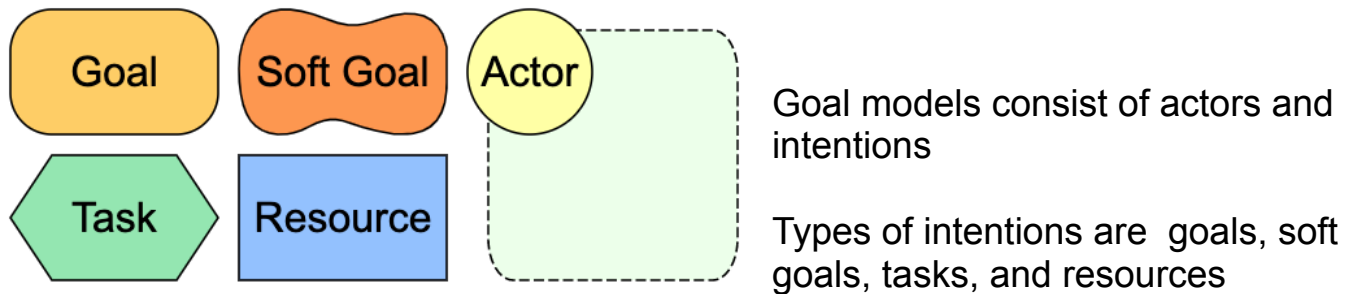


Goal Modeling and Blooming Leaf Training

Intentions and Actors:



Tropos Evidence Pairs:

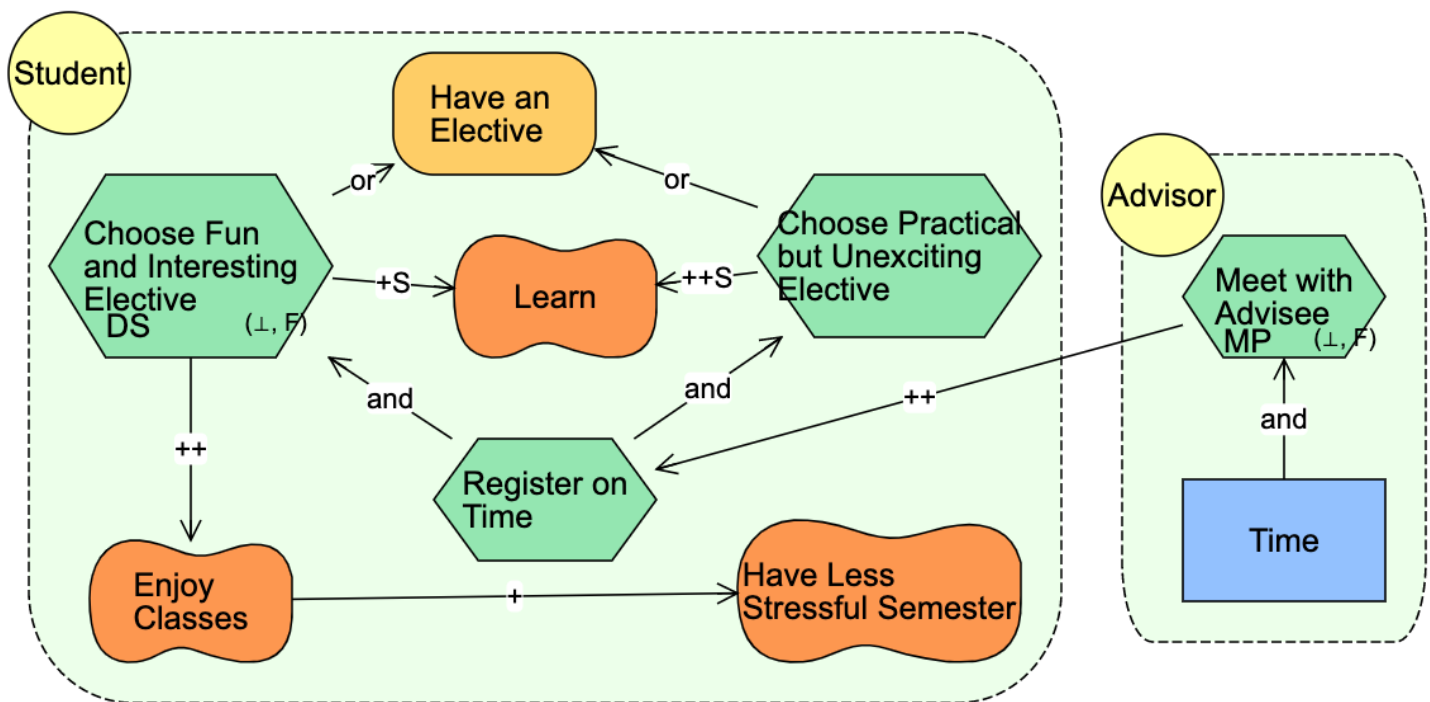
Fully Satisfied	Partially Satisfied	None	Partially Denied	Fully Denied	Conflicting Evidence Pairs			
(F,⊥)	(P,⊥)	(⊥,⊥)	(⊥,P)	(⊥,F)	(F,F)	(P,P)	(F,P)	(P,F)

Contribution and Decomposition Links

- Decomposition
 - — and —> Parent node requires both
 - — or —> Parent node requires one
- Contribution
 - — ++ —> propagates all evidence
 - — + —> propagates partial evidence
 - — - —> propagates partial evidence against fulfillment
 - — - - —> propagates full evidence against fulfillment
 - — ++ S —> propagates full satisfaction evidence “for”
 - — + S —> propagates partial satisfaction evidence “for”
 - — - S —> propagates inverse partial evidence “for”
 - — - - S —> propagates inverse full evidence “for”

Course Model

The following model was created to describe the process of a student trying to decide which elective course they should take next semester. The actors Student and Advisor interact with one another to register for classes. This student is trying to decide whether to take a fun and interesting elective or a practical and unexciting elective.



Function Types

Elementary Functions	
<i>Constant (C)</i>	the satisfaction evaluation remains constant at <i>constantValue</i>
<i>Increase (I)</i>	changes in satisfaction evaluation become “more true” to a <i>maxValue</i> as time progresses
<i>Decrease (D)</i>	changes in satisfaction evaluation become “less true” to a <i>minValue</i> as time progresses
<i>Stochastic (R)</i>	changes in satisfaction evaluation are stochastic or random
General Compound Function	
<i>User-Defined (UD)</i>	its value is a stepwise function defined by a sequence of other functions, repeating behaviour can be specified over a subset of the function
Common Compound Functions	
<i>Satisfied-Denied (SD)</i>	the satisfaction evaluation remains <i>FS</i> until t_i and then remains <i>FD</i>
<i>Denied-Satisfied (DS)</i>	the satisfaction evaluation remains <i>FD</i> until t_i and then remains <i>FS</i>
<i>Stochastic-Constant (RC)</i>	changes in satisfaction evaluation are stochastic or random until t_i and then remains constant at <i>constantValue</i>
<i>Constant-Stochastic (CR)</i>	the satisfaction evaluation remains constant at <i>constantValue</i> until t_i and then changes in evaluation are stochastic or random
<i>Monotonic Positive (MP)</i>	changes in satisfaction evaluation become “more true” to a <i>maxValue</i> at t_i and then remains constant at <i>constantValue</i>
<i>Monotonic Negative (MN)</i>	changes in satisfaction evaluation become “less true” to a <i>minValue</i> at t_i and then remains constant at <i>constantValue</i>
Relationship Dynamics	
<i>Multi-Relationship</i>	the link between <i>source</i> and <i>destination</i> is <i>relationshipA</i> until t_i , at which point it becomes <i>relationshipB</i>

