

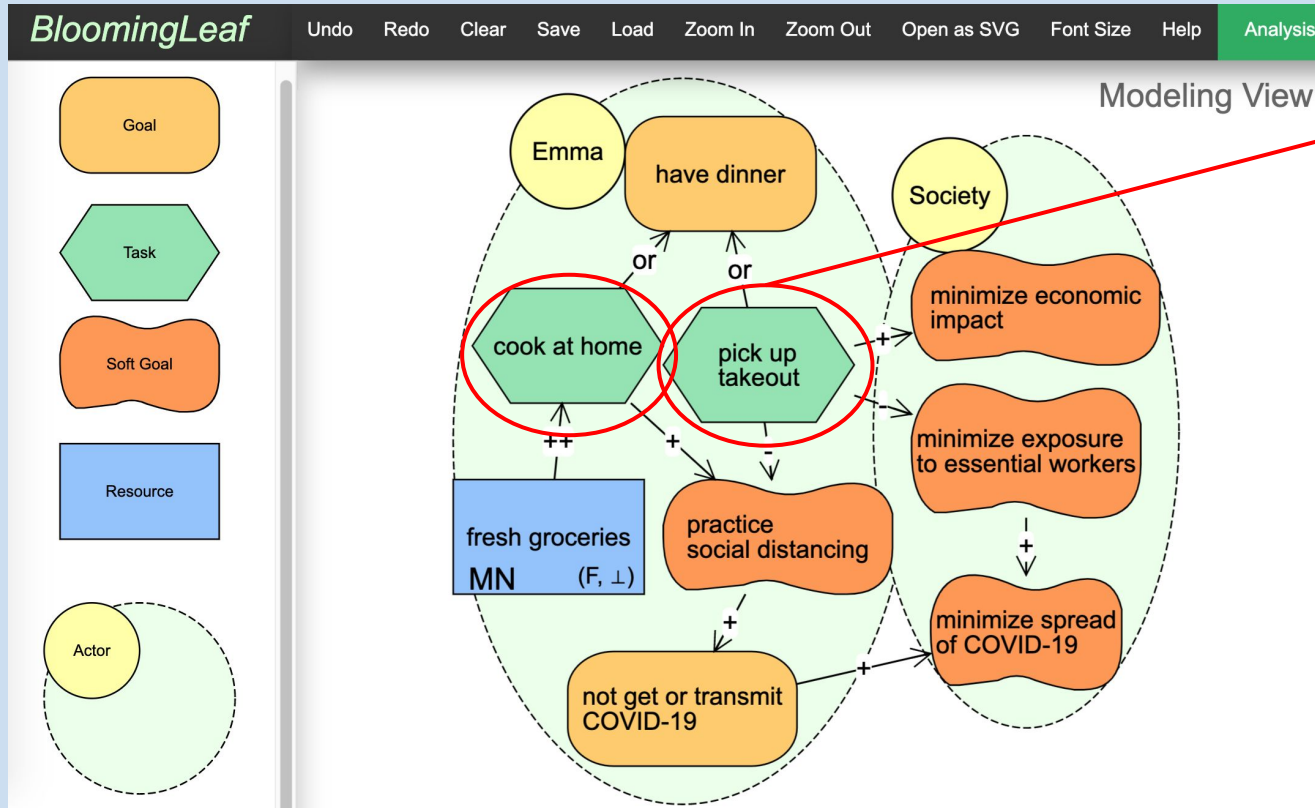


# Towards an Evaluation Visualization with Color

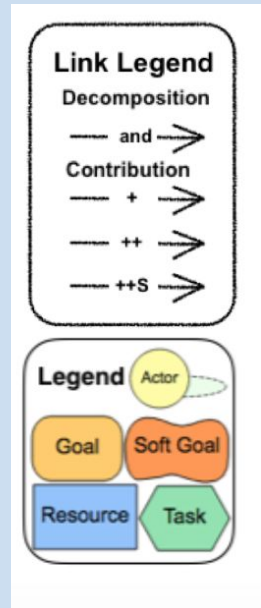
Megan H. Varnum, Kate M. B. Spencer, and Alicia M. Grubb

13th iStar Workshop - September 1, 2020

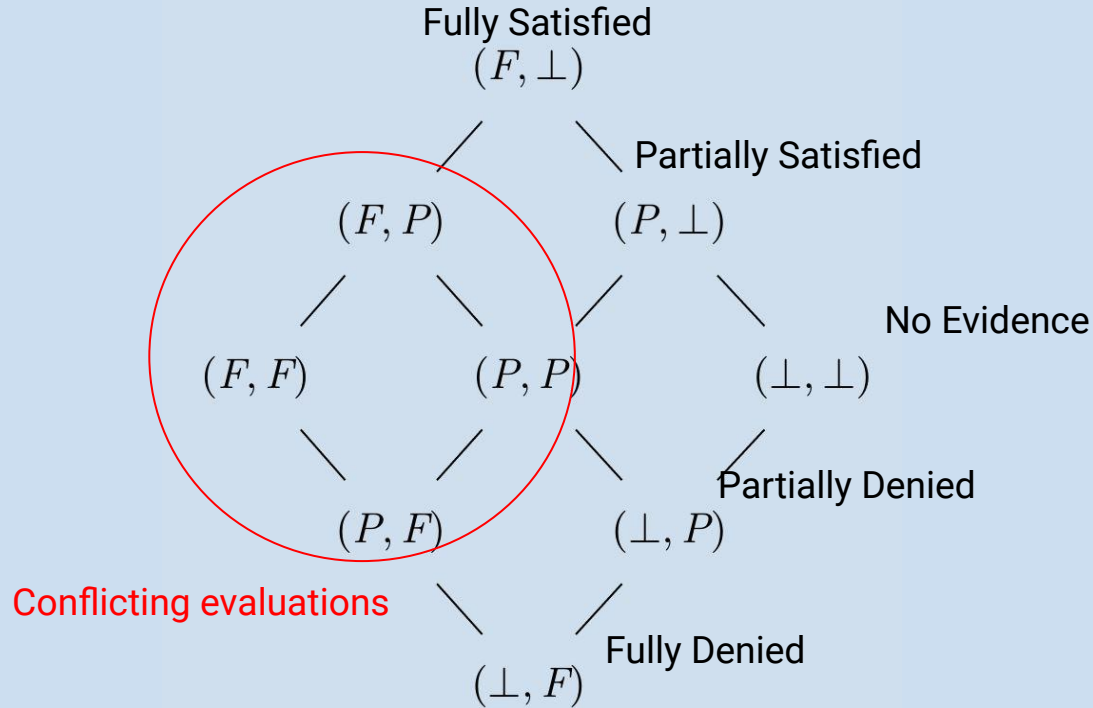
# Motivating Example: Emma's Dinner Decision



Emma's Question:  
How can Emma choose between  
cooking at home and picking up  
takeout?



