

CHAPTER 9

Source Code

“A garden enclosed
Is my sister, my spouse,
A spring shut up,
A fountain sealed. . . .
A fountain of gardens,
A well of living waters,
And streams from Lebanon.”
— Song of Solomon 4:12, 15

The source code for the Sunrise system may be retrieved by anonymous ftp from Internet site `ftp.cs.ucla.edu`, in directory `/pub/homeier/sunrise`. It is based on version 2.02 of Higher Order Logic (HOL). It contains a modified version of one library, `ind_defs`, revised to work in HOL version 2.02.

There are altogether twenty-two theories. Their sizes are given in Table 9.1. The column headings have the following meanings:

Column:	Meaning
Theory Name:	the name of the HOL theory
Typs:	the number of new types declared in the theory
Defs:	the number of new constants declared in the theory
Thms:	the number of theorems proven and stored in the theory
ALL:	the sum of the preceding three columns
TLen:	the length of the listing of the theory, in lines
ATL:	the average length of a theorem (def., etc.) as listed, in lines
SLen:	the length of the source file of the theory, in lines
ASL:	the avg. length of source for a theorem (def., etc.), in lines

Theory Name	Typs	Defs	Thms	ALL	TLen	ATL	SLen	ASL
more_finite_sets	0	1	37	38	160	4.2	1003	26.4
bindings	0	5	88	93	432	4.6	3107	33.4
variables	1	5	7	13	66	5.1	106	8.2
variants	0	13	54	67	273	4.1	1536	22.9
assert_syntax	2	23	10	35	601	17.2	85	2.4
assert_semantics	0	7	14	21	149	7.1	710	33.8
substitutions	0	7	56	63	355	5.6	2096	33.3
var_substitutions	0	4	93	97	573	5.9	4020	41.4
prog_syntax	5	33	25	63	622	9.9	105	1.7
prog_substitutions	0	7	25	32	208	6.5	651	20.3
prog_semantics	0	9	13	22	457	20.8	409	18.6
free_variables	0	6	36	42	249	5.9	2916	69.4
translations	0	16	21	37	213	5.8	805	21.8
progress	0	15	15	30	427	14.2	845	28.2
well_formed	0	34	79	113	916	8.1	4139	36.6
cmd_semantics	0	0	21	21	290	13.8	3382	161.0
hoare_rules	0	1	100	101	1030	10.2	8841	87.5
progress_rules	0	2	46	48	362	7.5	2925	60.9
semantic_stages	0	6	26	32	400	12.5	3803	118.8
stage_semantics	0	0	32	32	481	15.0	5427	169.6
termination	0	12	53	65	579	8.9	3085	47.5
vcg	0	11	55	66	702	10.6	7516	113.9
TOTALS	8	217	906	1131	9545	8.4	57512	50.9

Table 9.1: Sunrise Theory Sizes.