Introduction to Causal Modeling with Coincidence Analysis

3-5 August 2021, Regenstrief Institute, held online via Zoom

main instructor:
Michael Baumgartner, University of Bergen, Norway

additional presentations by:
Deborah Cragun, University of South Florida, USA
Edward Miech, Regenstrief Institute, USA

1 Workshop Description

This workshop offers an intensive 3-day introduction for health researchers to causal modeling with Coincidence Analysis (CNA), a relatively new configurational comparative method of data analysis geared towards causal complexity. The main developer of CNA, Michael Baumgartner, will guide participants through the nuts and bolts of configurational data analysis as well as cutting-edge methodological innovations. In replicating published studies from various areas of the health sciences, he will also demonstrate how to make the most of current software for CNA. In additional presentations, Deborah Cragun and Edward Miech, both of whom have extensive experience in conducting research with CNA, will offer advice on practical issues, such as getting funded and published with CNA.

From Boolean algebra and the philosophical roots of regularity theories of causation, over the basic ideas behind CNA’s search algorithm, and measures of fit to multi-outcome structures, model ambiguities, and robustness analyses this introduction will enable participants to conduct CNA analyses themselves and review those of other researchers in a sophisticated manner.

After the workshop, the instructors will remain available for consultation to help participants with the methodological and practical aspects of their research projects.
## 2 Workshop Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Module and Topics Covered</th>
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<tbody>
<tr>
<td>Day 1: Tuesday, 3 August 2021</td>
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<tr>
<td>10:00 - 10:30</td>
<td><strong>Intro:</strong> Why CNA in Health Services Research?</td>
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<tr>
<td>10:30 - 11:30</td>
<td><strong>Module 1.1:</strong> Methodological Landscape and the Essentials of Boolean Algebra</td>
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<td>11:30 - 11:45</td>
<td>Break</td>
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<tr>
<td>11:45 - 12:45</td>
<td><strong>Module 1.2:</strong> Causation</td>
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<tr>
<td>12:45 - 13:30</td>
<td>Lunch Break</td>
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<tr>
<td>13:30 - 14:15</td>
<td><strong>Module 1.3:</strong> The General Principles of Configurational Causal Discovery</td>
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<tr>
<td>14:30 - 14:45</td>
<td>Break</td>
</tr>
<tr>
<td>14:45 - 15:45</td>
<td><strong>Module 1.4:</strong> Top-down vs. Bottom-up Search / the CNA algorithm</td>
</tr>
</tbody>
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**Essential readings**


**Supplementary readings**

- Thiem, Alrik, Michael Baumgartner, and Damien Bol. 2016. “Still lost in translation! A correction of three misunderstandings between configurational comparativists and regressional analysts.” *Comparative Political Studies* 49(6):742-74. (discussion of the differences between Boolean and linear algebra)
### Day 2: Wednesday, 4 August 2021

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>10:00 - 10:45</td>
<td><strong>Module 2.1:</strong> Data Types and Calibration</td>
</tr>
<tr>
<td>10:45 - 11:15</td>
<td><strong>Practical presentation:</strong> Factor Selection</td>
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<td>11:15 - 11:30</td>
<td>Break</td>
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<tr>
<td>11:30 - 12:15</td>
<td><strong>Module 2.2:</strong> Measures of Fit</td>
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<tr>
<td>12:15 - 13:15</td>
<td>Lunch Break</td>
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<tr>
<td>13:15 - 14:15</td>
<td><strong>Module 2.3:</strong> Introduction to the CNA R package (with a short introduction to R)</td>
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<tr>
<td>14:15 - 14:30</td>
<td>Break</td>
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<tr>
<td>14:30 - 15:30</td>
<td><strong>Module 2.4:</strong> Replication Session</td>
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### Essential readings


### Supplementary readings


Day 3: Thursday, 5 August 2021

10:00 - 10:45  **Module 3.1:** Model Ambiguities
10:45 - 11:15  **Practical presentation:** Getting Funded and Published with CNA
11:15 - 11:30  Break
11:30 - 12:15  **Module 3.2:** Interpreting the Output / “Back to the Cases”
12:15 - 13:00  Lunch Break
13:00 - 14:00  **Module 3.3:** Overfitting and Robustness
14:00 - 14:15  Break
14:15 - 15:15  **Module 3.4:** Replication Session
15:15 - 15:45  **Extro:** Revisiting ‘Why CNA in Health Services Research?’

**Essential readings**


**Supplementary readings**