# Background: Tropos Evidence Pairs



(Evidence For Satisfaction, Evidence Against Satisfaction)

# Simulate Single Path in BloomingLeaf Analysis Mode

**BloomingLeaf** Zoom In Zoom Out Open as SVG Font Size Help **Model**

History Log

Step 1: Single Path

Analysis

Emma

have dinner ( $\perp, \perp$ )

Society

cook at home ( $\perp, F$ )

pick up takeout ( $\perp, \perp$ )

minimize economic impact ( $\perp, \perp$ )

minimize exposure to essential workers ( $\perp, \perp$ )

minimize spread of COVID-19 ( $\perp, F$ )

practice social distancing ( $\perp, F$ )

not get or transmit COVID-19 ( $\perp, P$ )

fresh groceries MN ( $\perp, F$ )

Simulation Start: 0

Max Absolute Time

8

Conflict Prevention Level

Strong

Num Relative Time Points

0

Absolute Time Points

(e.g. 5 8 22)

1 2 3 4 5 6 7

View List of Assignments

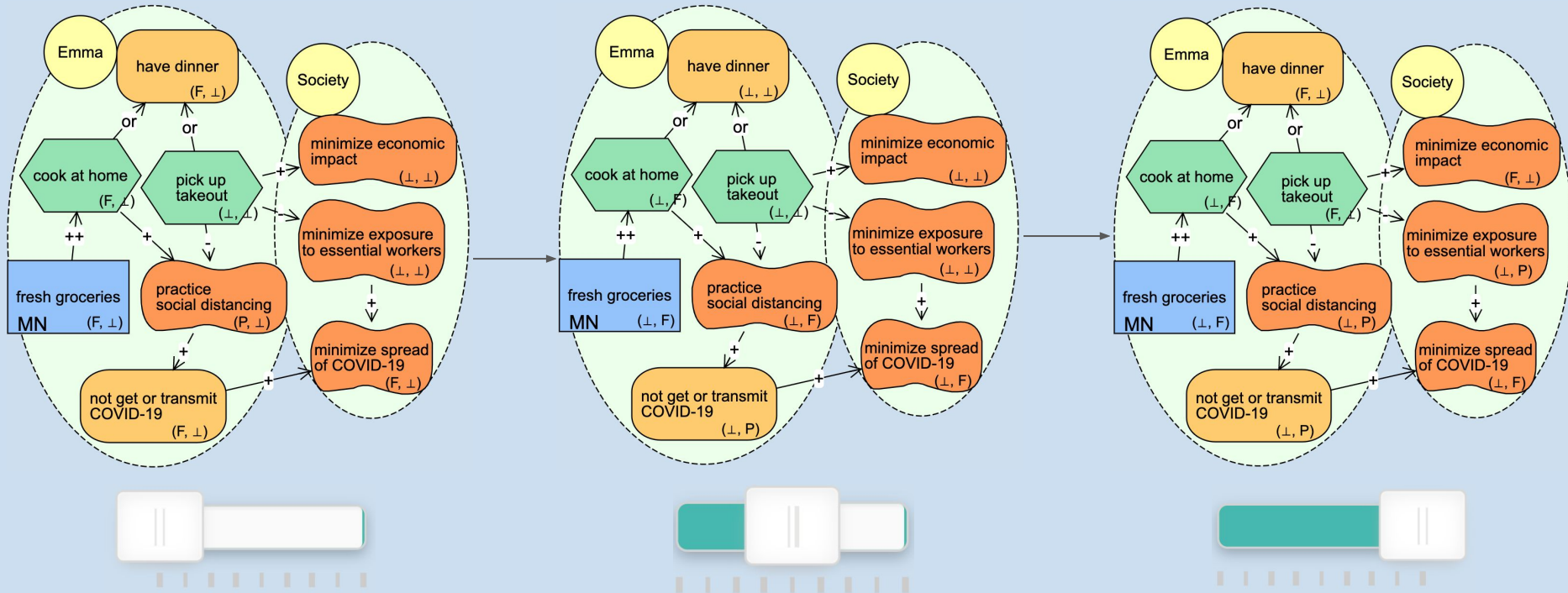
View Intermediate Values

Simulate Single Path

8/8

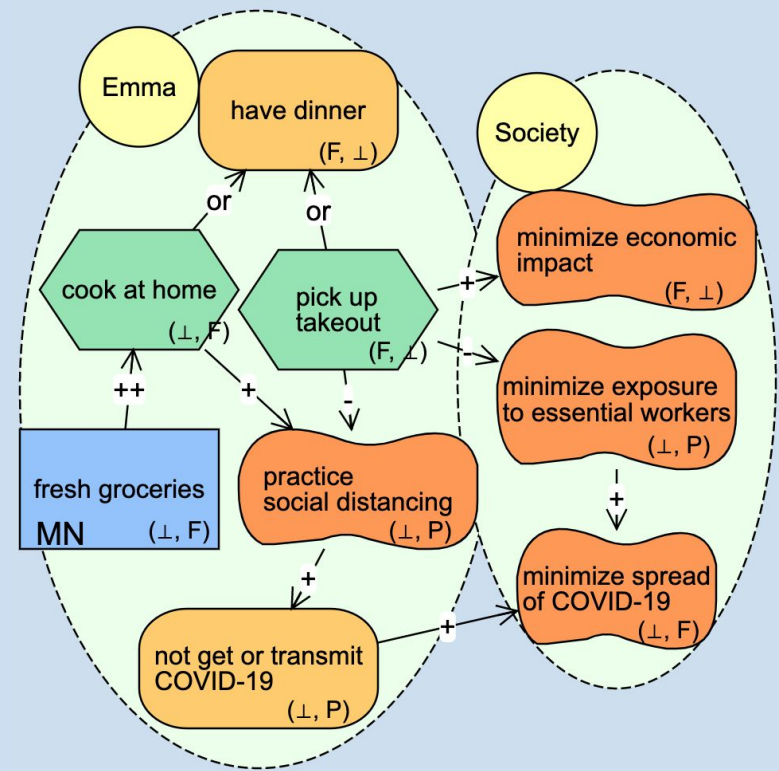
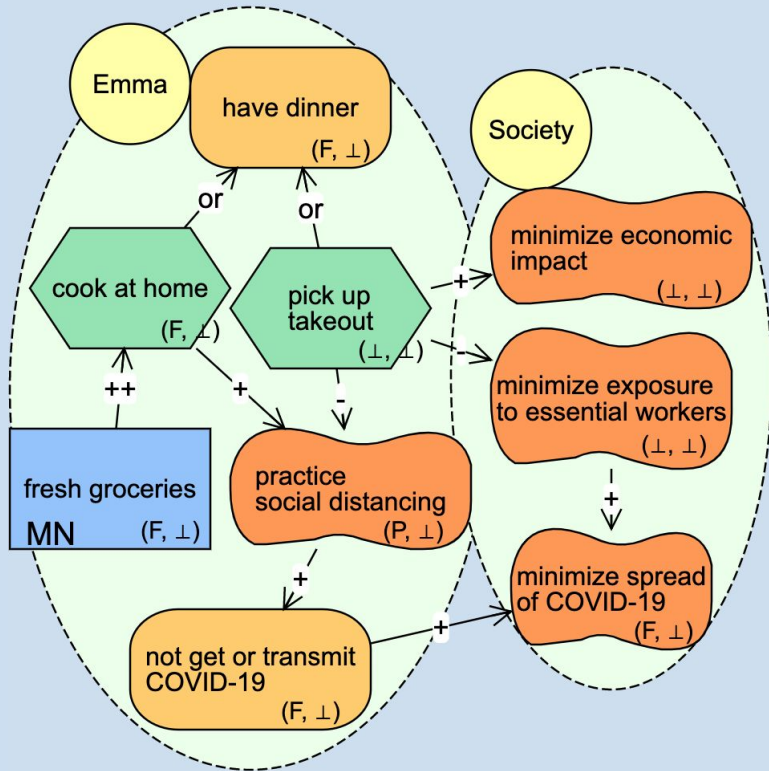
BloomingLeaf in Analysis Mode with Emma's Model

