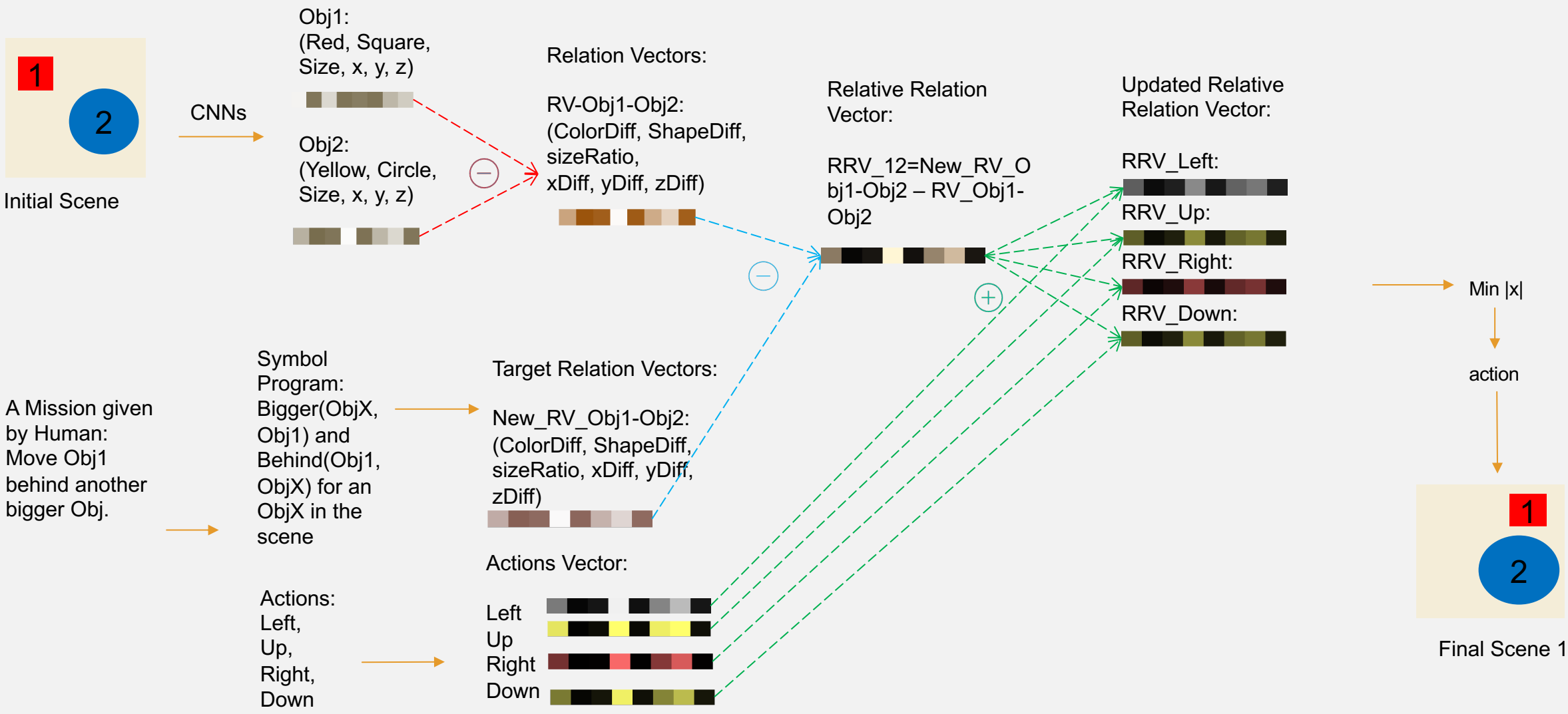
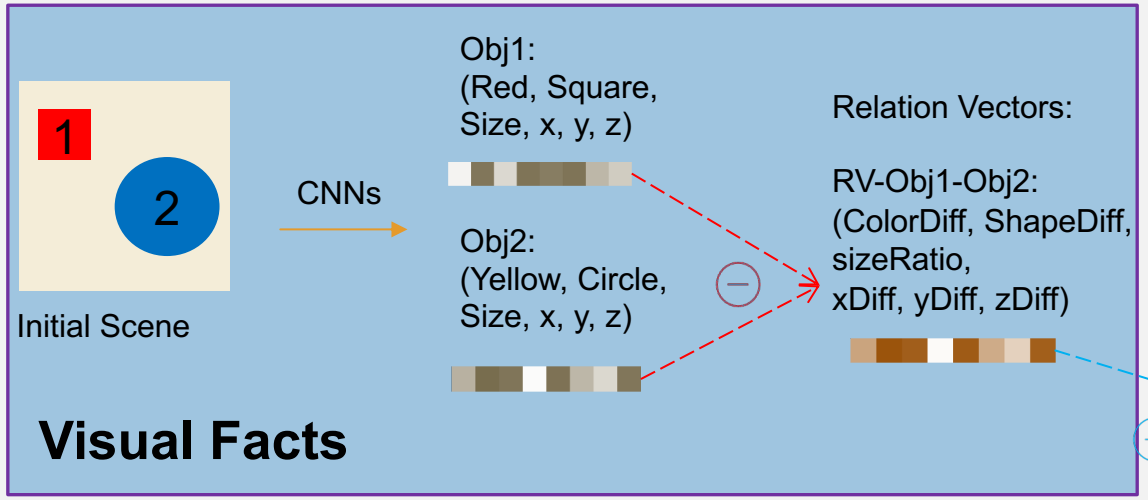
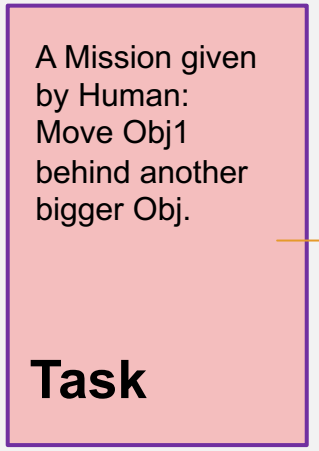
