Notice of the Final Oral Examination
for the Degree of Master of Science

of

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BSc (University of Calgary, 2015)

“Contributions of Population Stereotypes and Mental Simulations to Sentence Comprehension”

Department of Psychology

August 14, 2017
10:00 A.M.
Clearihue Building
Room B019

Supervisory Committee:
Dr. Michael Masson, Department of Psychology, University of Victoria (Supervisor)
Dr. Daniel Bub, Department of Psychology, UVic (Member)

External Examiner:
Dr. Penny Pexman, Department of Psychology, University of Calgary

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Dr. Craig Brown, Division of Medical Sciences, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

Embodied accounts of action-language processing propose that meaning is constructed with the assistance of relevant sensory-motor representations (e.g., Fischer & Zwaan, 2008). In support of this view, comprehending an action-sentence can slow the production of an overt action, when features of that action are incompatible with corresponding sentence features (Glenberg & Kaschak, 2002). Additionally, performing an overt action can impede the comprehension of incompatible action-sentences (Zwaan & Taylor, 2006). Action-sentence comprehension can even be disrupted by watching visual displays with incompatible directional features. Namely, comprehending a sentence describing a movement in a clockwise or counterclockwise direction is less efficient when simultaneously viewing a stimulus moving in an incompatible direction, even when no overt manual rotation action is performed. Embodied accounts contend that such action-sentence compatibility effects arise as a result of covert simulations of specific motor programs developed through one’s physical experiences with particular objects. I present evidence that these effects could also be generated by a more abstract type of knowledge that is not tied to a particular object. I am referring here to the idea of a population stereotype, which is the natural tendency of people to associate the direction of certain actions with the conceptual properties of a physical display (e.g., a clockwise device rotation implies an increase in device output). Such population stereotypes typically are consistent with specific motor experiences. For example, turning down the volume of a stereo in many cases involves a counterclockwise rotation of a dial, and this experience is consistent with a population stereotype that implies that reducing a quantity is achieved by a counterclockwise action. If comprehension of a sentence describing reducing the volume on a stereo is faster while turning a dial in a counterclockwise direction, it can not be determined if a resulting compatibility effect reflects compatibility between the described action and the stereotype, or between the described action and real motor experiences. I will present a case in which a population stereotype is not compatible with everyday experiences and establish that population stereotypes make a substantial contribution to action-sentence compatibility effects. I will also report a number of unsuccessful attempts to replicate previous studies of action-sentence compatibility and discuss replication attempts made by others.