

1. Copyright.

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2. *enumerate_grammar* grammar.

Enumerate a grammar's components. Each component: "rule-def", "subrule-def", "referred-rule", "referred-T" and "eosubrule" contains a string that receives its enumerate literal. This reference will be used throughout the outputted document giving a GPS to the reader.

3. Fsm Cenumerate_grammar class.**4. Cenumerate_grammar op directive.**

```
<Cenumerate_grammar op directive 4> ≡
  rule_no_ = 0;
  subrule_no_ = 0;
  elem_no_ = 0;
  enum_subrule_no_ = 0;
```

5. Cenumerate_grammar user-declaration directive.

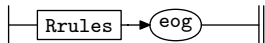
```
<Cenumerate_grammar user-declaration directive 5> ≡
public: int rule_no_;
       int subrule_no_;
       int enum_subrule_no_;
       int elem_no_;
```

6. Cenumerate_grammar user-prefix-declaration directive.

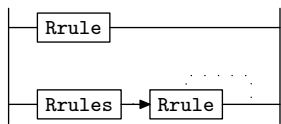
```
<Cenumerate_grammar user-prefix-declaration directive 6> ≡
#include "o2_externs.h"
```

7. *Rfirst_set_rules* rule.

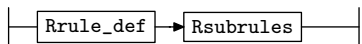
Rfirst_set_rules

**8. *Rrules* rule.**

Rrules

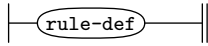
**9. *Rrule* rule.**

Rrule



10. *Rrule_def* rule.

Rrule_def

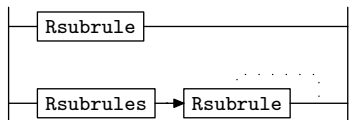


⟨ Rrule_def subrule 1 op directive 10 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser--fsm_tbl_;
fsm->subrule_no_ = 0;
fsm->elem_no_ = 0;
++fsm->rule_no_;
char buf [128];
KCHARP rule_no = "%i";
sprintf (buf, rule_no, fsm->rule_no_);
sf-p1-->grammar_s_enumerate (buf);
```

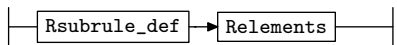
11. *Rsubrules* rule.

Rsubrules



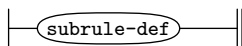
12. *Rsubrule* rule.

Rsubrule



13. *Rsubrule_def* rule.

Rsubrule_def

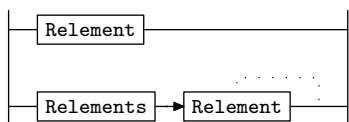


⟨ Rsubrule_def subrule 1 op directive 13 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser--fsm_tbl_;
++fsm->subrule_no_;
++fsm->enum_subrule_no_;
sf-p1-->its_grammar_s_pos (fsm->enum_subrule_no_);
fsm->elem_no_ = 0;
char buf [128];
KCHARP subrule_no = "%i.%i";
sprintf (buf, subrule_no, fsm->rule_no_, fsm->subrule_no_);
sf-p1-->grammar_s_enumerate (buf);
```

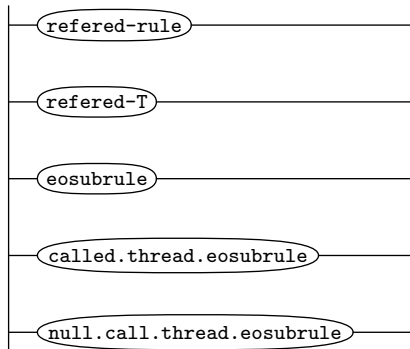
14. *Relements* rule.

Relements

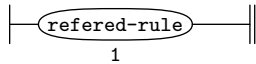


15. Relement rule.

Relement



16. Relement's subrule 1.



⟨ Relement subrule 1 op directive 16 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser--fsm_tbl...;
++fsm-elem_no_;
```

```
char buf [128];
```

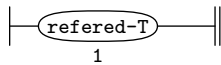
```
KCHARP elem_no = "%i.%i.%i";
```

```
sprintf (buf, elem_no, fsm-rule_no_, fsm-subrule_no_, fsm-elem_no_);
```

```
sf-p1--grammar_s_enumerate(buf);
```

```
sf-p1--element_pos(fsm-elem_no_);
```

17. Relement's subrule 2.



⟨ Relement subrule 2 op directive 17 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser--fsm_tbl...;
++fsm-elem_no_;
```

```
char buf [128];
```