There are four atomic function types:

Constant - the satisfaction value stays the same

Stochastic - changes in satisfaction value are stochastic or random

Increasing - the satisfaction value increases

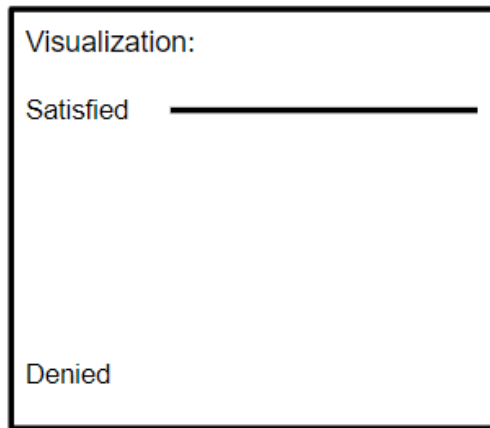
Decreasing - the satisfaction value decreases

These atomic function types can be combined in 7 different ways to create a total of 11 functions types

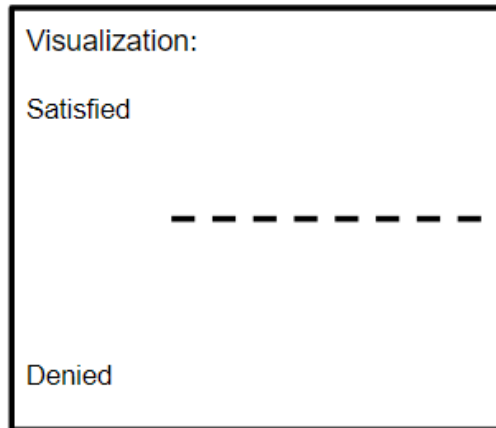
The following are visualizations of the function types intentions can have. A Stochastic function segment means that in the next state they can have any of the evaluation labels including the same one as the previous state.

Atomic Function Types

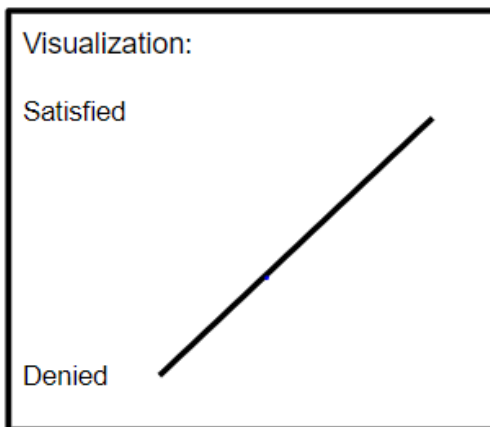
Constant (C)



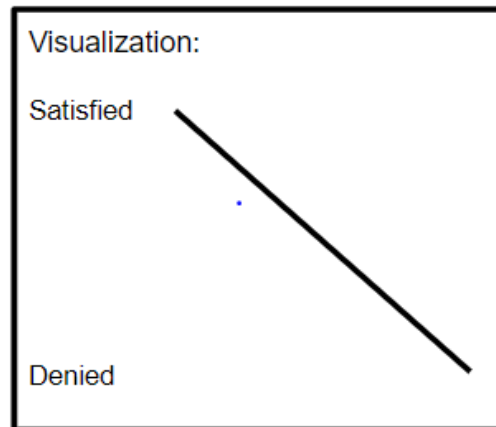
Stochastic (R)



Increasing (I)

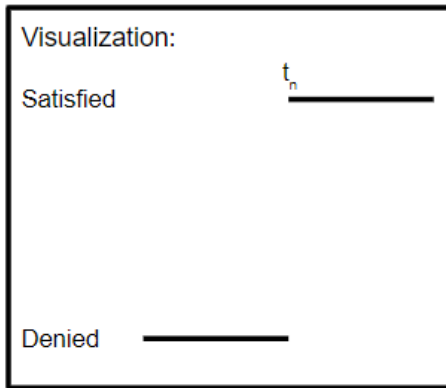


Decreasing (D)

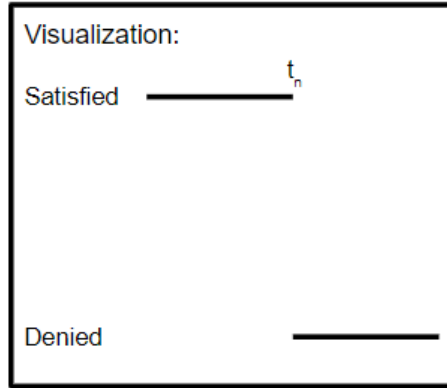


Compound Function Types

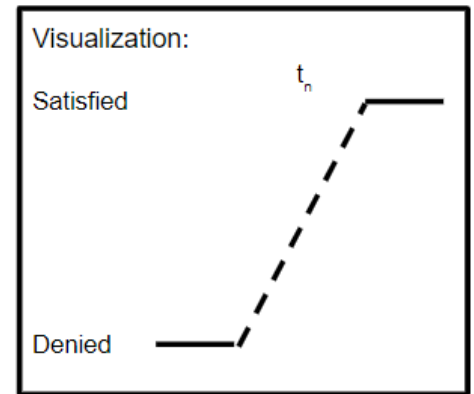
Denied Satisfied (DS)



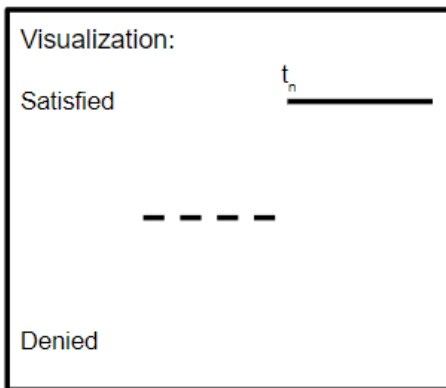
Satisfied Denied (SD)



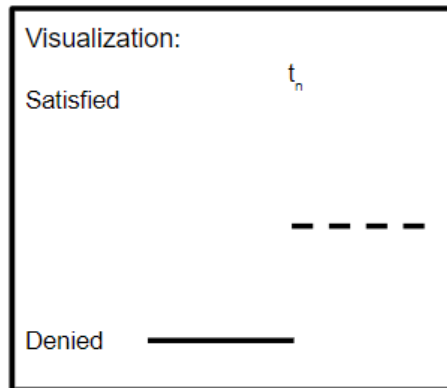
Monotonic Positive (MP)



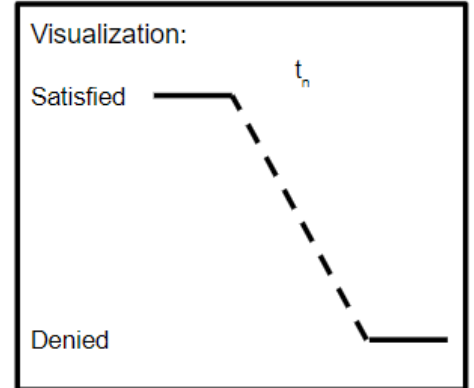
Stochastic Constant (RC)



