Figure 1: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Halving* (55 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
40	32	12	3

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- adds variables and their handling from the example designator, despite being unnecessary for the use case (here: *?object-half-pose*)
- generated designator ends by mapping variables to designator "parts"

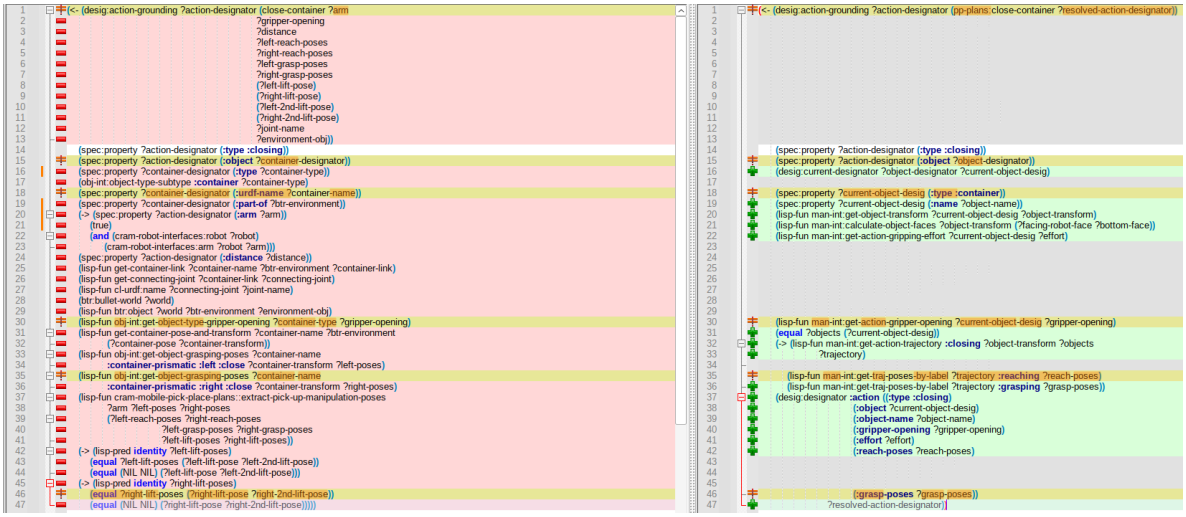

Figure 2: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Holding* (23 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
16	40	6	1

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- generated designator ends by mapping variables to designator "parts"

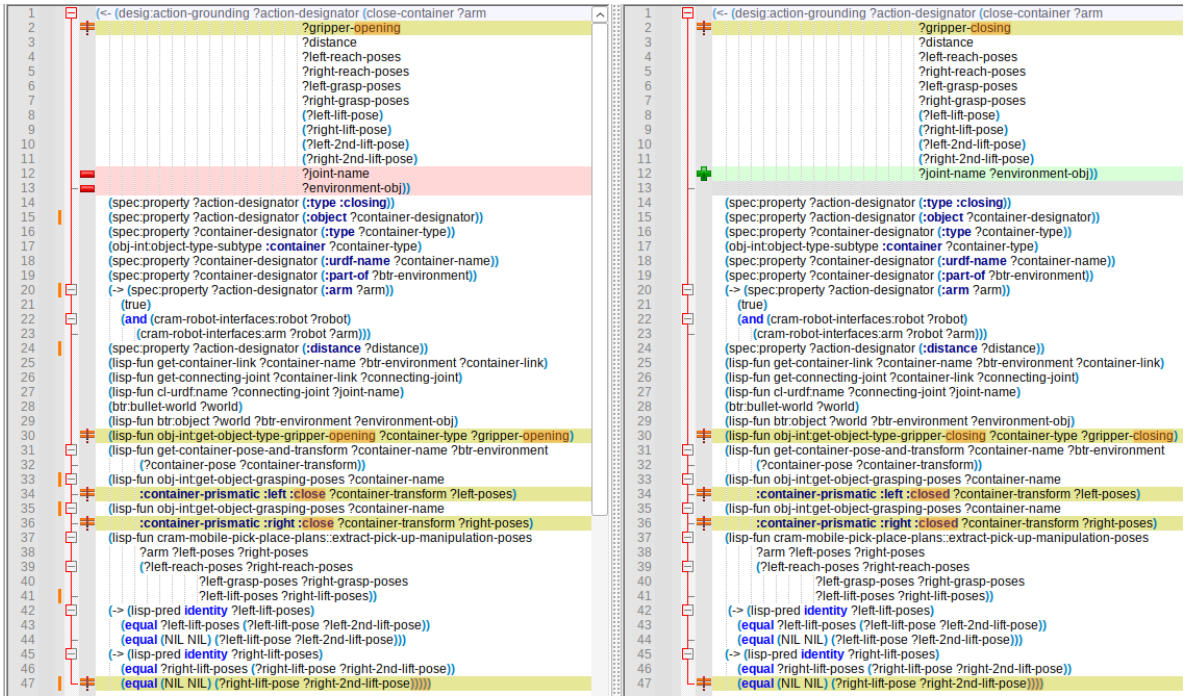

Figure 3: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Opening* (46 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
1	2	5	40

Findings:

- added / deleted lines are due to different spacing in generated designator
- 4 / 5 changes are names / descriptors (*opening* -¿ *closing*) that are changed wrong, since its about the gripper opening during the manipulation process, which is still necessary
- last change is due to one missing parentheses

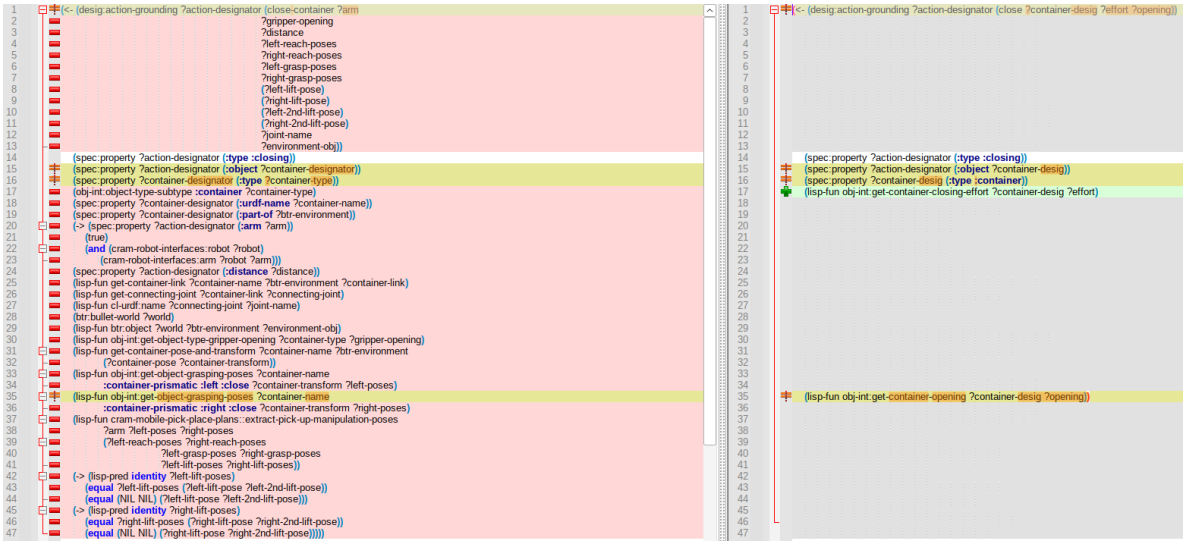

Figure 4: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Picking Up* (6 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
1	42	4	1

Findings:

- tba

Figure 5: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Placing Down* (15 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
5	37	8	2

Findings:

- designator definition contains only one variable instead of 13
- generated designator focuses on the necessary poses but nothing else
- generation adds block about `cram-robot-interfaces` (3 lines)

Figure 6: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Pouring* (45 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
35	37	8	2

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- high focus on finding the fitting (gripping) poses for two robot arms
- generated designator ends by mapping variables to designator "parts"

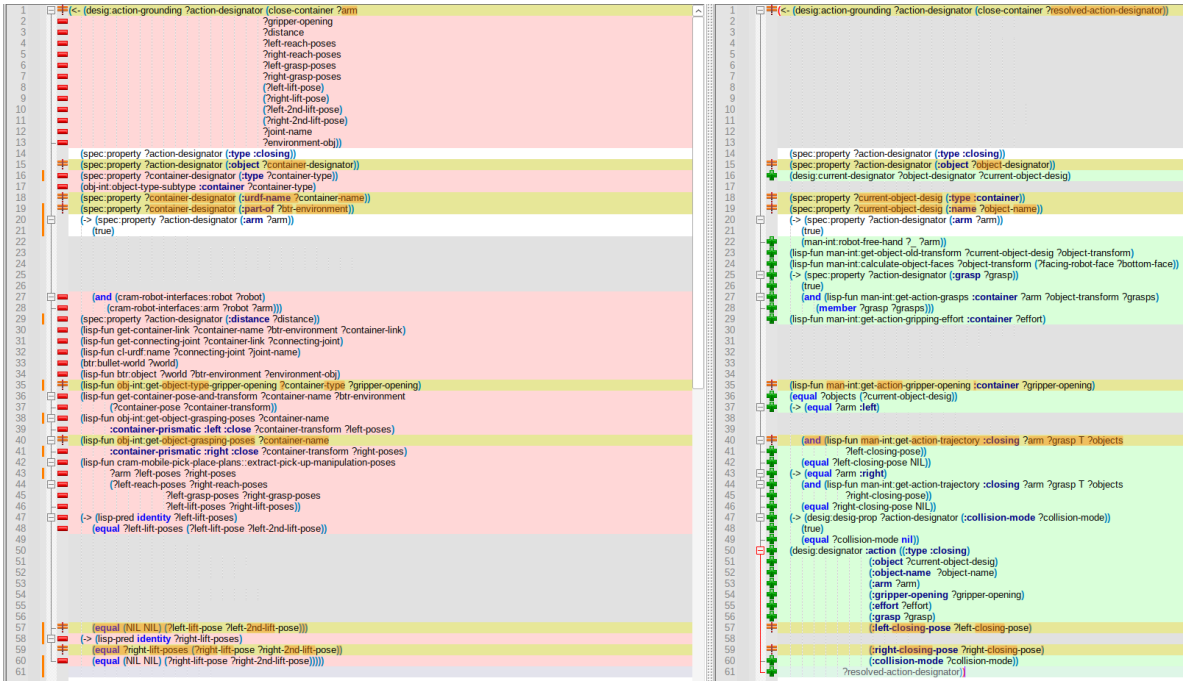

Figure 7: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Slicing* (40 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
29	36	8	3

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- high focus on finding the fitting (gripping) poses for two robot arms
- generated designator ends by mapping variables to designator "parts"

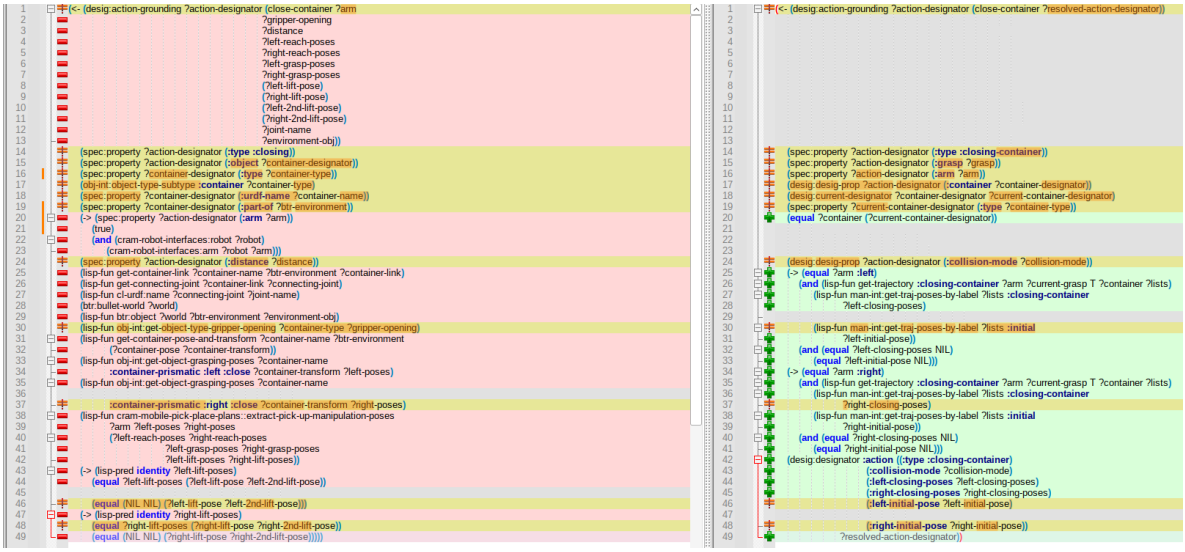

Figure 8: Left: Manual designator for the action *Closing* (47 lines). Right: Generated designator based on *Wiping* (32 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
20	35	12	0

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *designator* instead of *type*)
- generated designator focuses on the necessary poses and trajectories
- generated designator ends by mapping variables to designator "parts"

Figure 9: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Closing* (47 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
31	42	14	2

Findings:

- designator definition contains 13 variables instead of only one
- some minor renaming (e.g. *cutting* instead of *halving*)
- generated designator does not cover the "cutting" part but focuses mainly on poses
- generated designator does not end by mapping variables to designator "parts"
- generation adds block about `cram-robot-interfaces` (2 lines)

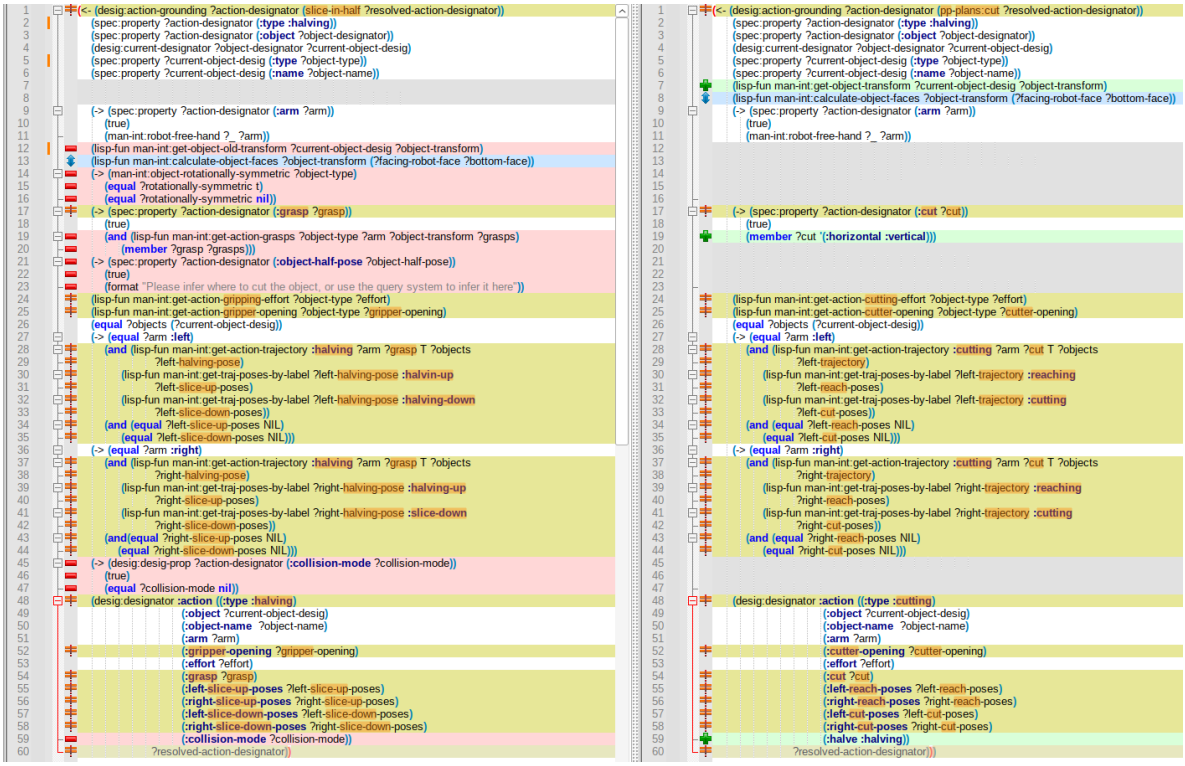

Figure 10: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Holding* (48 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
3	13	29	16

Findings:

- some minor renaming (e.g. *cutting* instead of *halving*)
- generated designator does not cover the necessary poses for "halving" (*?object-half-pose*)

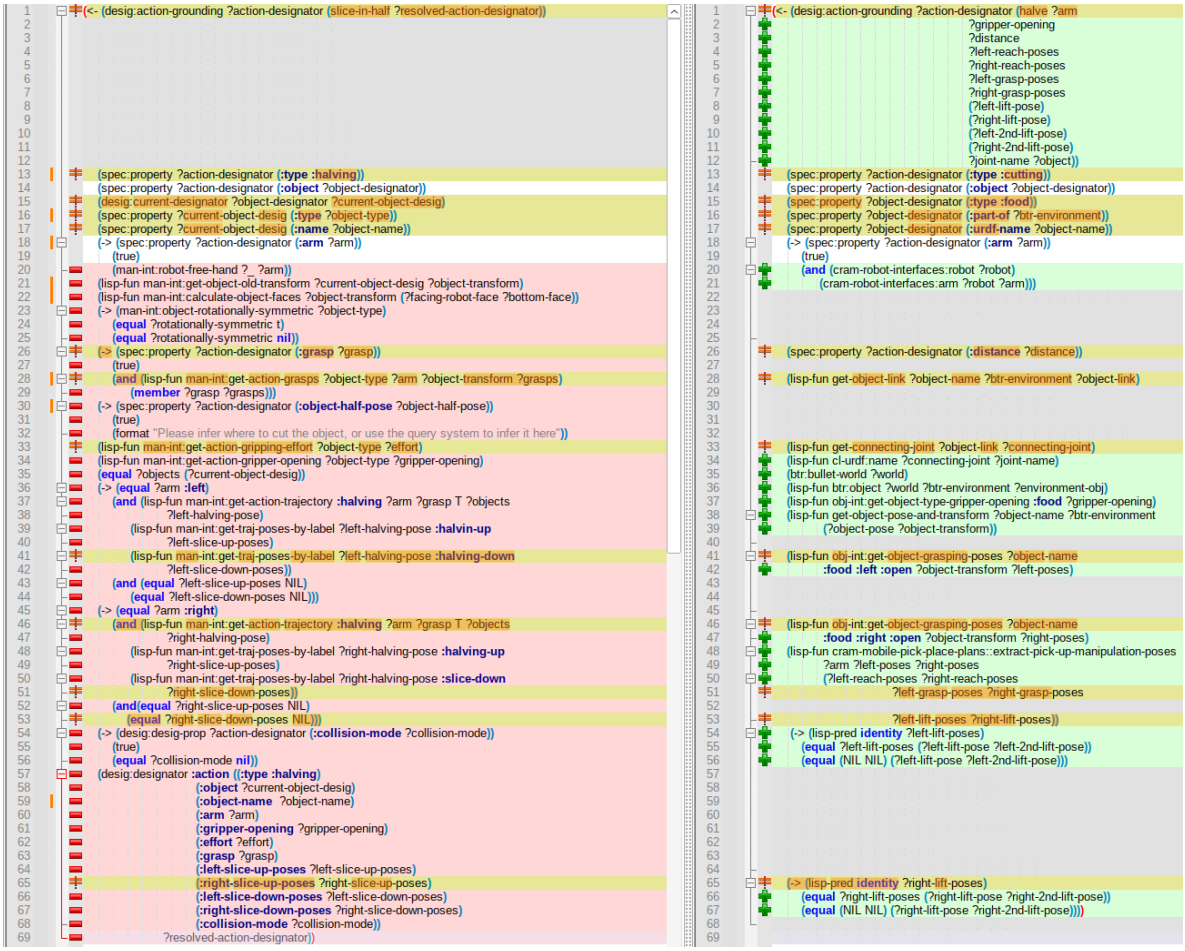

Figure 11: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Opening* (45 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
29	42	13	3

Findings:

- designator definition contains 12 variables instead of only one
- some minor renaming (e.g. *cutting* instead of *halving*)
- generated designator does not cover the "cutting" part but focuses mainly on poses
- generated designator does not end by mapping variables to designator "parts"
- generation adds block about `cram-robot-interfaces` (2 lines)

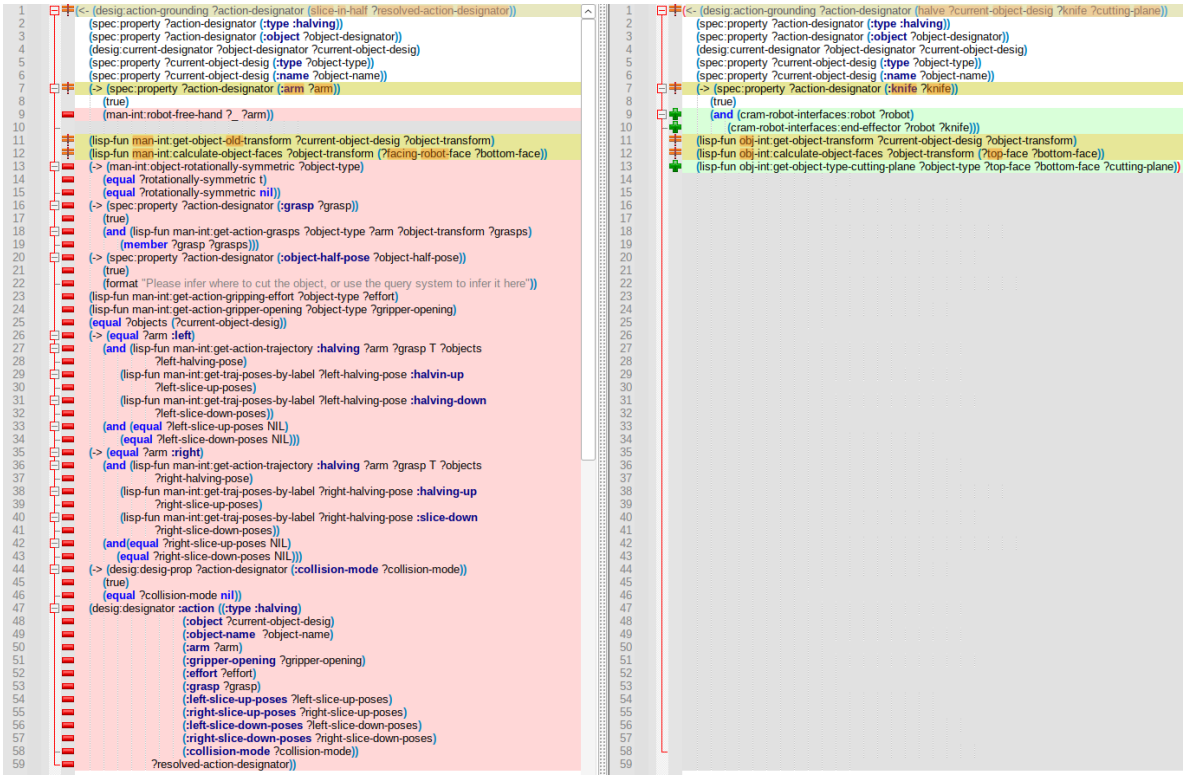

Figure 12: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Picking Up* (13 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
3	48	4	6

Findings:

- tba

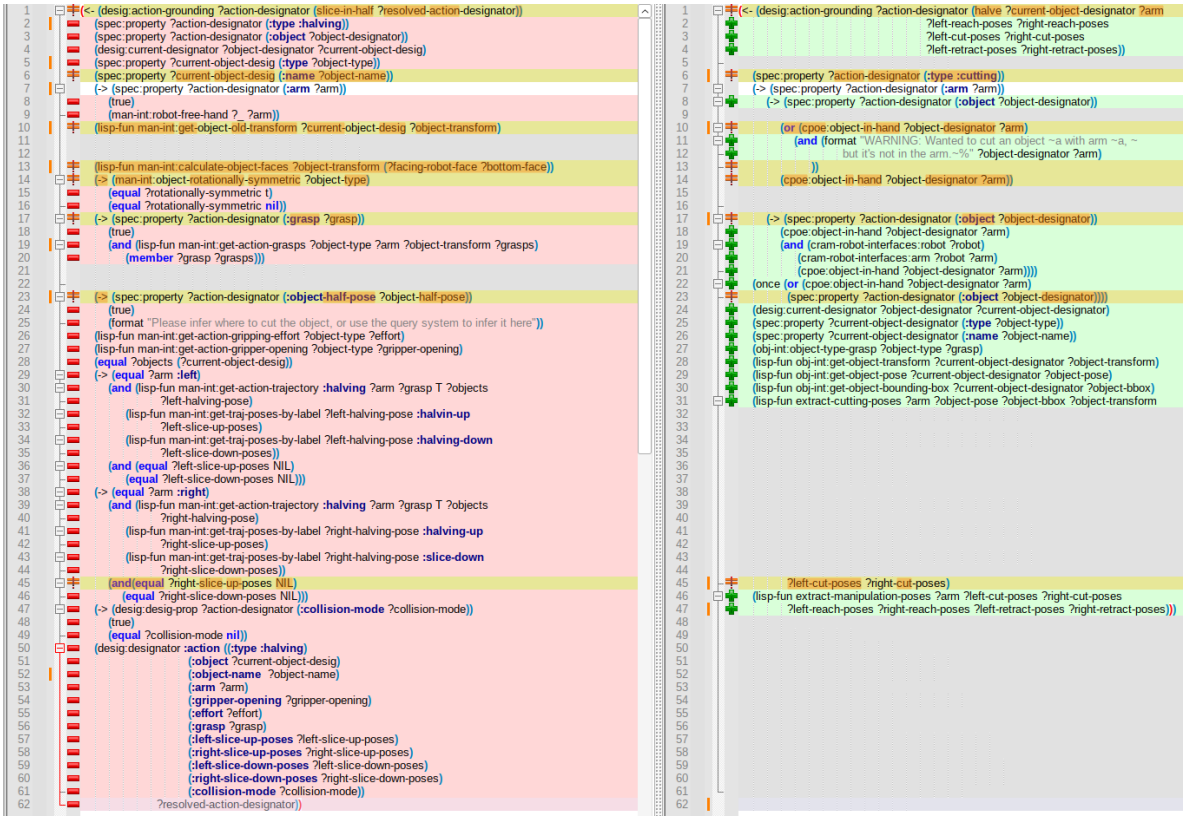

Figure 13: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Placing Down* (30 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
21	49	8	1

Findings:

- designator definition contains 4 variables instead of only one
- generated designator does not cover the "cutting" part but focuses mainly on poses / trajectories
- generated designator does not end by mapping variables to designator "parts"
- generation adds block about `cram-robot-interfaces` (3 lines)

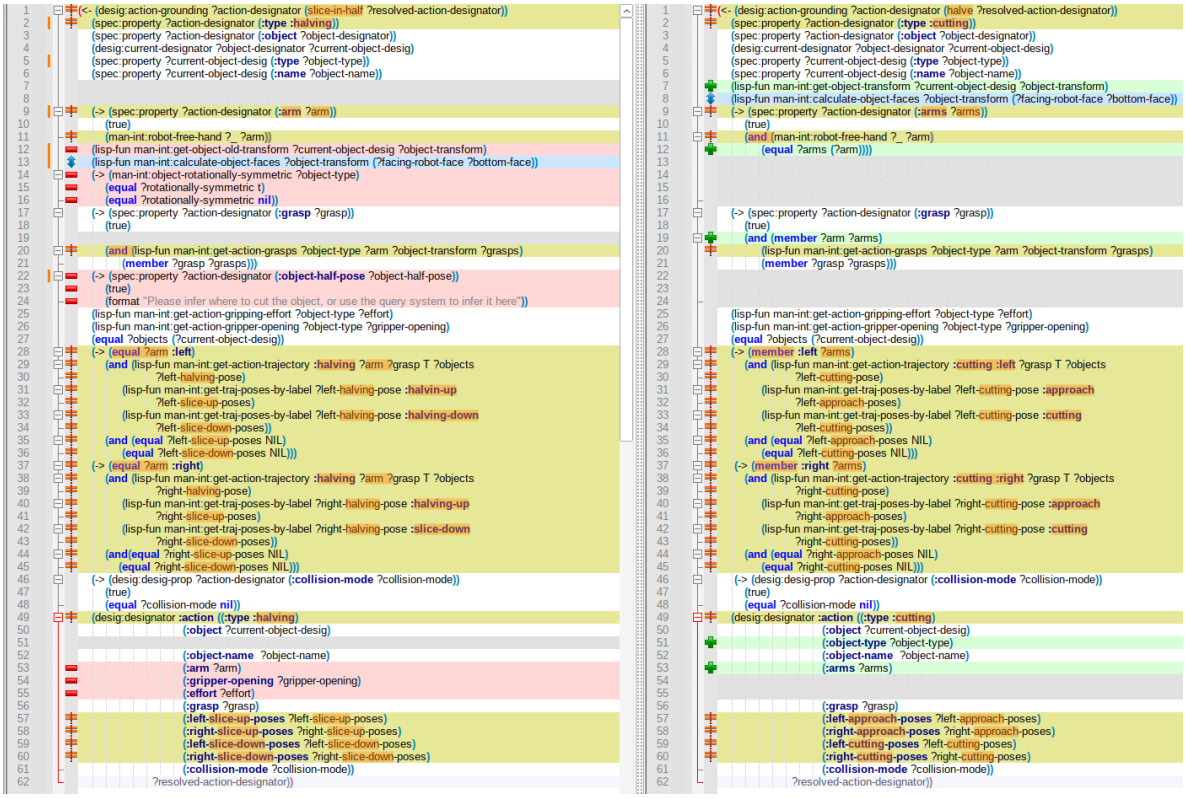

Figure 14: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Pouring* (53 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
5	10	29	19

Findings:

- mainly renaming (e.g. *cutting* instead of *halving*)
- generated designator does not cover the necessary poses for "halving" (*?object-half-pose*)
- generated designator shortens the mapping of variables to designator "parts" (misses the *:gripper-opening*)

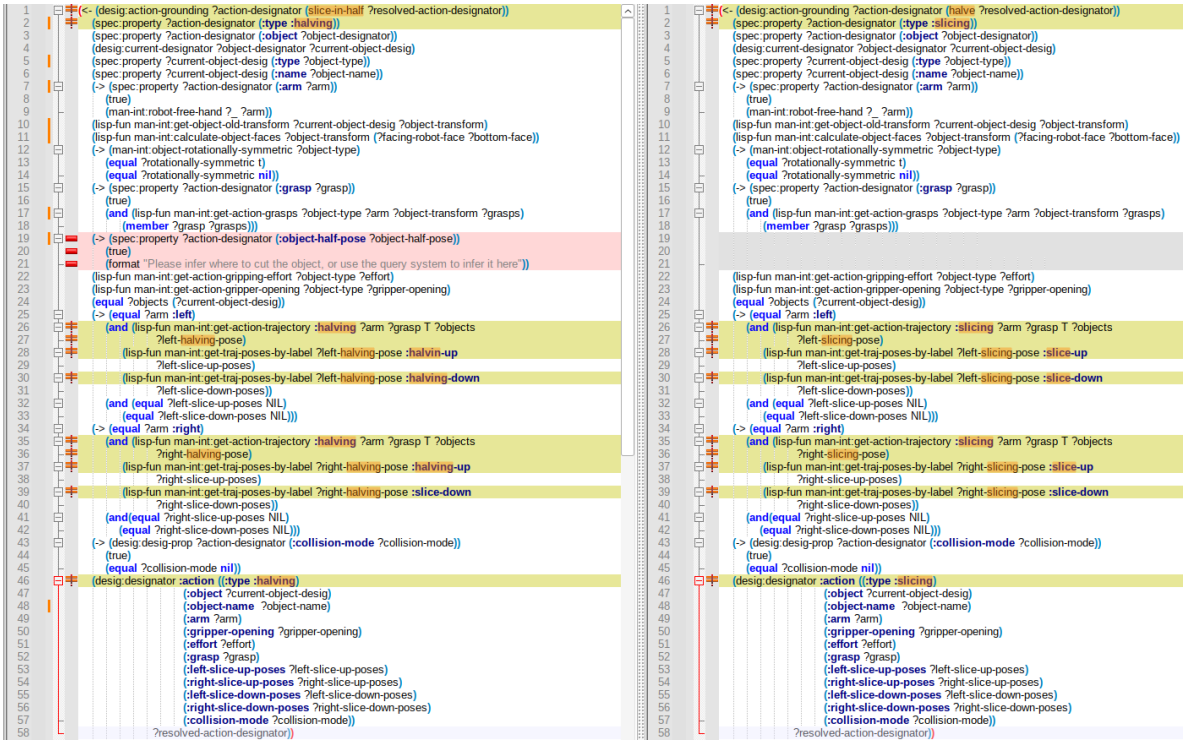

Figure 15: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Slicing* (55 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
0	3	11	44

Findings:

- deleted lines describe block that is used for inferring the position / pose necessary for meeting the exact halve
- deleted lines are the same that are added when the reference and generated action are swapped (Fig. 58)
- remaining changes are places where the keyword *slicing* was not replaced by *halving*

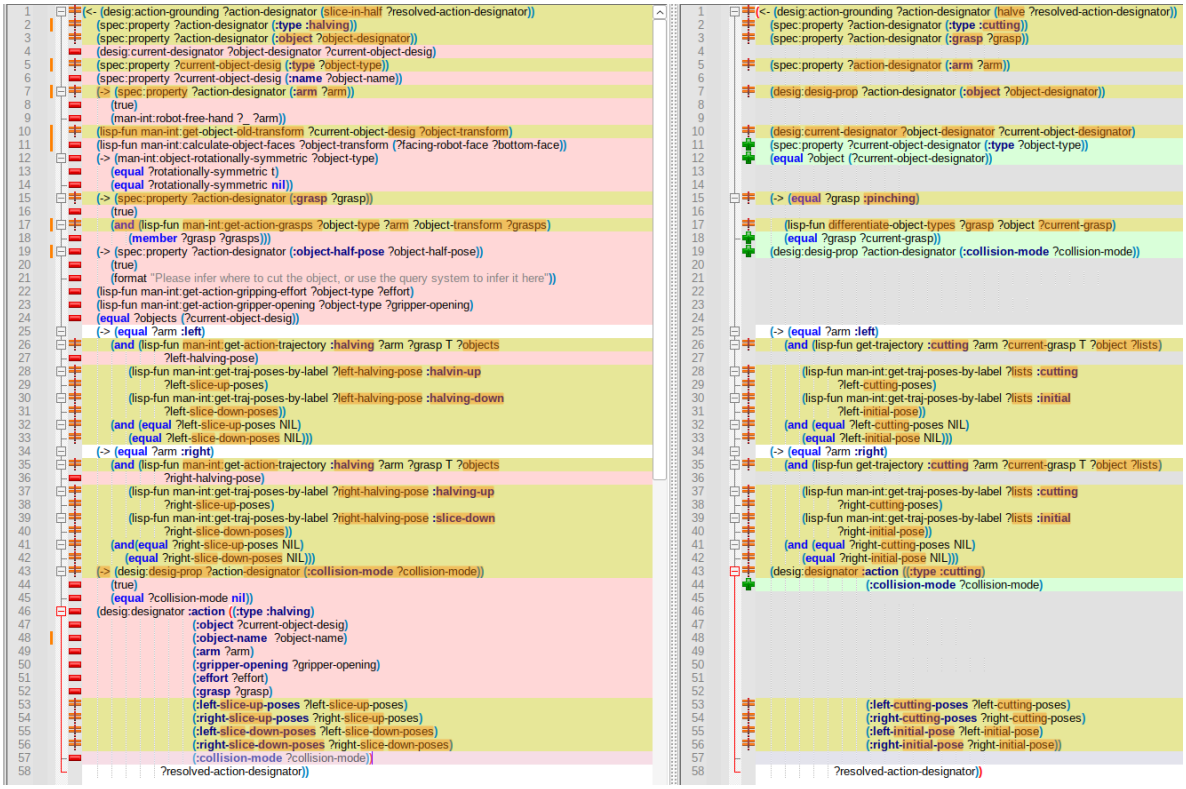

Figure 16: Left: Manual designator for the action *Halving* (58 lines). Right: Generated designator based on *Wiping* (35 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
5	28	27	3

Findings:

- some minor renaming (e.g. *cutting* instead of *halving*)
- generated designator does not cover the necessary poses for "halving" (*?object-half-pose*)
- generated designator shortens the mapping of variables to designator "parts" (misses *:object, :object-name, :arm, :gripper-opening, :effort* and *:grasp*)

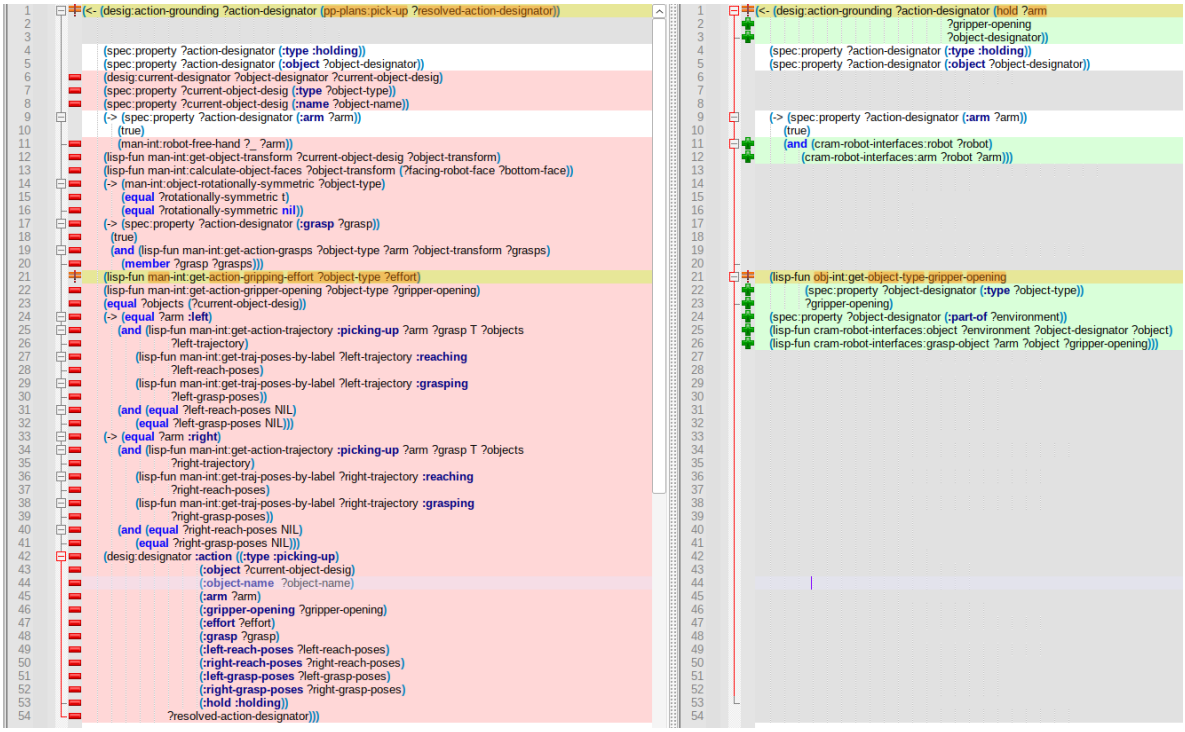

Figure 17: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Closing* (15 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
9	46	2	4

Findings:

- designator definition contains three variables instead of only one
- generated designator does not end by mapping variables to designator "parts"
- generation adds block about `cram-robot-interfaces` (2 lines)

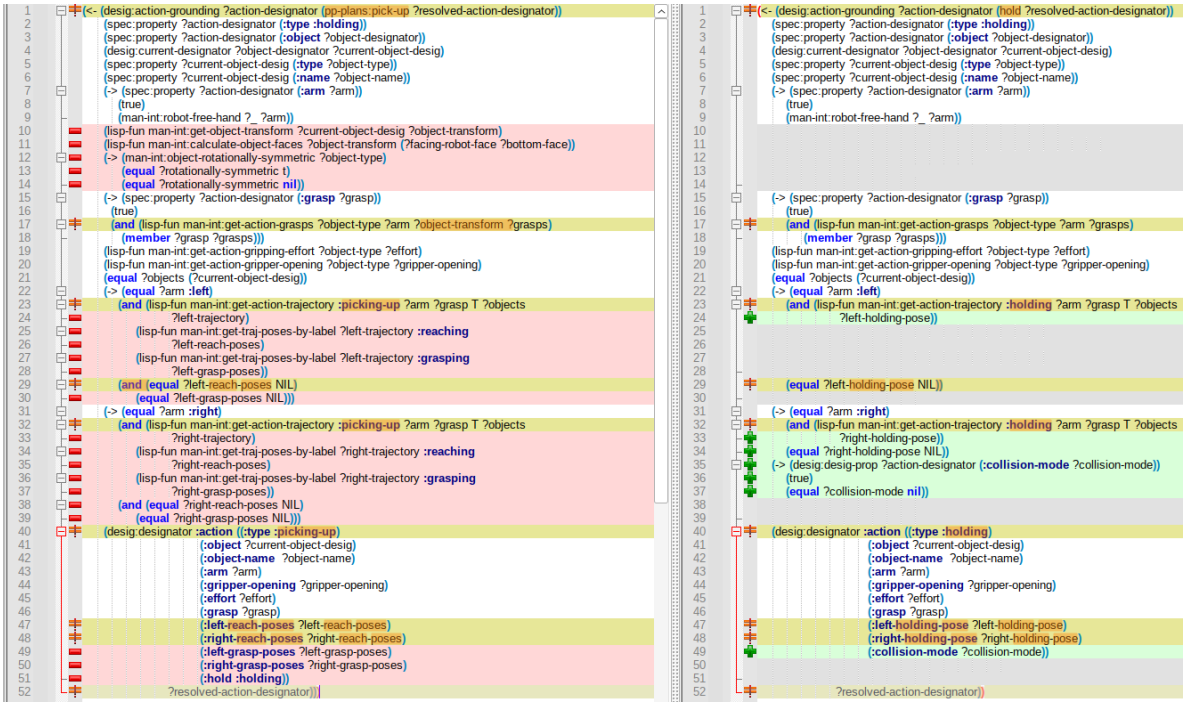

Figure 18: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Halving* (38 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
7	21	9	22

Findings:

- some minor renaming (e.g. *holding* instead of *picking up*)
- generated designator does not cover the necessary calculations regarding trajectories for reaching and/or grasping
- generated designator shortens the mapping of variables to designator "parts" (misses *:left-grasp-poses, :right-grasp-poses* and *:hold* but adds *:collision-mode*)

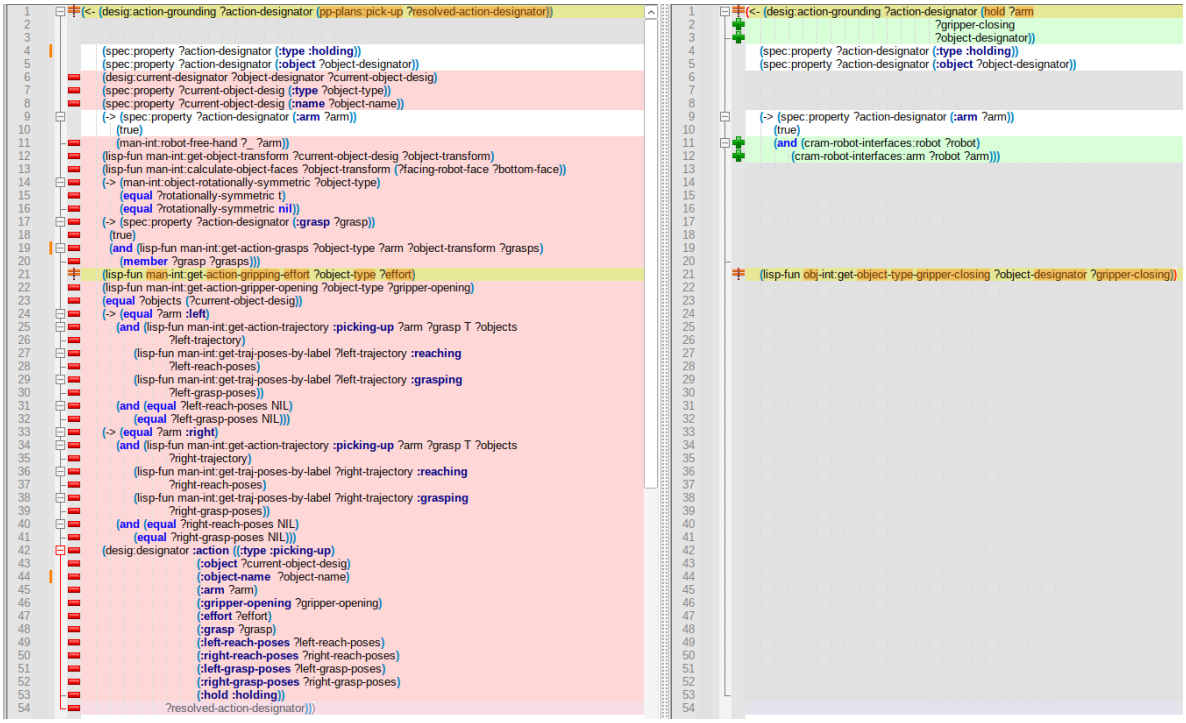

Figure 19: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Opening* (10 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
4	46	2	4

Findings:

- designator definition contains three variables instead of only one
- generated designator does not end by mapping variables to designator "parts"
- generated designator contains almost no functionality (no trajectory calculations, etc.)
- generation adds block about `cram-robot-interfaces` (2 lines)

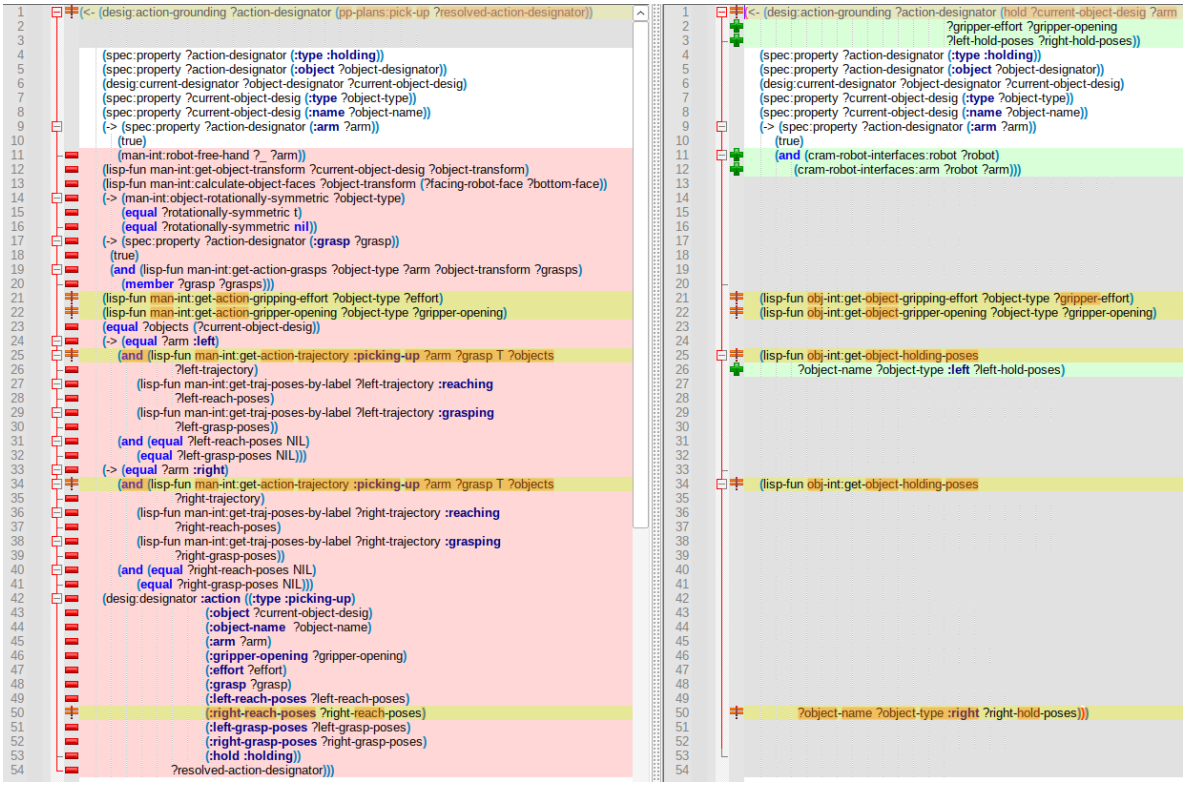

Figure 20: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Picking Up* (18 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
5	39	6	7

