

# Realist Synthesis and Qualitative Comparative Analysis

## A Simple Illustration

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# Introduction

## Dealing with Complex Causality and Small Data Sets?

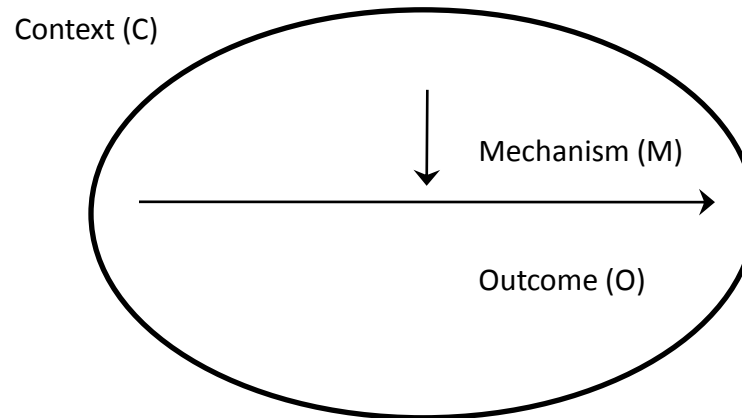
### Try a Theory Based Approach and Qualitative Comparative Analysis

Theory based approaches (see <http://www.pmn.net/wp-content/uploads/Theory-based-Approaches-for-Practical-Evaluation.pdf>) lend themselves to a broad range of applications, including situations of high complexity and small numbers of cases. These are situations where both conceptually and practically, conventional statistical analysis just doesn't fit (Befani, Lederman and Sager 2007). European evaluators (Befani, Lederman and Sager 2007, Sager and Lederman 2012) have recently suggested that Qualitative Comparative Analysis (QCA) can be combined with theory-based approaches to provide at least a partial answer to this problem. The following deck presents a simple illustration of how realistic evaluation and a QCA approach might be combined. At PMN we have begun to use this approach in our current evaluation practice. We find it straight-forward, potentially cost-effective and compelling. For more information contact [steve.montague@pmn.net](mailto:steve.montague@pmn.net).

# Realist Synthesis and Qualitative Comparative Analysis

- Evaluative Question: What conditions will allow for evaporation to essentially clear a front lawn by mid March 2012 in Ottawa?

# Realist Synthesis (Evaluation)



Source: Pawson, R. Evidence-based Policy A Realist Perspective Sage Publications 2006. Figure 2.1 page 22

- Theory of change: m = evaporation, o = lawn essentially clear of snow (less than 10% covered), c = context in terms of weather/climate, location, snow clearing practices

# Develop a Truth Table to Test the Theory

‘Middle-range’ theory re: location:

- Lawns that are South facing and have no shade from at least 10 am until 5 pm will show the successful evaporation (less than 10% of lawn covered) of snow by mid March 2012 in Ottawa

# Dichotomous Data Table (Y = 1, N = 0)

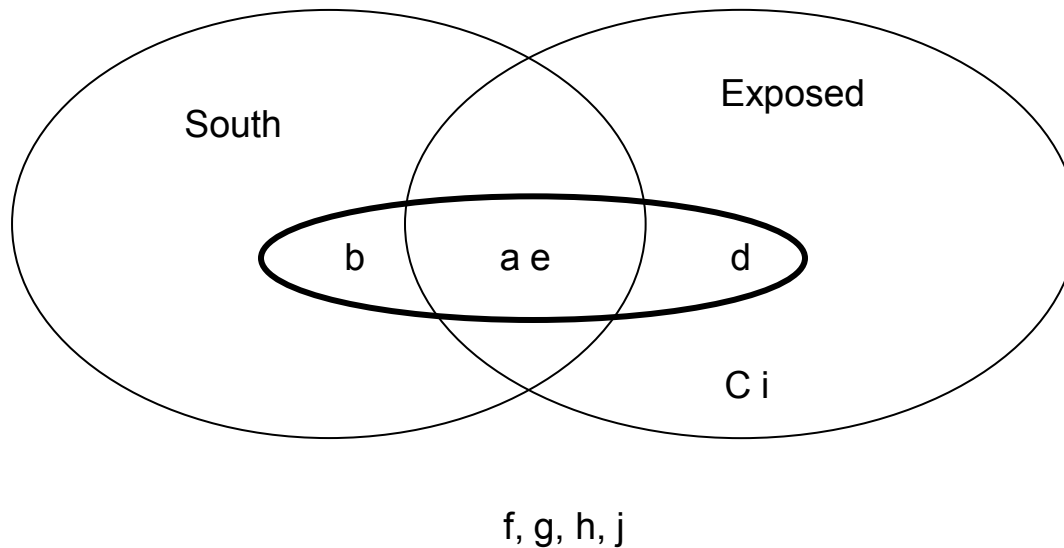
Lawns	South Facing	Fully exposed to sun 10am -5pm	LT 10% snow cover (clear)
a	1	1	1
b	1	0	1
c	0	1	0
d	0	1	1
e	1	1	1
f	0	0	0
g	0	0	0
h	0	0	0
i	0	1	0
j	0	0	0


# Summary Cross – Tabulation Table

Contextual Factors	Neither SF nor FE	Fully Exposed	South Facing
Outcome			
Clear lawn	0	3	3
Snowy Lawn	4	2	0

Conventional statistics don't work. Chi Sq not valid (insufficient expected cell size and insignificant correlation)... but there seems to be something going on here...

# Cases are part of sets which can be shown in a Venn diagram:



Clear = 



# Analysis – Theory Validation and Next ‘Generative’ Steps

Boolean operation:  $S * E \rightarrow \text{Outcome (Clear Lawn)}$ ,  $S \rightarrow \text{Outcome may be possible}$

South facing is sufficient (so far) but not necessary. The following relationships were found:

South facing	Clear lawn
1	1
0	1
0	0

Exposed to sun 10am-5pm not always necessary but also not sufficient. The following relationships were found:

Exposed (10am-5pm)	Clear Lawn
1	1
0	1
1	0
0	0

- Generative learning suggests that south facing may be sufficient but is not always necessary.
- Evidence is more suggestive that south facing *and* exposed 10 am to 5 pm will produce a clear lawn (i.e. LT 10% covered with snow).

# Further (Iterative) Steps

- More cases could be added. Close attention to be paid to other factors involved in case d and case b.
- More conditions could be considered (e.g. location specific wind, snow clearing practices etc.)
- More precise (conventional) statistical modeling could be considered if sufficient cases are added and decision makers desire more exact predictions.

# Select References

- Befani, B., Ledermann, S., Sager, F. (2007) *Realistic Evaluation and QCA Conceptual Parallels and an Empirical Application*, Evaluation SAGE Publications Vol 13(2): 171 –192
- Pawson, R. (2006) Evidence-based Policy A Realist Perspective Sage Publications 2006. Figure 2.1 page 22
- Ragin, C. *Qualitative Comparative Analysis*, University of Arizona [http://www.socwkp.sinica.edu.tw/CharlesRagin/Ragin\\_NTU-day1.pdf](http://www.socwkp.sinica.edu.tw/CharlesRagin/Ragin_NTU-day1.pdf)
- Rihoux, R. *Crisp-Set Qualitative Comparative Analysis (csQCA)* [http://www.sagepub.com/upm-data/23237 Chapter 3.pdf](http://www.sagepub.com/upm-data/23237_Chapter_3.pdf)
- Sager, F. and Andereggen, C. (2012) *Dealing with Complex Causality in Realist Synthesis: The Promise of Qualitative Comparative Analysis* American Journal of Evaluation Vol 33 Number 1 March 2012 p60 – 78