DEFINITIONS
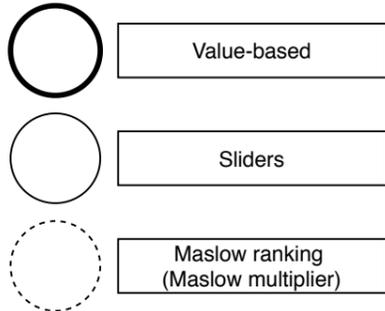
$Need_W$ = value-based or human-nature-based importance weight that is ascribed to each individual need.

$NeedCategory_W$ = importance weight that is ascribed to each Maslow category (based on HON).

- Value-based
- Sliders
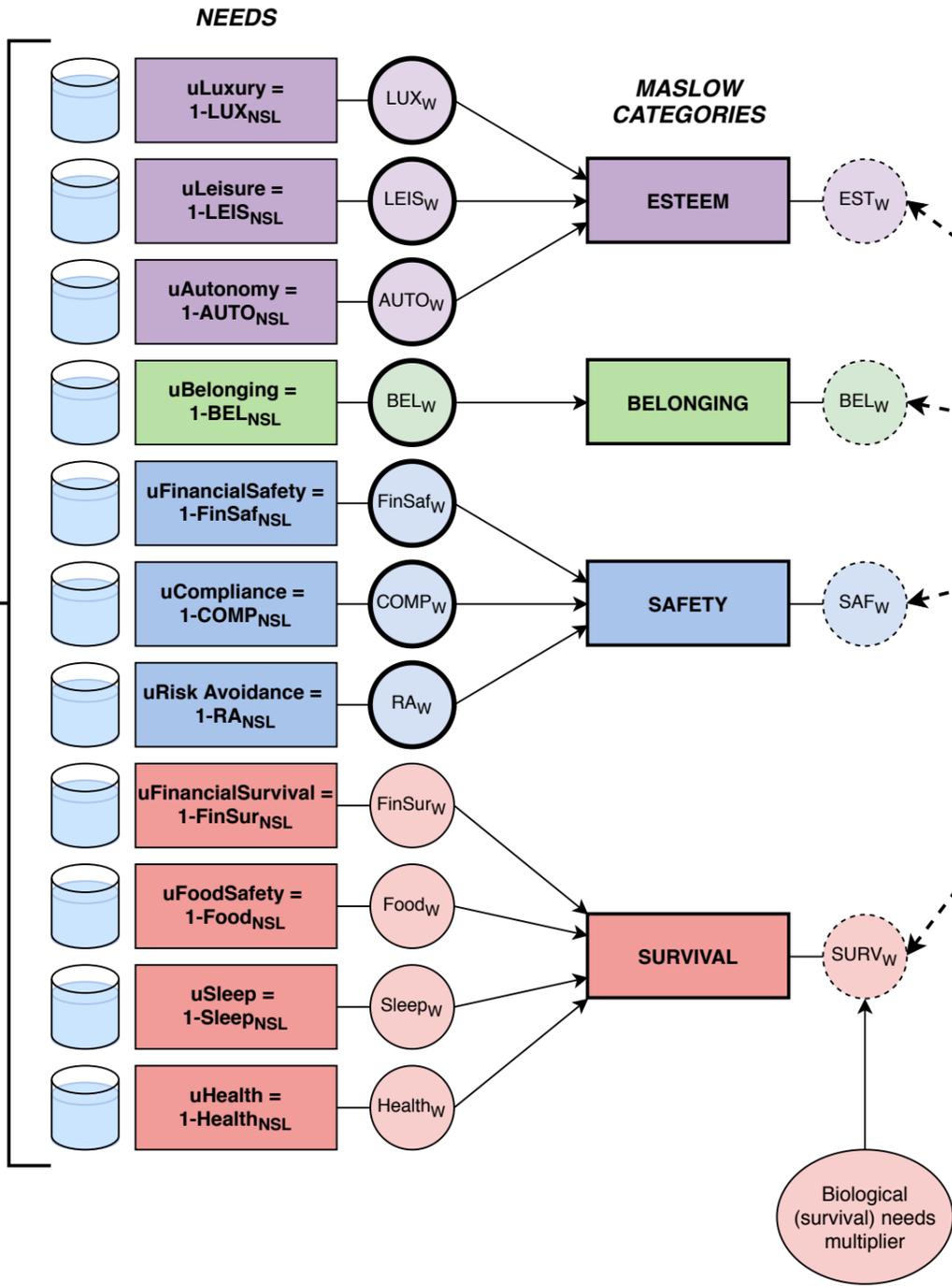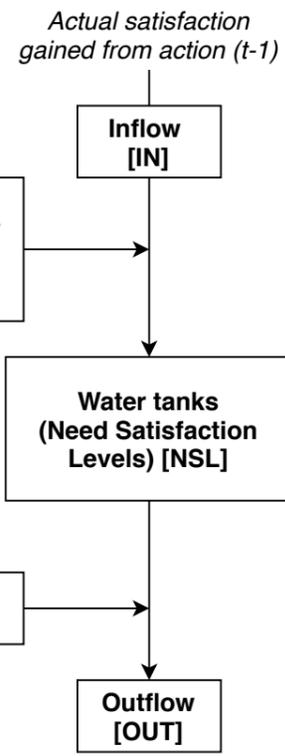- Maslow ranking (Maslow multiplier)

