



*Methods Seminar Public Administration*

# Introduction to Qualitative Comparative Analysis

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# Part 1: Researching cases

- Single-case:
  - Rich details
  - Everything *appears* unique
- Large-n cases:
  - Patterns across cases
  - Low on details
- How to mediate between extremes?



# Complexity of the case

- Causality *asymmetric*:
  - If  $x \rightarrow y$  then not  $-x \rightarrow -y$
- Causality is *configurational*
  - Combinations of conditions produce outcomes
- Causality is *equifinal*
  - Different conditions produce same outcome
  - Same conditions produce different outcomes
- Outcomes are *produced*:
  - Generic patterns vs. idiosyncratic events
- Ergo: cases are
  - Contingent, non-decomposable, non-compressible



# QCA as a promising method

- Introduced by Charles Ragin
  - The Comparative Method (1987)
- Connection complexity by David Byrne
  - Interpreting Quantitative Data (2002)
- Different strands, e.g.:
  - Frugal processing quantitative data
  - Case-based qualitative comparison



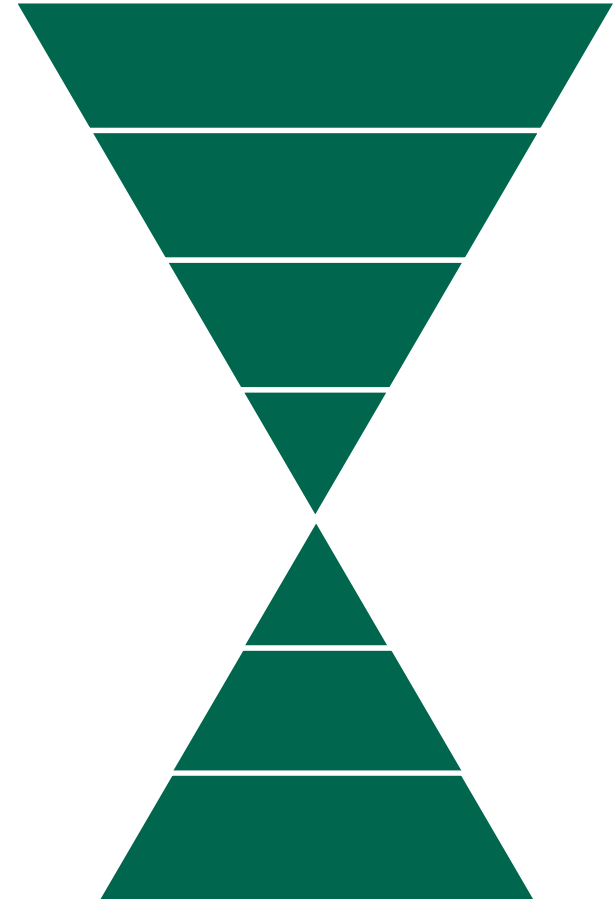
Note: point of departure



## Part 2: Basic steps of QCA



Collecting rich data  
Case reconstruction  
Raw data matrix  
Truth table  
Patterns  
Interpretation  
Return to the case



# Raw data matrix

- Data synthesized in raw data matrix

C	I	M	Case	Outcome Y
1	0	0	WIER	0
1	1	1	ZUID	1
1	1	1	NOORD	1
1	1	0	LENT	1
0	1	0	WAAL	1
0	0	0	DIEF	1
1	1	1	IJSS	1
1	0	1	PERK	1
1	1	1	SIJT	1
1	1	0	SCHEL	0
1	0	1	DELFT	1
1	1	1	WEST	1
0	1	0	GOUW	0
0	1	1	BROEK	1

! Crisp  
Fuzzy  
Multi-value



# Truth table

- Order cases over logically possible configurations ( $2^3 = 8$ )
- Assign the outcome to each configuration

C	I	M	Outcome Y	Cases
1	1	1	1	ZUID, NOORD, IJSS, SIJT, WEST
1	1	0	C	LENT, SCHEL
1	0	1	1	PERK, DELFT
1	0	0	0	WIER
0	1	1	1	BROEK
0	1	0	C	WAAL, GOUW
0	0	1		—
0	0	0	1	DIEF

Equifinality

Asymmetry

# Truth table

- Order cases over logically possible configurations ( $2^3 = 8$ )
- Assign the outcome to each configuration

C	I	M	Outcome Y	Cases
1	1	1	1	ZUID, NOORD, IJSS, SIJT, WEST
1	1	0	C	LENT, SCHEL
1	0	1	1	PERK, DELFT
1	0	0	0	WIER
0	1	1	1	BROEK
0	1	0	C	WAAL, GOUW
0	0	1		---
0	0	0	1	DIEF

