

Predicate Definitions: Geometric Conditions

SPATIAL PREDICATES

is_near

$d(i,j) < 0.2m$

0 --- 0

is_above

$dz > 0.1m$

0 (top)

is_below

$dz < -0.1m$

0 (bottom)

is_left

$dx < -0.05m$

<-- 0 0

is_right

$dx > 0.05m$

0 0-->

INTERACTION PREDICATES

holding

$\text{gripper_closed} \ \& \ d < 0.05m$

[G] -- 0

contacting

$d(i,j) < 0.05m$

0--0

approaching

$v.d < 0$ (toward)

0---0

retracting

$v.d > 0$ (away)

0<--0

Notation: d = Euclidean distance, dx/dz = coordinate difference,

v = velocity vector, O = node (joint), $[G]$ = gripper