

1. Grammar symbols: Used cross reference.

Reference of each grammar's symbol used within each rule's productions. The index uses the tripple: rule name, its subrule no, and the symbol's position within the symbol string.

2. # *.:**

Rtoken_grp1 1.2

3. # AB.:

Rtoken_grp3 5.2

4. # AD.:

Rtoken_grp3 4.2

5. # NULL.:

Rtoken_grp5 2.2

6. # T-enumeration.:

Rtoken_grp3 11.2

7. # arbitrator-code.:

Rtoken_grp5 1.2

8. # constant-defs.:

Rtoken_grp4 12.2

9. # constructor.:

Rtoken_grp4 6.2

10. # destructor.:

Rtoken_grp4 7.2

11. # error-symbols.:

Rtoken_grp3 3.2

12. # failed.:

Rtoken_grp5 3.2

13. # file-name.:

Rtoken_grp3 12.2

2 # FSM:

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14. # fsm:.
Rtoken_grp2 4.2

15. # fsm-class:.
Rtoken_grp2 8.2

16. # fsm-comments:.
Rtoken_grp2 12.2

17. # fsm-date:.
Rtoken_grp2 10.2

18. # fsm-debug:.
Rtoken_grp2 11.2

19. # fsm-filename:.
Rtoken_grp2 6.2

20. # fsm-id:.
Rtoken_grp2 5.2

21. # fsm-namespace:.
Rtoken_grp2 7.2

22. # fsm-version:.
Rtoken_grp2 9.2

23. # lhs:.
Rtoken_grp4 2.2

24. # lr1-constant-symbols:.
Rtoken_grp3 2.2

25. # lrk-suffix:.
Rtoken_grp4 15.2

26. # name-space:.
Rtoken_grp3 13.2

27. # op:.
Rtoken_grp4 8.2

28. # parallel-control-monitor:.
Rtoken_grp3 9.2

29. # parallel-la-boundary:.
Rtoken_grp3 7.2

30. # parallel-parser:.
Rtoken_grp3 6.2

31. # parallel-thread-function:.
Rtoken_grp3 8.2

32. # raw-characters:.
Rtoken_grp3 1.2

33. # rules:.
Rtoken_grp4 1.2

34. # sym-class:.
Rtoken_grp3 14.2

35. # terminals:.
Rtoken_grp3 10.2

36. # terminals-refs:.
Rtoken_grp4 13.2

37. # terminals-sufx:.
Rtoken_grp4 14.2

38. # user-declaration:.
Rtoken_grp4 3.2

39. # user-imp-sym:.
Rtoken_grp4 11.2

4 # USER-IMP-TBL:

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40. # user-imp-tbl:.

Rtoken_grp4 10.2

41. # user-implementation:.

Rtoken_grp4 9.2

42. # user-prefix-declaration:.

Rtoken_grp4 4.2

43. # user-suffix-declaration:.

Rtoken_grp4 5.2

44. :::

