affecting the benefits of the system

Explaining cross-sectional variation

- If the benefits are constant across firms, then…
  - …the higher the costs, the lower the likelihood of choosing "High-High"
  - If the MC practices don't bring much in isolation, then the higher the costs, the higher the likelihood of choosing "Low-Low"
    - Thus, *ceteris paribus*, variation in firm-specific costs triggers the two MC practices to move up and down together in the cross-section
- If the costs are constant across firms, then…
  - …the higher the firm-specific benefits (system-specific contextual factors), the higher the likelihood of choosing "High-High"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No
Do you want to take into account interdependence empirically?
Yes
Yes
No
Yes
Empirical strategies for packages
Empirical strategies for systems

Empirical strategies for systems

- There are two ways to proceed to empirically test issues related to packages (depends on assumption about optimality)
  - Focus on profit/production function
  - Focus on covariance among choices

- Focus on profit/production function (off-equilibrium)
  - Estimate interdependence directly (interaction equation)
    - DV should be directly related to the decision process
    - Disadvantage:
      - All combinations should, in principle, be observed
      - More than two MCS variables triggers typical interaction-equation problem
    - Have not really seen this in accounting

Empirical strategies for systems

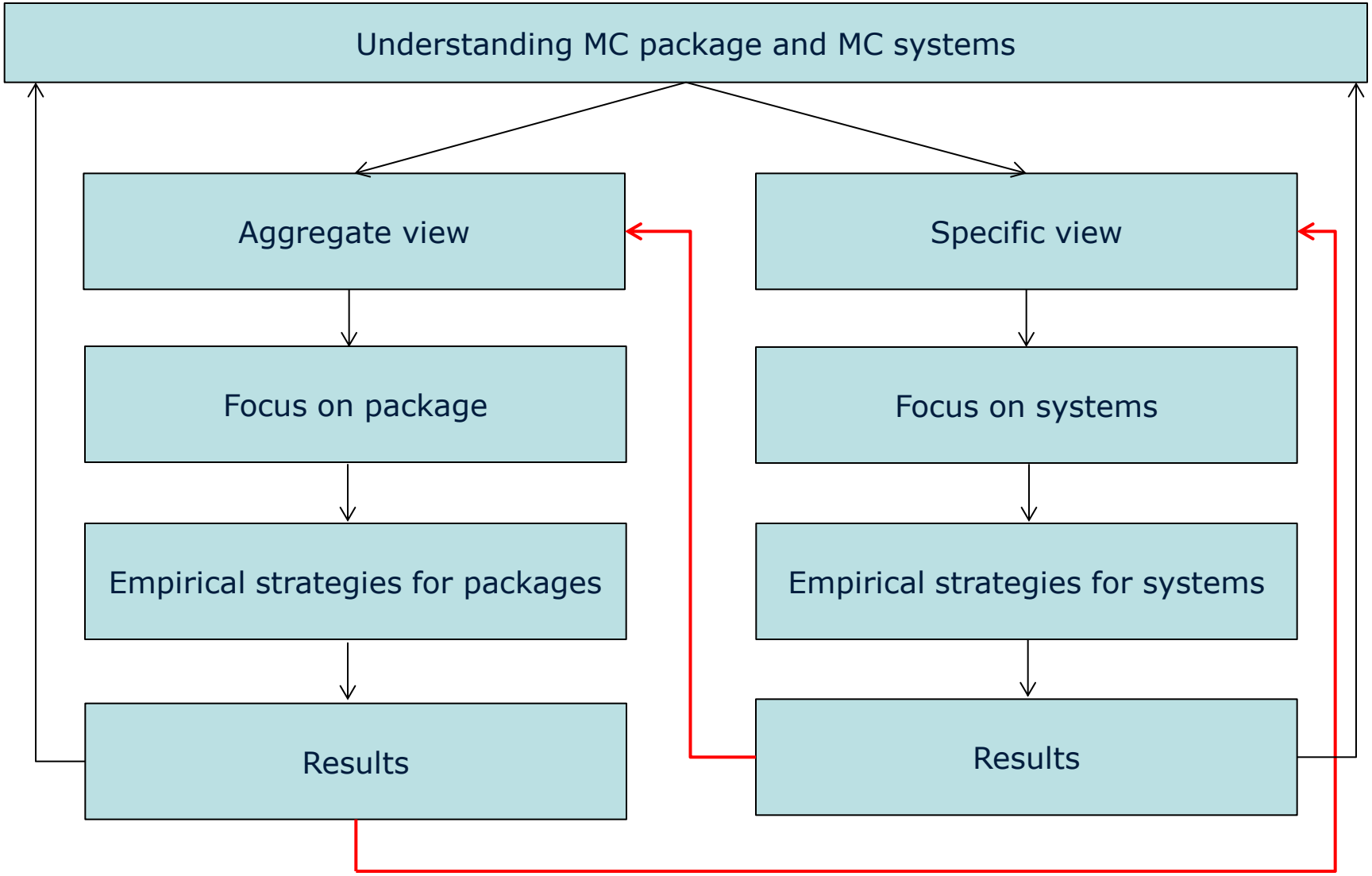
- Focus on covariance among choices (equilibrium)
  - Examine the conditional correlations among endogenous variables
    - Avoids the problem of having to measure instruments by relying on the assumption that all of the joint determinants are included
      - Disadvantage: potential for omitted variable bias
    - Examples in accounting: Evans et al. (JMAR 2010), Indjejikian & Matêjka (TAR 2012)
  - System-specific contextual factors
    - Compare the conditional correlations among endogenous variables for different subsamples
    - Pr(High,High)=f(System-specific contextual factors)
    - Example in accounting: Grabner (TAR 2014)

