

# Continuous-time Threshold Models of Cooperative Behavior and Group Formation

Cool Kids<sup>1</sup>, and Rajesh Venkachalapathy<sup>2</sup>

<sup>1</sup> Facy Places

<sup>2</sup>Portland State University, Portland, OR 97201  
venkatr@pdx.edu

## Abstract

We develop threshold models of cooperative group formation in the spirit of Granovetter (1978). Based on a stochastic dynamic, actors accumulate wealth, and form resource pooling *proto*-institutions or groups with other agents after their wealth crosses a predetermined threshold. For various group formation protocols, we study macroscopic characteristics of the resulting groups like their size distribution, and robustness to controlled starvation of this population. Using group formation protocols where agents can coexist in multiple groups lead to emergence of dynamic hypergraph based social networks.

## Introduction

## Acknowledgments

This work is supported by our own pockets.

## References

Granovetter, M. (1978). Threshold models of collective behavior. *American Journal of Sociology*, 83(6):1420–1443.