Findings:

- tba

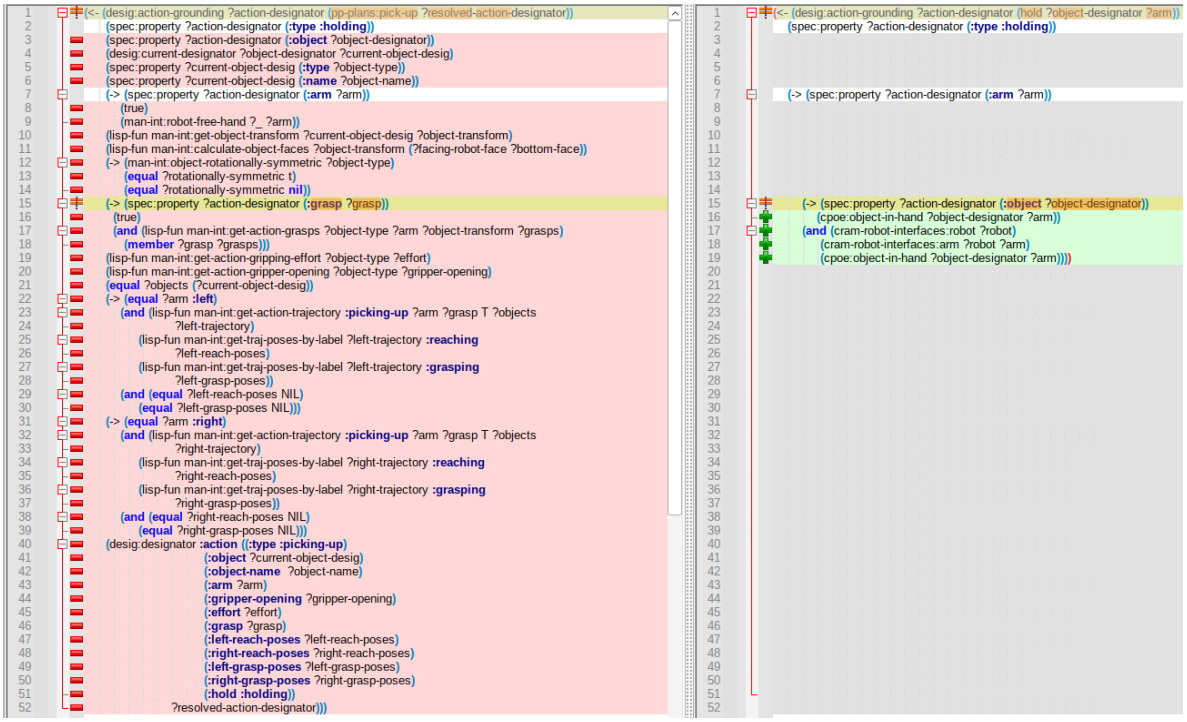

Figure 21: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Placing Down* (8 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
4	48	2	2

Findings:

- generated designator does not end by mapping variables to designator "parts"
- generated designator contains almost no functionality (no trajectory calculations, etc.)
- generation adds block about `cram-robot-interfaces` (3 lines)

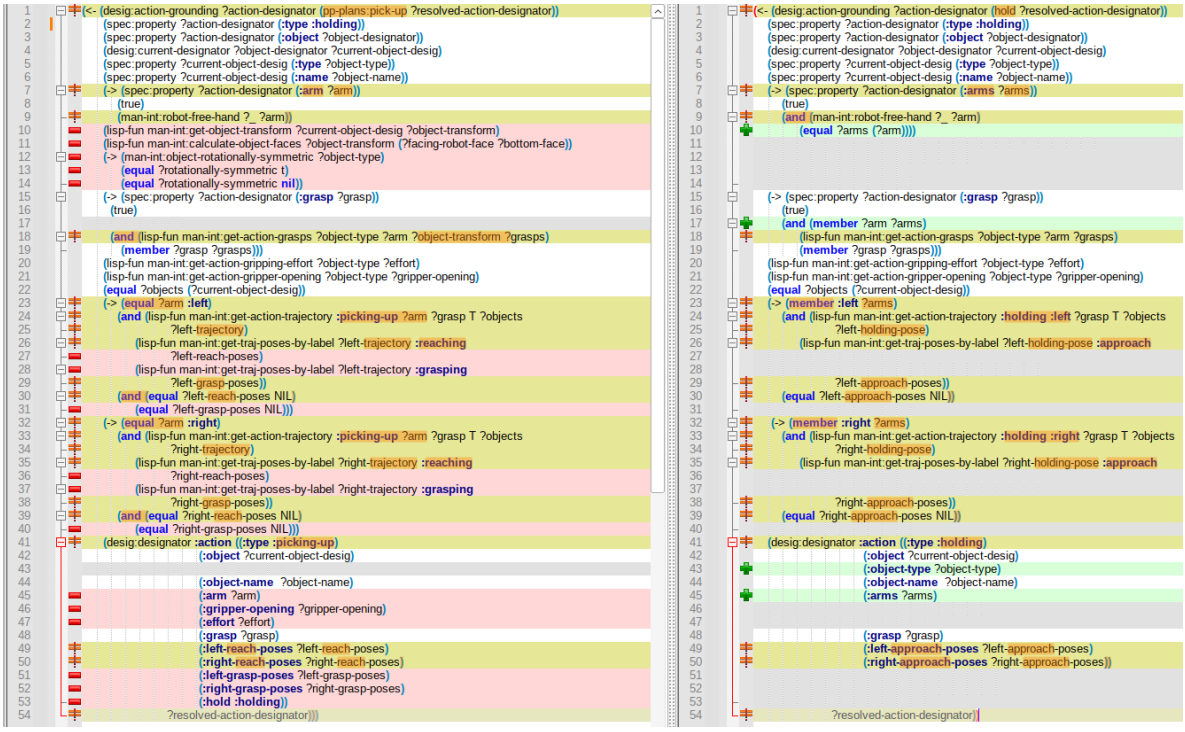

Figure 22: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Pouring* (39 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
4	17	20	15

Findings:

- some minor renaming (e.g. *approach* instead of *reach*)
- omits the rotational trajectory calculation
- generated designator shortens the mapping of variables to designator "parts" (misses *:arm, :gripper-opening, :effort, :left-grasp-poses, :right-grasp-poses* and *:hold* but adds *:object-type* and *:arms*)

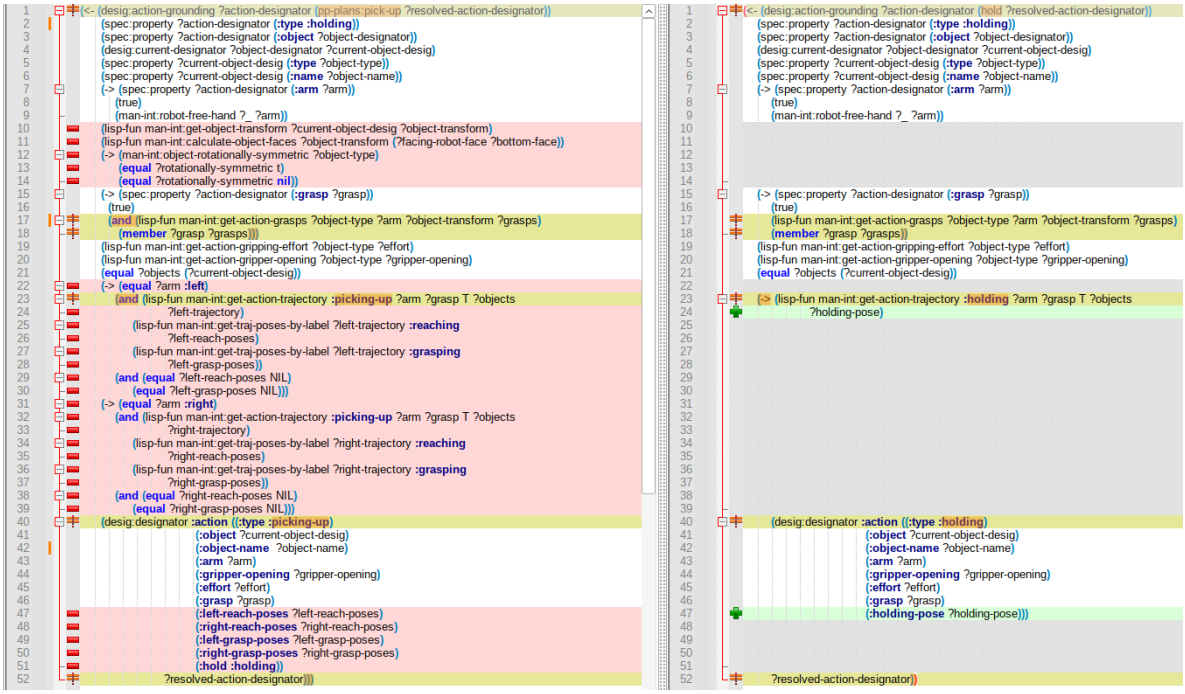

Figure 23: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Slicing* (27 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
2	27	6	19

Findings:

- generated designator does not cover the necessary calculations regarding (rotational) trajectories for reaching and/or grasping
- generated designator shortens the mapping of variables to designator "parts" (misses *:left-reach-poses, :right-reach-poses, :left-grasp-poses, :right-grasp-poses* and *:hold* but adds a *:holding-pose*)

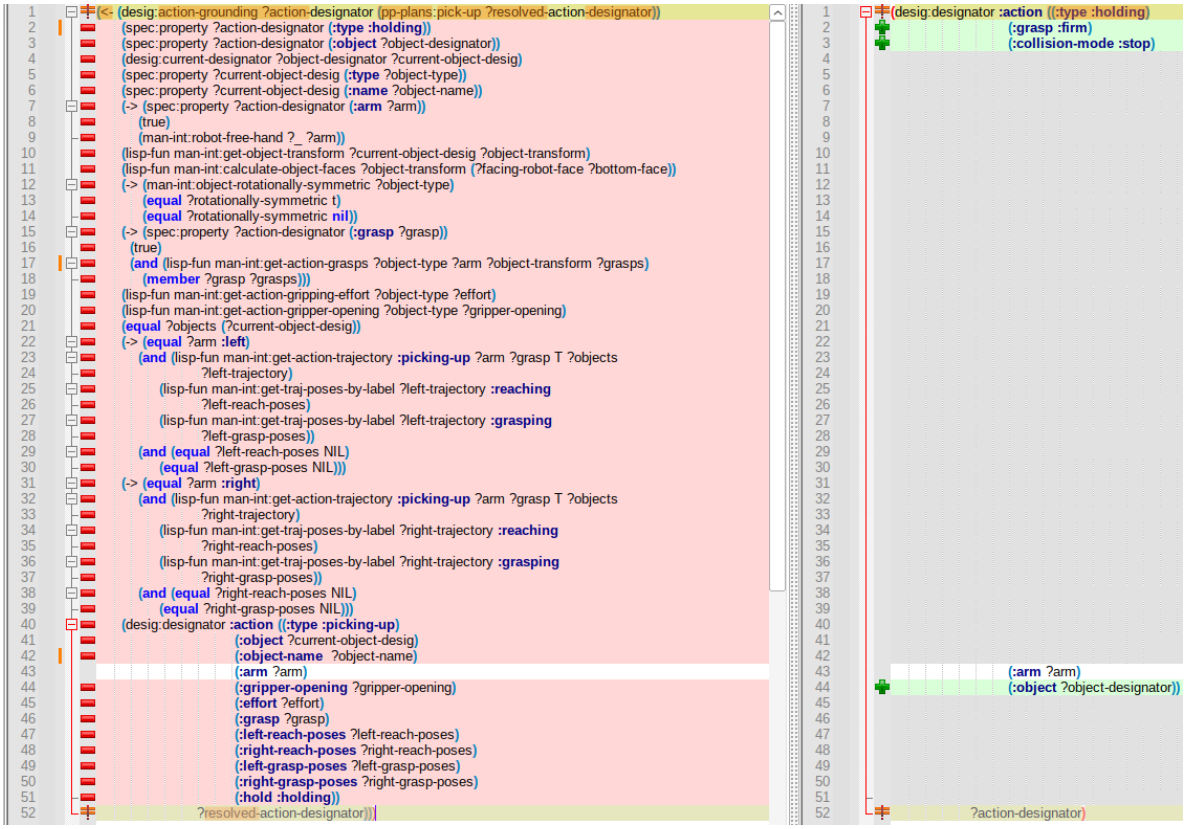

Figure 24: Left: Manual designator for the action *Holding* (52 lines). Right: Generated designator based on *Wiping* (6 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
3	49	2	1

Findings:

- designator definition contains five variables instead of only one
- generated designator contains no functionality (no trajectory calculations, etc.)
- generated designator does not end by mapping variables to designator "parts"

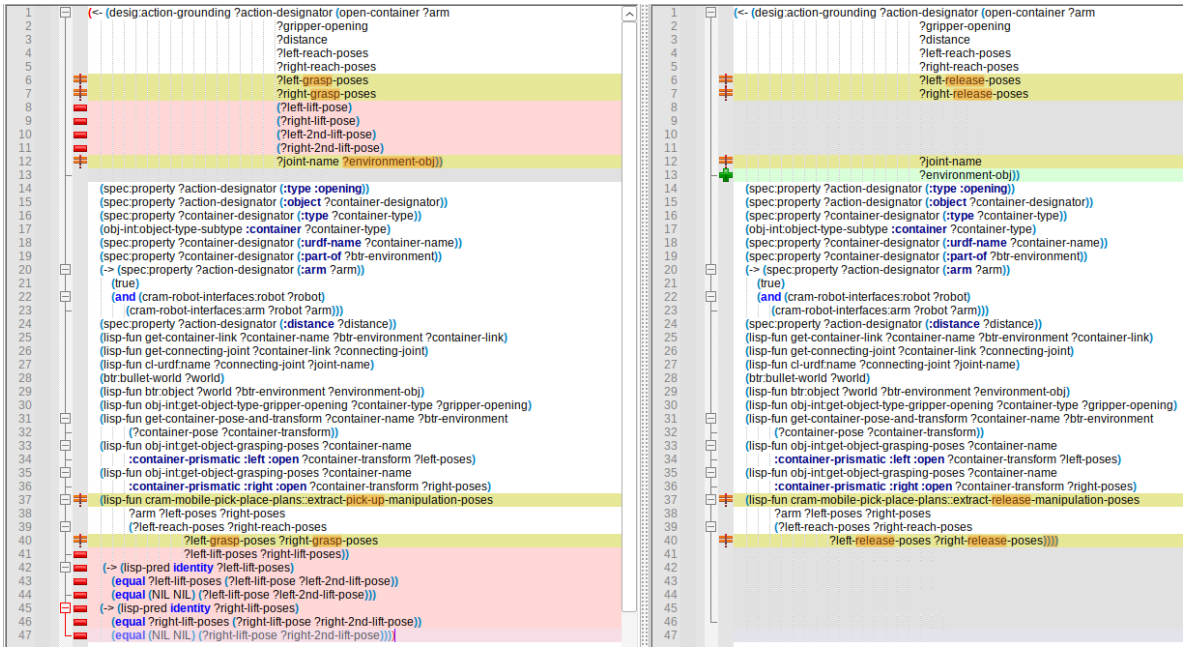

Figure 25: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Closing* (36 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
1	11	5	30

Findings:

- ChatGPT replaces *grasping* and *picking up* with *release*, which has a different meaning
- additional line is due to a difference in formatting
- ChatGPT does not generate the necessary poses for lifting and how they are handled

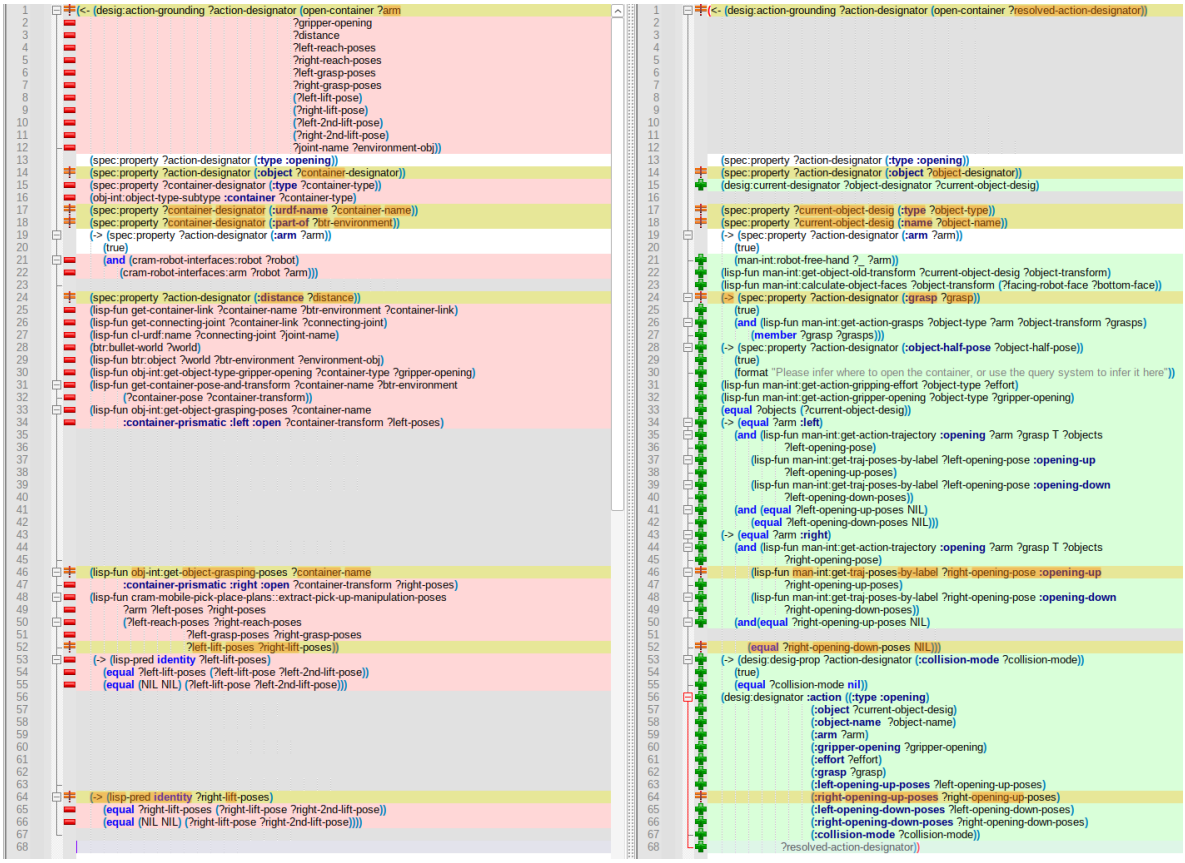

Figure 26: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Halving* (55 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
44	35	8	3

Findings:

- designator definition contains only one variable instead of 13
- designator performs unnecessary calculations (e.g. getting a *?object-half-pose*)
- designator calculates trajectories and poses in a different manner
- designator (falsely) ends by mapping the variables to designator "parts"

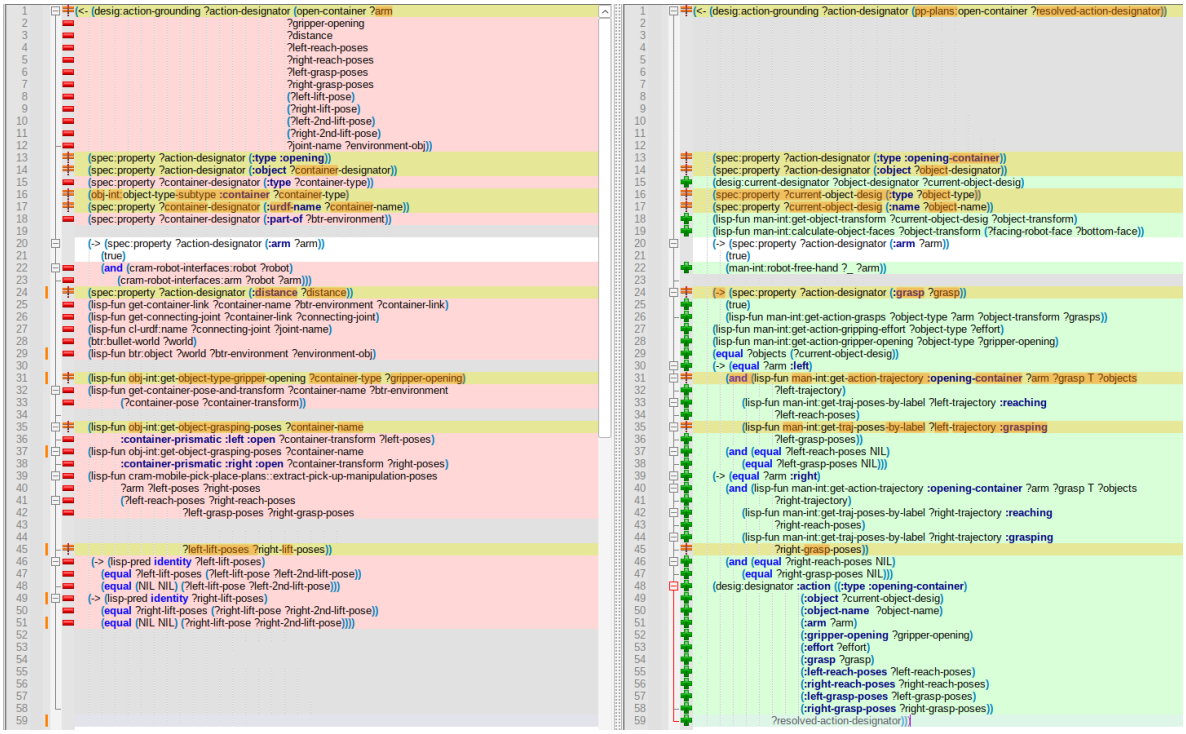

Figure 27: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Holding* (47 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
36	35	9	2

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- designator calculates trajectories and poses in a different manner
- designator (falsely) ends by mapping the variables to designator "parts"