Rtoken_grp1 7.2

45. NS_angled_string::TH_angled_string:.

Rtoken_grp1 2.3

46. NS_bad_char_set::TH_bad_char_set:.

Rtoken_grp1 3.3

47. NS_c_comments::TH_c_comments:.

Rtoken_grp1 4.3

48. NS_c_literal::TH_c_literal:.

Rtoken_grp1 5.3

49. NS_c_string::TH_c_string:.

Rtoken_grp1 6.3

50. NS_dbl_colon::TH_dbl_colon:.

Rtoken_grp1 7.3

51. NS_eol::TH_eol:.

Rtoken_grp1 8.3

52. NS_esc_seq::TH_esc_seq:.

Rtoken_grp1 9.3

53. NS_identifer::TH_identifer:.

Rtoken_grp1 10.3

54. NS_int_no::TH_int_no:.

Rtoken_grp1 11.3

55. NS_o2_code_end::TH_o2_code_end:.

Rtoken_grp1 1.3

56. NS_unq_str::TH_unq_str:.

Rtoken_grp1 13.3

57. NS_ws::TH_ws:.

Rtoken_grp1 12.3

58. NULL thread:.

Rtoken_grp1 14.3 Rtoken_grp2 1.3 Rtoken_grp2 2.3 Rtoken_grp2 3.3 Rtoken_grp2 4.3 Rtoken_grp2 5.3
Rtoken_grp2 6.3 Rtoken_grp2 7.3 Rtoken_grp2 8.3 Rtoken_grp2 9.3 Rtoken_grp2 10.3 Rtoken_grp2 11.3
Rtoken_grp2 12.3 Rtoken_grp3 1.3 Rtoken_grp3 2.3 Rtoken_grp3 3.3 Rtoken_grp3 4.3 Rtoken_grp3 5.3
Rtoken_grp3 6.3 Rtoken_grp3 7.3 Rtoken_grp3 8.3 Rtoken_grp3 9.3 Rtoken_grp3 10.3 Rtoken_grp3 11.3
Rtoken_grp3 12.3 Rtoken_grp3 13.3 Rtoken_grp3 14.3 Rtoken_grp4 1.3 Rtoken_grp4 2.3 Rtoken_grp4 3.3
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Rtoken_grp4 10.3 Rtoken_grp4 11.3 Rtoken_grp4 12.3 Rtoken_grp4 13.3 Rtoken_grp4 14.3 Rtoken_grp4
15.3 Rtoken_grp5 1.3 Rtoken_grp5 2.3 Rtoken_grp5 3.3

59. Relems:.

Rpass3 2.1 Relems 2.1

60. Rtoken:.

Relems 1.1 Relems 2.2

61. Rtoken_grp1:.

Rtoken 1.1

62. Rtoken_grp2:.

Rtoken 2.1

63. Rtoken_grp3:.

Rtoken 3.1

64. Rtoken_grp4:.

Rtoken 4.1

65. Rtoken_grp5:.

Rtoken 5.1

66. angled-string:.

Rtoken_grp1 2.2

67. bad char:.

Rtoken_grp1 3.2

68. bad eos:.

Rtoken_grp2 1.2

69. bad esc:.

Rtoken_grp2 3.2

70. c-literal:.

Rtoken_grp1 5.2

71. c-string:.

Rtoken_grp1 6.2

72. comment:.

Rtoken_grp1 4.2

73. comment-overflow:.

Rtoken_grp2 2.2

74. eog:.

Rpass3 1.1 Rpass3 2.2

75. eol:.

Rtoken_grp1 8.2

76. esc-seq:.

Rtoken_grp1 9.2

77. identifier:.

Rtoken_grp1 10.2

78. int-no:.

Rtoken_grp1 11.2

79. unquoted-string:.

Rtoken_grp1 13.2

80. ws:.

Rtoken_grp1 12.2

81. |+|:.

Rtoken_grp5 4.1

82. |?|:.

Rtoken_grp1 14.2

83. |||:.

Rtoken_grp1 1.1 Rtoken_grp1 2.1 Rtoken_grp1 3.1 Rtoken_grp1 4.1 Rtoken_grp1 5.1 Rtoken_grp1 6.1
Rtoken_grp1 7.1 Rtoken_grp1 8.1 Rtoken_grp1 9.1 Rtoken_grp1 10.1 Rtoken_grp1 11.1 Rtoken_grp1 12.1
Rtoken_grp1 13.1 Rtoken_grp1 14.1 Rtoken_grp2 1.1 Rtoken_grp2 2.1 Rtoken_grp2 3.1 Rtoken_grp2 4.1
Rtoken_grp2 5.1 Rtoken_grp2 6.1 Rtoken_grp2 7.1 Rtoken_grp2 8.1 Rtoken_grp2 9.1 Rtoken_grp2 10.1
Rtoken_grp2 11.1 Rtoken_grp2 12.1 Rtoken_grp3 1.1 Rtoken_grp3 2.1 Rtoken_grp3 3.1 Rtoken_grp3 4.1
Rtoken_grp3 5.1 Rtoken_grp3 6.1 Rtoken_grp3 7.1 Rtoken_grp3 8.1 Rtoken_grp3 9.1 Rtoken_grp3 10.1
Rtoken_grp3 11.1 Rtoken_grp3 12.1 Rtoken_grp3 13.1 Rtoken_grp3 14.1 Rtoken_grp4 1.1 Rtoken_grp4
2.1 Rtoken_grp4 3.1 Rtoken_grp4 4.1 Rtoken_grp4 5.1 Rtoken_grp4 6.1 Rtoken_grp4 7.1 Rtoken_grp4 8.1
Rtoken_grp4 9.1 Rtoken_grp4 10.1 Rtoken_grp4 11.1 Rtoken_grp4 12.1 Rtoken_grp4 13.1 Rtoken_grp4
14.1 Rtoken_grp4 15.1 Rtoken_grp5 1.1 Rtoken_grp5 2.1 Rtoken_grp5 3.1