Limited diversity →





# Truth table

- Order cases over logically possible configurations ( $2^3 = 8$ )
- Assign the outcome to each configuration

Logical contradictions

C	I	M	Outcome Y	Cases
1	1	1	1	ZUID, NOORD, IJSS, SIJT, WEST
1	1	0	C	LENT, SCHEL
1	0	1	1	PERK, DELFT
1	0	0	0	WIER
0	1	1	1	BROEK
0	1	0	C	WAAL, GOUW
0	0	1		--
0	0	0	1	DIEF

# Limited diversity

- Measured by coverage
  - Problematic: less generalized patterns
  - Solutions:
    1. Add cases
    2. Lift a condition
    3. Counterfactual analysis



# Contradictory rows

- Measured by consistency
  - Problematic: no inclusion in minimization procedure
  - Solutions:
    1. Lift configuration from minimization,
    2. Add a condition,
    3. Reconsider calibration
  
- Tradeoff between coverage and consistency: (1) and (2)



# Minimizing truth table

- After solving contradictions

$$C * I * M + C * \sim I * M + \sim C * I * M + \sim C * \sim I * \sim M \rightarrow Y$$

C	I	M	Outcome Y	Cases
1	1	1	1	ZUID, NOORD, IJSS, SIJT, WEST
1	1	0	C	LENT, SCHEL
1	0	1	1	PERK, DELFT
1	0	0	0	WIER
0	1	1	1	BROEK
0	1	0	C	WAAL, GOUW
0	0	1		--
0	0	0	1	DIEF



# Interpretation results

$$\underbrace{C^*I^*M + C^*\sim I^*M + \sim C^*I^*M}_{C^*M + I^*M +} + \underbrace{\sim C^*\sim I^*\sim M}_{\sim C^*\sim I^*\sim M} \rightarrow Y$$

- Complex causality:
  - Three sufficient paths to outcome, no necessary conditions
  - All conditions are INUS: Insufficient but a Necessary part of a configuration that is Unnecessary but Sufficient



# Interpretation results

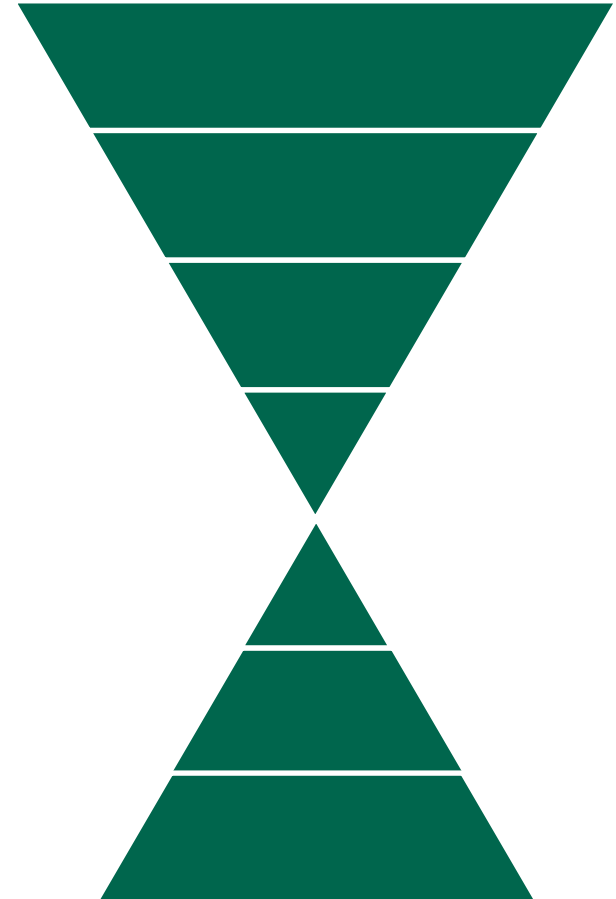
$$\underbrace{C*I*M + C*\sim I*M + \sim C*I*M}_{C*M + I*M} + \underbrace{\sim C*\sim I*\sim M}_{\sim C*\sim I*\sim M} \rightarrow Y$$

- Strength of findings:
  - Consistency (i.e. theoretical strength) high: no contradictions
  - Coverage (i.e. empirical strength) lower but acceptable: solution formula covers 9 out of the 14 cases

# Concluding remarks



Collecting rich data  
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# Concluding remarks

- Manual for policy evaluation
- Is it usable? What is missing?
- [www.compass.org](http://www.compass.org)







Questions?

Read the manual 😊

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