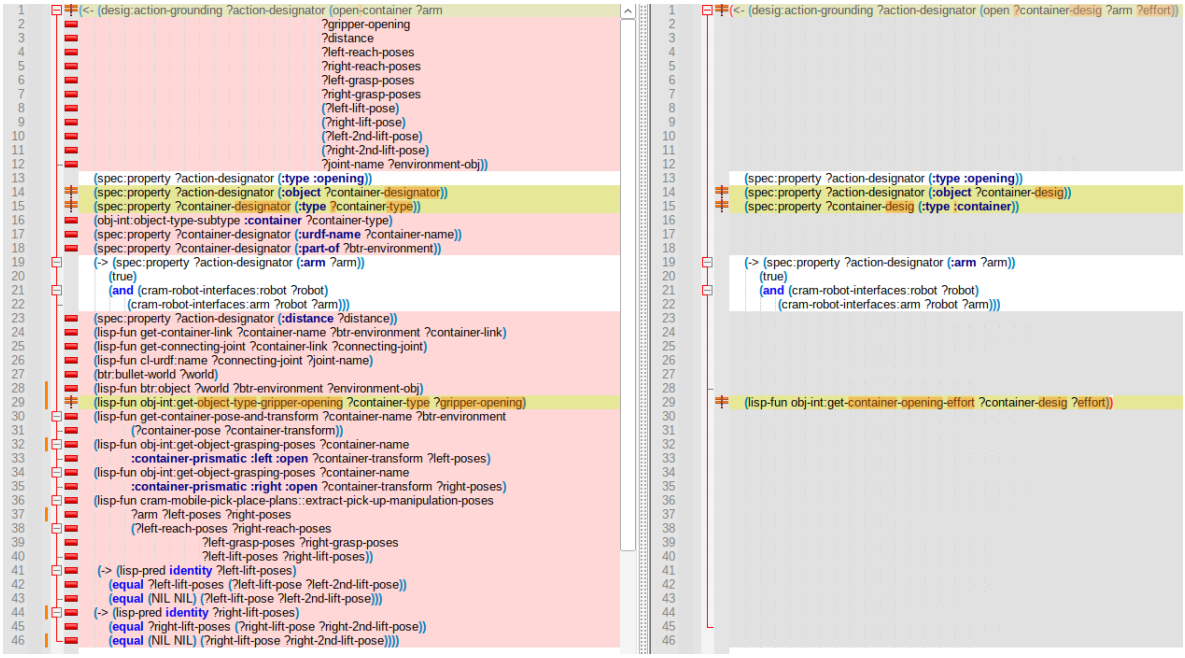

Figure 28: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Picking Up* (9 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
0	37	4	5

Findings:

- tba

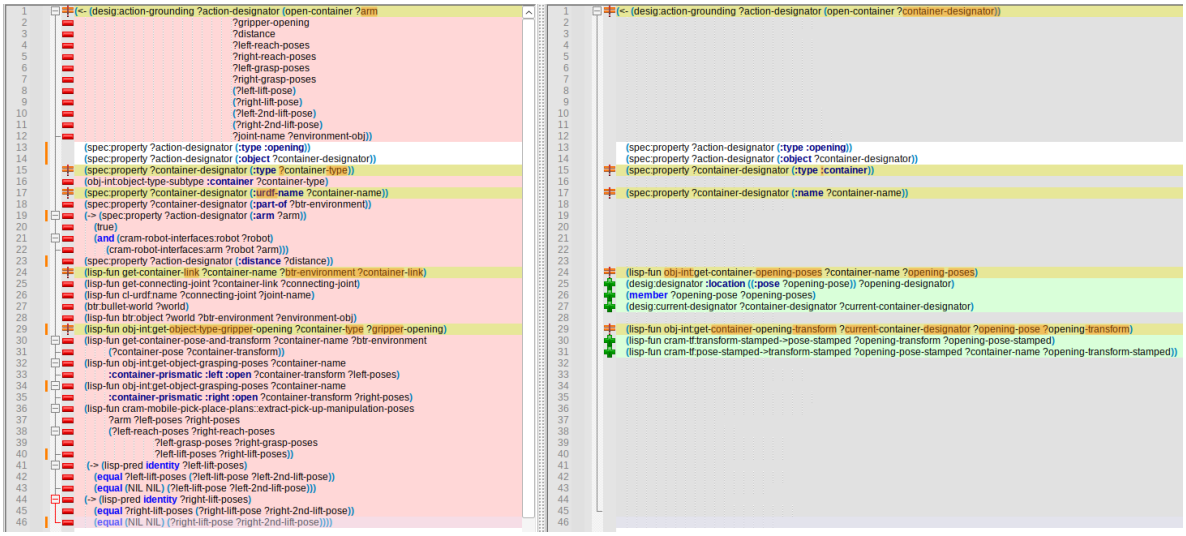

Figure 29: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Placing Down* (12 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
5	39	5	2

Findings:

- designator definition contains only one variable instead of 13
- designator contains only definitions, no assignments or calculations

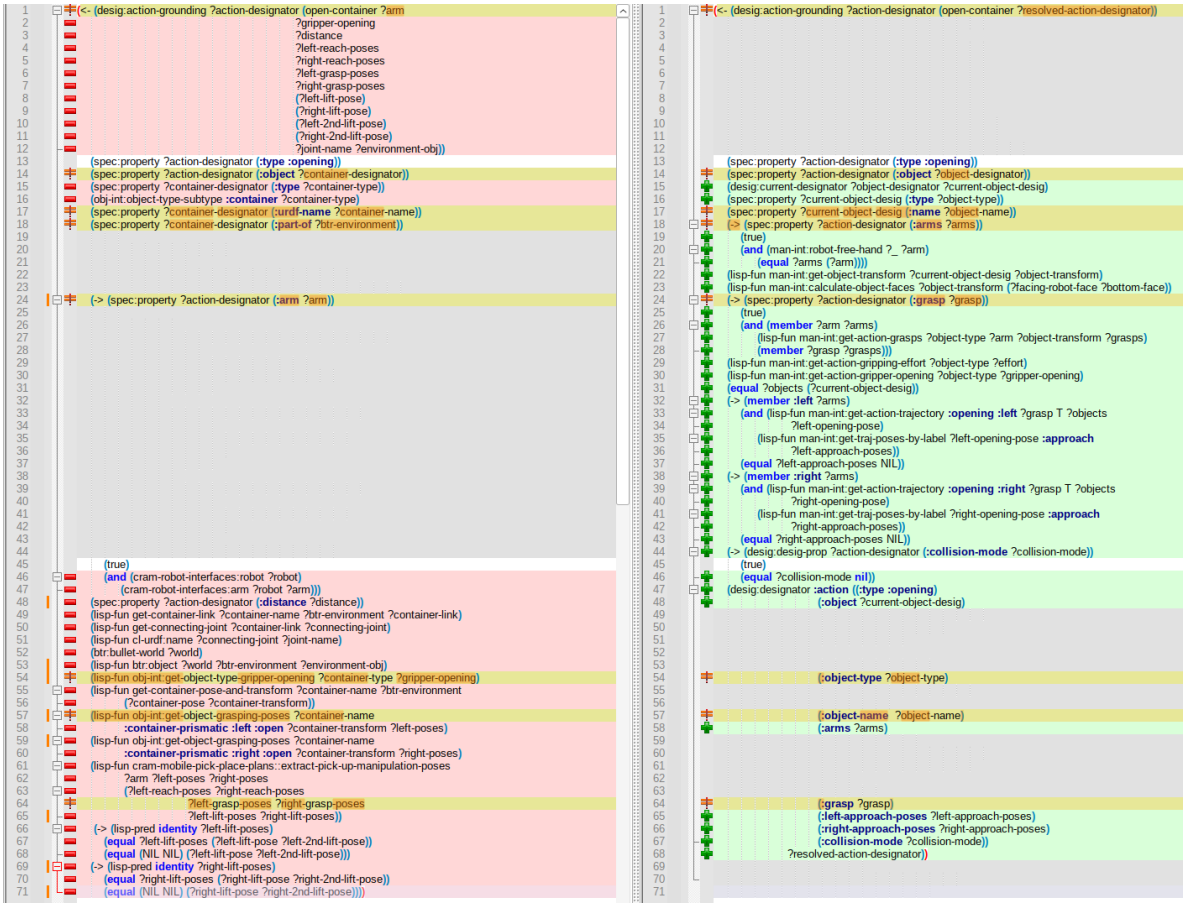

Figure 30: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Pouring* (45 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
35	36	8	2

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- designator calculates trajectories and poses in a different manner
- designator (falsely) ends by mapping the variables to designator "parts"

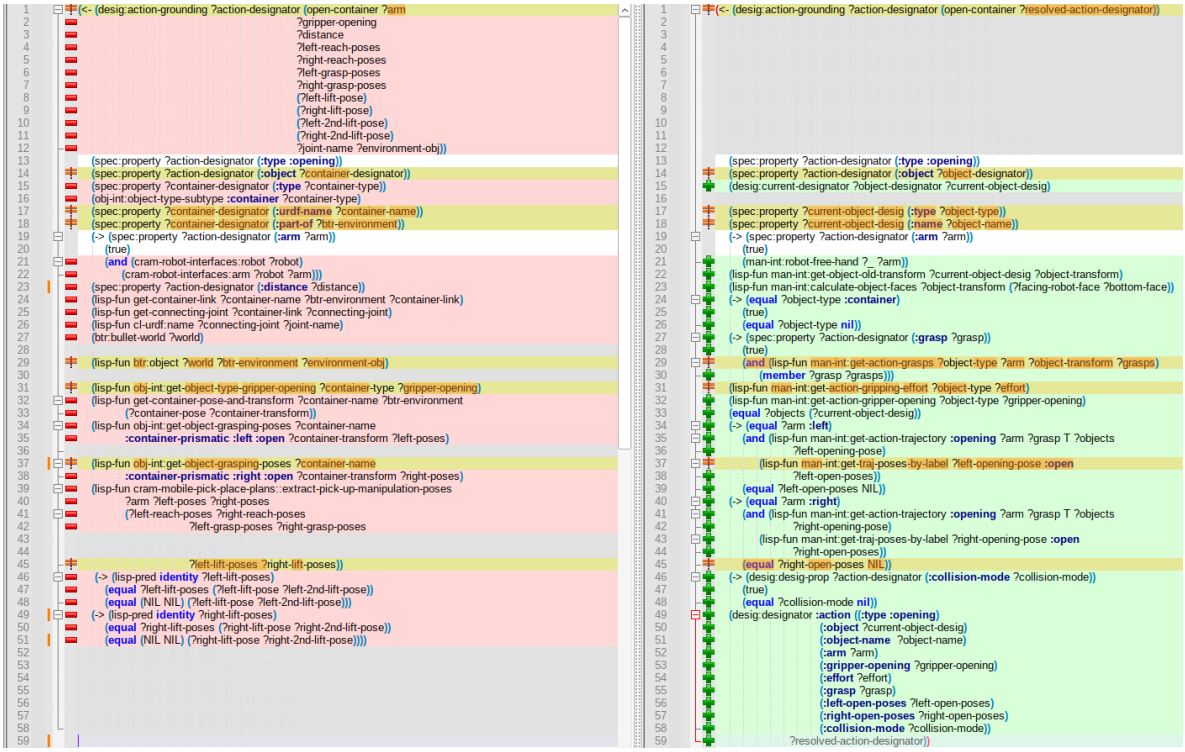

Figure 31: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Slicing* (47 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
36	35	8	3

Findings:

- designator definition contains only one variable instead of 13
- some minor renaming (e.g. *object* instead of *container*)
- designator calculates trajectories and poses in a different manner
- designator (falsely) ends by mapping the variables to designator "parts"

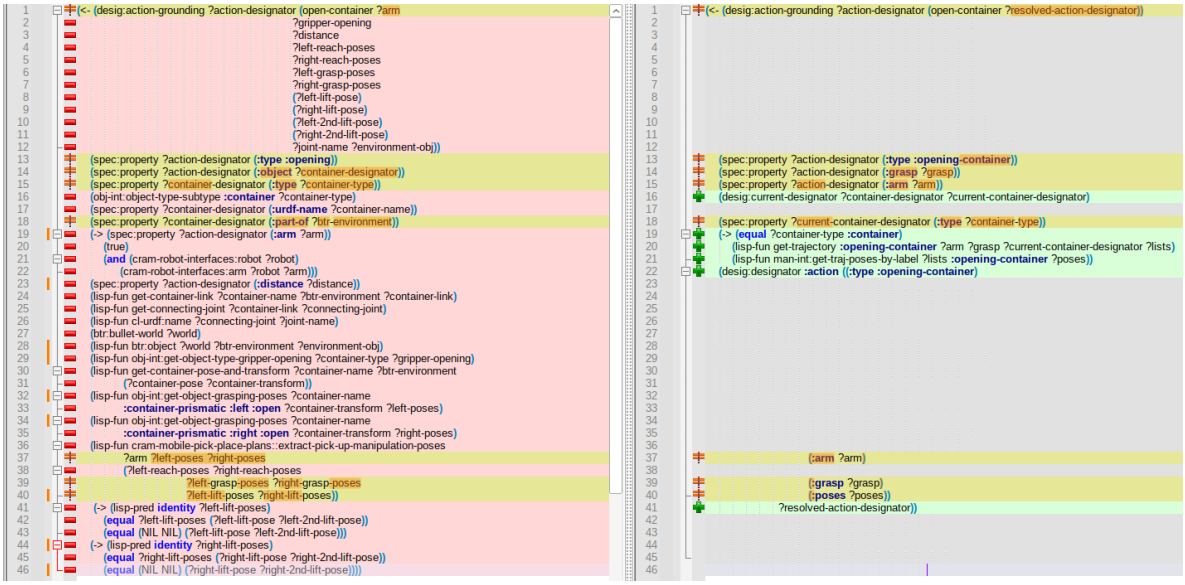

Figure 32: Left: Manual designator for the action *Opening* (46 lines). Right: Generated designator based on *Wiping* (14 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
6	38	8	0

Findings:

- designator definition contains only one variable instead of 13
- designator contains only definitions, no assignments or calculations
- designator (falsely) ends by mapping the variables to designator "parts"

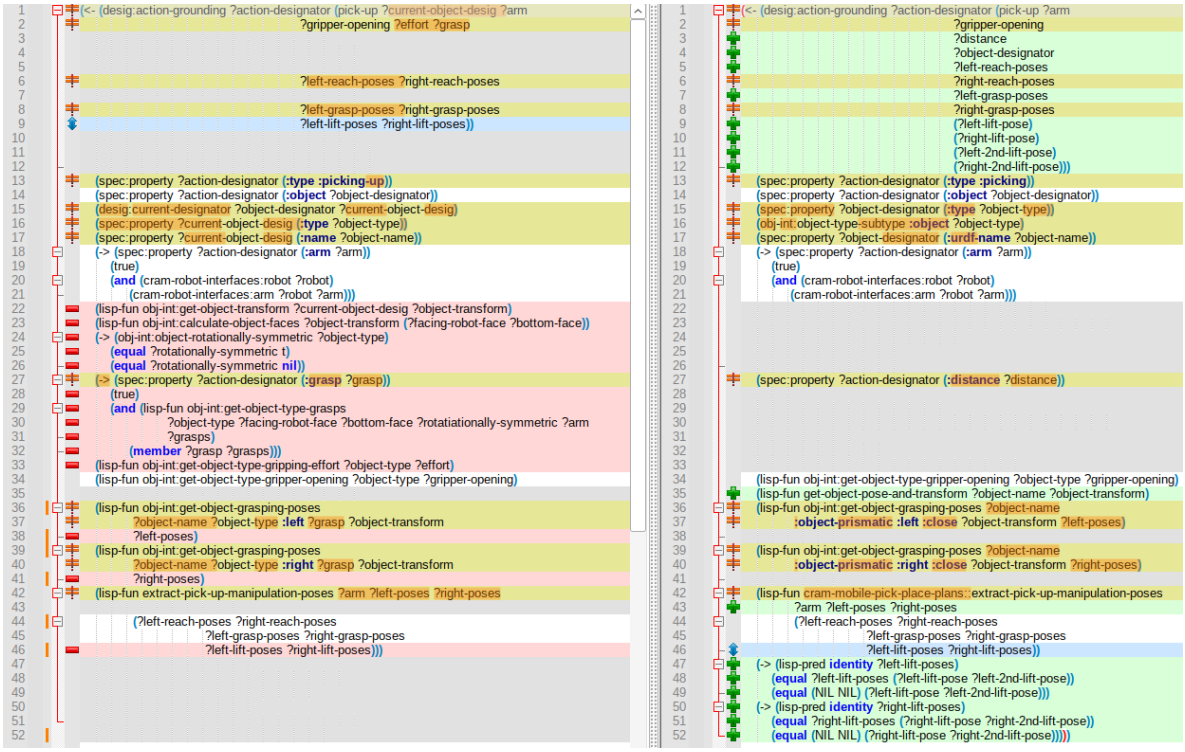

Figure 33: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Closing* (39 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
16	14	15	8

Findings:

- tba

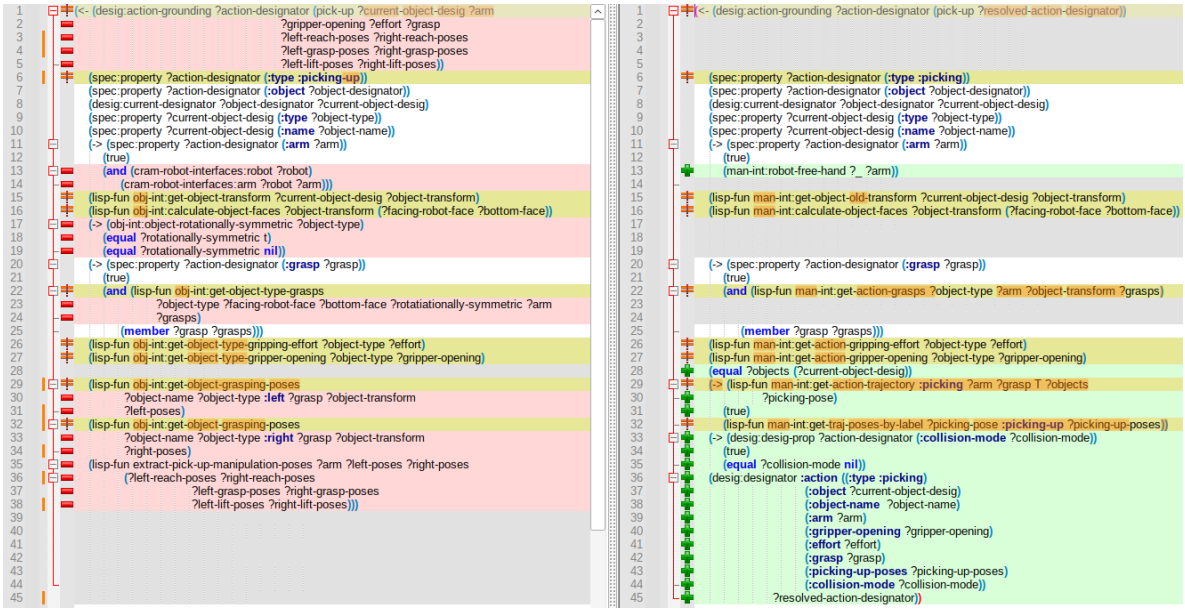

Figure 34: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Halving* (35 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
17	19	9	9

Findings:

- tba

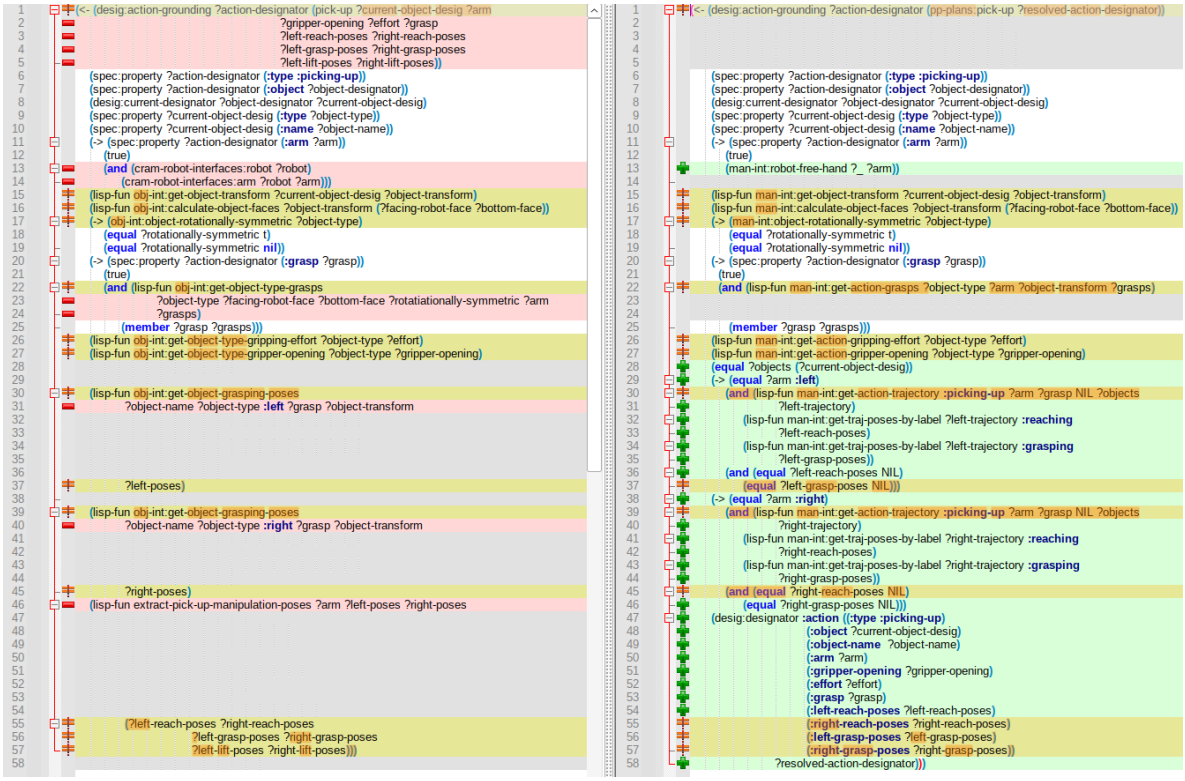

Figure 35: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Holding* (51 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
25	11	14	12

Findings:

- tba

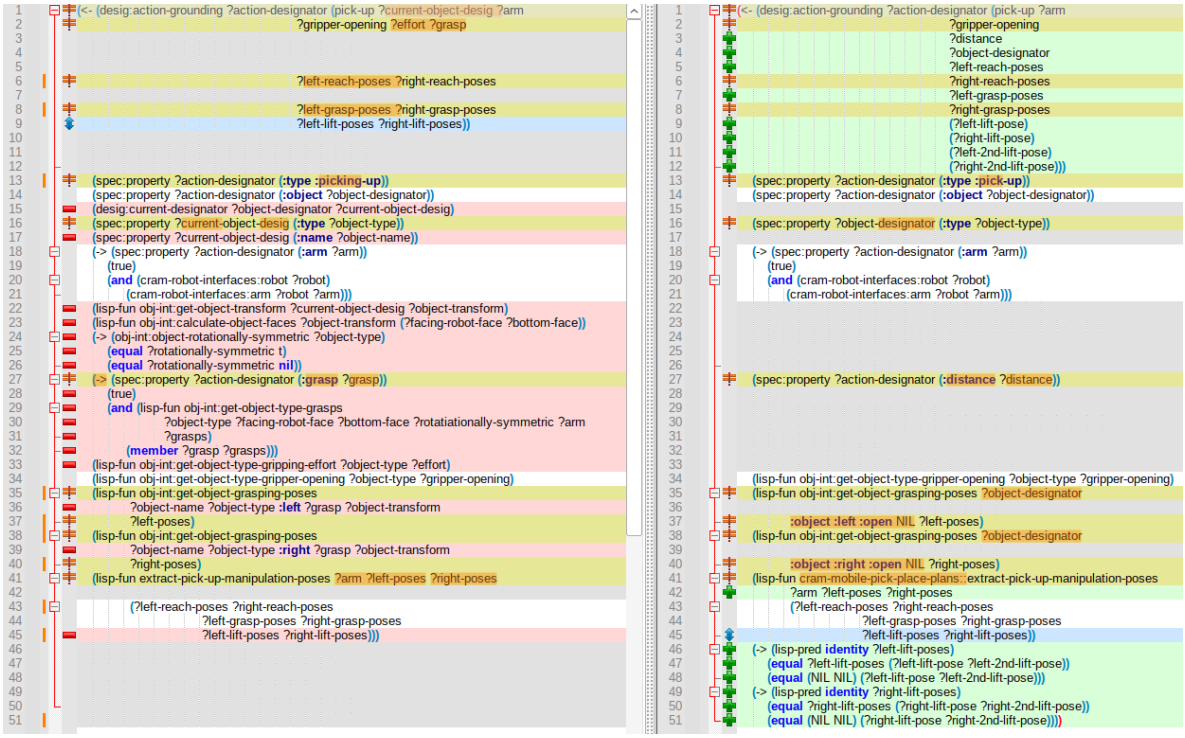

Figure 36: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Opening* (36 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
15	16	13	8

