thinking about behavior

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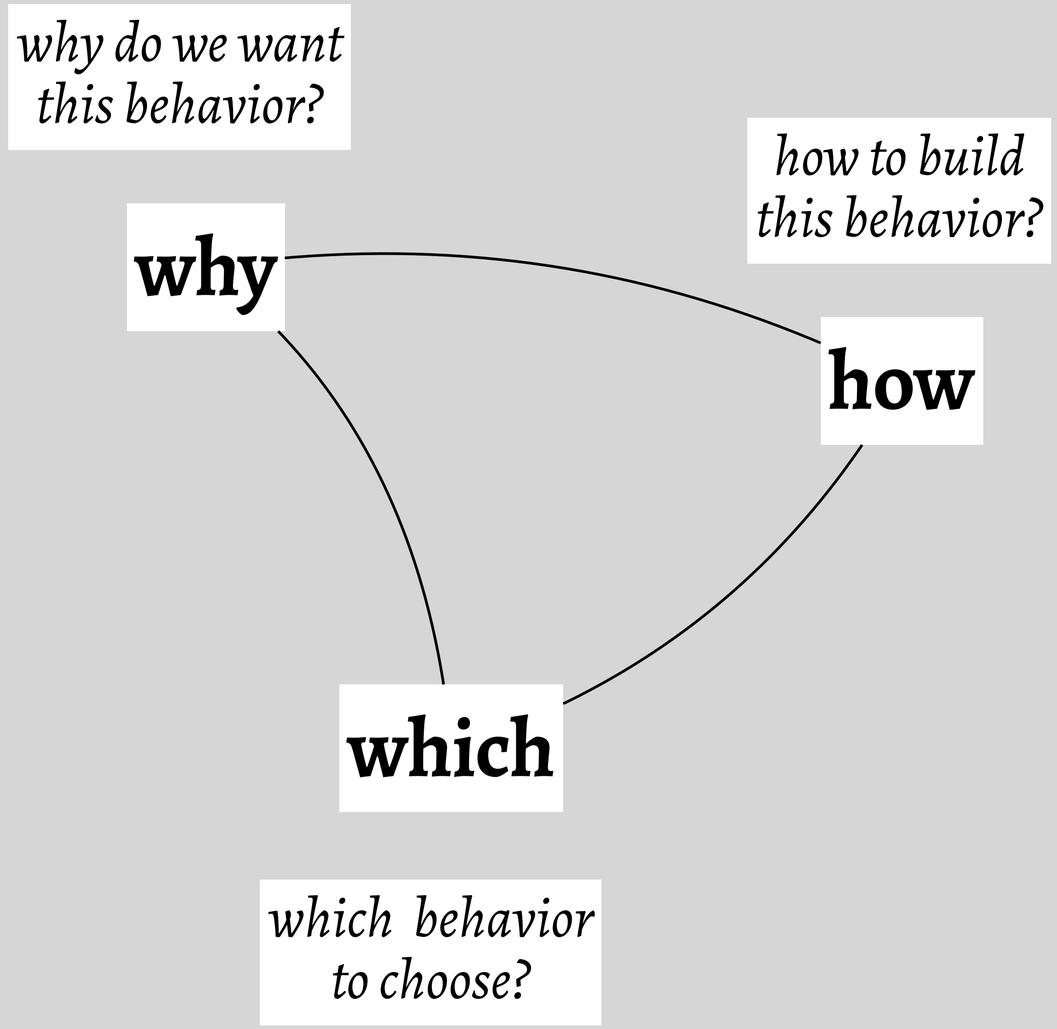
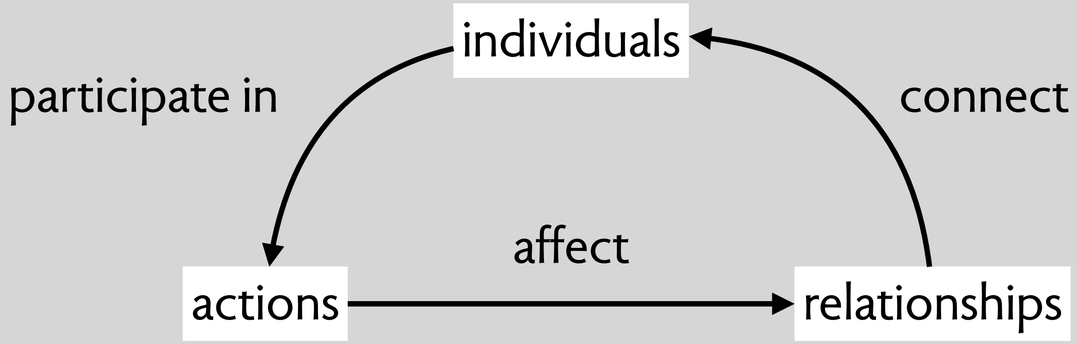

why do we want this behavior?
how to build this behavior?
why
how
which
which behavior to choose?

3 kinds of phenomena

individuals
have persistent identity
and limited lifetimes

relationships
between individuals
and also to values

actions
atomic occurrences
involve individuals



example: restaurant reservation phenomena

individuals

users Alice Bob

restaurants Maido Rosetta

slots Slot_1 Slot_2

reservations Res_1 Res_2

relationships

for (Res_1, Slot_2)

by (Res_1, Alice)

at (Slot_2, Maido)

time (Slot_2, 7:30pm)

date (Slot_2, Jan-20-26)

also values

actions

reserve (Slot_2, Alice): Res_1

cancel (Res_1)

create (Maido, 7:30pm, Jan-20-26): Slot_2

a scenario

create (Maido, 6:00pm, Jan-20-26): Slot_1

create (Maido, 7:30pm, Jan-20-26): Slot_2

reserve (Slot_1, Alice): Res_1

cancel (Res_1)

reserve (Slot_2, Alice): Res_2

redeem (Res_2)

not a scenario

create (Maido, 6:00pm, Jan-20-26): Slot_1

create (Maido, 7:30pm, Jan-20-26): Slot_2

reserve (Slot_1, Alice): Res_1

reserve (Slot_1, Bob): Res_2

not a scenario (another)

create (Maido, 6:00pm, Jan-20-26): Slot_1

create (Maido, 7:30pm, Jan-20-26): Slot_2

reserve (Slot_1, Alice): Res_1

reserve (Slot_2, Alice): Res_1

not a scenario (yet another)

create (Maido, 6:00pm, Jan-20-26): Slot_1

create (Maido, 7:30pm, Jan-20-26): Slot_2

cancel (Res_1)

reserve (Slot_1, Alice): Res_1

how do actions affect relationships?

a scenario

create (Maido, 6:00pm, Jan-20-26): Slot_1

create (Maido, 7:30pm, Jan-20-26): Slot_2

reserve (Slot_1, Alice): Res_1

cancel (Res_1)

reserve (Slot_2, Alice): Res_2

redeem (Res_2)

relationships true at each point

at (Slot_2, Maido)

time (Slot_2, 7:30pm)

date (Slot_2, Jan-20-26)

for (Res_2, Slot_2)

by (Res_2, Alice)

a surprise

how many scenarios?

assume 3 actions, each involving 2 individuals

assume 3 individuals of each type

then $3 \times 3 \times 3 = 27$ ways an action happens

number of 5 step scenarios is $27^5 > 14\text{m}!$