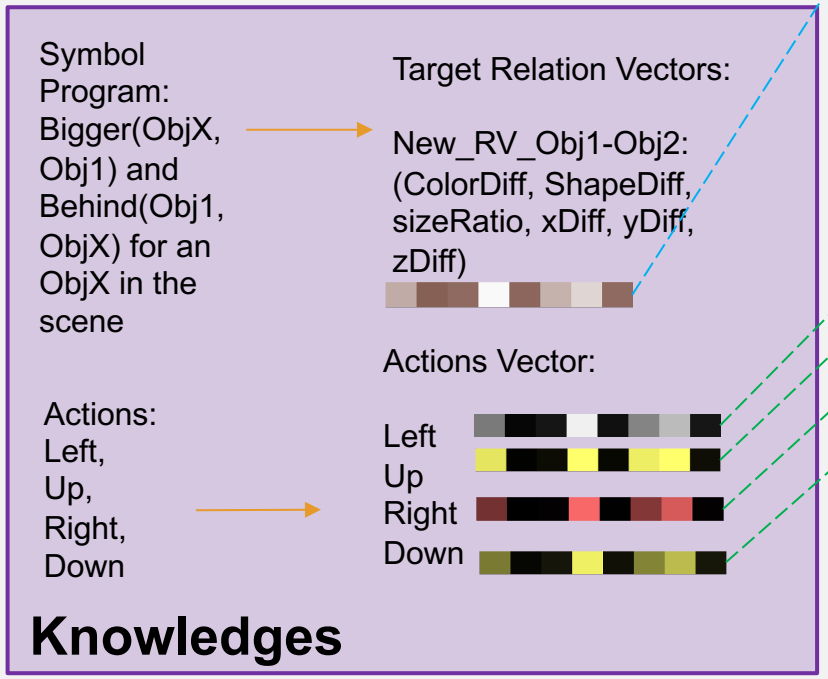
Visual Facts & Knowledge -> Reasoning & Make Decision