Findings:

- tba

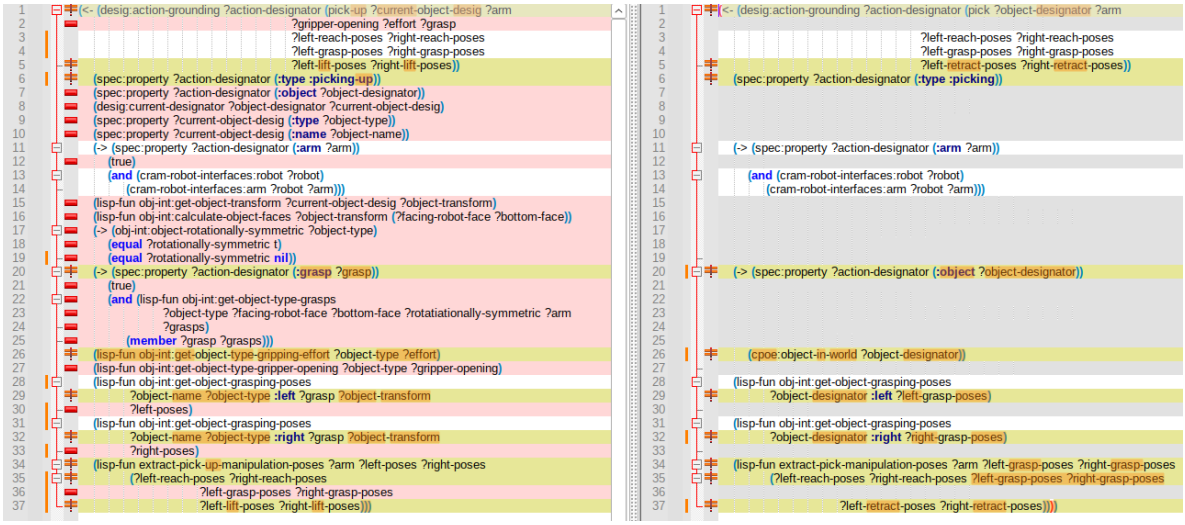

Figure 37: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Placing Down* (17 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
0	20	10	7

Findings:

- tba

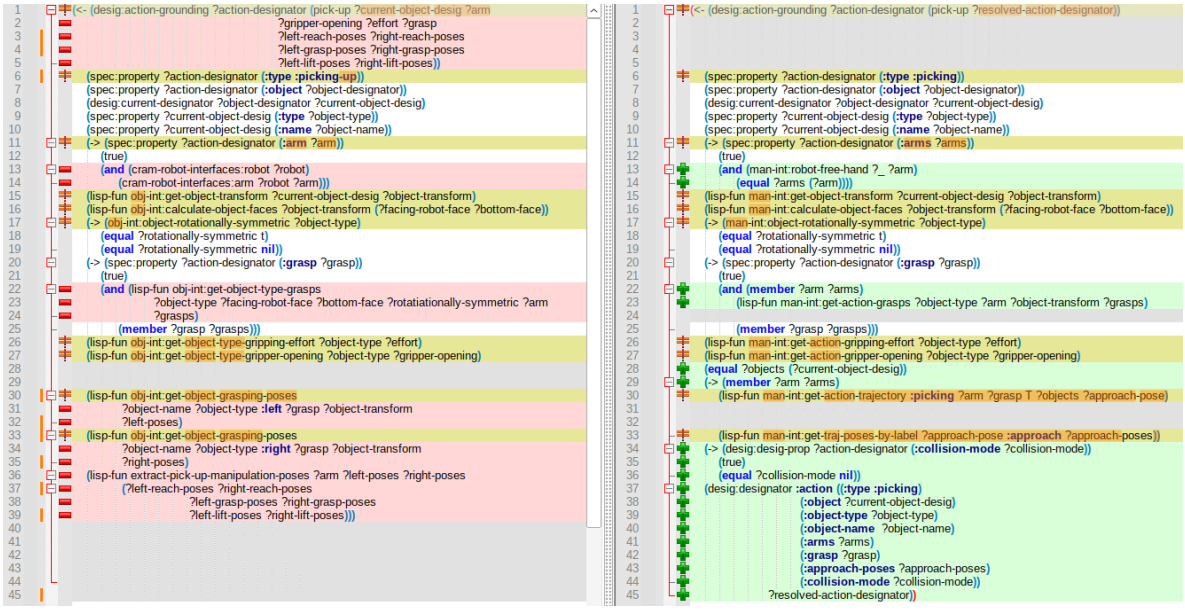

Figure 38: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Pouring* (38 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
18	17	10	10

Findings:

- tba

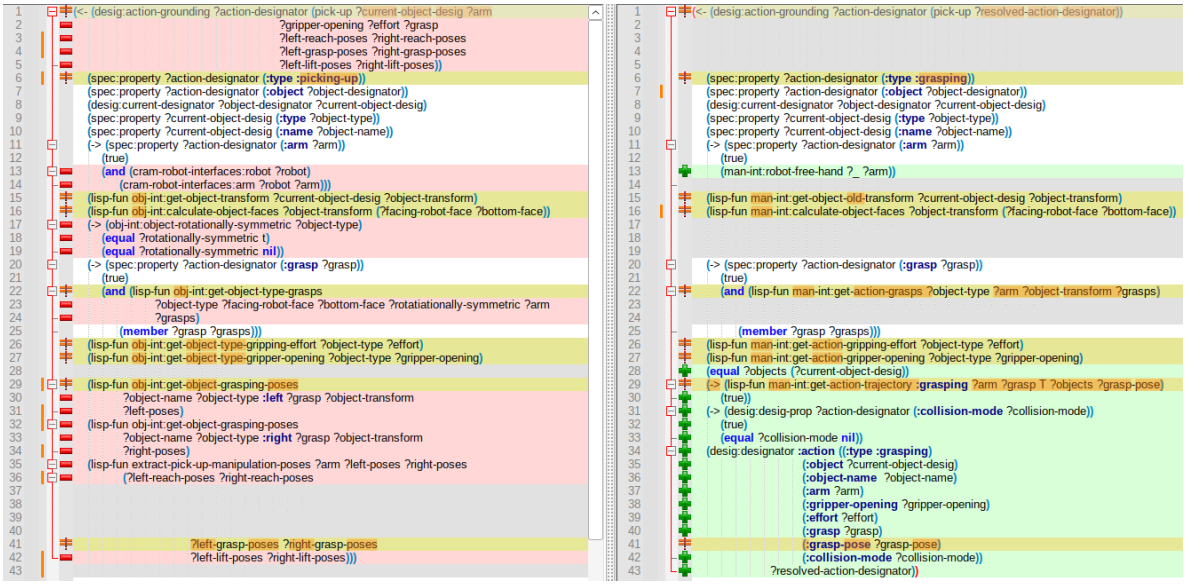

Figure 39: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Slicing* (33 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
15	19	9	9

Findings:

- tba

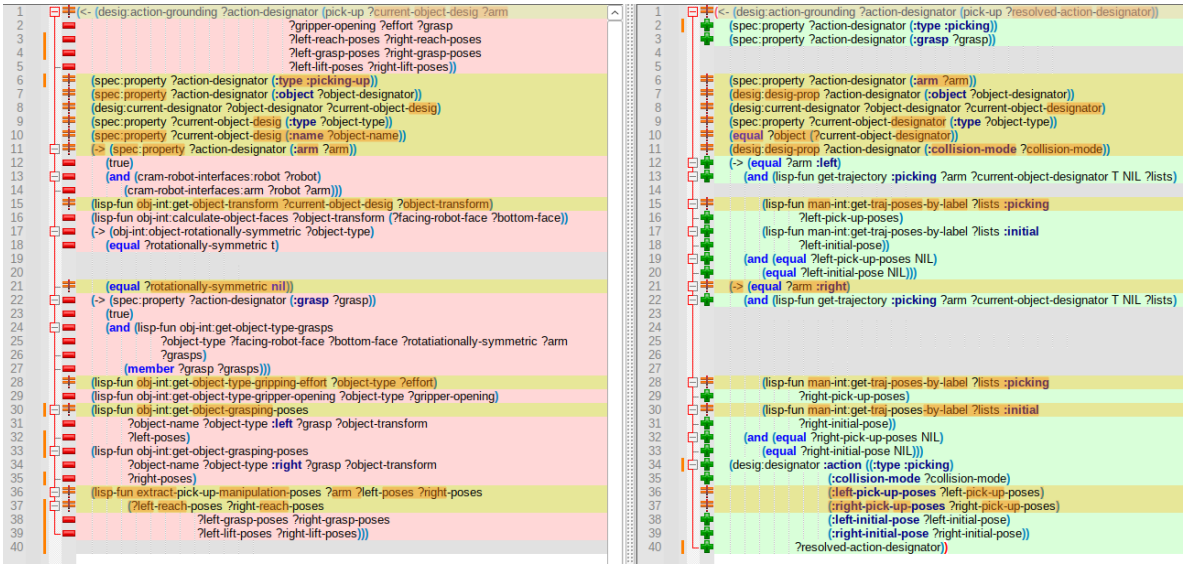

Figure 40: Left: Manual designator for the action *Picking Up* (37 lines). Right: Generated designator based on *Wiping* (32 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
19	24	13	0

Findings:

- tba

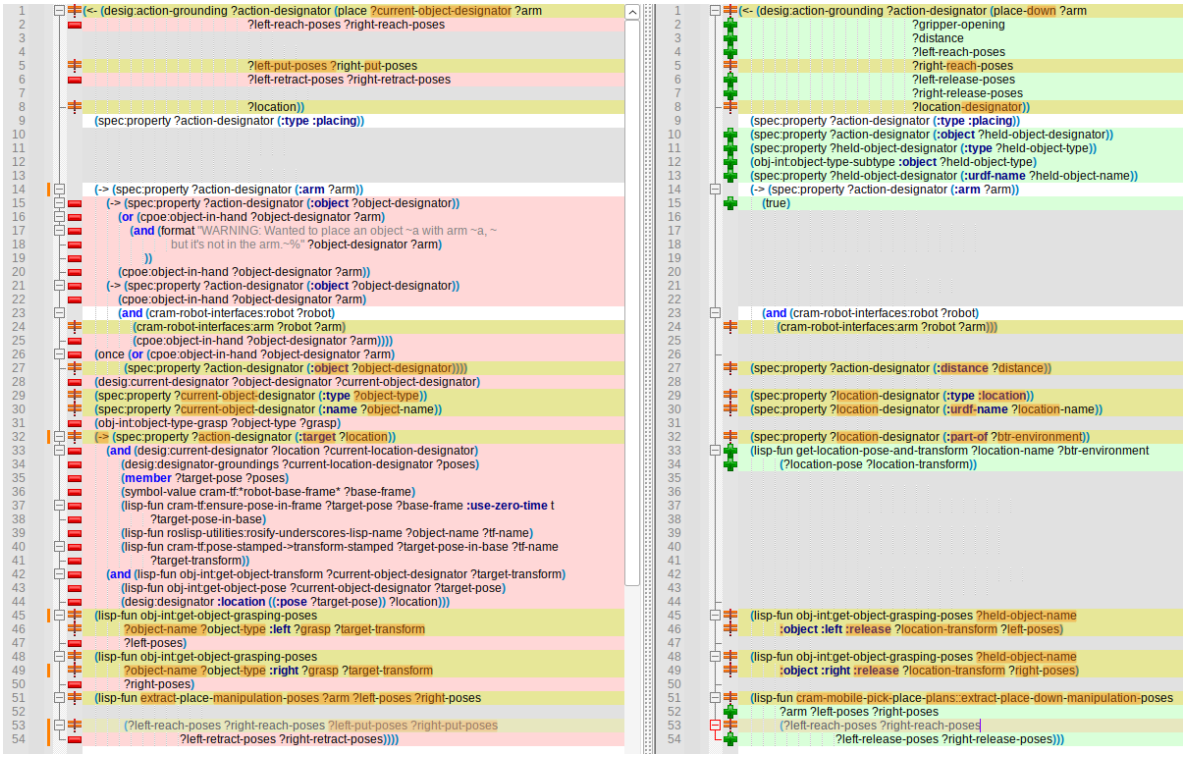

Figure 41: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Closing* (31 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
14	29	14	3

Findings:

- designator definition contains eight instead of nine variables (2 overlap)
- some minor renaming (e.g. *held-object-name* instead of *object-name*)
- trajectories and poses are only defined and not calculated / used

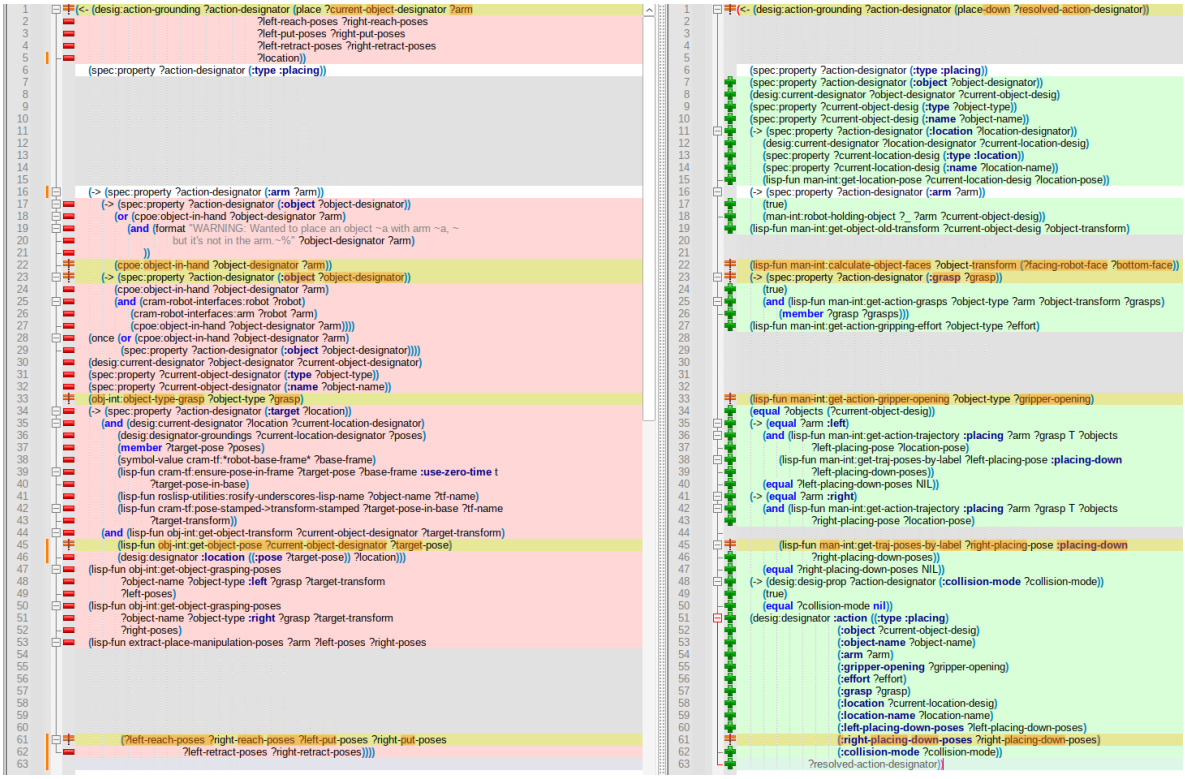

Figure 42: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Halving* (51 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
43	38	6	2

Findings:

- designator definition contains only one instead of nine variables
- designator calculates trajectories and poses in a different manner
- designator (falsely) ends by mapping the variables to designator "parts"

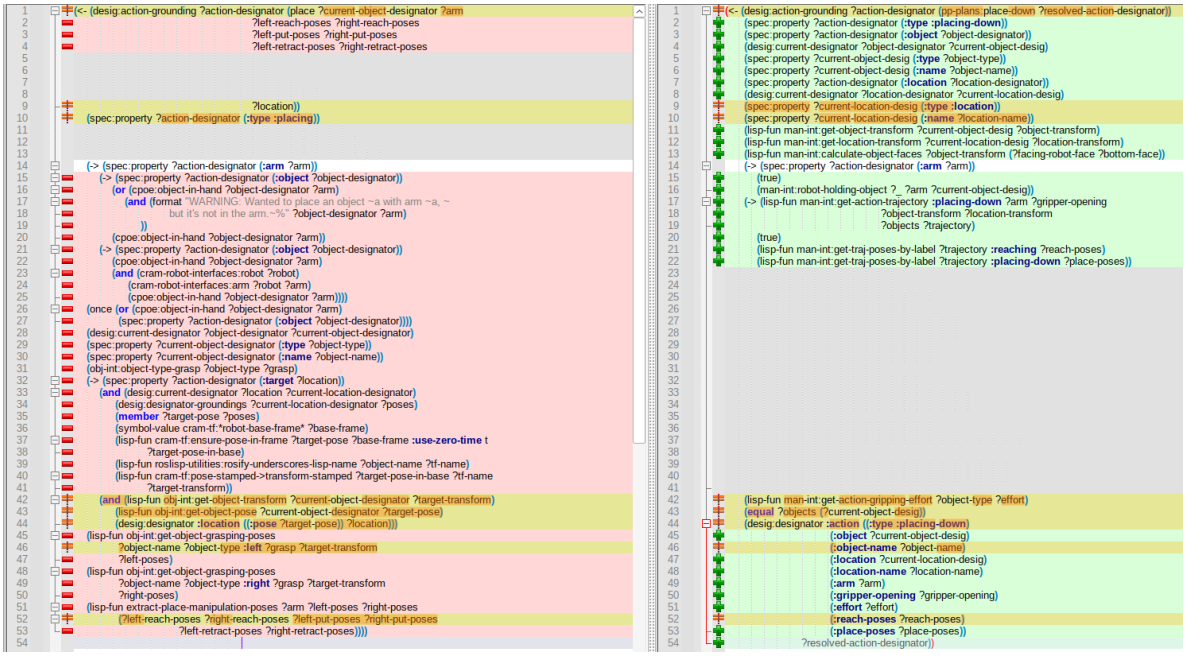

Figure 43: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Holding* (35 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
26	37	8	1

Findings:

- designator definition contains only one instead of nine variables
- designator sets high focus on definitions relevant for calculating trajectories / poses instead of using them
- designator (falsely) ends by mapping the variables to designator "parts"

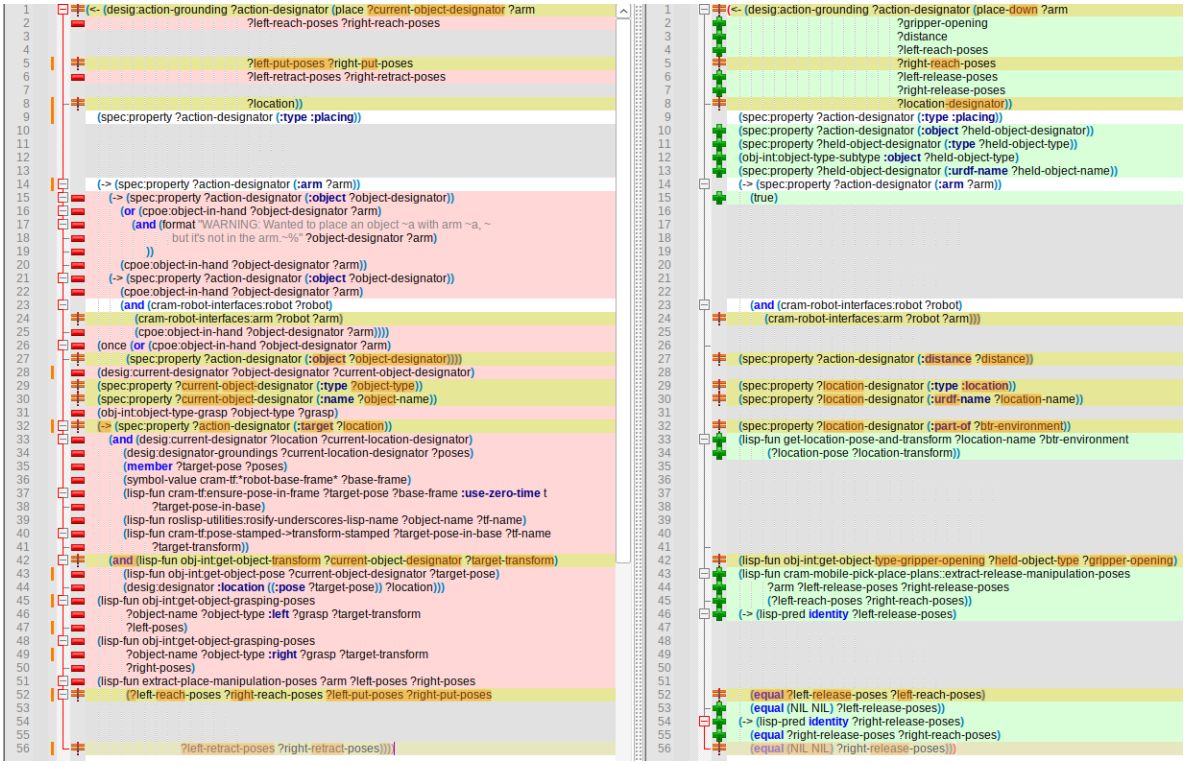

Figure 44: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Opening* (33 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
19	32	11	3

Findings:

- designator definition contains eight instead of nine variables (2 overlap)
- designator sets high focus on definitions relevant for calculating trajectories / poses instead of using them

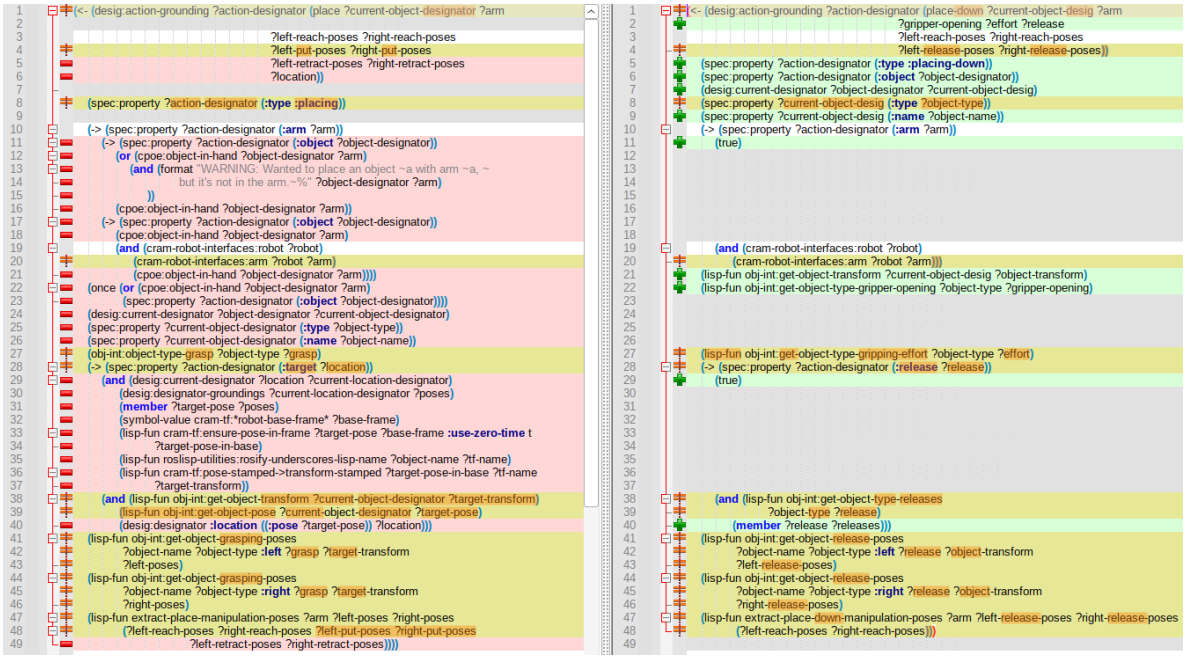

Figure 45: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Picking Up* (29 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
10	27	17	2