# Background: BloomingLeaf Single Path



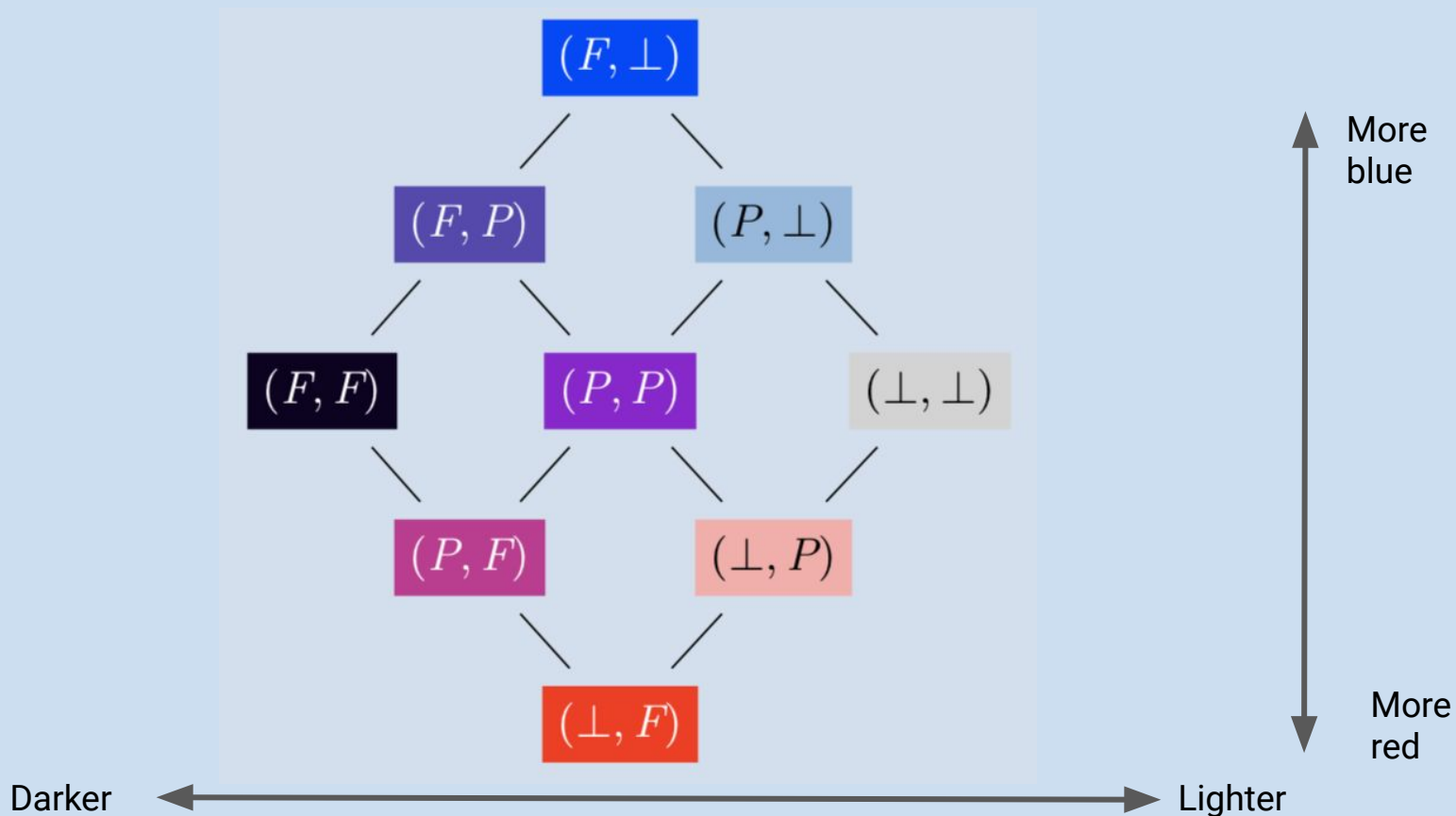
# What is the Problem?

Evaluation labels hard to understand and visualize



To what extent do colors applied to **individual states** and ***paths*** allow for better comparisons?