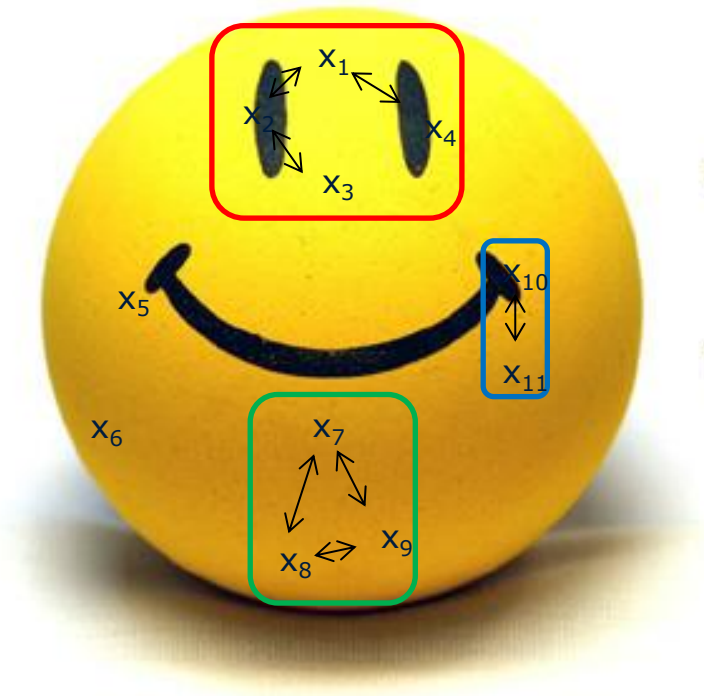
Empirical strategies for systems: takeaway

- All the empirical strategies for systems are explanatory in nature
- They explain how and why MC practices are related
- The results say nothing about the broader MC package
  - Though the results could inform research on packages!!!
- Focuses on more specific/disaggregated conceptualizations of MC practices (cf. Friis et al. EAR 2014)
  - Examines a limited number of MC practices

Research agenda

- Empirical strategies for package vs. systems
  - Exploratory vs. explanatory; Description vs. explanation
  - **Aggregate vs. specific view**
    - **Large vs. limited number of MC practices**
- Not a single study can…
  - Focus on a large number of MC practices; and
  - Conceptually develop package and systems predictions for all these practices; and
  - Empirically examine these issues
- Extending our understanding of MC packages and systems requires multiple studies from different perspectives that collectively provide a clear picture
  - The different types of studies should be complements ☺


Understanding MC package and MC systems
Aggregate view
Specific view
Focus on package
Focus on systems
Empirical strategies for packages
Empirical strategies for systems
Results
Results



Thank You!!!