

## Dissertation Abstract | Jonathan Vandenburg

People speak, think, and act based on the alternative possible scenarios which come to mind. Understanding alternative possibilities is essential for understanding modal language (what is possible and what is necessary), conditional language (what would happen *if* a certain condition is satisfied), and knowledge (what one can know and be justified in believing given certain evidence). The dominant approach to determining the relevant alternatives in a situation uses the notion of similarity, arguing that the relevant alternatives are those which are most similar to reality. However, it is often left unclear which dimensions similarity is measured over, leaving the predictions for specific cases of language use or belief formation uncertain.

My dissertation develops a new theory of the relevant alternatives in a situation. I argue that peoples' beliefs are causally structured, containing laws about how different variables are related to each other and how changes in some variables can affect other variables. I argue that the alternatives that come to mind are determined by this causal structure: an alternative is relevant if it is consistent with the causal laws in the situation. I develop this theory in the first chapter of my dissertation; the remainder of the dissertation shows that this theory makes reasonable predictions by applying it to the semantics and epistemology of conditionals, the theory of knowledge, and the epistemology of stereotyping.

In the second chapter, I use the theory to develop a new framework for applying causal models to the semantics of conditionals and counterfactuals. I argue that causal notions can be interpreted in terms of causal alternatives and invoke tools from possible world semantics to develop a causal theory of the meaning of conditionals. This theory is more intuitive and empirically tractable than competing similarity-based accounts and has more familiar logical properties than competing causal approaches. In the third chapter, I develop a theory of how people change their beliefs when they learn a conditional. I argue that the outcome of conditional learning depends on background causal information and can sometimes require agents to learn a new causal model of the world. I then provide a theory of conditional learning where an agent eliminates possibilities from the causal model which are inconsistent with the new conditional information.

In the fourth chapter, I use the causal theory of alternatives to argue for a new necessary condition on knowledge: causal safety. Causal safety requires that one's belief be true in all causally relevant alternatives consistent with one's evidence and the causal laws. Causal safety, I argue, encodes the intuition that knowledge should be free from error and should only apply to beliefs which are true non-accidentally. I argue that causal safety can avoid the counterexamples which have been developed against safety, a competing condition on knowledge based on the notion of similarity, while explaining the phenomena safety was introduced to explain, like why Gettier cases and cases of statistical evidence are excluded from knowledge.

Finally, I apply the causal theory to the epistemology of stereotyping. I argue that people who form stereotypes often have a false causal understanding of group differences: they attribute stereotypical properties to group members innately or causally, while social science research shows that group differences arise from complex social factors. I argue that the causal approach to stereotyping, unlike other epistemic approaches, can explain what is wrong with "rational racism," or statistical discrimination, which occurs when a stereotype is statistically accurate. I show how the causal beliefs surrounding stereotypes can influence the alternative scenarios people find relevant and the interventions people think make the most sense in response to group differences. [Next pg]

Causal safety offers a causal analogue of the safety condition, which uses the notion of similarity to capture the relevant epistemic alternatives. I argue that causal safety can explain the phenomena safety was introduced to explain, like why Gettier cases and cases of statistical evidence are insufficient for knowledge, while avoiding the counterexamples which have been developed against safety.