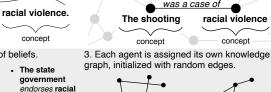
A. Real World **B.** Abstraction C. Implementation 1. Humans co-create a dynamic, directed, 1. Simulating a static, undirected, unweighted, social network = Erdős-Rényi (and unstructured social network isolates the effect n agents = 60, mean degree = 3, weighted, structured social network. enforce connected = True) of interdependent diffusion. 2. A belief statement asserts a relationship 2. Concepts map to nodes in a "knowledge graph", // Define all possible beliefs between two concepts. and relationships become edges. B = complete graph(n nodes=25, n edges=300) beliefs = all edges in Brelationship Belief Statement



for each agent in social network knowledge graph = random choice(options = beliefs, n choices = 25, // out of 300 total with replacement = False assign knowledge graph to agent function exposed (belief, agent)

if belief in neighbor's knowledge graph

their social network neighbors.

4. An agent is "exposed" to any beliefs held by 5a. Independent diffusion condition: Each

shoplifting

for each of agent's neighbors

return True return False // no neighbors hold belief // Independent only, run once at start

threshold = 2

for each agent in social network for each belief in beliefs if $random(0,1) \le p$ then assign agent susceptible to belief // Interdependent only, run each decision function susceptible(belief, agent) a, b = nodes in belief l =shortest path length from a -> b in agent's knowledge graph if 1 <= threshold then return True else return False

agent adopts beliefs that have short existing paths

in its evolving knowledge graph. state government Confederate Flag E

each belief with probability p.

. The state government flies the Confederate flag. The Confederate flag symbolizes racial violence. Likely candidate: · The state government endorses racial violence.

Unlikely candidate: · The state government endorses shoplifting.

was a case of

relationship

4. A human is "exposed" to new beliefs by their

neighbors, the media, or their own experience.

5. Some humans are susceptible to adopting a particular new belief, while others are not.

- Independent diffusion assumes

that susceptibility is fixed a priori.

that susceptibility is a function of

other (possibly changing) beliefs.

Interdependent diffusion assumes

3. Each human has a unique set of beliefs.

. The state government

flies the Confederate

The Confederate flag

symbolizes racial

violence.

Existing beliefs:

concept

The state

violence.

The shooting

concept

6. Humans update their beliefs continuously

and to varying degrees, depending on their exposure and susceptibility.

racial violence 6. Agents' beliefs are binary. Agents update their beliefs once per time period, in random order.

agent is randomly assigned to be susceptible to

5b. Interdependent diffusion condition: An

for step in (0-9)for shuffle each agent in social network | Ifor shuffle each belief in beliefs if agent is exposed to belief and agent is susceptible to belief then

add belief to agent's knowledge graph