Philosophy 560A: Causation and Scientific Explanation

University of British Columbia
Department of Philosophy
Winter 2013-14
Monday 11:00 - 2:00, Seminar Room (Buch D324)

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Office Hours: WF 1:00-2:00

Description: The purpose of this seminar is to introduce students to leading philosophical theories of explanation and causation. The course is intended as an entry point to a vast and rapidly expanding body of work.

The course will have three parts of unequal size. We start with an overview of philosophical theories of scientific explanation. Next, we review selected accounts of causation: regularity accounts, counterfactual and manipulability theories, and physical connection theories. In the third and longest part of the course, we discuss Woodward’s manipulability theory of causation and its application to scientific explanation. Time permitting, we may look at non-causal explanations (e.g., mathematical explanation).

2. Additional materials. On-line versions of most papers are available; contact instructor for details.

Web page: faculty.arts.ubc.ca/pbartha/phil560.htm

Requirements: The final grade will be based upon the following scheme:

<table>
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<tr>
<th>Requirement</th>
<th>Weight</th>
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<tbody>
<tr>
<td>1. One class presentation</td>
<td>10%</td>
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<tr>
<td>2. Two short papers (4-6 pages)</td>
<td>30%</td>
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<tr>
<td>3. Term paper (5000 words/≈ 15-20 pages)</td>
<td>50%</td>
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<tr>
<td>4. Class participation</td>
<td>10%</td>
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1. Class presentation. Each of you is responsible for presenting one of the assigned readings during the term. The presentation should include:
   a) outlining the most important ideas and arguments (10-15 minutes);
   b) raising some important issues and questions for discussion (5 minutes);
   c) leading the ensuing class discussion.

I will make a sign-up sheet available at the start of the course.

2. Short papers. Each week, I will assign a short-paper question for the following week’s readings. The short papers must be submitted in class one week later (i.e., one week after the
class where we discuss the relevant material). You can pick any two of these topics during the term. Your short-paper topics can overlap with your presentation and/or your term-paper topic.

3. **Term paper.** Please choose a topic by mid-March and discuss it with me. I am happy to help you in selecting a topic.

4. **Participation.** This is a graduate seminar. Although I will lecture in each class, we will develop our ideas largely through class discussion. Each student should contribute regularly and effectively to class discussion.
<table>
<thead>
<tr>
<th>Week</th>
<th>Class Date</th>
<th>Readings</th>
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| 1    | Jan. 6     | **Introduction. D-N Explanation.**  
Carl Hempel, “Aspects of Scientific Explanation”, §§ 1 and 2  
Wesley Salmon, *Four Decades of Scientific Explanation*, “First Decade” and “Second Decade”, §§ 0.1 - 2.3 (pp. 3-50)  
**Recommended:**  
Wesley Salmon, “Scientific Explanation: Three General Conceptions” |
| 2    | Jan. 13    | **Probabilistic Explanation.**  
Carl Hempel, “Aspects of Scientific Explanation”, § 3  
Wesley Salmon, *Four Decades of Scientific Explanation*, “Second Decade” and “Third Decade”, §§ 2.4 – 3.3 (pp. 50 - 89).  
**Recommended:**  
Wesley Salmon, “The Three Conceptions Revisited” |
| 3    | Jan. 20    | **Other concepts of explanation: pragmatics and equilibrium**  
Bas van Fraassen, “The Pragmatic Theory of Explanation”  
Sober, “Equilibrium Explanation”  
Wesley Salmon, *Four Decades of Scientific Explanation*, § 3.6, 3.7 (pp. 101-111)  
**Recommended:**  
Wesley Salmon, *Four Decades of Scientific Explanation*, § 4.4 (pp. 135-150) |
| 4    | Jan. 27    | **Other concepts of explanation: unification and causal processes**  
Kitcher, “Explanatory Unification”  
Wesley Salmon, “Causal Connections”  
Woodward, *Making Things Happen*, chapter 8 |
| 5    | Feb. 3     | **Causation: Regularity theories and the counterfactual analysis**  
John Mackie, “Causes and Conditions”  
David Lewis, “Causation” [postscript recommended]  
Jonathan Bennett, “Event Causation: The Counterfactual Analysis”  
**Recommended:**  
Michael Scriven, “Defects of the Necessary Condition Analysis of Causation”  
David Lewis, “Causation as Influence” (from [CHP]) |
Feb. 10 FAMILY DAY
Feb. 17 READING BREAK

6 Feb. 24 The counterfactual analysis (cont) and physical connection theories

David Lewis, “Counterfactual Dependence and Time’s Arrow”
[postscript recommended]
Philip Dowe, “Causes are Physically Connected to their Effects”
Jonathan Schaffer, “Causes need not be Physically Connected to their Effects”
Ned Hall, “Two Concepts of Causation”

7 Mar. 3 Manipulability Theory

Joseph Halpern and Judea Pearl, “Causes and Explanations: A Structural-Model Approach (Part I)”
Christopher Hitchcock, “The Intransitivity of Causation Revealed in Equations and Graphs”
Jonathan Schaffer, “Trumping Preemption”

Woodward’s manipulability theory of causation and explanation

8 Mar. 10 Woodward [W], ch. 1 and ch. 2 (introduction and §§ 2.1 – 2.3)
9 Mar. 17 [W], ch. 2 (§§ 2.4 – 2.9) and ch. 3 (§§ 3.1 – 3.3)
10 Mar. 24 [W], ch. 3 (§§ 3.4 – 3.8) and ch. 4
11 Mar. 31 [W], ch. 5
12 Apr. 7 [W], parts of ch. 6 and 7; OR something on non-causal explanation.