Constant Stochastic (CR)



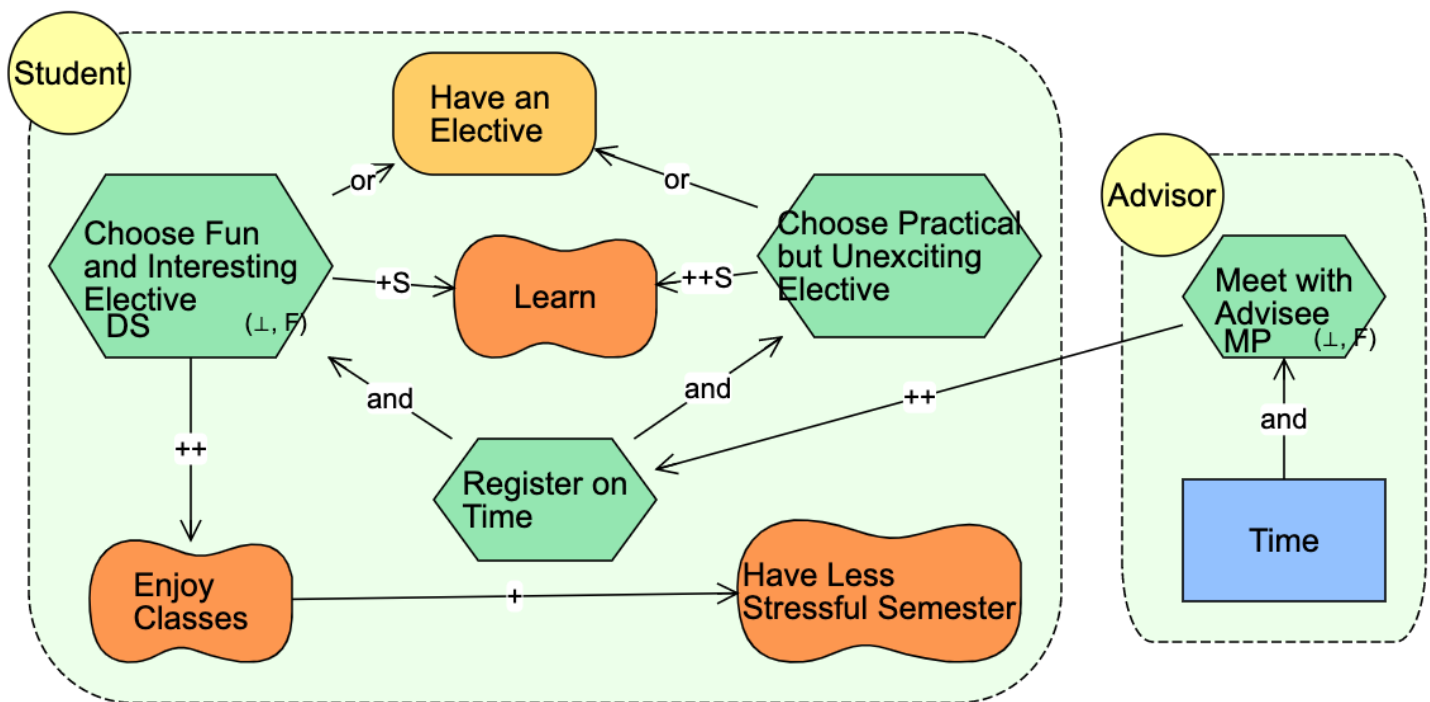
Monotonic Negative (MN)



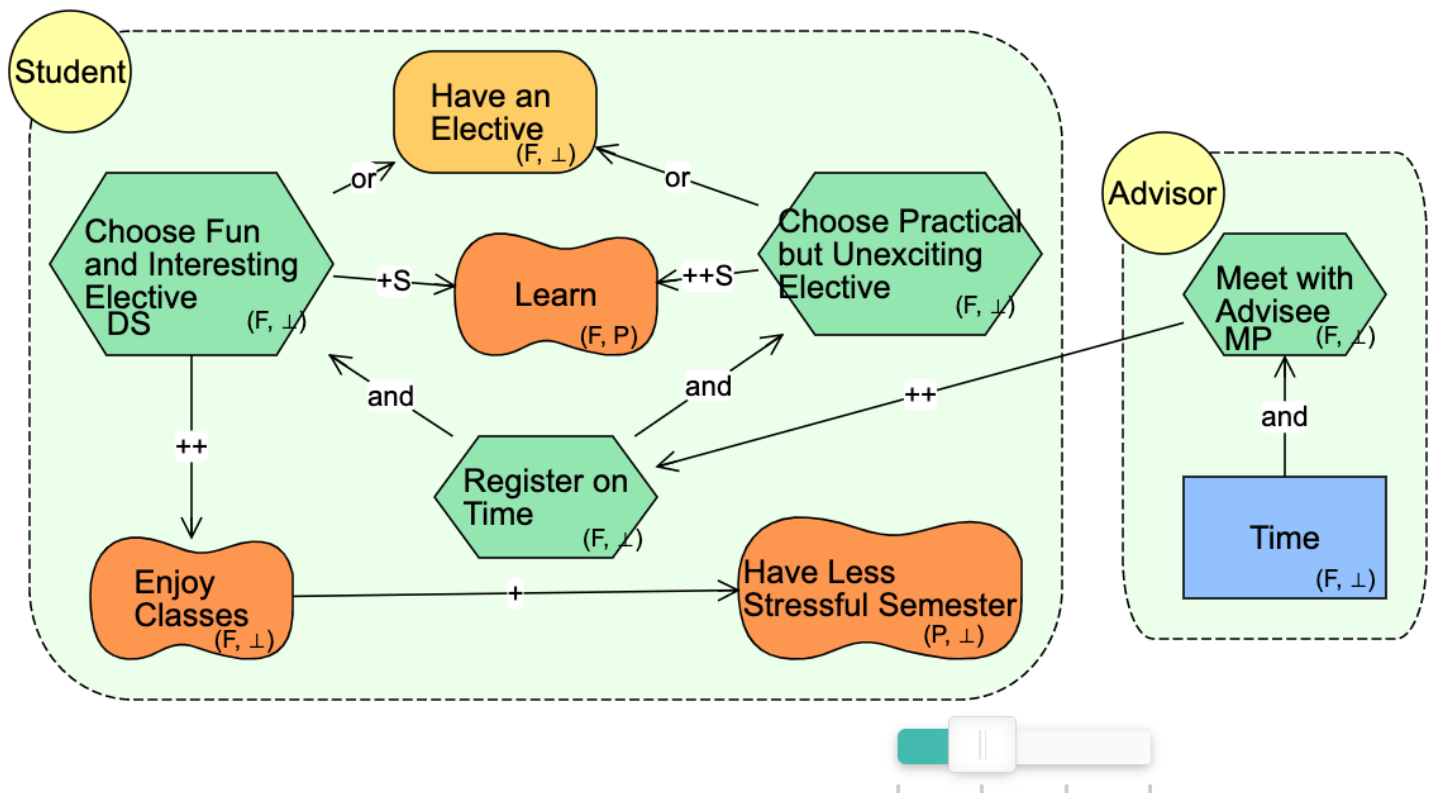
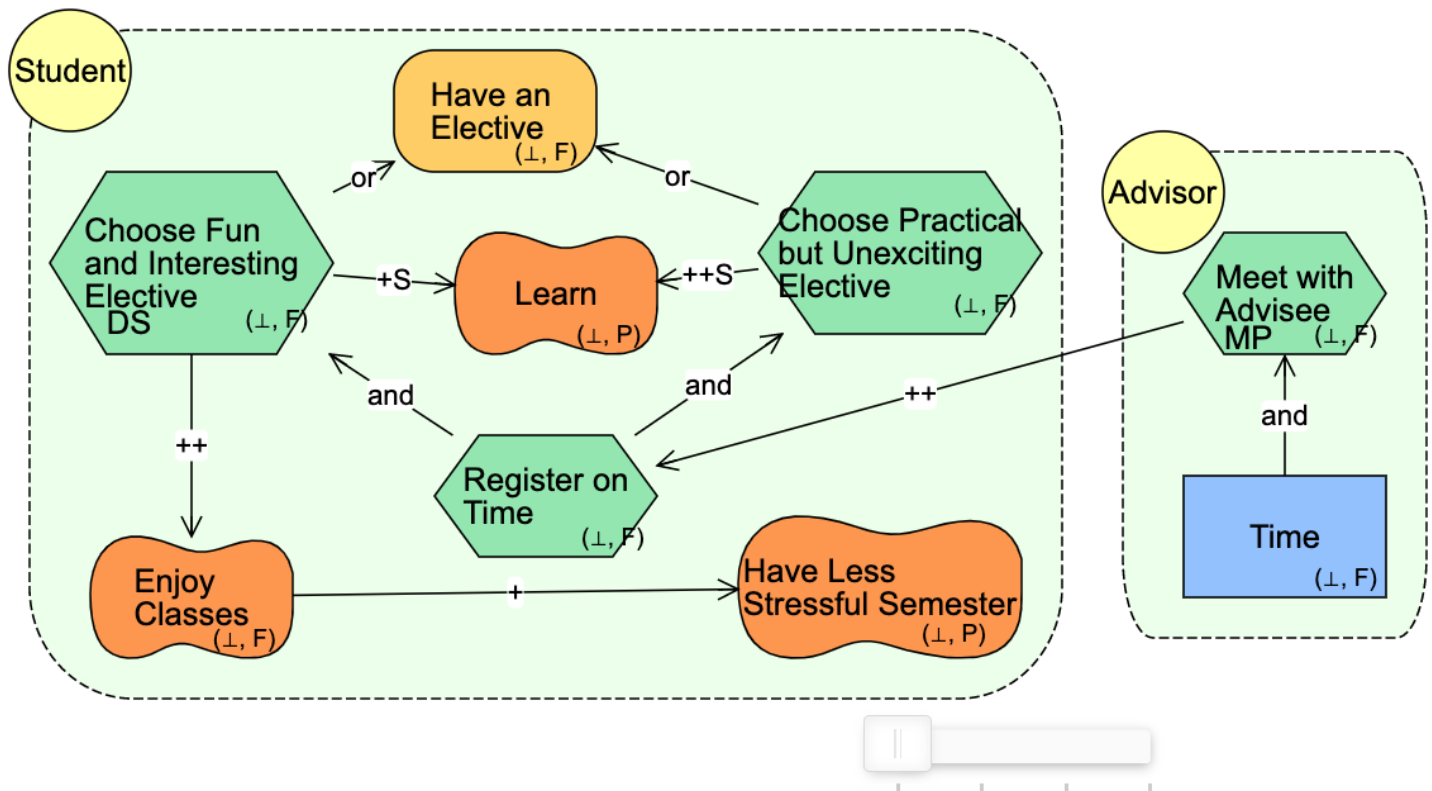
Course Model Simulation