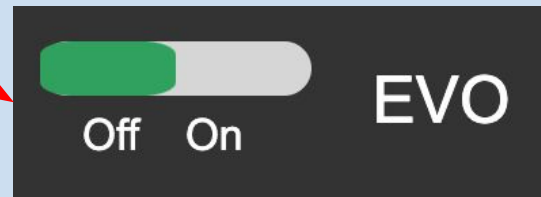
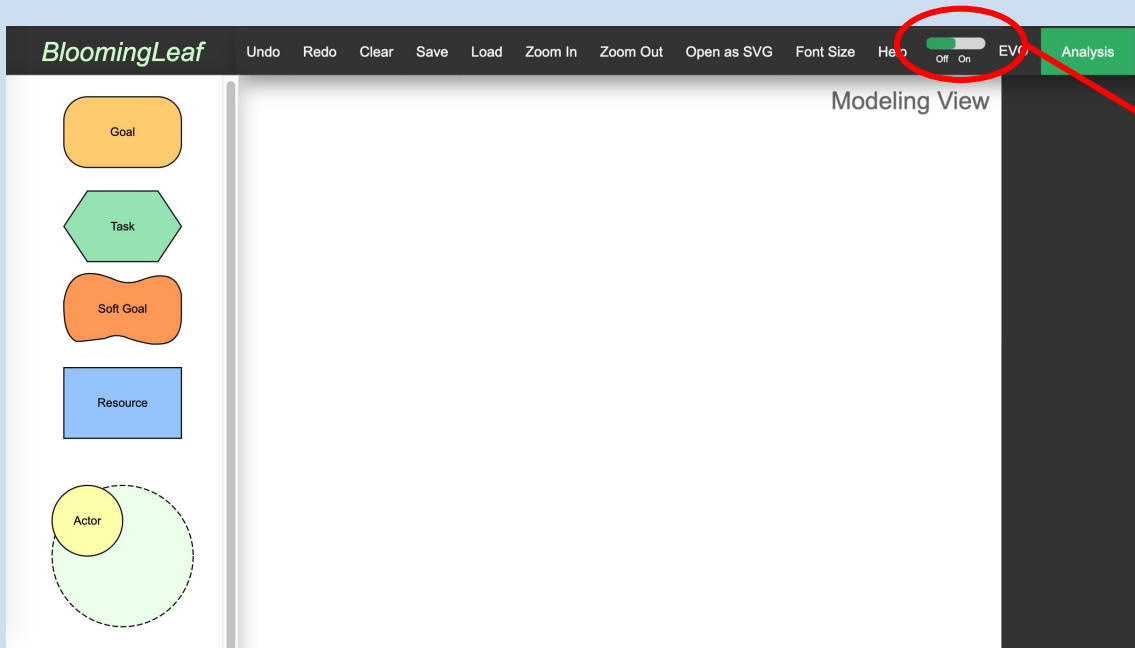
# Color scheme for tropos evidence pairs





# Evaluation Visualization Overlay (EVO)

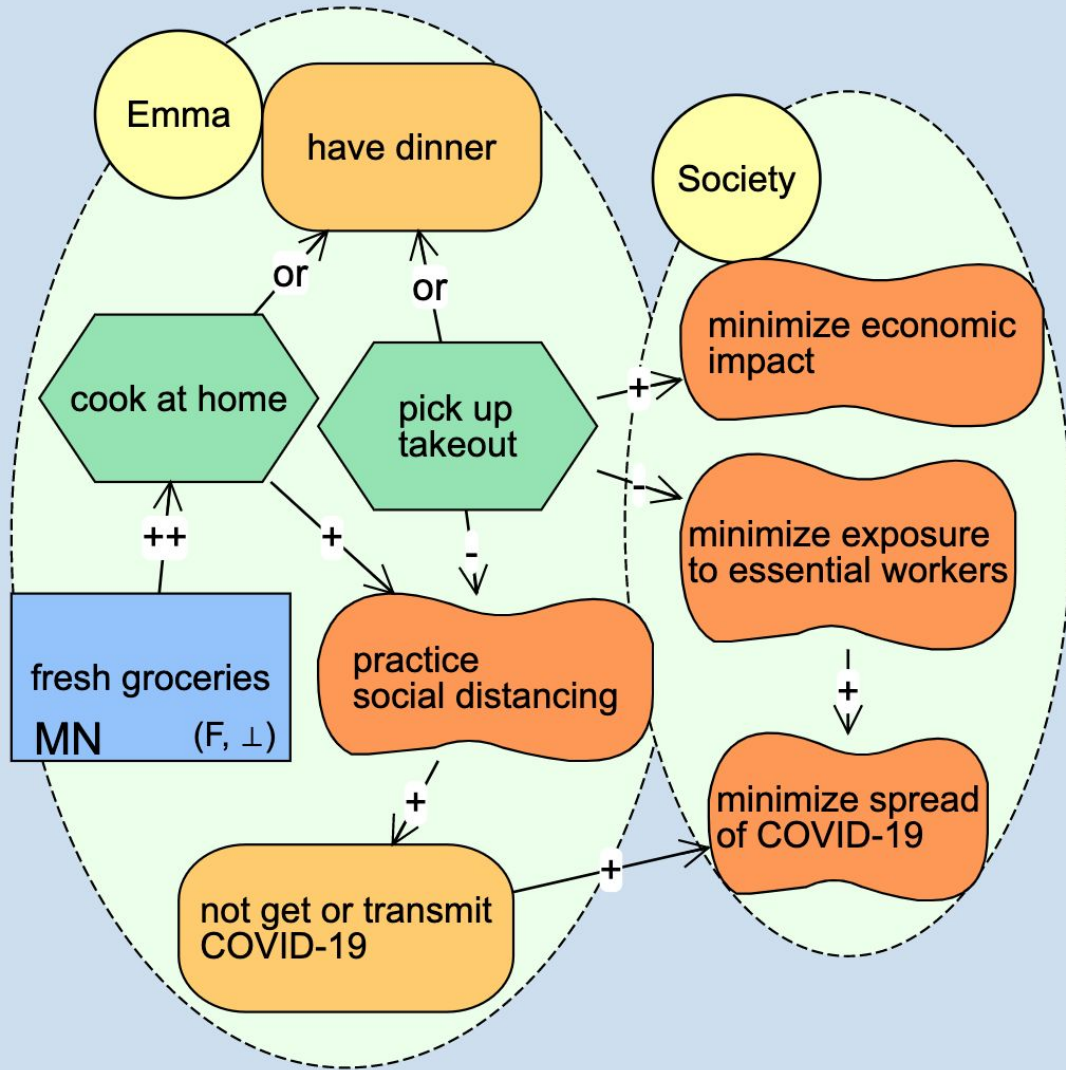
On-off toggle slider that overlays evaluation information for intentions