84. Grammar Rules's First Sets.**85. *Rpass3* # in set: 3.**

eog |+| |||

86. *Relems* # in set: 2.

|+| |||

87. *Rtoken* # in set: 2.

|+| |||

88. *Rtoken_grp1* # in set: 1.

|||

89. *Rtoken_grp2* # in set: 1.

|||

90. *Rtoken_grp3* # in set: 1.

|||

91. *Rtoken_grp4* # in set: 1.

|||

92. *Rtoken_grp5* # in set: 2.

|+| |||

93. LR State Network.

List of productions with their derived LR state lists. Their subrule number and symbol string indicates the specific production being derived. The “▷” symbol indicates the production’s list of derived states from its closed state. Multiple lists within a production indicate 1 of 2 things:

1) derived string that could not be merged due to a lr(1) conflict

2) partially derived string merged into another derived lr states

A partially derived string is indicated by the “merged into” symbol ↗ used as a superscript along with the merged into state number.

94. *Rpass3*.

1 eog

▷ 1 2

2 Relems eog

▷ 1 63 64

95. *Relems*.

1 Rtoken

▷ 1 71

2 Relems Rtoken

▷ 1 63 65

96. Rtoken.

- 1 Rtoken_grp1
 - ▷ 1 66
 - ▷ 63^{↗66}
- 2 Rtoken_grp2
 - ▷ 1 67
 - ▷ 63^{↗67}
- 3 Rtoken_grp3
 - ▷ 1 68
 - ▷ 63^{↗68}
- 4 Rtoken_grp4
 - ▷ 1 69
 - ▷ 63^{↗69}
- 5 Rtoken_grp5
 - ▷ 1 70
 - ▷ 63^{↗70}

97. Rtoken_grp1.

```
1 ||| # *** NS_o2_code_end::TH_o2_code_end
  ▷ 1 3 18
  ▷ 63↗3
2 ||| angled-string NS_angled_string::TH_angled_string
  ▷ 1 3 9
  ▷ 63↗3
3 ||| bad char NS_bad_char_set::TH_bad_char_set
  ▷ 1 3 61
  ▷ 63↗3
4 ||| comment NS_c.comments::TH_c_comments
  ▷ 1 3 7
  ▷ 63↗3
5 ||| c-literal NS_c.literal::TH_c_literal
  ▷ 1 3 10
  ▷ 63↗3
6 ||| c-string NS_c.string::TH_c_string
  ▷ 1 3 11
  ▷ 63↗3
7 ||| :: NS_dbl_colon::TH_dbl_colon
  ▷ 1 3 57
  ▷ 63↗3
8 ||| eol NS_eol::TH_eol
  ▷ 1 3 6
  ▷ 63↗3
9 ||| esc-seq NS_esc_seq::TH_esc_seq
  ▷ 1 3 5
  ▷ 63↗3
10 ||| identifier NS_identifier::TH_identifier
  ▷ 1 3 13
  ▷ 63↗3
11 ||| int-no NS_int_no::TH_int_no
  ▷ 1 3 14
  ▷ 63↗3
12 ||| ws NS_ws::TH_ws
  ▷ 1 3 8
  ▷ 63↗3
13 ||| unquoted-string NS_unq_str::TH_unq_str
  ▷ 1 3 12
  ▷ 63↗3
14 ||| |?| NULL
  ▷ 1 3 4
  ▷ 63↗3
```