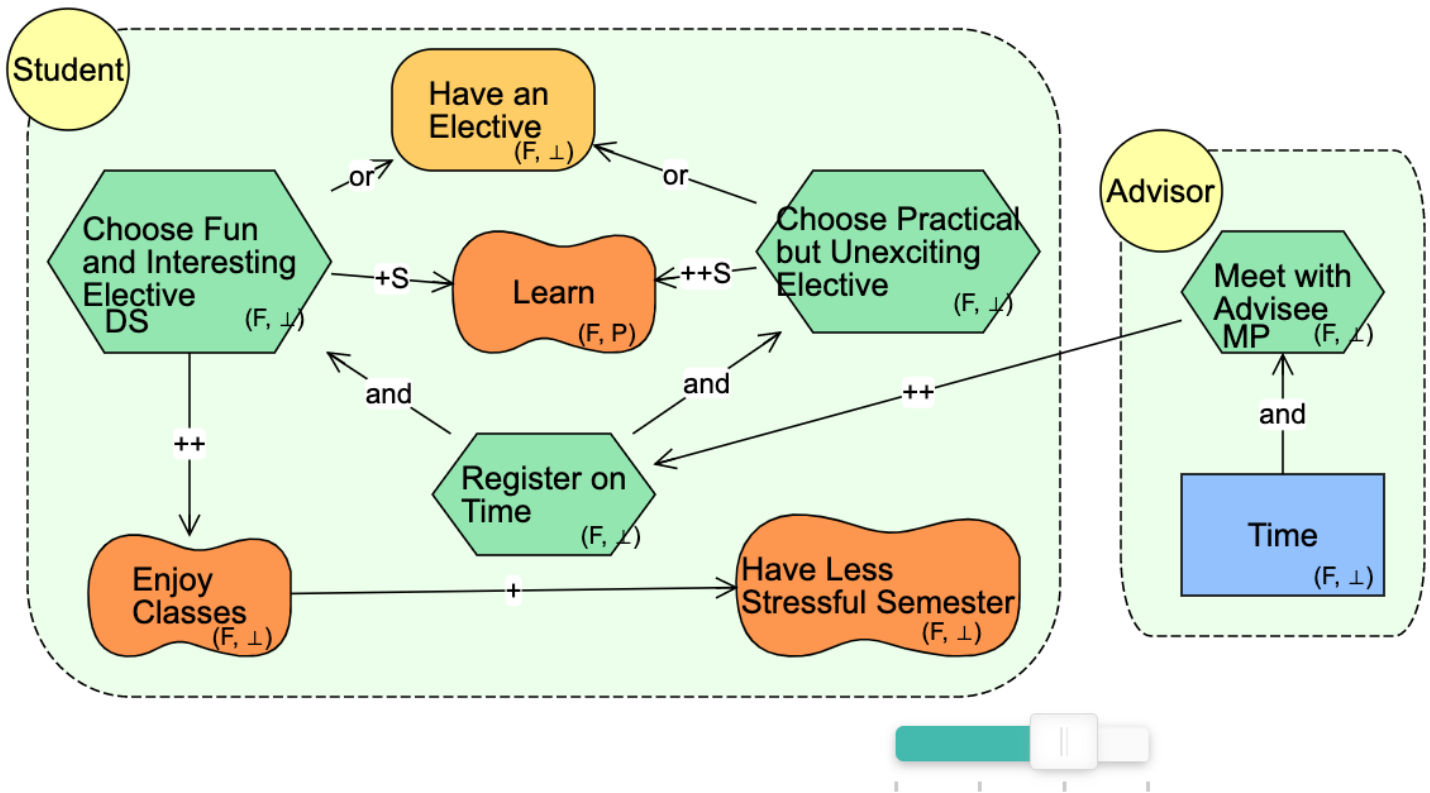
The following model was created to describe the process of a student trying to decide which elective course they should take next semester. The actors Student and Advisor interact with one another to register for classes. This student is trying to decide whether to take a fun and interesting elective or a practical and unexciting elective.