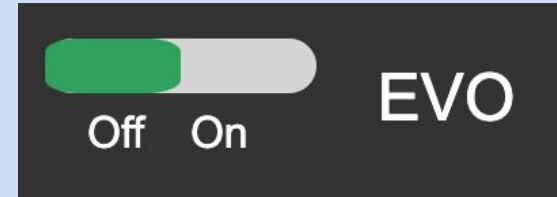
Modeling Mode



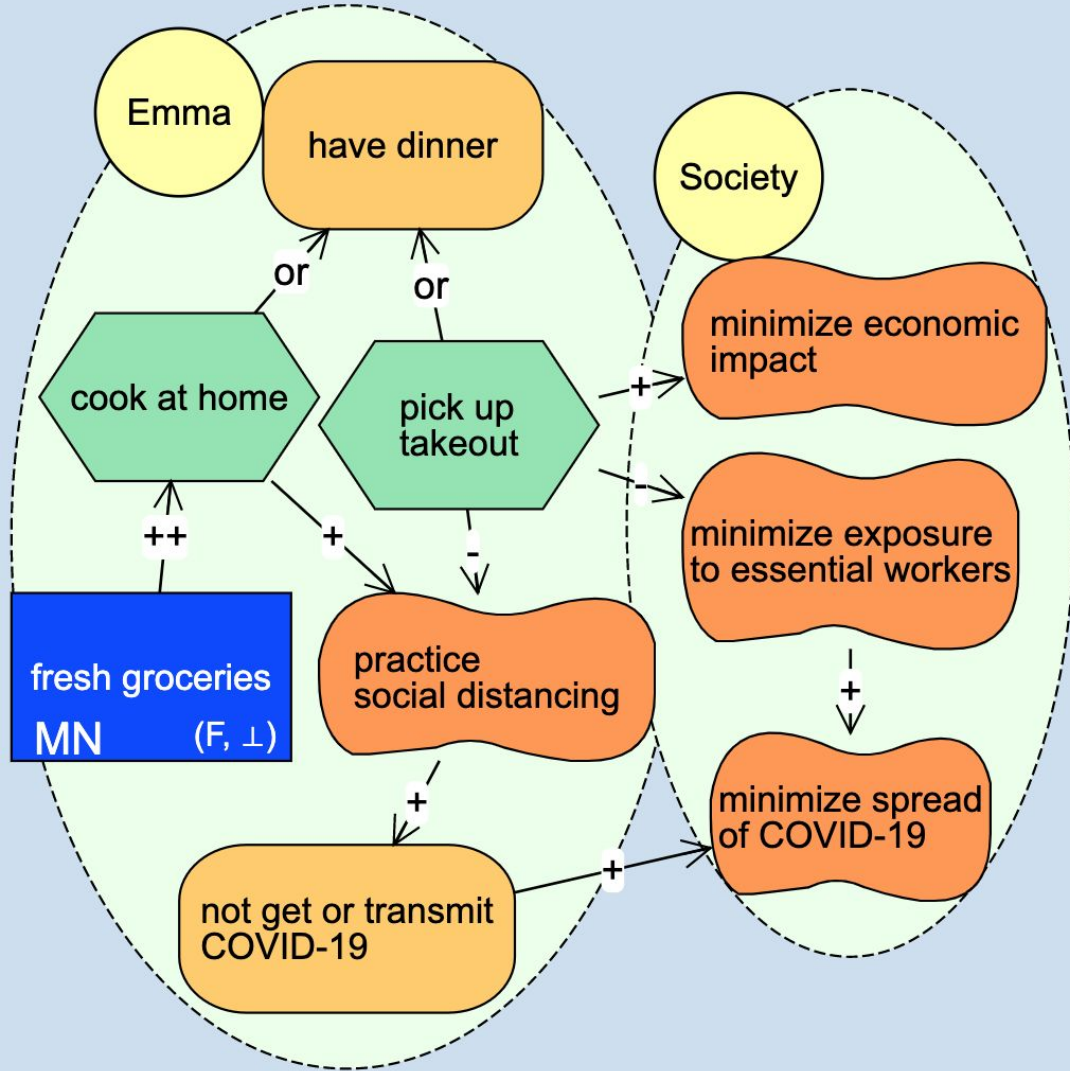
Analysis Mode



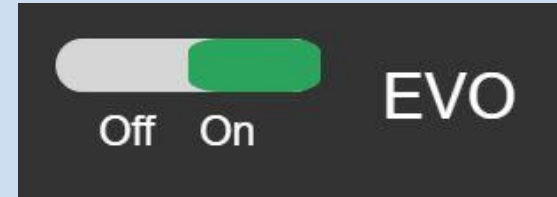
## EVO Over Individual States



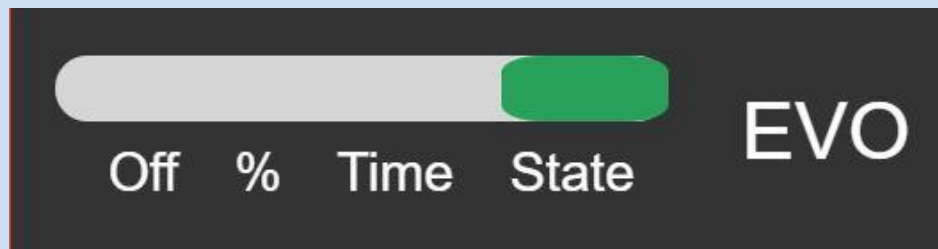
On



