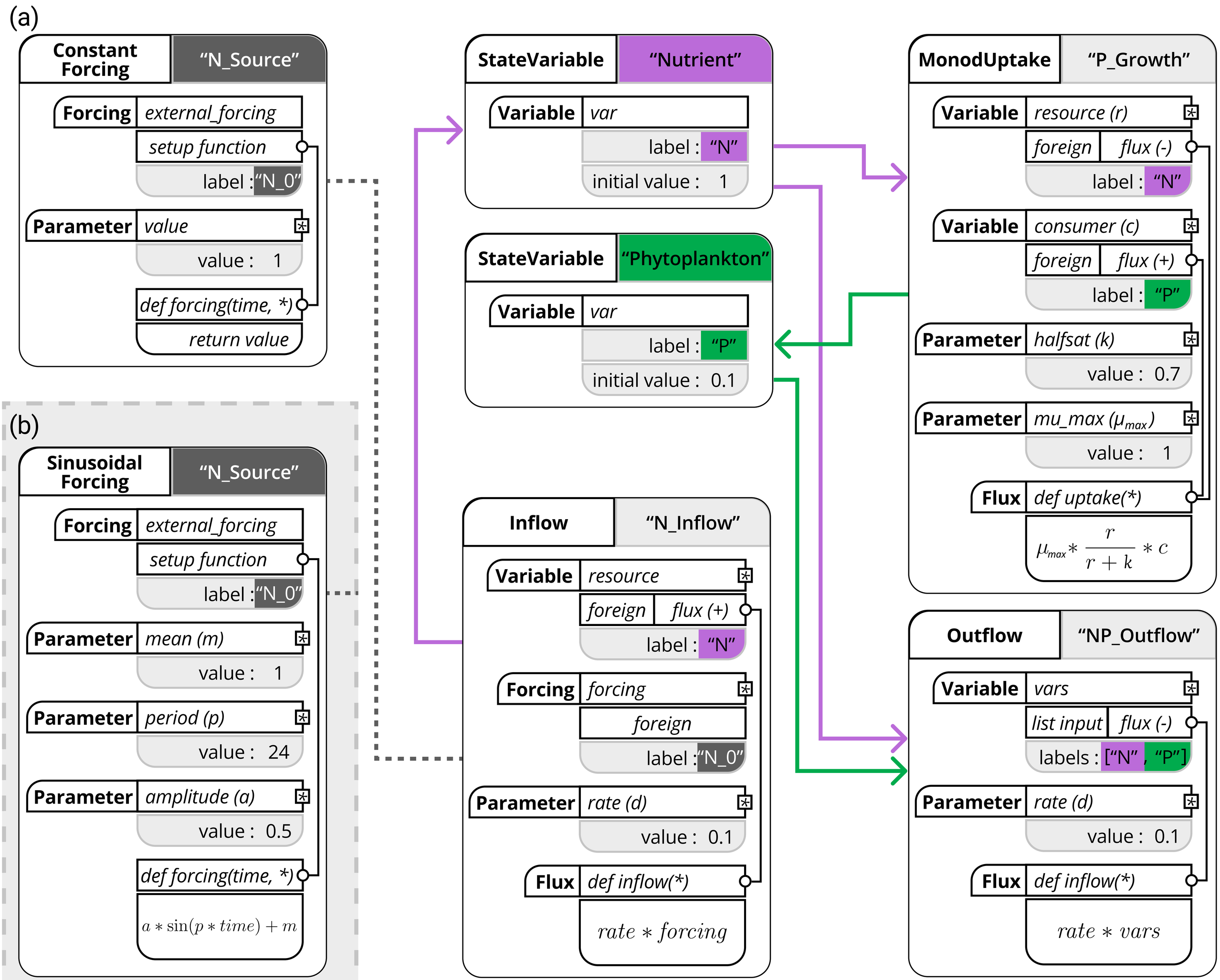
(a)
Constant Forcing
"N_Source"
Forcing
external_forcing
setup function
label : "N_0"
Parameter
value
value : 1
def forcing(time, *)
return value
(b)
Sinusoidal Forcing
"N_Source"
Forcing
external_forcing
setup function
label : "N_0"
Parameter
mean (m)
value : 1
Parameter
period (p)
value : 24
Parameter
amplitude (a)
value : 0.5
def forcing(time, *)
$a * \sin(p * time) + m$
StateVariable
"Nutrient"
Variable
var
label : "N"
initial value : 1
StateVariable
"Phytoplankton"
Variable
var
label : "P"
initial value : 0.1
Inflow
"N_Inflow"
Variable
resource
foreign
flux (+)
label : "N"
Forcing
forcing
foreign
label : "N_0"
Parameter
rate (d)
value : 0.1
Flux
def inflow(*)
$rate * forcing$
MonodUptake
"P_Growth"
Variable
resource (r)
foreign
flux (-)
label : "N"
Variable
consumer (c)
foreign
flux (+)
label : "P"
Parameter
halfsat (k)
value : 0.7
Parameter
mu_max (μ_{max})
value : 1
Flux
def uptake(*)
$\mu_{max} * \frac{r}{r+k} * c$
Outflow
"NP_Outflow"
Variable
vars
list input
flux (-)
labels : ["N", "P"]
Parameter
rate (d)
value : 0.1
Flux
def inflow(*)
$rate * vars$