98. Rtoken_grp2.

```
1 ||| bad eos NULL
  ▷ 1 3 58
  ▷ 63↗3
2 ||| comment-overflow NULL
  ▷ 1 3 60
  ▷ 63↗3
3 ||| bad esc NULL
  ▷ 1 3 59
  ▷ 63↗3
4 ||| # fsm NULL
  ▷ 1 3 26
  ▷ 63↗3
5 ||| # fsm-id NULL
  ▷ 1 3 27
  ▷ 63↗3
6 ||| # fsm-filename NULL
  ▷ 1 3 28
  ▷ 63↗3
7 ||| # fsm-namespace NULL
  ▷ 1 3 29
  ▷ 63↗3
8 ||| # fsm-class NULL
  ▷ 1 3 30
  ▷ 63↗3
9 ||| # fsm-version NULL
  ▷ 1 3 31
  ▷ 63↗3
10 ||| # fsm-date NULL
  ▷ 1 3 32
  ▷ 63↗3
11 ||| # fsm-debug NULL
  ▷ 1 3 33
  ▷ 63↗3
12 ||| # fsm-comments NULL
  ▷ 1 3 34
  ▷ 63↗3
```

99. Rtoken_grp3.

```
1 ||| # raw-characters NULL
  ▷ 1 3 15
  ▷ 63↗3
2 ||| # lr1-constant-symbols NULL
  ▷ 1 3 16
  ▷ 63↗3
3 ||| # error-symbols NULL
  ▷ 1 3 17
  ▷ 63↗3
4 ||| # AD NULL
  ▷ 1 3 19
  ▷ 63↗3
5 ||| # AB NULL
  ▷ 1 3 20
  ▷ 63↗3
6 ||| # parallel-parser NULL
  ▷ 1 3 23
  ▷ 63↗3
7 ||| # parallel-la-boundary NULL
  ▷ 1 3 21
  ▷ 63↗3
8 ||| # parallel-thread-function NULL
  ▷ 1 3 24
  ▷ 63↗3
9 ||| # parallel-control-monitor NULL
  ▷ 1 3 25
  ▷ 63↗3
10 ||| # terminals NULL
  ▷ 1 3 35
  ▷ 63↗3
11 ||| # T-enumeration NULL
  ▷ 1 3 36
  ▷ 63↗3
12 ||| # file-name NULL
  ▷ 1 3 37
  ▷ 63↗3
13 ||| # name-space NULL
  ▷ 1 3 38
  ▷ 63↗3
14 ||| # sym-class NULL
  ▷ 1 3 39
  ▷ 63↗3
```

100. Rtoken_grp4.

```
1 ||| # rules NULL
  ▷ 1 3 40
  ▷ 63↗3
2 ||| # lhs NULL
  ▷ 1 3 41
  ▷ 63↗3
3 ||| # user-declaration NULL
  ▷ 1 3 42
  ▷ 63↗3
4 ||| # user-prefix-declaration NULL
  ▷ 1 3 43
  ▷ 63↗3
5 ||| # user-suffix-declaration NULL
  ▷ 1 3 44
  ▷ 63↗3
6 ||| # constructor NULL
  ▷ 1 3 45
  ▷ 63↗3
7 ||| # destructor NULL
  ▷ 1 3 46
  ▷ 63↗3
8 ||| # op NULL
  ▷ 1 3 47
  ▷ 63↗3
9 ||| # user-implementation NULL
  ▷ 1 3 49
  ▷ 63↗3
10 ||| # user-imp-tbl NULL
  ▷ 1 3 50
  ▷ 63↗3
11 ||| # user-imp-sym NULL
  ▷ 1 3 51
  ▷ 63↗3
12 ||| # constant-defs NULL
  ▷ 1 3 52
  ▷ 63↗3
13 ||| # terminals-refs NULL
  ▷ 1 3 53
  ▷ 63↗3
14 ||| # terminals-sufx NULL
  ▷ 1 3 54
  ▷ 63↗3
15 ||| # lrk-sufx NULL
  ▷ 1 3 55
  ▷ 63↗3
```


103. Lr1 State's Follow sets and reducing lookahead sets.

Notes on Follow set expressions:

1) The “follow set” for rule uses its literal name and tags its grammar rule rank number as a superscript. Due to space limitations, part of the follow set information uses the rule's literal name while the follow set expressions refers to the rule's rank number. This \langle rule name, rule rank number \rangle tuple allows you the reader to decipher the expressions. Transitions are represented by S_xR_z whereby S is the LR1 state identified by its “x” subscript where other transient calculations occur within the LR1 state network. R indicates the follow set rule with the subscript “z” as its grammar rank number that contributes to the follow set.