PROCESS

- Each action [A] presents an expected satisfaction $[S_{ue}(A)]$ for each individual need.

- This $S_{ue}(A)$ is then multiplied by the urgency of a need (uNeed = 1 - $Need_{NSL}$), the importance of the need (wNeed) and ultimately scaled by the "Maslow multiplier" (whose magnitude depends on the Maslow category to which a particular need is allocated).

- This means that needs with a high urgency, high importance and a strong Maslow multiplier will have a relatively large influence on the action that is selected by an agent during a given tick.

Make slider for R? Different R for different needs?

Actual satisfaction gained from action (t-1)

Inflow [IN]

Diminishing returns function $y = x^{(1-R)}$

Make D dependent on personality or values?

Water tanks (Need Satisfaction Levels) [NSL]

Decay Rate [D] $y = D^t$

Outflow [OUT]

NEEDS

MASLOW CATEGORIES

- uLuxury = $1-LUX_{NSL}$ — LUX_W
- uLeisure = $1-LEIS_{NSL}$ — $LEIS_W$
- uAutonomy = $1-AUTO_{NSL}$ — $AUTO_W$ → **ESTEEM** → EST_W
- uBelonging = $1-BEL_{NSL}$ — BEL_W → **BELONGING** → BEL_W
- uFinancialSafety = $1-FinSaf_{NSL}$ — $FinSaf_W$
- uCompliance = $1-COMP_{NSL}$ — $COMP_W$ → **SAFETY** → SAF_W
- uRisk Avoidance = $1-RA_{NSL}$ — RA_W
- uFinancialSurvival = $1-FinSur_{NSL}$ — $FinSur_W$
- uFoodSafety = $1-Food_{NSL}$ — $Food_W$
- uSleep = $1-Sleep_{NSL}$ — $Sleep_W$ → **SURVIVAL** → $SURV_W$
- uHealth = $1-Health_{NSL}$ — $Health_W$

Biological (survival) needs multiplier

biological needs multiplier = increase the relative importance of survival needs, may become activated during crisis times.

ACTIONS
The action with the highest global prevalence is selected

$Need_{Sde} = \sum(Need_{Sue(A)} \cdot uNeed)$

$Scaled\_Need_{Sde} = Need_{Sde} \cdot Need_W \cdot NeedCategory_W$

Global Prevalence (i.e. total satisfaction of action) = $\sum(Scaled\_Need_{Sde})$