Project Proposal Research Traineeships 2017-2018

1. Project title

Behaviorism in the History of Psychology and Philosophy: A Digital Humanities Approach

2. Coordinators

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Jan Engelen, Ph.D. (Department of Communication and Information Sciences)

3. Project Summary

Background
In the mid-twentieth century, psychology was dominated by behaviorism, the view that any methodologically sound science of mind and behavior should exclusively focus on intersubjectively available evidence. According John B. Watson, often considered to be the intellectual father of behaviorism, psychology should be "a purely objective experimental branch of natural science" such that "stimulus and response" and not "consciousness [and] mental states" ought to be the focus of inquiry (1913, 248).

Behaviorism is first and foremost a *philosophical view* about the methodological and the epistemological foundations of psychology (Skinner 1974; Ringen 1999). It is therefore not surprising that behaviorism has also been very influential in the history of philosophy. In fact, some of the most influential analytic philosophers of the mid-twentieth century—e.g. Rudolf Carnap, Ludwig Wittgenstein, Gilbert Ryle, and Willard Van Orman Quine—have either explicitly described their view as behavioristic (Carnap 1932; Quine 1992) or developed and defended positions that are widely viewed as such (Hempel 1949; Fodor 1968). Peters and Mace (1967), alluding to the historical break between philosophy and experimental psychology in the late 19th century, have even labelled this development in the mid-twentieth century as a "remarriage" between the two disciplines.

Despite behaviorism's historical importance and its philosophical underpinnings, however, the actual relation between psychological and philosophical behaviorism has been largely unexplored. Little is known about the historical relation between behaviorism in psychology and behaviorism in philosophy, both from a conceptual and from a sociological point of view. Although it is generally accepted that psychologists and philosophers (notably the logical positivists) did not defend the very *same* position (Smith 1986; Tamminga 2005; and Hardcastle 2007), it is also clear that many behavioristic philosophers and psychologists knew about each other's work, often attended the same conferences, and in some cases, were close friends (Skinner 1979; Malone 2001).

The goal of this project is to study the relation between psychological and philosophical behaviorism. Using advanced text analysis tools (e.g. bibliometric mapping, cocitation analysis, co-occurrence analysis), this projects seeks to reconstruct and analyze citation networks and conceptual networks in order (1) to quantitatively analyze the conceptual similarity between behavioristic theories in psychology and philosophy and (2) to examine the ties between scholars from both disciplines.

Traditionally, historians rely on qualitative methods—archive study, close reading, and interpretation—in studying the history of science and philosophy. In recent years,

however, a number of historians have started to use quantitative techniques to study both citation networks and conceptual change. In philosophy, for example, Ahlgren, Pagin, Persson, and Svedberg (2015) have used bibliometric analysis to map debates about free will and the sorites paradox. Although the value of "distant reading" has been heavily debated, we believe that quantitative approaches at the very least add an interesting instrument to the historian's toolbox. Even if archive study and close reading are necessary for sound historical research, projects like these can serve as excellent 'hypothesis generators'.

Research Questions
This project aims to answer two questions:
- How similar are the citation networks in behavioristic psychology and philosophy in terms of cocitations; and how has this relation between behaviorists in psychology and philosophy developed over time?
- How have key behavioristic concepts like 'behavior', 'stimulus', 'response', 'operant', and 'conditioning' developed over time in psychology and philosophy? And to what extent do these concepts play the same conceptual role in psychology and philosophy in terms of occurrences and co-occurrences?

Methods

Data collection. First, the set of relevant scientific records representing the disciplines of philosophy and psychology will be identified. This will comprise mostly journal publications (in English), but books, conference proceedings, and reviews are also included. For all relevant records the abstract, title, author-provided keywords (if available), and full bibliographic information will be stored. A full-text analysis will be conducted on a subset of these records.

Data processing and analysis. For the co-citation analysis, the free software VOSViewer (Van Eck & Waltman 2010) will be used. This software enables the user to import records from Web of Science, Scopus, and CrossRef, and visualize the links that exist between publications, authors, and the terms that occur in these records. VOSViewer features a thesaurus, which can be used for merging different spelling variants of terms (e.g., 'behavior' and 'behaviour'), author names (e.g., 'B.F. Skinner' and 'Burrhus Frederic Skinner'), and journals (e.g., 'Journal of Mind and Behavior' and 'J. Mind Behav.'). Part of the work will involve curating the thesaurus to improve the quality of further analyses.

Co-citation networks will be created for different time periods (e.g., conventional units such as decades, but also periods between publications or events that are considered important). The overall structure of the networks will be analyzed visually, but we will also zoom in and make more precise comparisons by tracking how the strengths of specific links (e.g., between two clusters of authors) change over time.

The development of behavioristic concepts will be analyzed by counting occurrences and co-occurrences of the terms that authors use to express these concepts. As terms, we consider noun phrases extracted from the records (using natural language processing techniques) which meet certain relevance criteria. The frequencies of all relevant terms within a set of records (e.g., the word 'behavior' in all psychological records from 1959) will be computed. These frequencies can be offset against any larger set of terms (e.g., all terms in all psychological records from 1955 until 1960), yielding different relative frequency measures. This will enable an extensive exploration of the basic usage of concepts over time across disciplines, authors, and journals (cf. Michel et al., 2011).

Term co-occurrences will be mapped using VOSViewer. Similar to cocitation networks, term co-occurrence networks provide insightful visualizations of which terms tend to be used in proximity to other terms. While term co-occurrences do not permit conclusions about *how* terms relate to each other, interesting discoveries can be made by showing when certain terms (e.g., 'behavior' and 'stimulus') first started appearing together and when they started separating again. Visual descriptions of these networks for the disciplines of philosophy and psychology in different time periods will be supplemented by more focused comparisons of key terms (e.g., with what terms does 'stimulus' most frequently co-occur in philosophy, and with what terms in psychology?).

Output
The goal of this project is twofold. First, the trainees will present the results of the project at the second TiLPS History of Analytic Philosophy Workshop, which will be organized by Sander Verhaegh as part of his NWO Veni project on the relation between philosophical and psychological behaviorism. Second, the coordinators and the trainees will complete a scholarly article reporting the results of this project and submit it to the journal *Behavior and Philosophy*.

4. Project timeline

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Training												
History of behaviorism	■	■										
Methodological training			■	■								
Research												
Data collection		■	■									
Data preparation				■	■							
Analysis						■	■	■				
Writing									■	■	■	■
Milestones												
Data set					■							
Conference presentation											■	
Paper												■

5. Research Trainee Profile

We are looking for two Master or advanced Bachelor students with an interest in the topic of this project. One trainee will have a background in philosophy with an affinity for the history of analytic philosophy. The other trainee will have a background in communication and information sciences and an affinity with bibliometrics or text mining. The trainees will collaborate with the coordinators on the project. They will be responsible for data collection and contribute to data preparation and analysis. Furthermore the trainees will present the

results of the project at a conference and write, along with the coordinators, a scholarly article reporting on the results of the project

Candidates can apply by submitting:
-   A letter of motivation (one page)
-   A Curriculum Vitae
-   A list of grades

Please send informal enquiries to:
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