The \nearrow^x symbol indicates that a merge into state “x” has taken place. That is, the reduced subrule that depends on this follow set finds its follow set in 2 places: its birthing state that generated the sequence up to the merged into state, and the birthing state that generated the “merged into” state. So the rule's “follow set” calculation must also continue its calculation within the birth state generating the “x merged into” state.

State: 1	Follow Set contributors, merges, and transitions	
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rpass3 ¹		
Local follow set yield:		
eolr.		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Relems ²	$R_{1.2.1} R_{2.2.1}$	
Local follow set yield:		
eog, , + .		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rtoken ³	$R_{2.1.1} S_1 R_2$	
Local follow set yield:		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rtoken_grp1 ⁴	$R_{3.1.1} \nearrow^{63} S_1 R_3$	
Local follow set yield:		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rtoken_grp2 ⁵	$R_{3.2.1} \nearrow^{63} S_1 R_3$	
Local follow set yield:		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rtoken_grp3 ⁶	$R_{3.3.1} \nearrow^{63} S_1 R_3$	
Local follow set yield:		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rtoken_grp4 ⁷	$R_{3.4.1} \nearrow^{63} S_1 R_3$	
Local follow set yield:		
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow
Rtoken_grp5 ⁸	$R_{3.5.1} \nearrow^{63} S_1 R_3$	
Local follow set yield:		
State: 63	Follow Set contributors, merges, and transitions	
\leftarrow Follow set Rule	$\rightarrow \leftarrow$ follow set symbols contributors	\rightarrow

Rtoken³ $R_{2.2.2} \nearrow^1 S_1 R_2$

Local follow set yield:

← Follow set Rule → ← follow set symbols contributors →

Rtoken_grp1⁴ $R_{3.1.1} S_{63} R_3$

Local follow set yield:

← Follow set Rule → ← follow set symbols contributors →

Rtoken_grp2⁵ $R_{3.2.1} S_{63} R_3$

Local follow set yield:

← Follow set Rule → ← follow set symbols contributors →

Rtoken_grp3⁶ $R_{3.3.1} S_{63} R_3$

Local follow set yield:

← Follow set Rule → ← follow set symbols contributors →

Rtoken_grp4⁷ $R_{3.4.1} S_{63} R_3$

Local follow set yield:

← Follow set Rule → ← follow set symbols contributors →

Rtoken_grp5⁸ $R_{3.5.1} S_{63} R_3$

Local follow set yield:

104. Common Follow sets.

105. LA set: 1.

eolr.

106. LA set: 2.

eog, |r|, |+|.

107. Index.

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test_components_idx.w

Date: January 14, 2015 at 15:43

File: test_components_idx.w

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# AB:	3	1
# AD:	4	1
# NULL:	5	1
# T-enumeration:	6	1
# arbitrator-code:	7	1
# constant-defs:	8	1
# constructor:	9	1
# destructor:	10	1
# error-symbols:	11	1
# failed:	12	1
# file-name:	13	1
# fsm:	14	2
# fsm-class:	15	2
# fsm-comments:	16	2
# fsm-date:	17	2
# fsm-debug:	18	2
# fsm-filename:	19	2
# fsm-id:	20	2
# fsm-namespace:	21	2
# fsm-version:	22	2
# lhs:	23	2
# lr1-constant-symbols:	24	2
# lrk-sufx:	25	2
# name-space:	26	2
# op:	27	3
# parallel-control-monitor:	28	3
# parallel-la-boundary:	29	3
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:::	44	4
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NS_bad_char_set::TH_bad_char_set:	46	4
NS_c_comments::TH_c_comments:	47	4
NS_c_literal::TH_c_literal:	48	4
NS_c_string::TH_c_string:	49	4
NS_dbl_colon::TH_dbl_colon:	50	4
NS_eol::TH_eol:	51	4
NS_esc_seq::TH_esc_seq:	52	4

NS_identifier::TH_identifier:	53	5
NS_int_no::TH_int_no:	54	5
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Rtoken_grp3:	63	5
Rtoken_grp4:	64	6
Rtoken_grp5:	65	6
angled-string:	66	6
bad char:	67	6
bad eos:	68	6
bad esc:	69	6
c-literal:	70	6
c-string:	71	6
comment:	72	6
comment-overflow:	73	6
eog:	74	6
eol:	75	6
esc-seq:	76	6
identifier:	77	7
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