Findings:

- tba

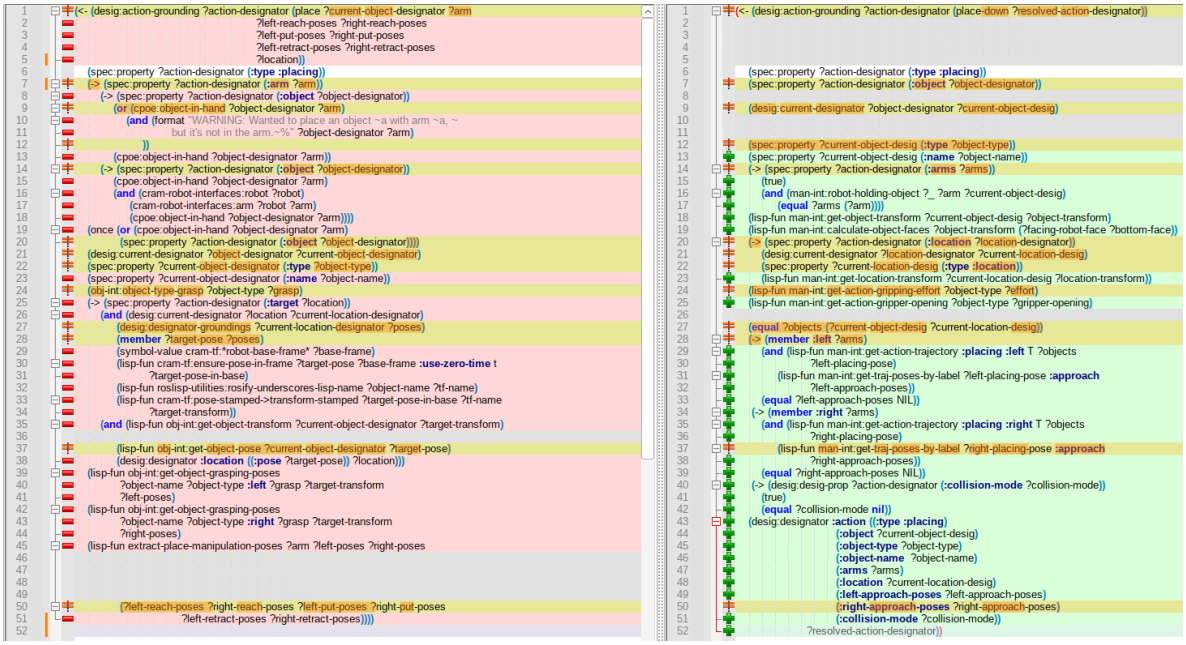

Figure 46: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Pouring* (44 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
30	32	13	1

Findings:

- designator definition contains only one instead of nine variables
- some minor renaming (e.g. *approach* instead of *reach*)
- designator calculates trajectories and poses in a different manner
- designator (falsely) ends by mapping the variables to designator "parts"

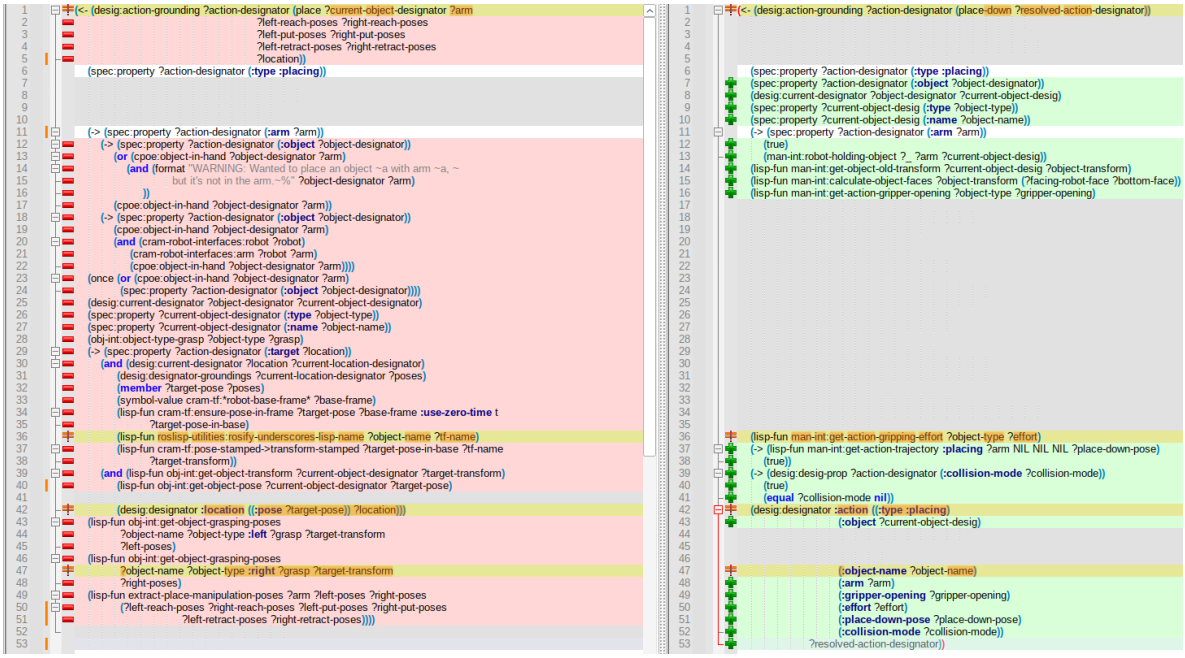

Figure 47: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Slicing* (27 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
21	40	4	2

Findings:

- designator definition contains only one instead of nine variables
- designator sets high focus on definitions relevant for calculating trajectories / poses instead of using them
- designator (falsely) ends by mapping the variables to designator "parts"

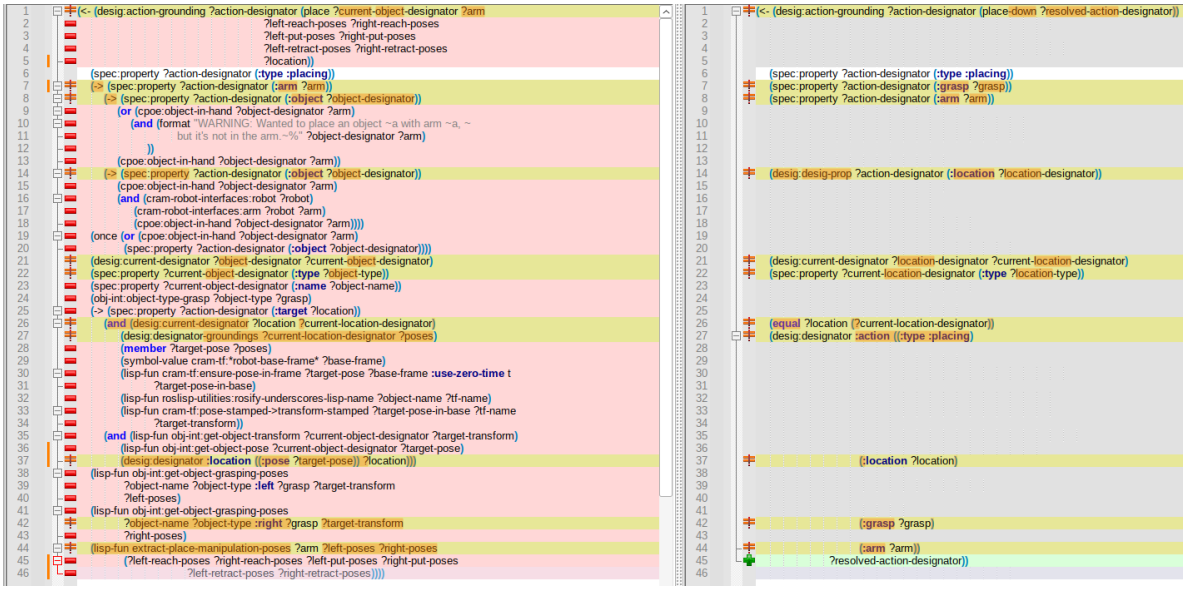

Figure 48: Left: Manual designator for the action *Placing Down* (46 lines). Right: Generated designator based on *Wiping* (13 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
1	34	11	1

Findings:

- designator definition contains only one instead of nine variables
- designator contains only (some) definitions and no usage / calculations
- designator (falsely) ends by mapping the variables to designator "parts"

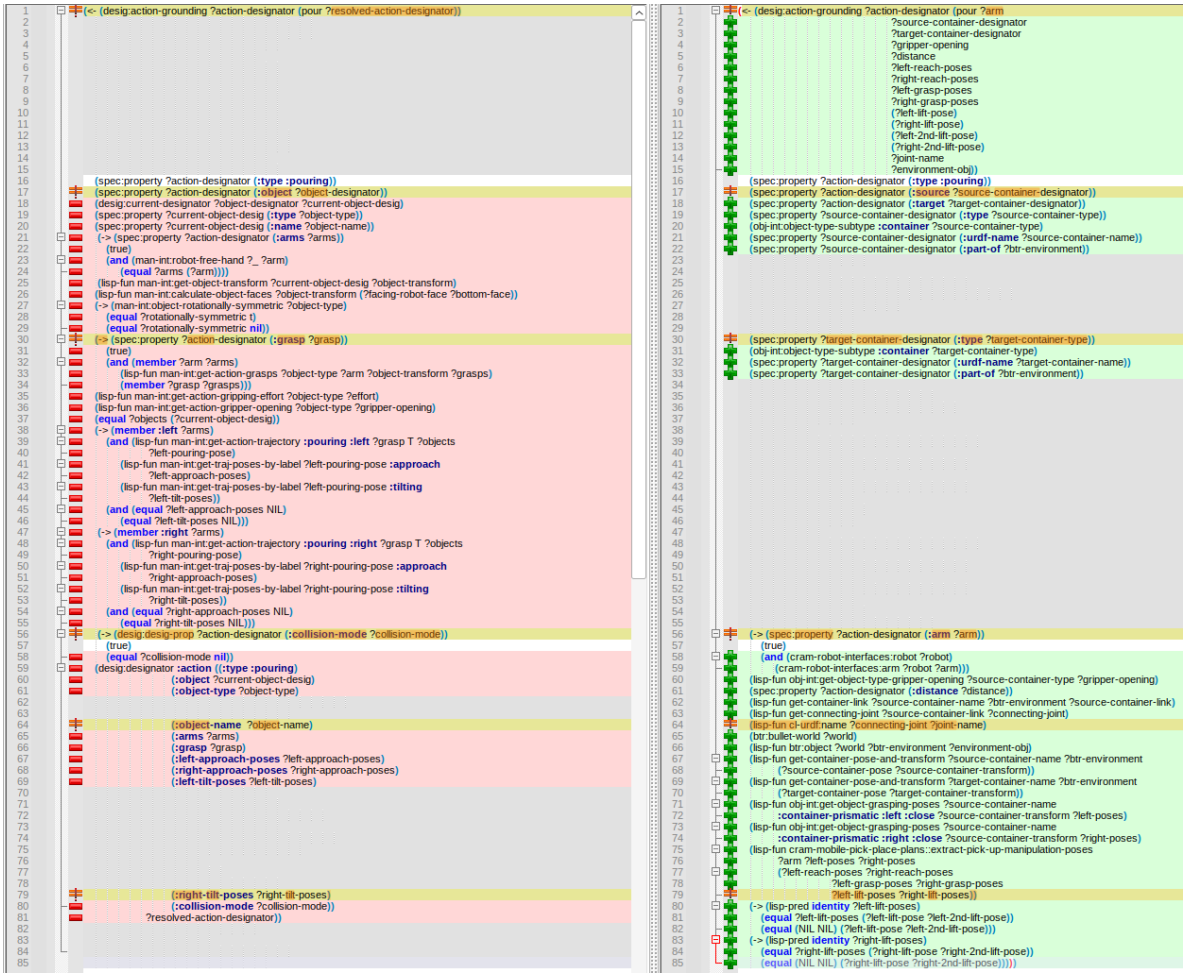

Figure 49: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Closing* (56 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
48	48	6	2

Findings:

- designator definition contains 15 instead of only one variable
- designator calculates trajectories and poses in a different manner
- generation adds block about `cram-robot-interfaces` (2 lines)
- designator does not end by mapping the variables to designator "parts"

Figure 50: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Halving* (63 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
14	7	34	15

Findings:

- some minor renaming (e.g. *source* instead of *object*)
- designator calculates a specific *pouring-pose*
- generated designator extends the mapping of variables to designator "parts" (misses *:object-type* and *:arms* but adds *:source-name, :destination, :gripper-opening, :effort* and *:arm*)

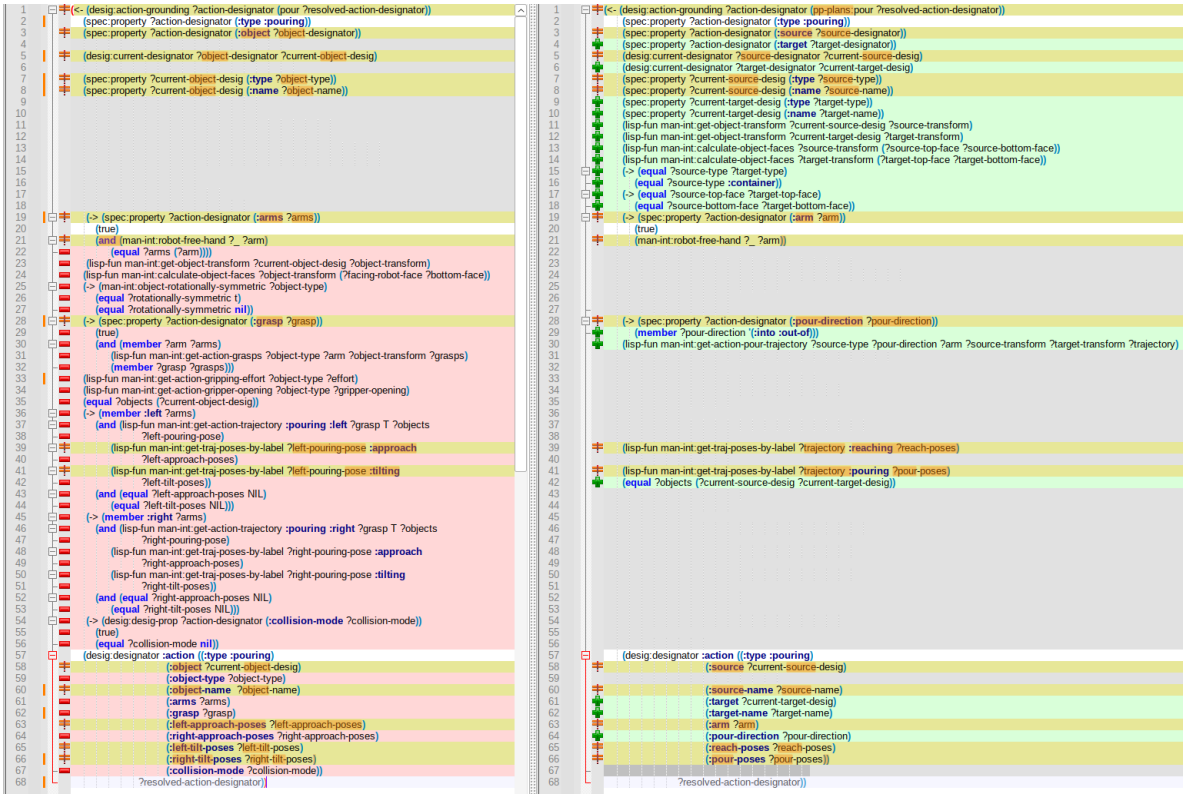

Figure 51: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Holding* (37 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
18	37	15	4

Findings:

- designator sets high focus on definitions relevant for calculating trajectories / poses instead of using them
- generated designator shortens the mapping of variables to designator "parts" (misses *:object-type, :grasp, :collision-mode, :right-approach-poses* and *:arms* but adds *:target, :target-name* and *:pour-direction*)

Figure 52: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Opening* (53 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
40	43	11	2

Findings:

- designator definition contains 15 instead of only one variable
- designator calculates trajectories and poses in a different manner
- some minor renaming (e.g. *source* instead of *object*)
- generation adds block about `cram-robot-interfaces` (2 lines)
- designator does not end by mapping the variables to designator "parts"

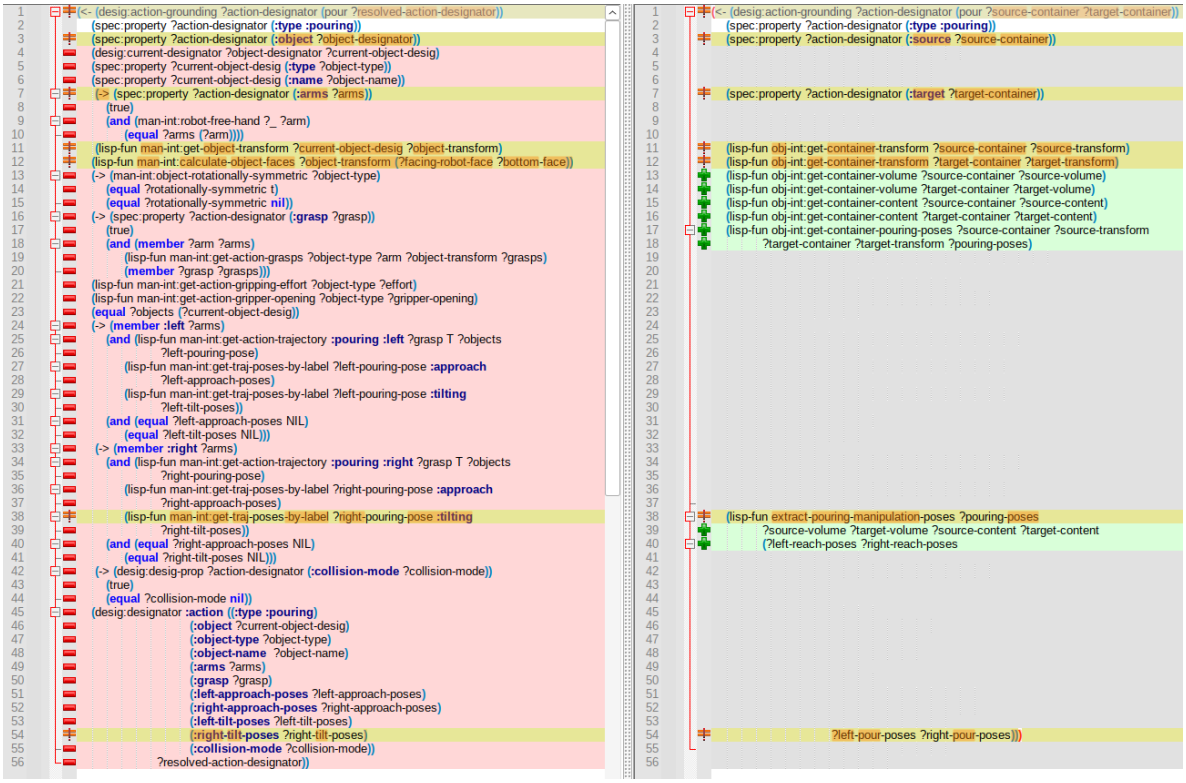

Figure 53: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Picking Up* (16 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
8	48	7	1

Findings:

- tba

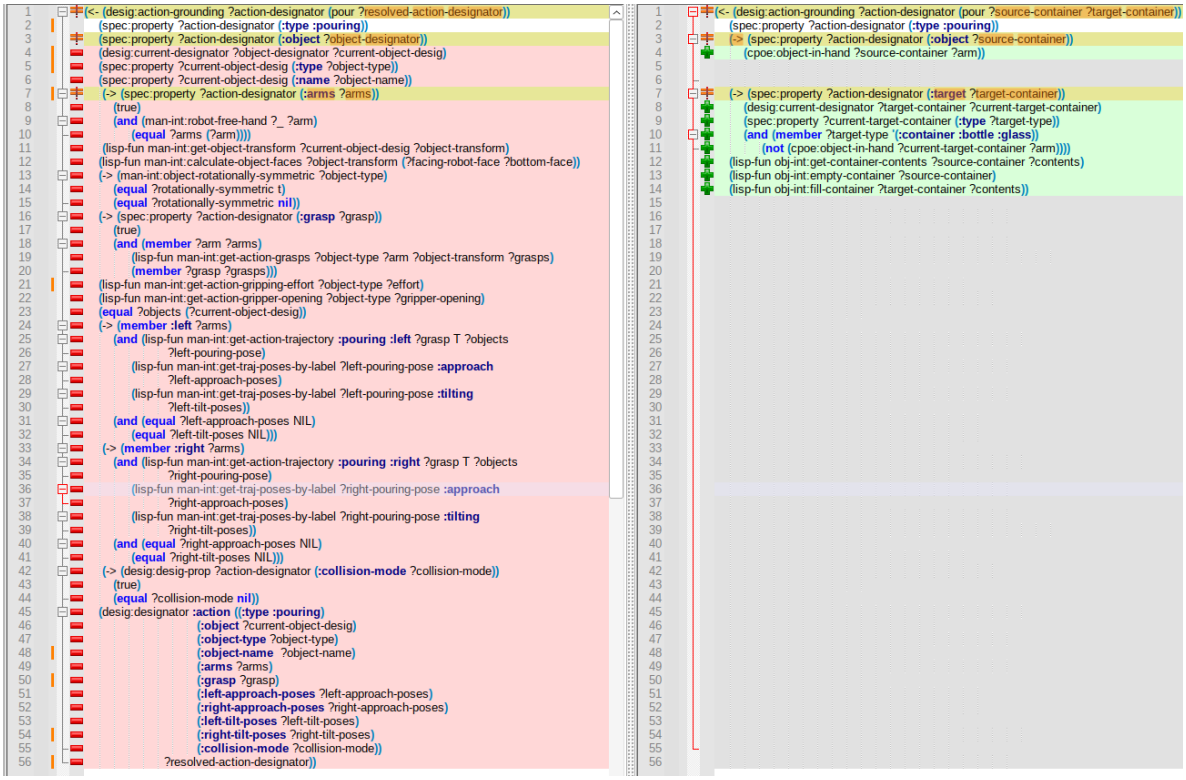

Figure 54: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Placing Down* (12 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
8	52	3	1

Findings:

- designator definition contains two instead of only one variable
- some minor renaming (e.g. *source-container* instead of *object*)
- designator contains only some definitions, no assignments or calculations
- designator does not end by mapping the variables to designator "parts"