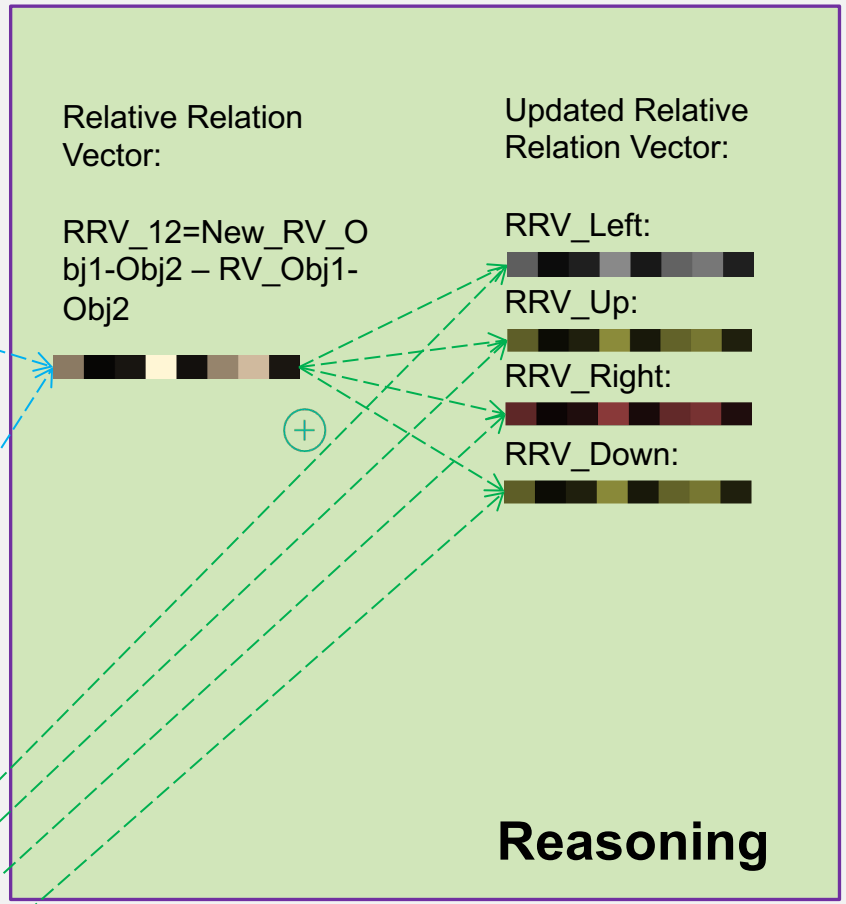


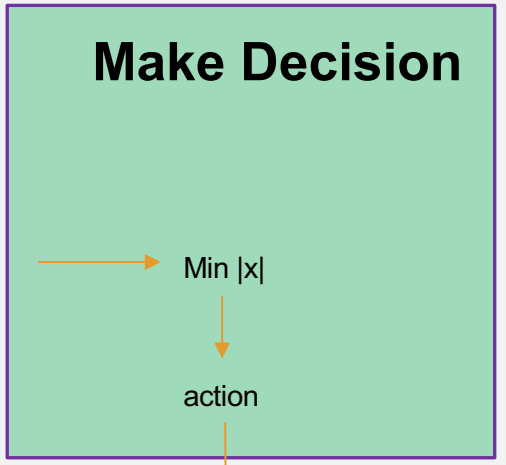
Visual Facts & Knowledge -> Reasoning & Make Decision

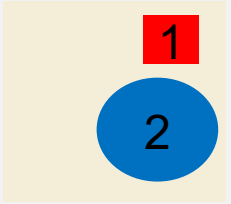






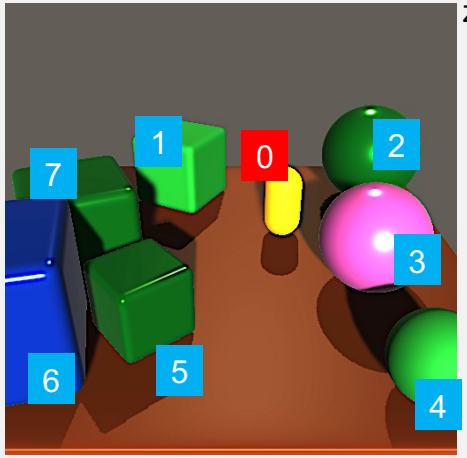






Final Scene 1

Example



Object Vector: (x, y, z, R, G, B, Size, Cube, Sphere, Capsule)

O_0 = (3,3,3, 255,255,0, 0.1, 0, 0, 1)
O_1 = (2,3,2, 0, 255,0, 0.2, 1, 0, 0)
…
O_7 = (1,3,4, 0,255, 128, 0.5, 1, 0, 0)

Subtraction: O_0 – O_x

Relation Vector: (xDiff, yDiff, zDiff, rDiff, gDiff, bDiff, SizeDiff, CubeDiff, SphereDiff, CapsuleDiff)
R_01 = (-1,0,-1, -255, 0, 0, 0.1, 1, 0, -1)
…
R_07 = (-2, 0, 1, -255,0, -128, 0.4, -1, 0, -1)

Task: Hide object 0

Final Relation Vector: (xDiff, yDiff, zDiff, rDiff, gDiff, bDiff, SizeDiff, CubeDiff, SphereDiff, CapsuleDiff)
FR_01 = (0, 0, 1, X,X,X, 0.2, X, X, -1)

Subtraction

Relative Relation Vector (RRV):
RR_01 = (1, 0, 2, X,X,X, 0.1, X, X, 0)
…
RR_07 = (2, 0, 0, X, X, X, -0.2, X, X, 0)

Filter(SizeDiff<0)

Relative Relation Vector (RRV):
~~RR_01 = (1, 0, 2, X,X,X, 0.1, X, X, 0)~~
…
RR_07 = (2, 0, 0, X, X, X, -0.2, X, X, 0)

Action: (Left, Right)
Left (-1,0,0), Right (1,0,0)
Forward (0,0,1), Backward (0,0,-1)

sum

Left
~~Left_01: (0, 0, 2, X,X,X,0.1,X, X, 0)~~
…
Left_07: (1, 0, 0, X, X, X, -0.2, X, X, 0)