This is the initial state of the *Course* model

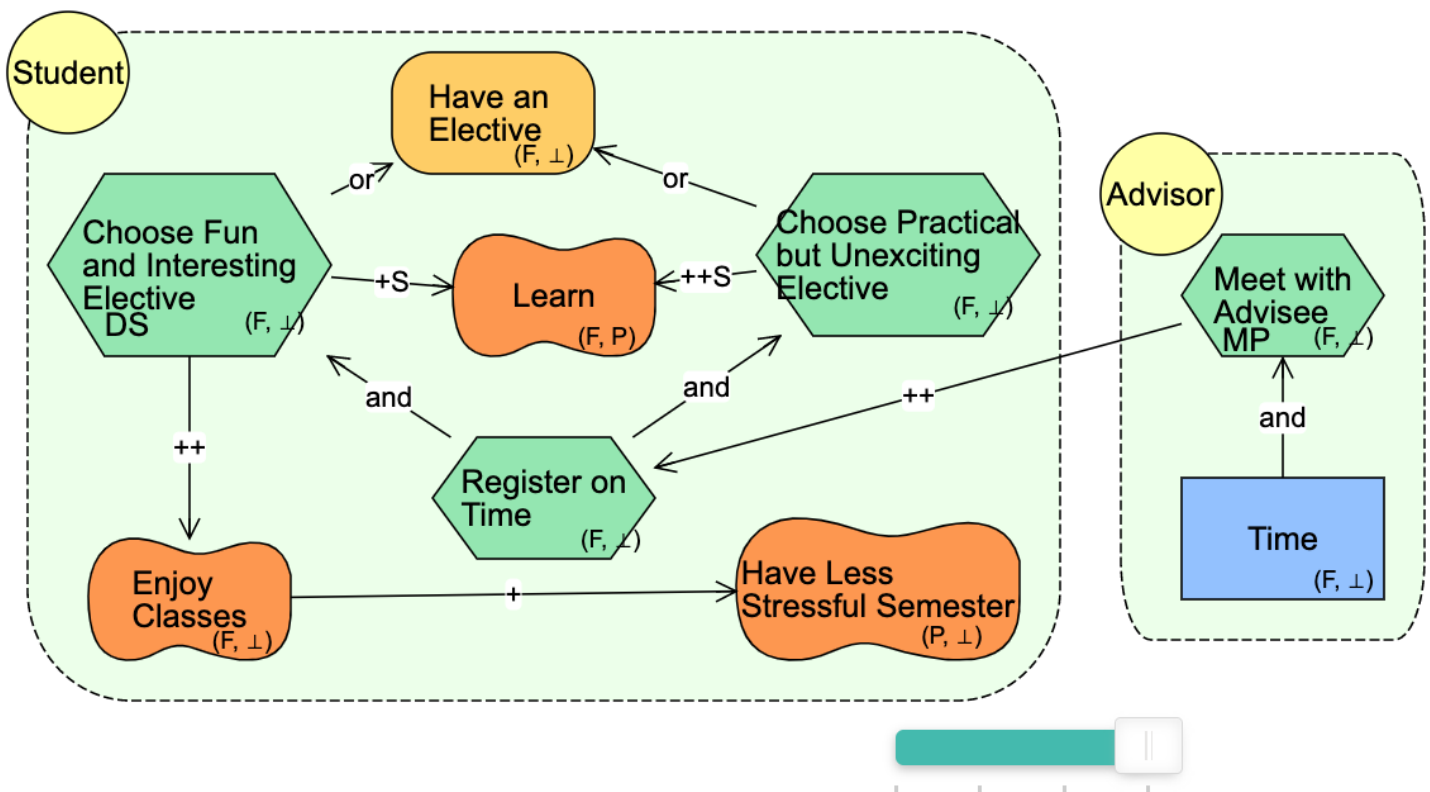


The following are time points of *Course* simulated over time





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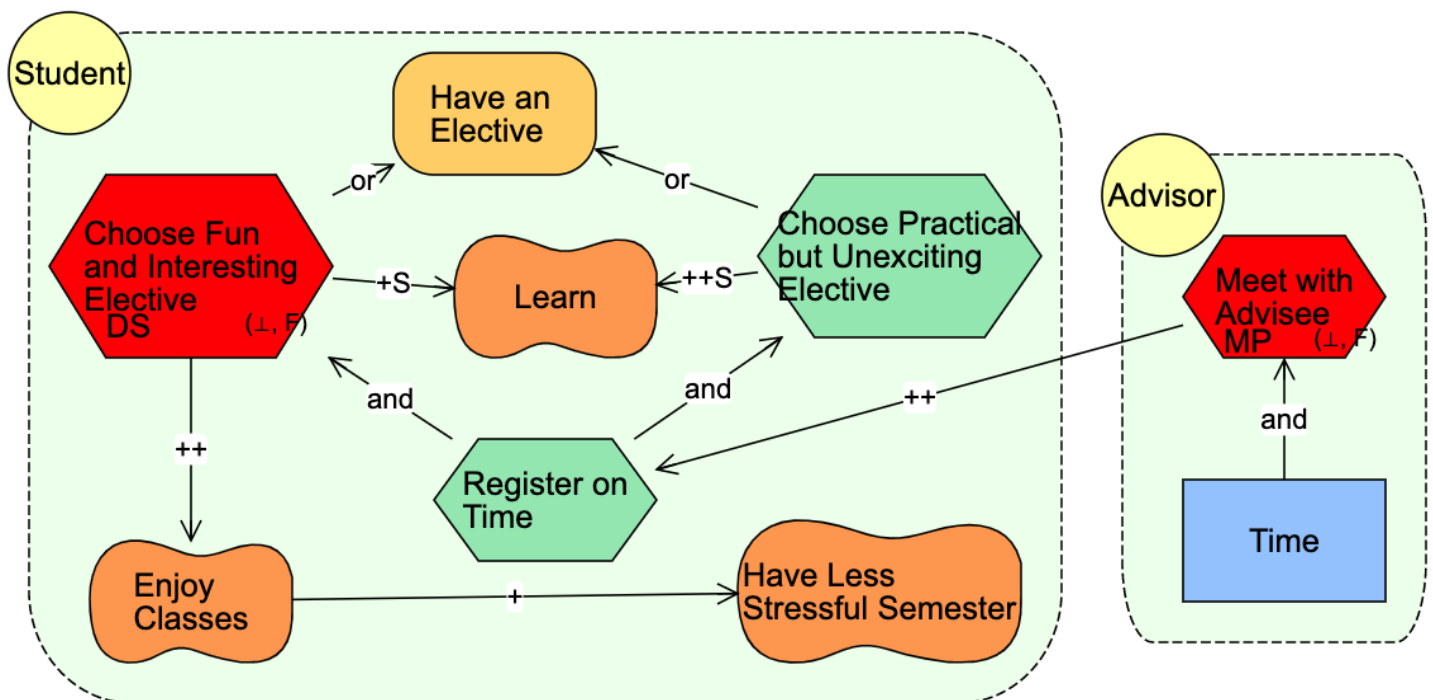
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Evaluation Visualization Overlay (EVO) Training

