Formatted Representation of Economic Models

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Background

Computational economic models are often hard-coded.
Today, computing methods advance faster than economics research.
There is a need to represent models separate from solution techniques.
We do that, inspired by Dolang and DYNARE,
Our current focus is on heterogenous agent macroeconomics and macrofinance models.

Features

- Modular, 'block'-based composition of problems from smaller elements.
- Separation of dynamics, reward, and value functions of the agents
- Role-based organization of agents in a model.
- Express "true" continuous distribution and state spaces, while handling discrete approximations.
- A flavor of YAML
- Compatible with SymPy

A **portable**, **modular**, **solver-agnostic** configuration format for **economic models**.

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Example

```
blocks:
- &cons
shocks:
theta: !MeanOneLogNormal
sigma: TranShkStd
dynamics:
b: k  R / PermGroFac
m: b + theta
c: !Control
inset: m
constraints:
- c < m
a: m - c
reward:
u: c  (1 - CRRA)  (1 - CRRA)

- &port
shocks:
risky_return: !Lognormal
mean: Rfree + EqP
std: 0.1
dynamics:
stigma: !Control
inset: a
constraints:
- stigma >= 0
- stigma < 1
R: Rfree + (risky_return -
Rfree)  stigma

structure: # the sequence of
blocks
- cons
- port
- twist: # shorthand fo renaming
a variable
m: k
- tick # pass discrete time step
```