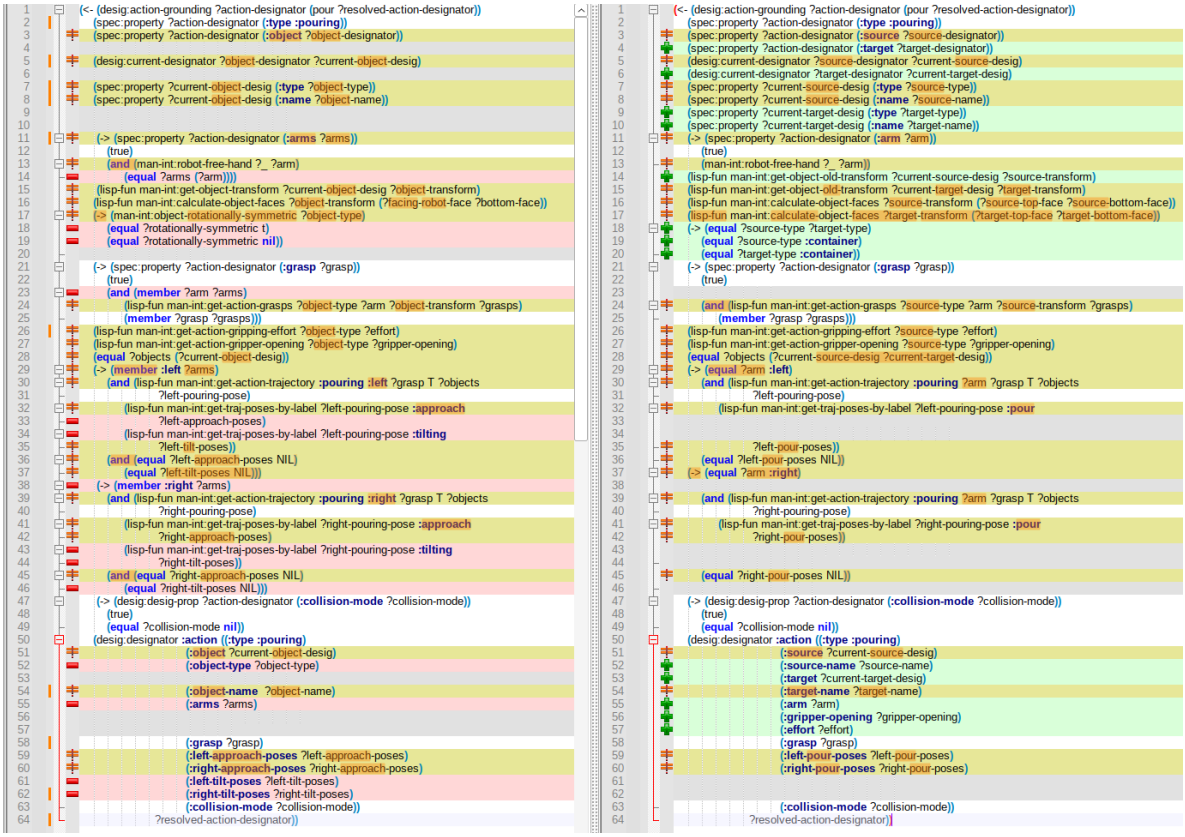

Figure 55: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Slicing* (55 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
13	14	27	15

Findings:

- some minor renaming (e.g. *source* instead of *object*)
- designator calculates trajectories and poses in a different manner
- generated designator extends the mapping of variables to designator "parts" (misses *:object-type, :left-tilt-poses, :right-tilt-poses* and *:arms* but adds *:target, :source-name, :arm, :gripper-opening* and *:effort*)

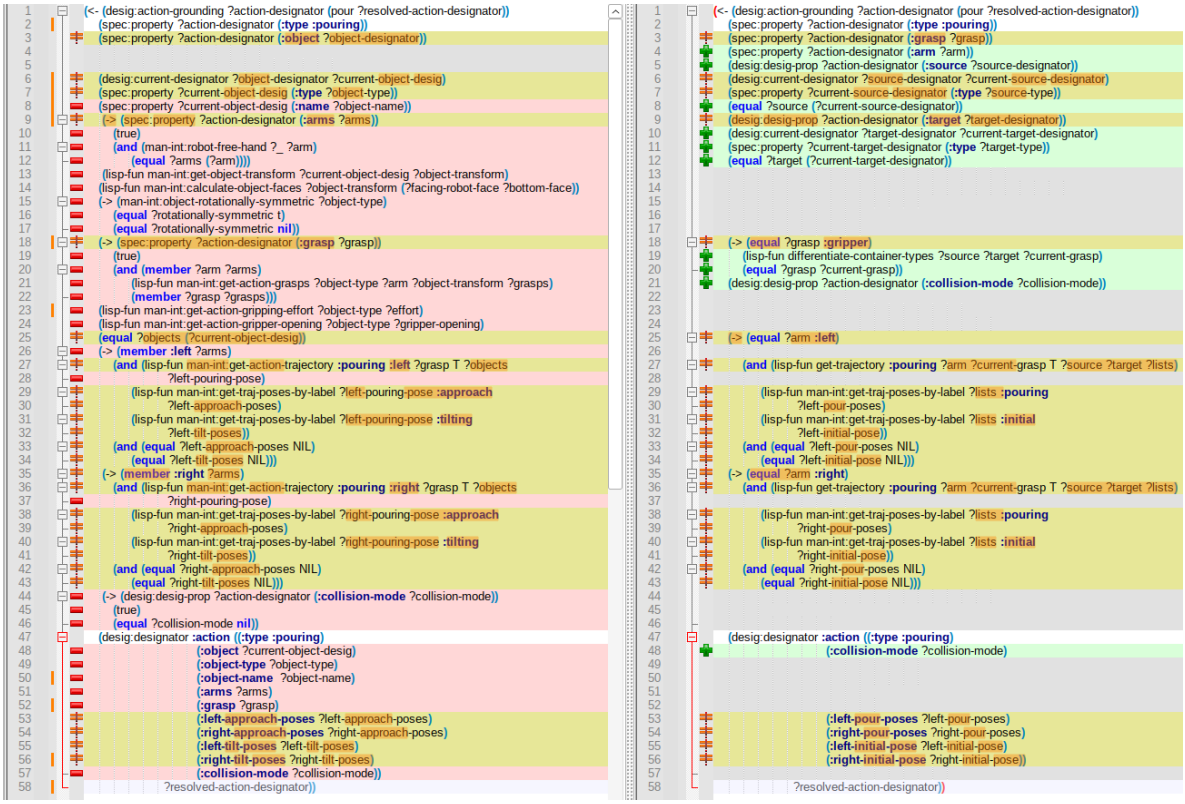

Figure 56: Left: Manual designator for the action *Pouring* (56 lines). Right: Generated designator based on *Wiping* (39 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
9	26	26	4

Findings:

- some minor renaming (e.g. *source* instead of *object*)
- designator calculates trajectories and poses in a different manner
- generated designator shortens the mapping of variables to designator "parts" (misses *:object*, *:object-type*, *:object-name*, *:grasp* and *:arms*

Figure 57: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Closing* (48 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
28	35	17	3

Findings:

- designator definition contains 14 instead of only one variable
- some minor renaming (e.g. *cutting* instead of *slicing*)
- designator calculates trajectories and poses in a different manner
- generation adds block about `cram-robot-interfaces` (2 lines)
- designator does not end by mapping the variables to designator "parts"

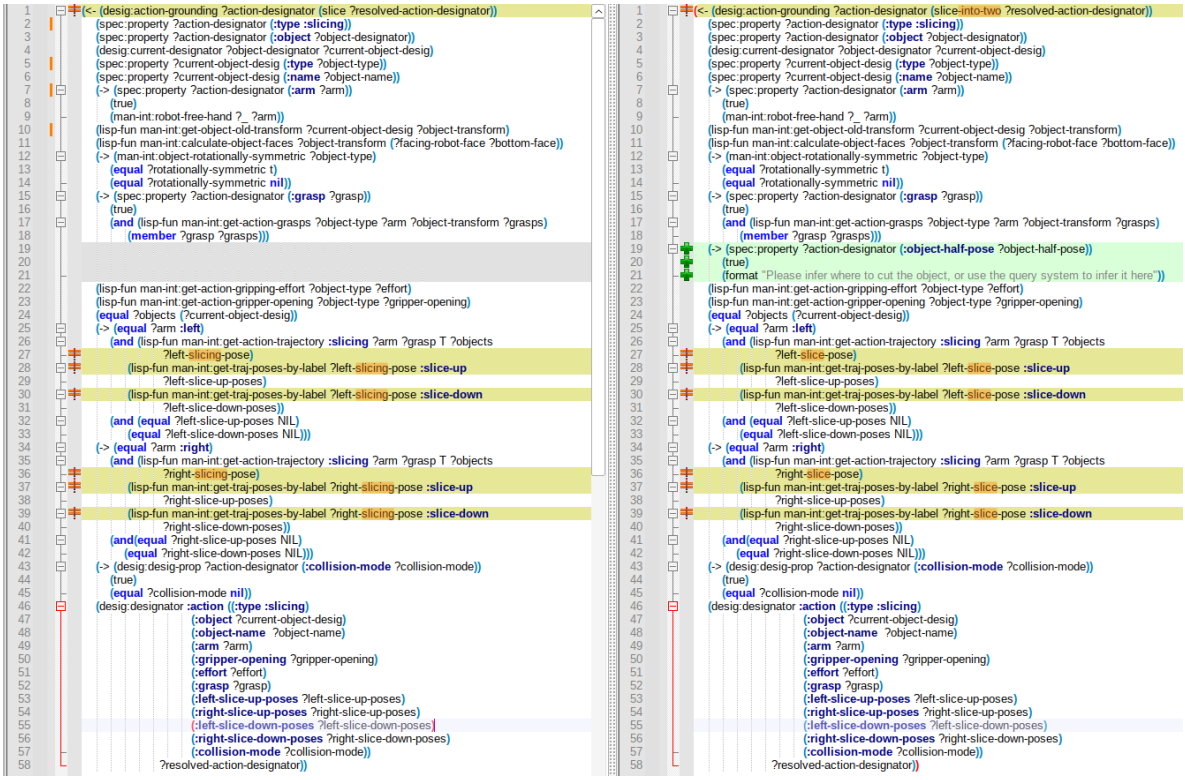

Figure 58: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Halving* (58 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
3	0	7	48

Findings:

- added lines describe block that is used for inferring the position / pose necessary for meeting the exact halve (not necessary for "normal" slicing)
- added lines are the same that are deleted when the reference and generated action are swapped (Fig. 15)
- remaining changes are places where the action verb is used in the "wrong" form (generated *slice* instead of *slicing*)

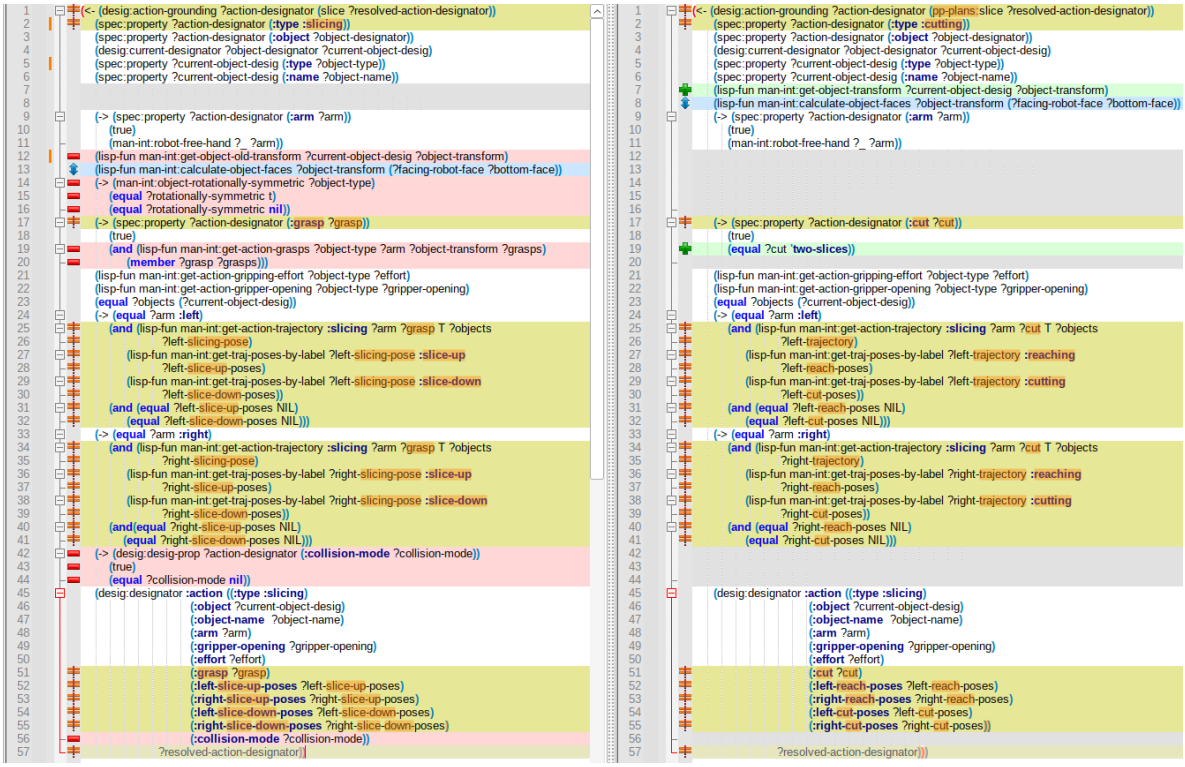

Figure 59: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Holding* (47 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
2	10	26	19

Findings:

- some minor renaming (e.g. *cutting* instead of *slicing*)
- generated designator shortens the mapping of variables to designator "parts" (misses *:collision-mode*)

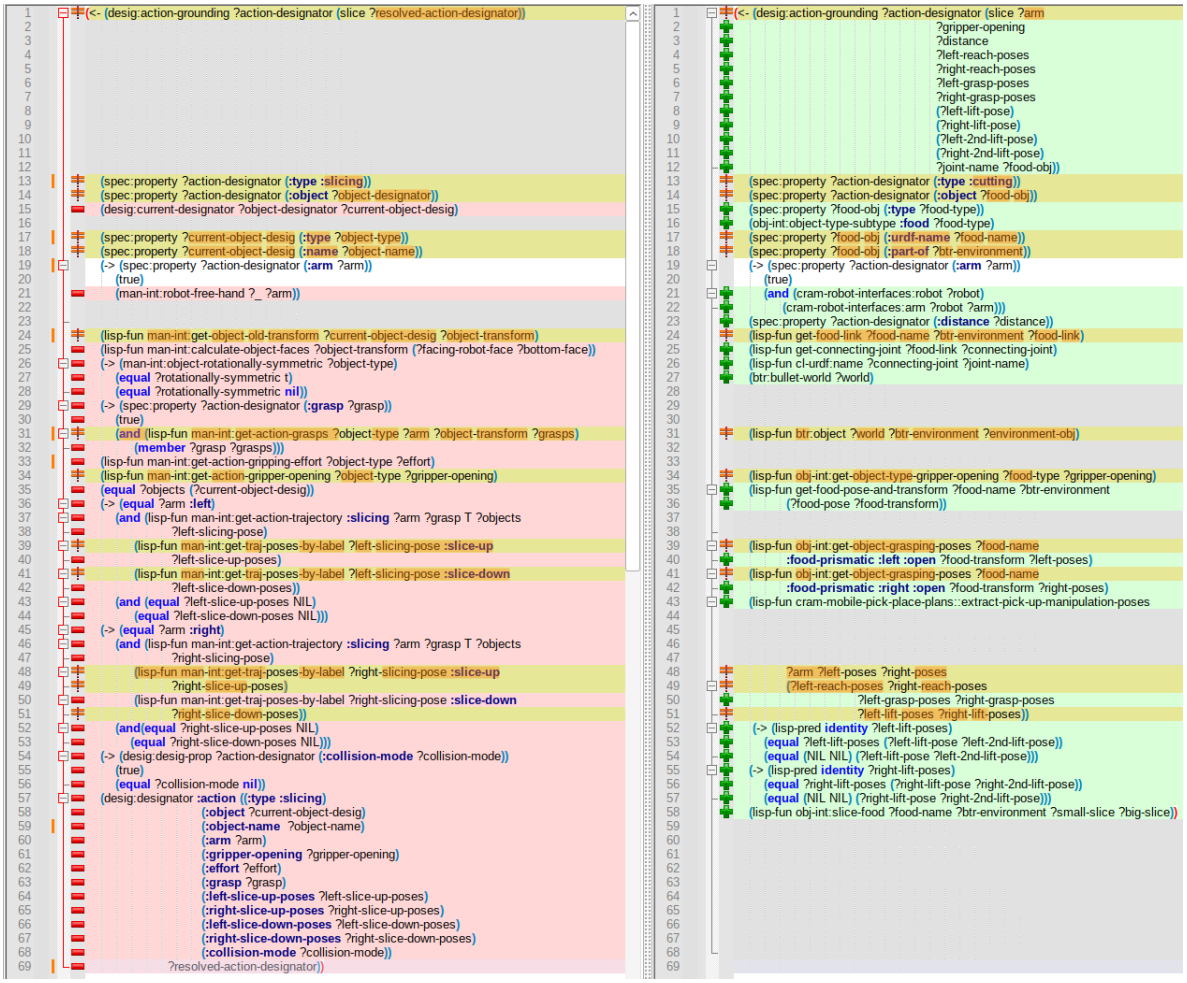

Figure 60: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Opening* (47 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
32	40	13	2

Findings:

- designator definition contains 13 instead of only one variable
- some minor renaming (e.g. *cutting* instead of *slicing*)
- generation adds block about `cram-robot-interfaces` (2 lines)
- designator calculates trajectories and poses in a different manner
- designator does not end by mapping the variables to designator "parts"

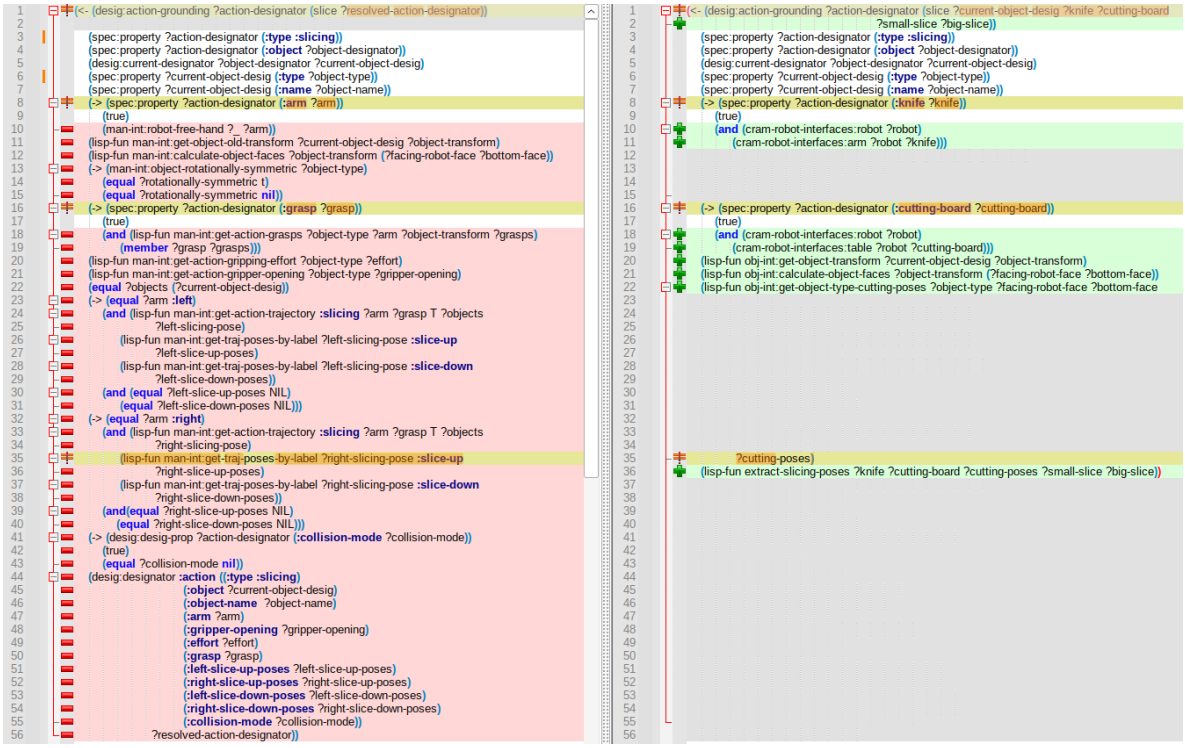

Figure 61: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Picking Up* (20 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
9	44	4	7

Findings:

- tba

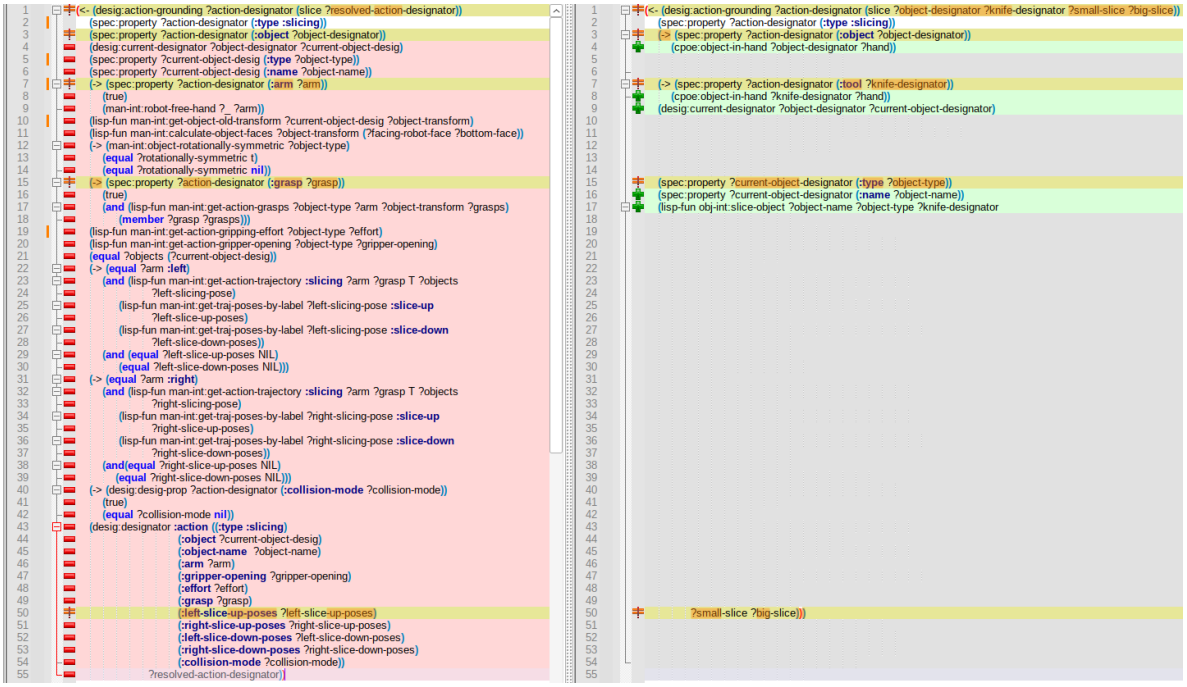

Figure 62: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Placing Down* (11 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
5	49	5	1

Findings:

- designator definition contains four instead of only one variable
- designator does not calculate trajectories and poses
- designator does not end by mapping the variables to designator "parts"

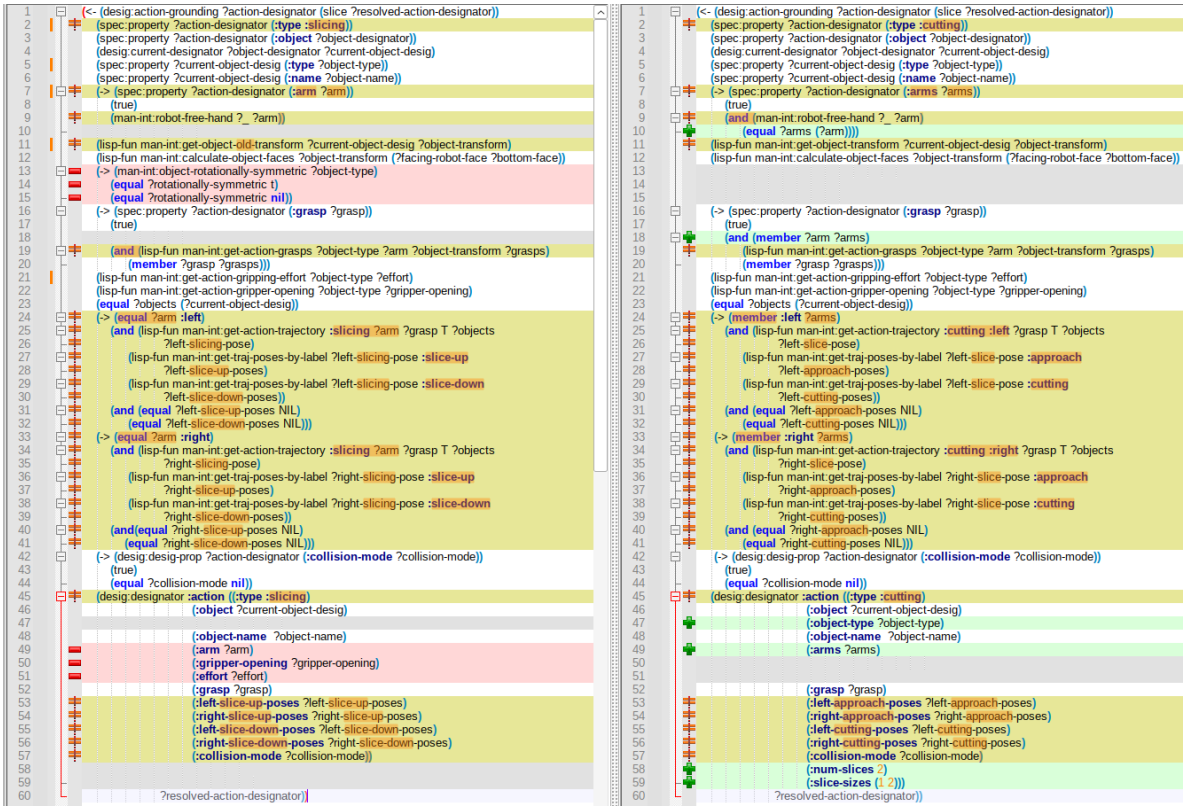

Figure 63: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Pouring* (55 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
6	6	29	20