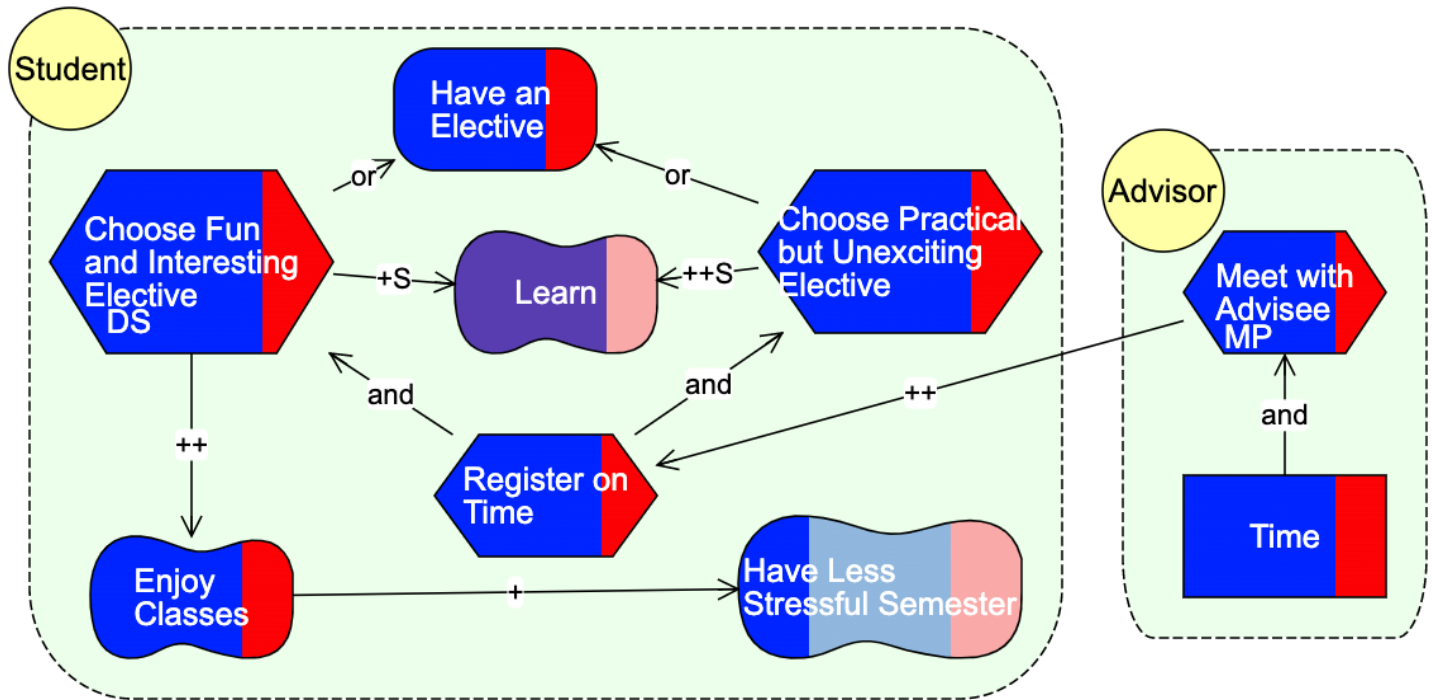
EVO Color Key Tropos Evidence Pairs:

Fully Satisfied	Partially Satisfied	None	Partially Denied	Fully Denied	Conflicting Evidence Pairs			
(F,⊥)	(P,⊥)	(⊥,⊥)	(⊥,P)	(⊥,F)	(F,F)	(P,P)	(F,P)	(P,F)