## EVO Over Individual States



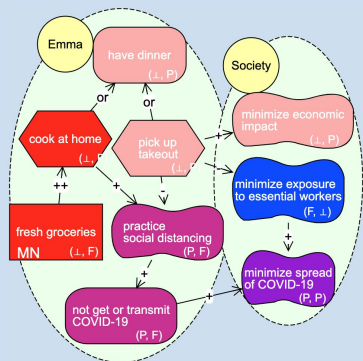
On



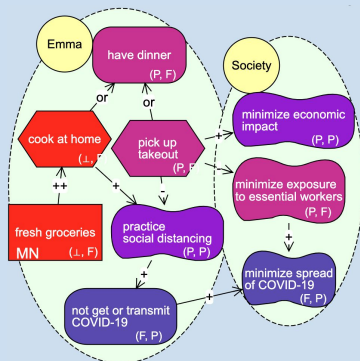
# EVO Over Paths

Color by state at selected time point

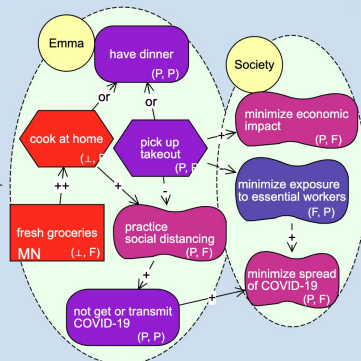
TP 1



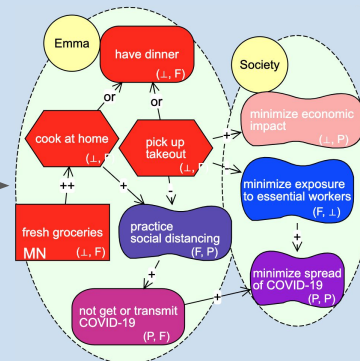
TP 3

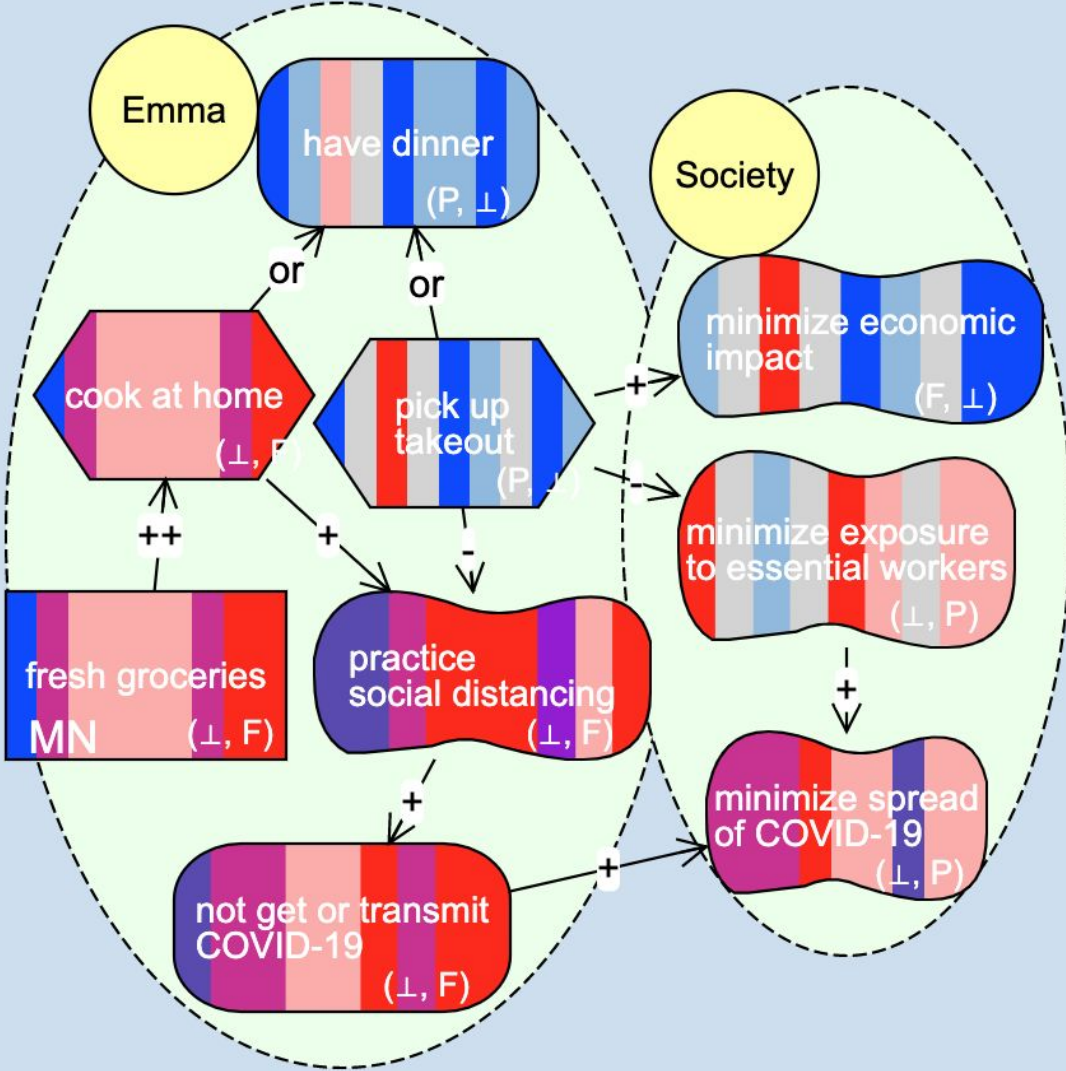