Right
~~Right_01: (2, 0, 2, X,X,X,0.1,X, X, 0)~~
…
Right_07: (3, 0, 0, X, X, X, -0.2, X, X, 0)

Forward
~~Forward_01: (1, 0, 3, X,X,X,0.1,X, X, 0)~~
…
Forward_07: (2, 0, 1, X, X, X, -0.2, X, X, 0)

Backward
~~Right_01: (1, 0, 1, X,X,X,0.1,X, X, 0)~~
…
Right_07: (2, 0, -1, X, X, X, -0.2, X, X, 0)

min |x|

Left_07(1, 0, 0, X, X, X, -0.2, X, X, 0)

Right_07: (3, 0, 0, X, X, X, -0.2, X, X, 0)

Forward_07: (2, 0, 1, X, X, X, -0.2, X, X, 0)

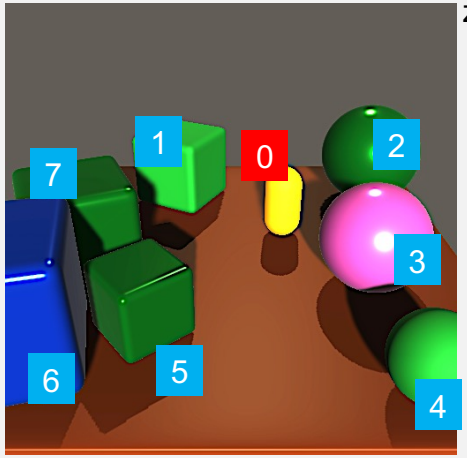
Backward_07: (2, 0, -1, X, X, X, -0.2, X, X, 0)

min |x|

Left_07: (1, 0, 0, X, X, X, 0.2, X, X, 0)

Action: Backward

Example



Object Vector: (x, y, z, R, G, B, Size, Cube, Sphere, Capsule)

O_0 = (3,3,3, 255,255,0, 0.1, 0, 0, 1)
O_1 = (2,3,2, 0, 255,0, 0.2, 1, 0, 0)
…
O_7 = (1,3,4, 0,255, 128, 0.5, 1, 0, 0)

Subtraction: O_0 – O_x

Visual Facts

Task: Hide object 0

Task

Final Relation Vector: (xDiff, yDiff, zDiff, rDiff, gDiff, bDiff, SizeDiff, CubeDiff, SphereDiff, CapsuleDiff)
FR_01 = (0, 0, 1, X,X,X, 0.2, X, X, -1)

Subtraction

Relative Relation Vector (RRV):
RR_01 = (1, 0, 2, X,X,X, 0.1, X, X, 0)
…
RR_07 = (2, 0, 0, X, X, X, -0.2, X, X, 0)

Filter(SizeDiff<0)

Knowledge

Relation Vector: (xDiff, yDiff, zDiff, rDiff, gDiff, bDiff, SizeDiff, CubeDiff, SphereDiff, CapsuleDiff)
R_01 = (-1,0,-1, -255, 0, 0, 0.1, 1, 0, -1)
…
R_07 = (-2, 0, 1, -255,0, -128, 0.4, -1, 0, -1)

Relative Relation Vector (RRV):
~~RR_01 = (1, 0, 2, X,X,X, 0.1, X, X, 0)~~
…
RR_07 = (2, 0, 0, X, X, X, -0.2, X, X, 0)

Reasoning

Action: (Left, Right)
Left (-1,0,0), Right (1,0,0)
Forward (0,0,1), Backward (0,0,-1)

Knowledge

sum

Left
Left_01: (0, 0, 2, X,X,X,0.1,X, X, 0)
…
Left_07: (1, 0, 0, X, X, X, -0.2, X, X, 0)

Right
Right_01: (2, 0, 2, X,X,X,0.1,X, X, 0)
…
Right_07: (3, 0, 0, X, X, X, -0.2, X, X, 0)

Forward
Forward_01: (1, 0, 3, X,X,X,0.1,X, X, 0)
…
Forward_07: (2, 0, 1, X, X, X, -0.2, X, X, 0)

Backward
Right_01: (1, 0, 1, X,X,X,0.1,X, X, 0)
…
Right_07: (2, 0, -1, X, X, X, -0.2, X, X, 0)

Reasoning

min |x|

Make Decision

Left_07(1, 0, 0, X, X, X, -0.2, X, X, 0)

Right_07: (3, 0, 0, X, X, X, -0.2, X, X, 0)

Forward_07: (2, 0, 1, X, X, X, -0.2, X, X, 0)

Backward_01: (1, 0, 1, X, X, X, 0.1, X, X, 0)

min |x|

Backward_01: (1, 0, 1, X, X, X, 0.1, X, X, 0)

Action: Backward