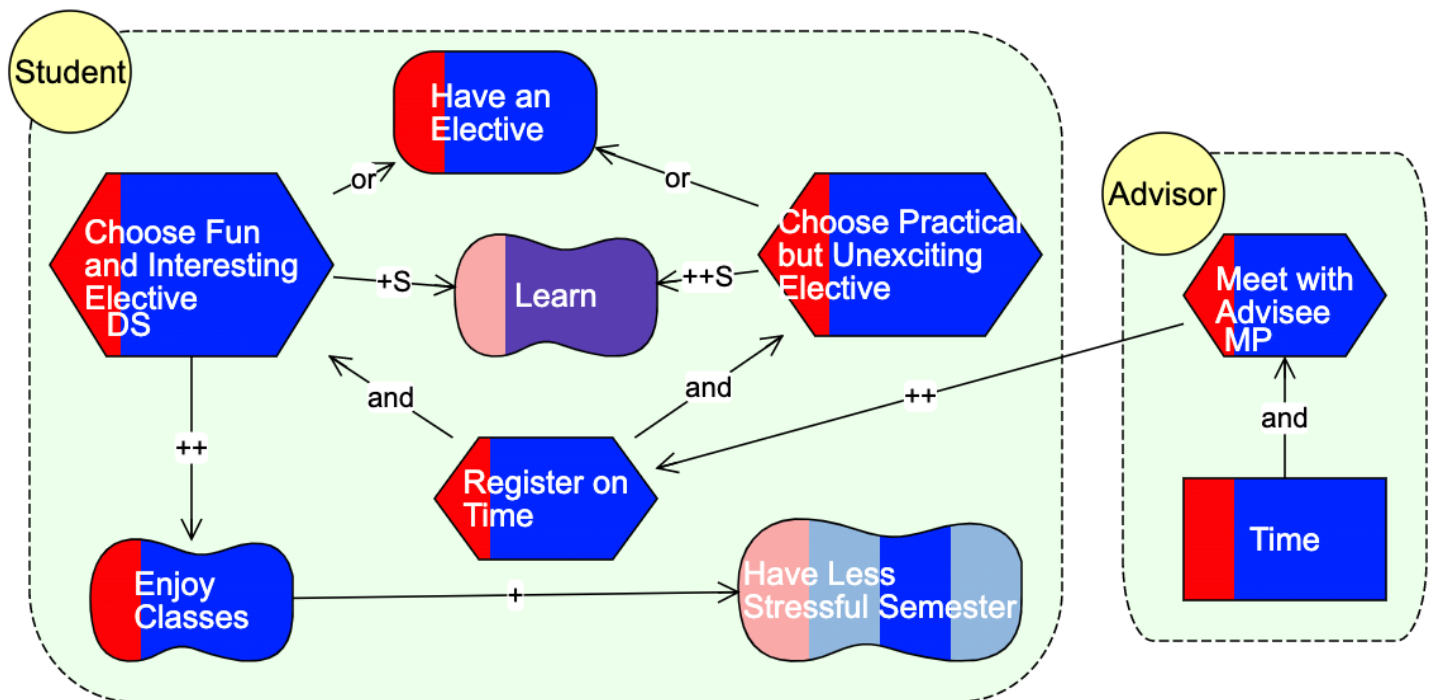
Course Model with EVO



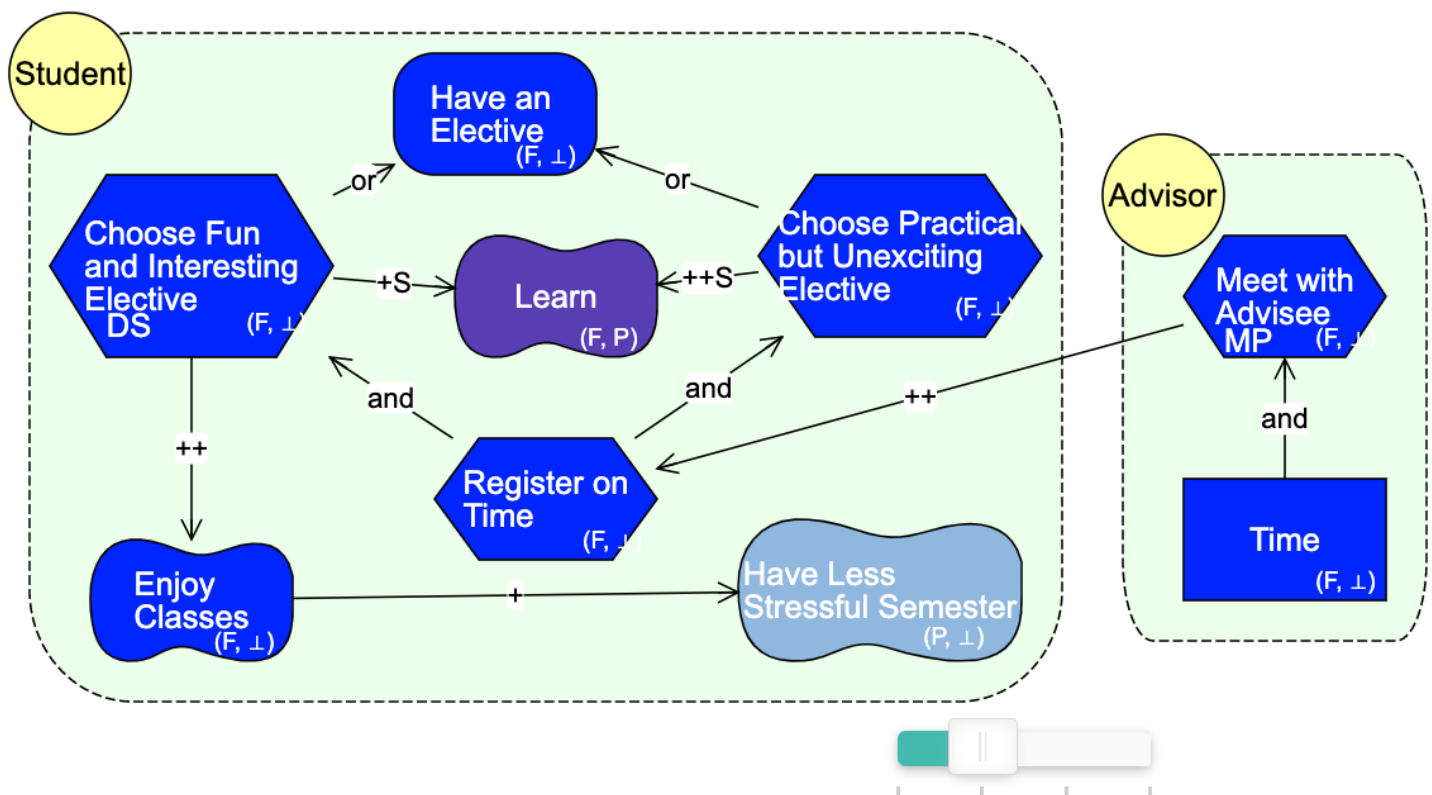
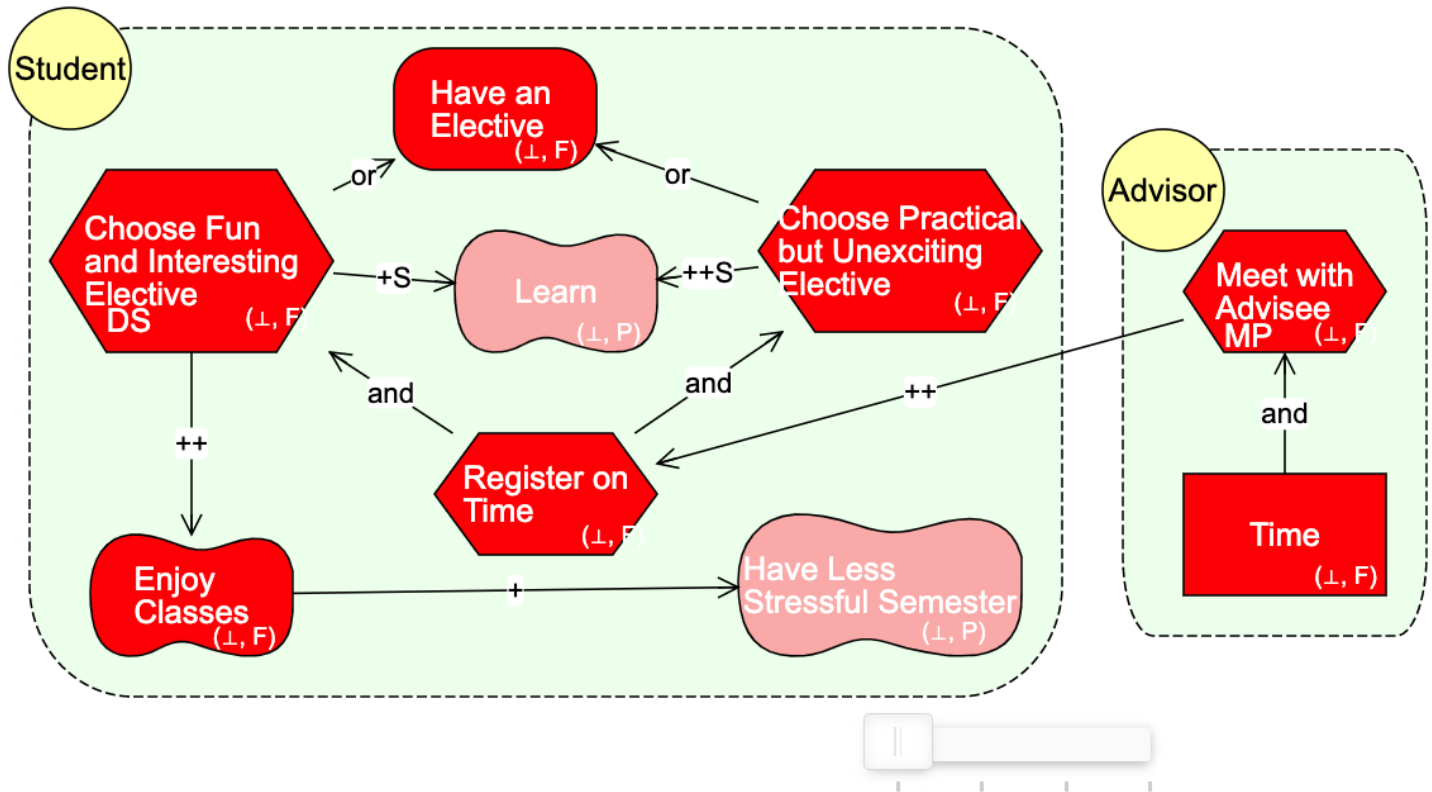
% Mode