TP 5



TP 8

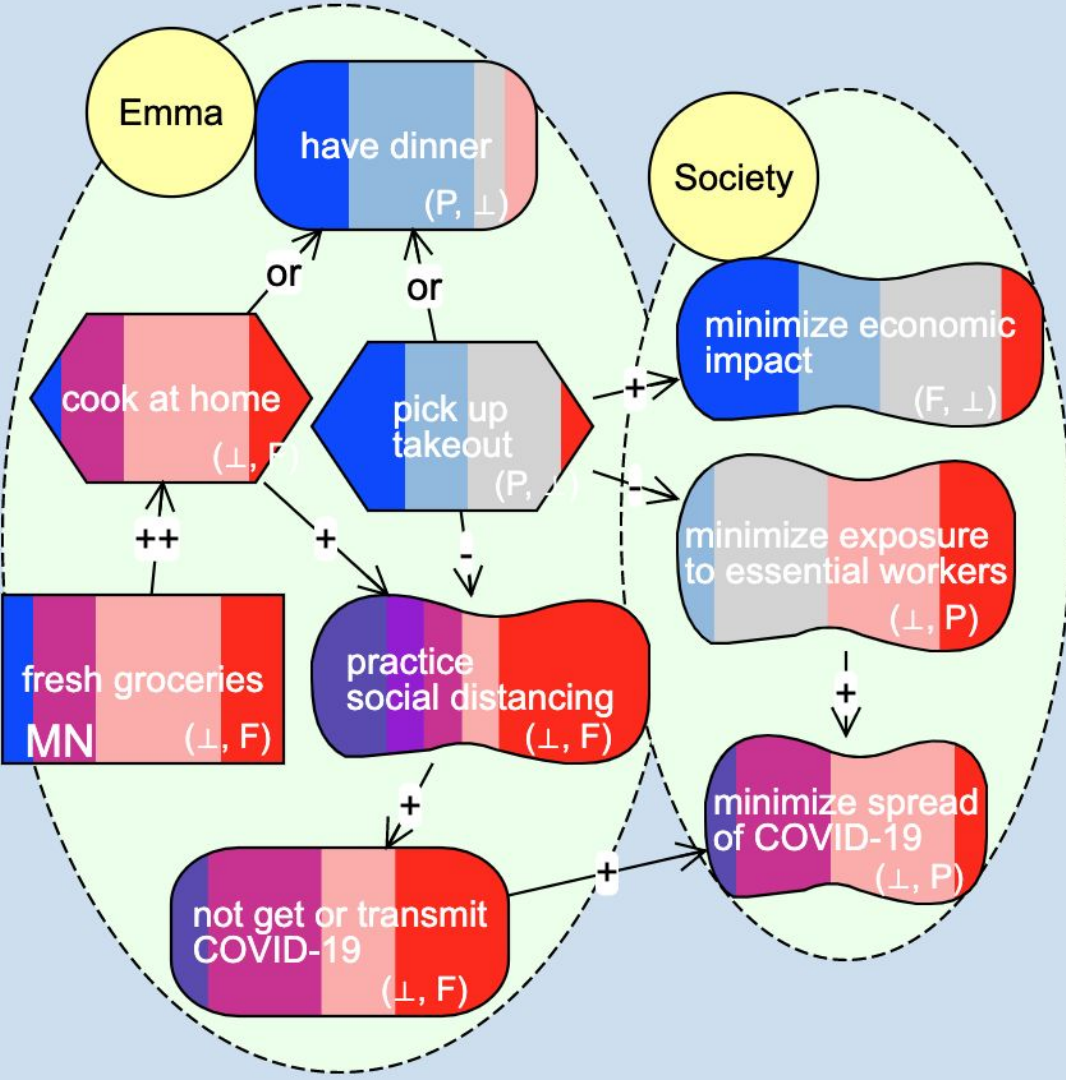




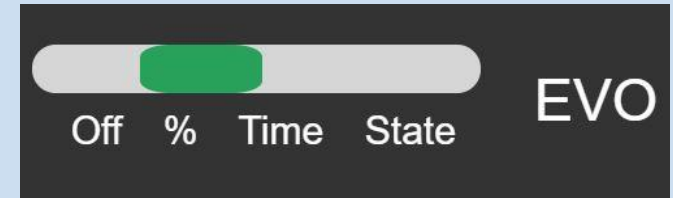
## EVO Over Paths



Color by evaluation  
over time



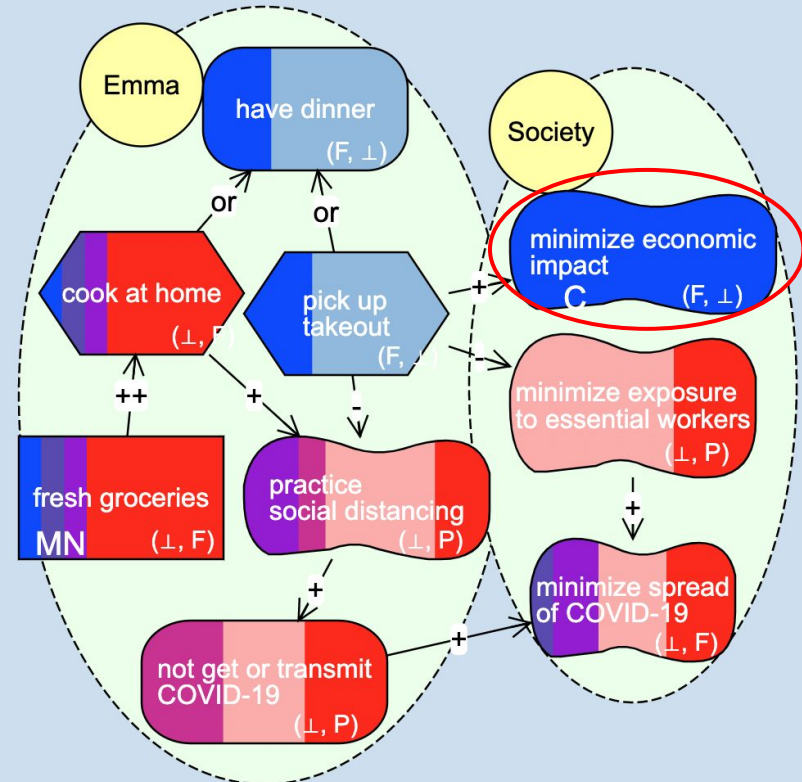
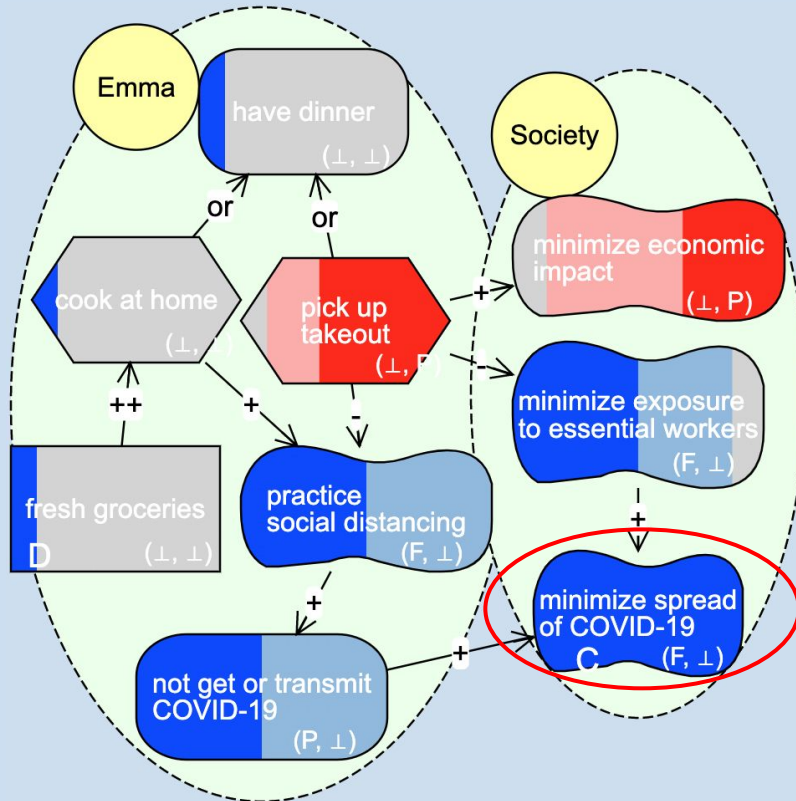
## EVO Over Paths