Findings:

- some minor renaming (e.g. *cutting* instead of *slicing*)
- generated designator extends the mapping of variables to designator "parts" (misses *:arm, :gripper-opening* and *:effort* but adds *:object-type, :arms, :num-slices* and *:slice-sizes*)

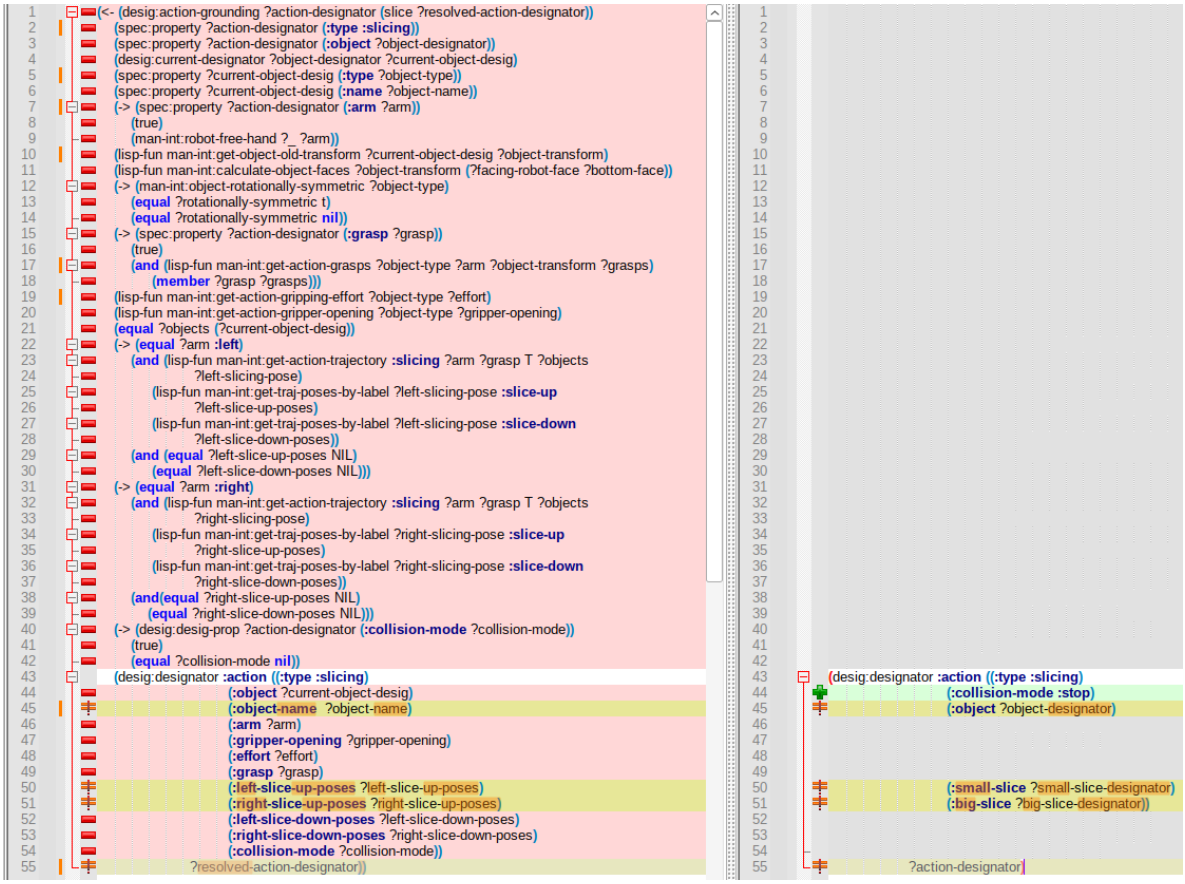

Figure 64: Left: Manual designator for the action *Slicing* (55 lines). Right: Generated designator based on *Wiping* (6 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
0	49	5	1

Findings:

- designator contains no definition and no calculations but just the mapping part
- generated designator shortens the mapping of variables to designator "parts" (misses *:object, :arm, :gripper-opening, :grasp, :left-slice-down-poses, :right-slice-down-poses* and *:effort*)

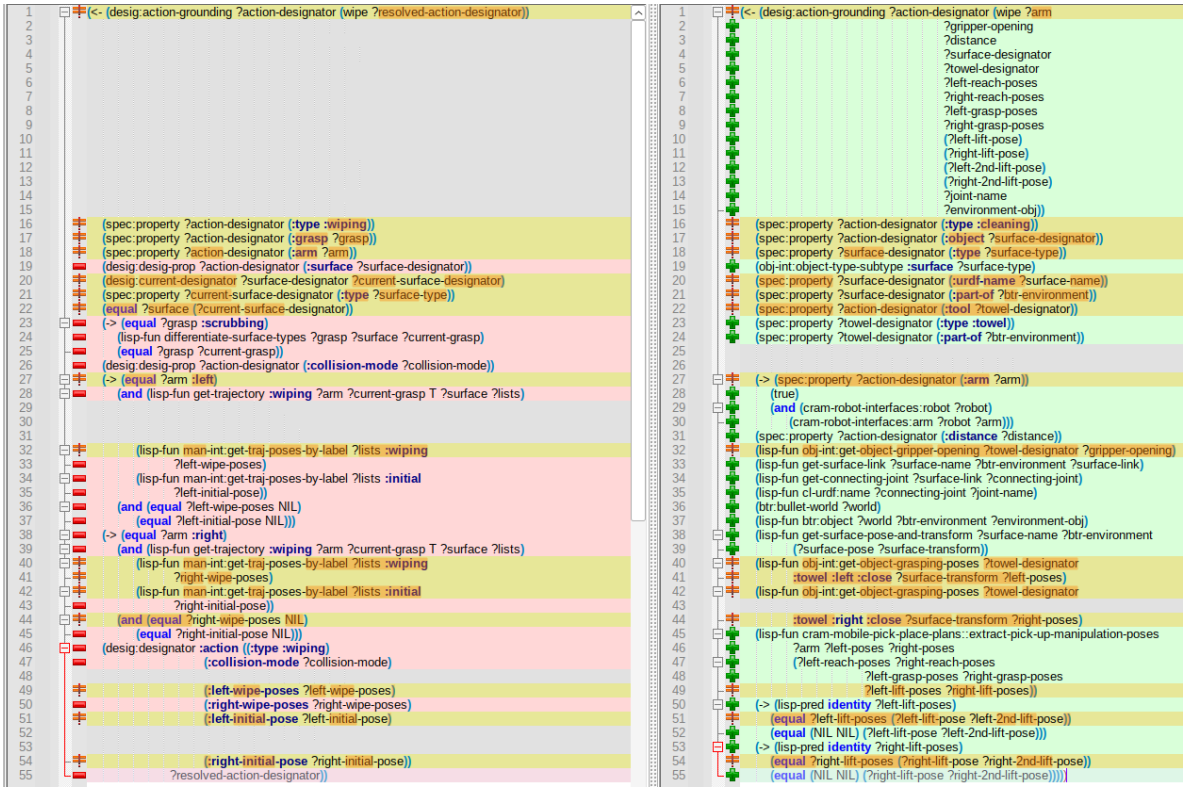

Figure 65: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Closing* (52 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
36	19	16	0

Findings:

- designator definition contains 15 instead of only one variable
- some minor renaming (e.g. *cleaning* instead of *wiping*)
- designator calculates trajectories and poses in a different manner
- generation adds block about `cram-robot-interfaces` (2 lines)
- designator does not end by mapping the variables to designator "parts"

Figure 66: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Halving* (56 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
25	4	28	3

Findings:

- some minor renaming (e.g. *cleaning* instead of *wiping*)
- designator calculates trajectories and poses in a different manner
- generated designator extends the mapping of variables to designator "parts" (adds *:object, :object-name, :arm, :gripper-opening, :grasp, :towel, :towel-name* and *:effort*)

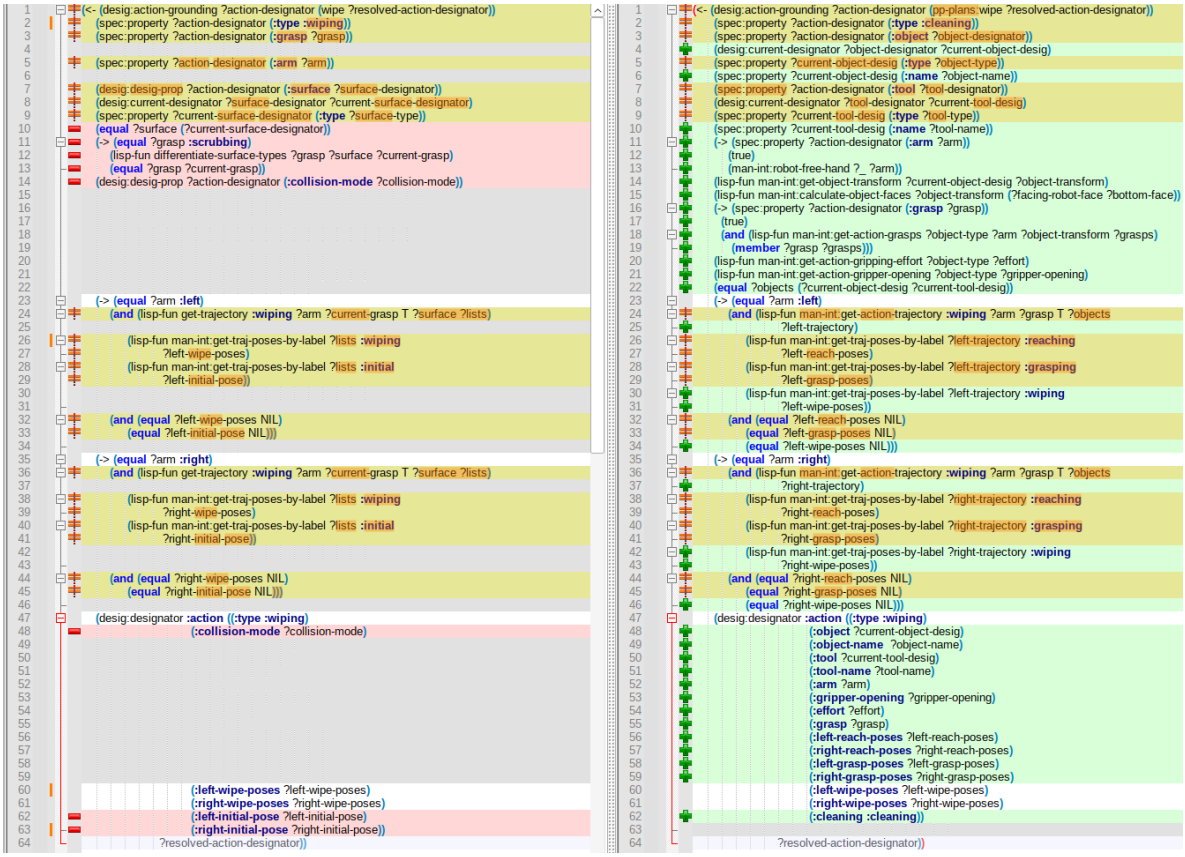

Figure 67: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Holding* (63 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
36	8	21	6

Findings:

- some minor renaming (e.g. *cleaning* instead of *wiping*)
- designator calculates trajectories and poses in a different manner
- generated designator extends the mapping of variables to designator "parts" (misses *:collision-mode*, *:left-initial-pose* and *:right-initial-pose* but adds *:object*, *:object-name*, *:tool*, *:tool-name*, *:arm*, *:gripper-opening*, *:grasp*, *:cleaning*, *:left-reach-poses*, *:right-reach-poses*, *:left-grasp-poses*, *:right-grasp-poses* and *:effort*)

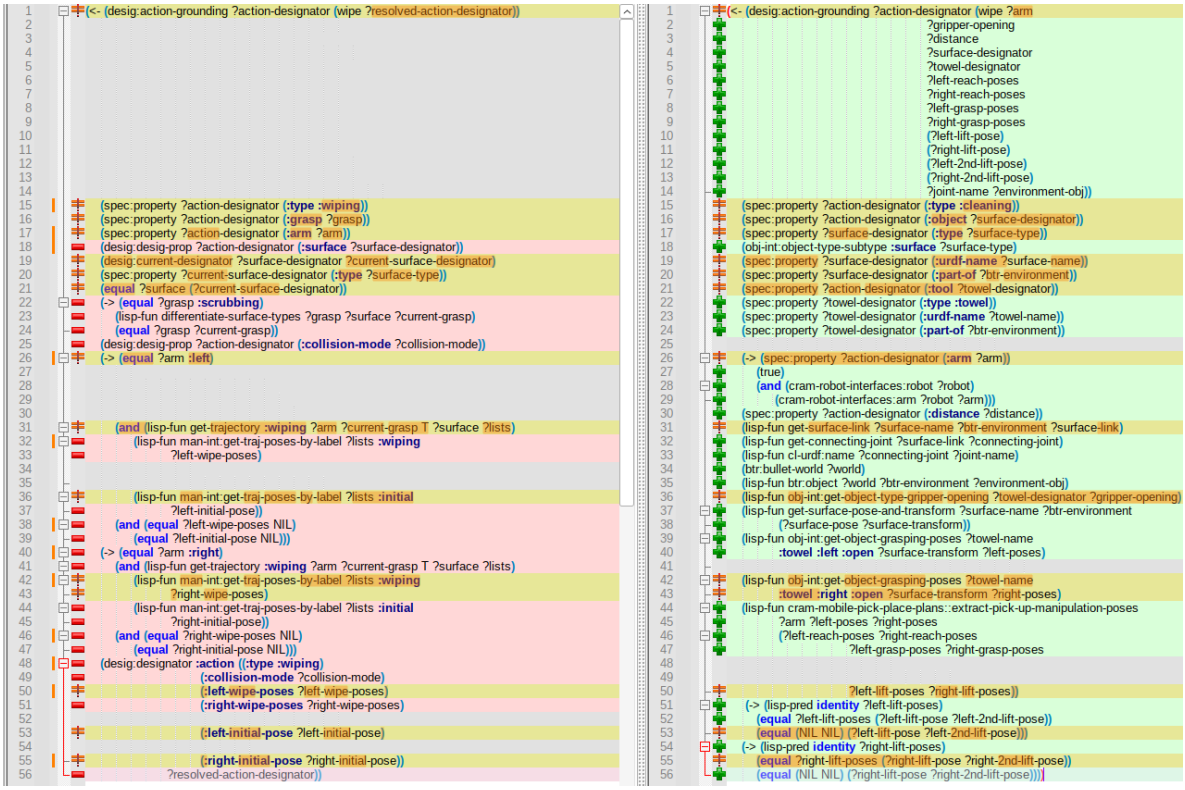

Figure 68: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Opening* (52 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
37	20	15	0

Findings:

- designator definition contains 15 instead of only one variable
- some minor renaming (e.g. *cleaning* instead of *wiping*)
- designator calculates trajectories and poses in a different manner
- designator does not end by mapping the variables to designator "parts"

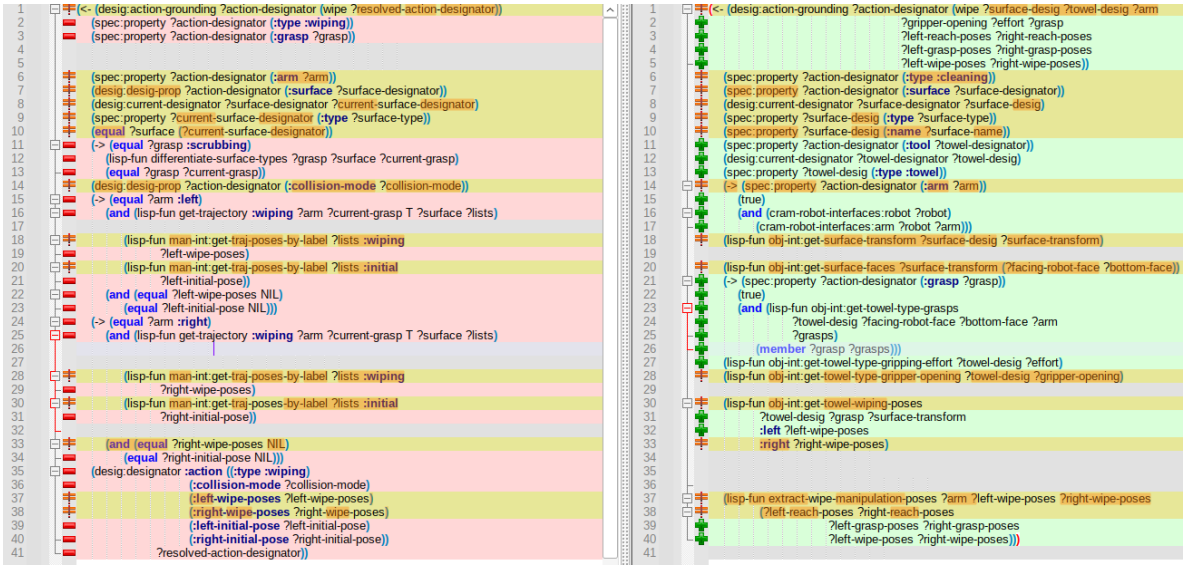

Figure 69: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Picking Up* (35 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
21	21	14	0

Findings:

- tba

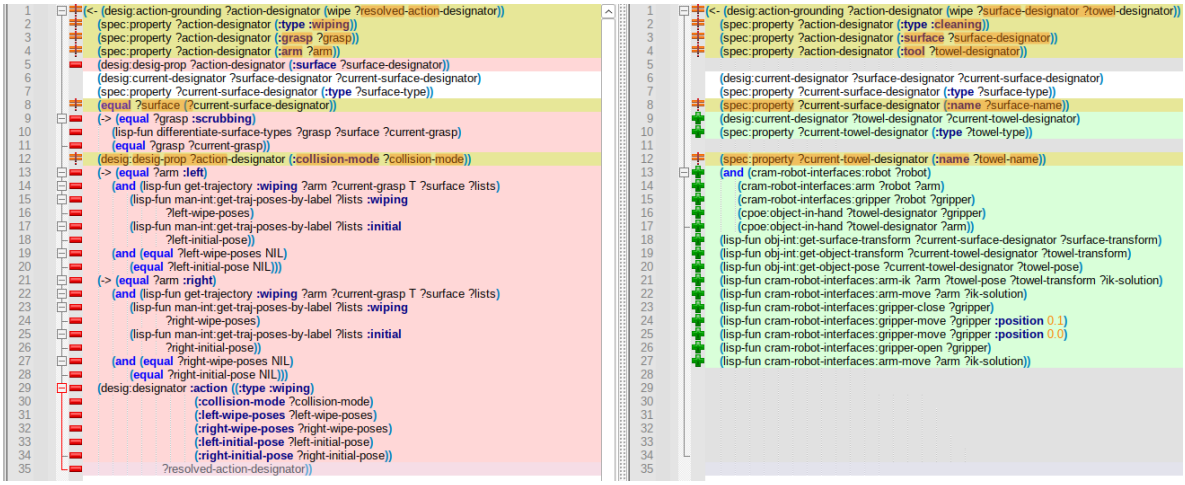

Figure 70: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Placing Down* (25 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
17	27	6	2

Findings:

- designator definition contains two instead of only one variable
- some minor renaming (e.g. *cleaning* instead of *wiping*)
- generation adds block about `cram-robot-interfaces` (3 lines)
- designator contains only definitions but no calculations
- designator does not end by mapping the variables to designator "parts"

Figure 71: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Pouring* (53 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
24	6	25	2

Findings:

- some minor renaming (e.g. *cleaning* instead of *wiping*)
- designator calculates trajectories and poses in a different manner
- generated designator extends the mapping of variables to designator "parts" (adds *:object, :object-type, :object-name, :arms* and *:grasp*)

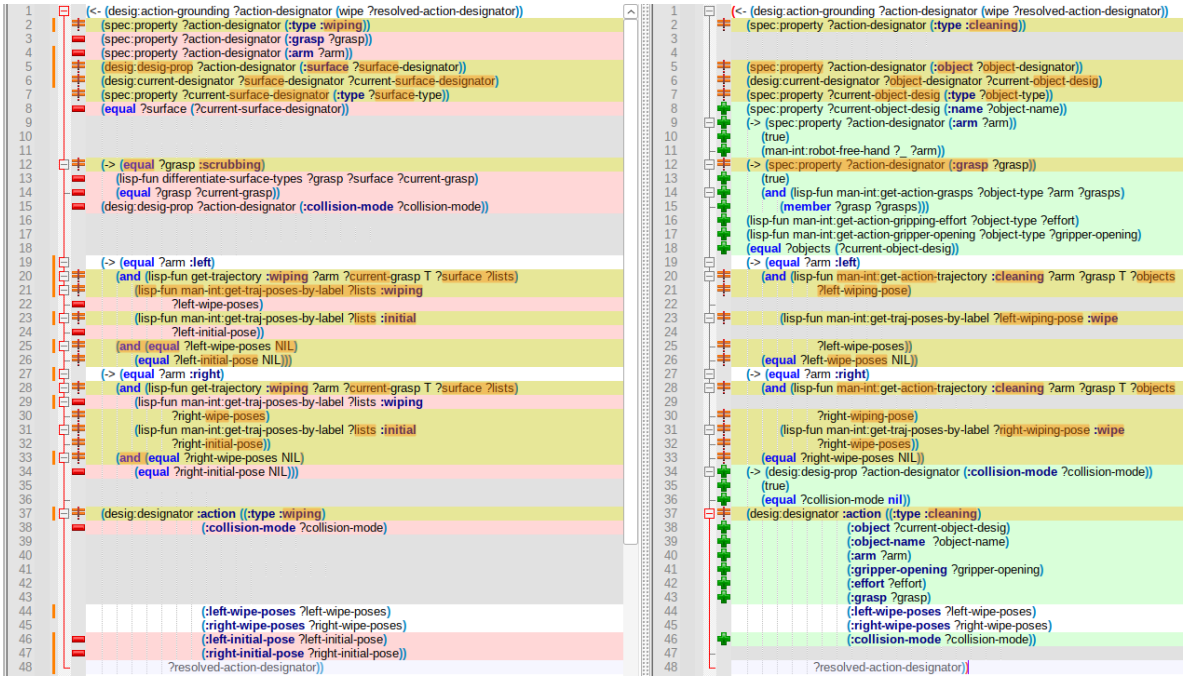

Figure 72: Left: Manual designator for the action *Wiping* (35 lines). Right: Generated designator based on *Slicing* (42 lines).

Added Lines	Deleted Lines	Changed Lines	Unchanged Lines
19	12	17	6

Findings:

- some minor renaming (e.g. *cleaning* instead of *wiping*)
- designator calculates trajectories and poses in a different manner
- generated designator extends the mapping of variables to designator "parts" (misses *:left-initial-pose* and *:right-initial-pose* but adds *:object, :object-name, :arm, :gripper-opening, :effort* and *:grasp*)