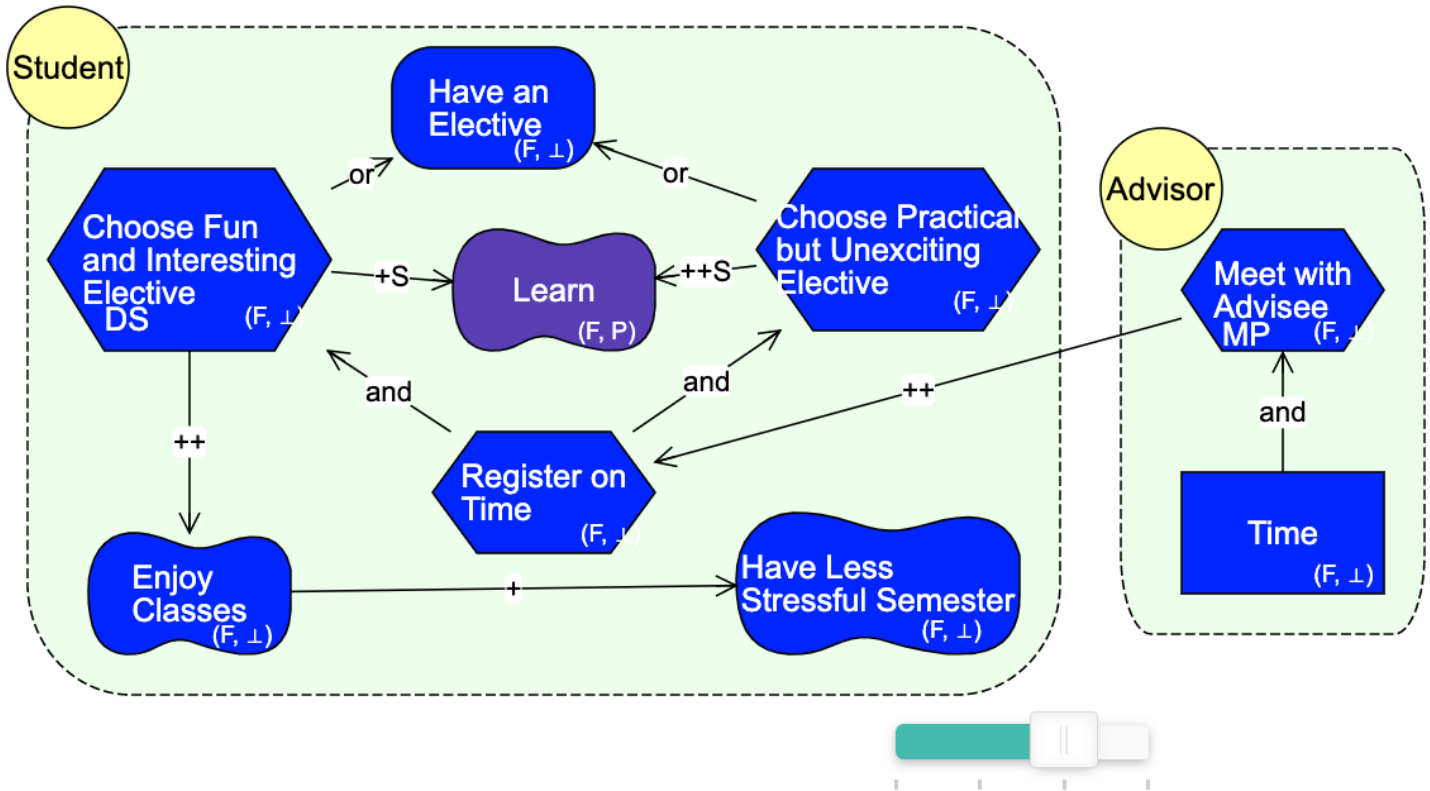


Time Mode

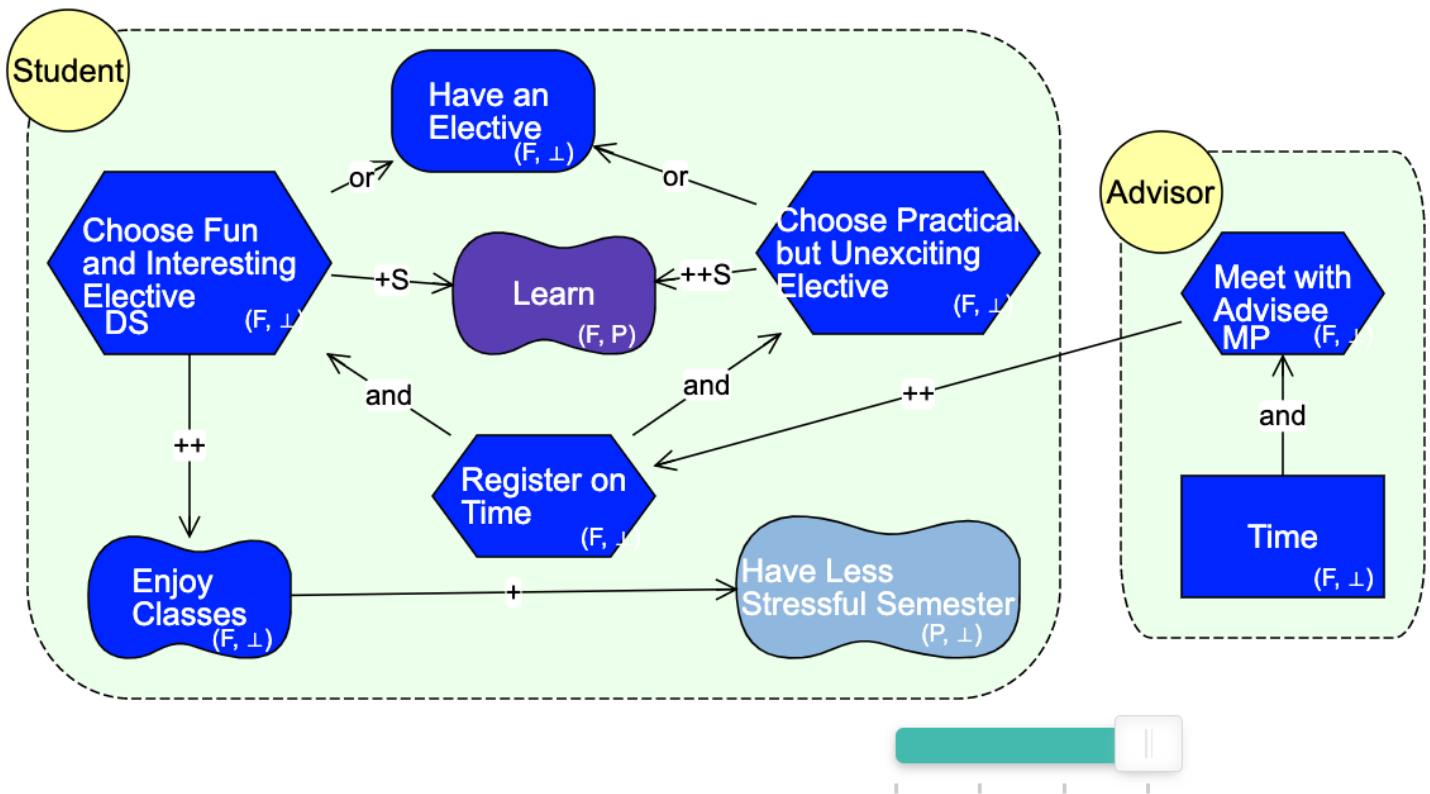


State Mode





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