Color by overall evaluation percentages

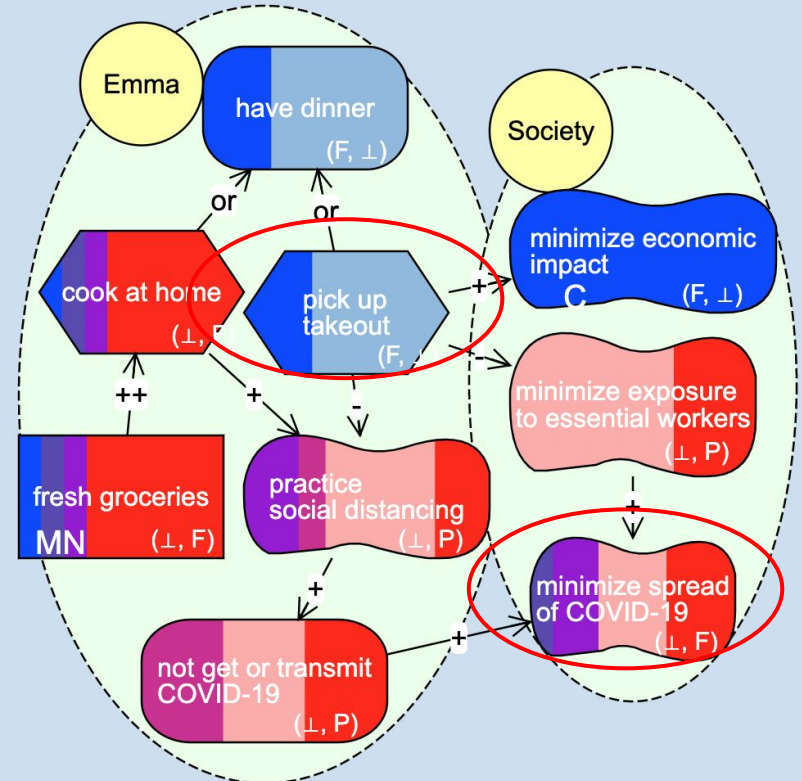
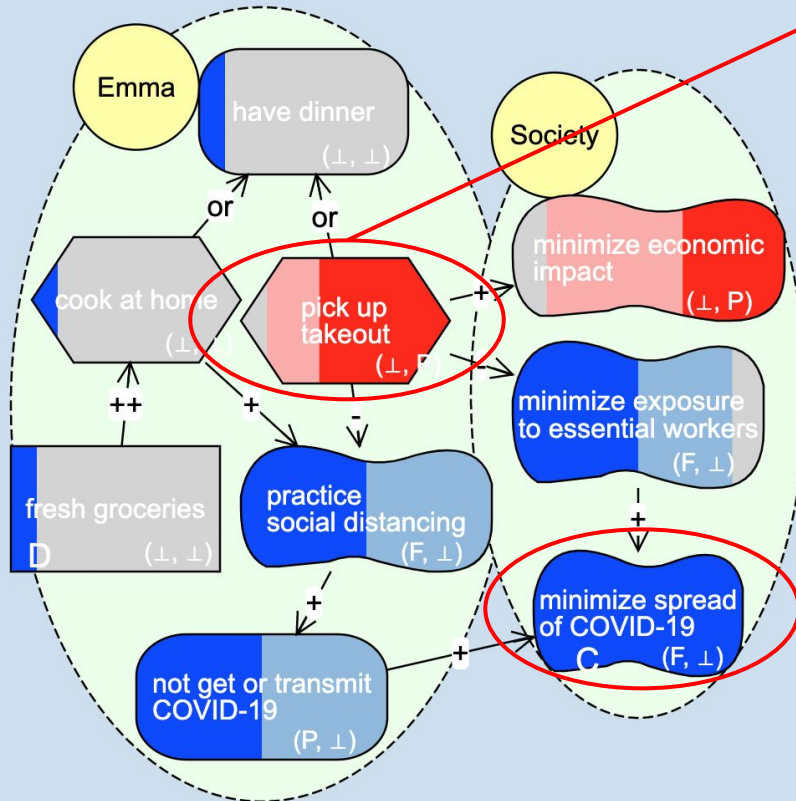


# Comparisons Between Priorities



# Emma's Decision

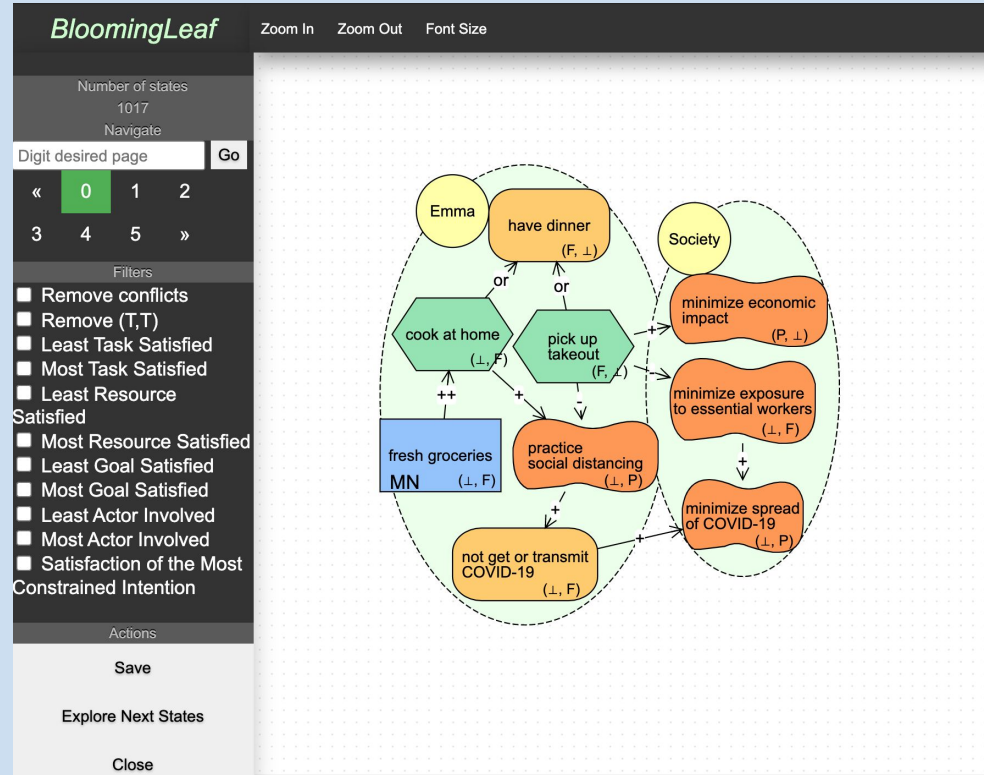
Emma decides to cook at home





# Future Work

- Add Colorblind Mode
- Testing EVO's usefulness in a study
- Can we visualize picking next states with colors?
- Make tool publically available (beta)



# Towards an Evaluation Visualization with Color

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## Questions to Consider:

- How can EVO improve?
  - Are there other visualization options that would potentially be useful?
- How could similar color visualization concepts benefit iStar?