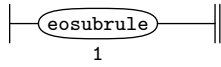
```
KCHARP elem_no = "%i.%i.%i";
```

```
sprintf (buf, elem_no, fsm-rule_no_, fsm-subrule_no_, fsm-elem_no_);
```

```
sf-p1--grammar_s_enumerate(buf);
```

```
sf-p1--element_pos(fsm-elem_no_);
```

18. Relement's subrule 3.



⟨ Relement subrule 3 op directive 18 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser...fsm_tbl...;
++fsm-elem_no_;
```

```
char buf [128];
```

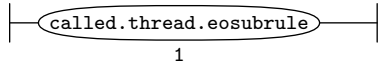
```
KCHARP elem_no = "%i.%i.%i";
```

```
sprintf (buf, elem_no, fsm-rule_no_, fsm-subrule_no_, fsm-elem_no_);
```

```
sf-p1...grammar_s-enumerate (buf);
```

```
sf-p1...element_pos (fsm-elem_no_);
```

19. Relement's subrule 4.



⟨ Relement subrule 4 op directive 19 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser...fsm_tbl...;
++fsm-elem_no_;
```

```
char buf [128];
```

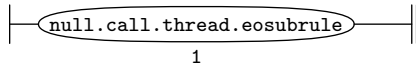
```
KCHARP elem_no = "%i.%i.%i";
```

```
sprintf (buf, elem_no, fsm-rule_no_, fsm-subrule_no_, fsm-elem_no_);
```

```
sf-p1...grammar_s-enumerate (buf);
```

```
sf-p1...element_pos (fsm-elem_no_);
```

20. Relement's subrule 5.



⟨ Relement subrule 5 op directive 20 ⟩ ≡

```
Cenumerate_grammar * fsm = ( Cenumerate_grammar * ) rule_info...parser...fsm_tbl...;
++fsm-elem_no_;
```

```
char buf [128];
```

```
KCHARP elem_no = "%i.%i.%i";
```

```
sprintf (buf, elem_no, fsm-rule_no_, fsm-subrule_no_, fsm-elem_no_);
```

```
sf-p1...grammar_s-enumerate (buf);
```

```
sf-p1...element_pos (fsm-elem_no_);
```

21. First Set Language for O_2^{linker} .

```
/*
  File: enumerate_grammar.fsc
  Date and Time: Fri Jan  2 15:33:32 2015
*/
transitive      n
grammar-name    "enumerate_grammar"
name-space      "NS_enumerate_grammar"
thread-name     "Cenumerate_grammar"
monolithic      y
file-name       "enumerate_grammar.fsc"
no-of-T         569
list-of-native-first-set-terminals 1
  rule_def
end-list-of-native-first-set-terminals
list-of-transitive-threads 0
end-list-of-transitive-threads
list-of-used-threads 0
end-list-of-used-threads
fsm-comments
"Dump aid: Enumerate grammar's components"
```

22. Lr1 State Network.

| | | | | | | |
|---------------|--------------------|---------------|-----------|----------------------------|-------------------------------|------------------------------|
| \Rightarrow | | | | State: 1 state type: s | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| c | Rrule_def | | 4 1 1 | | rule-def | 1 2 2 |
| c | Rrules | | 2 2 1 | | Rrules <u>Rrule</u> | 1 3 5 |
| c | Rfirst_set_rules | | 1 1 1 | | Rrules <u>eog</u> | 1 3 4 |
| c | Rrules | | 2 1 1 | | Rrule | 1 20 20 |
| c | Rrule | | 3 1 1 | | Rrule_def <u>Rsubrules</u> | 1 6 8 |
| \Rightarrow | <i>rule-def</i> | | | State: 2 state type: r | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rrule_def | | 4 1 2 | | | 1 0 2 1 |
| \Rightarrow | <i>Rrules</i> | | | State: 3 state type: s | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rfirst_set_rules | | 1 1 2 | | eog | 1 4 4 |
| c | Rrule_def | | 4 1 1 | | rule-def | 3 2 2 |
| t | Rrules | | 2 2 2 | | Rrule | 1 5 5 |
| c | Rrule | | 3 1 1 | | Rrule_def <u>Rsubrules</u> | 3 6 8 |
| \Rightarrow | <i>eog</i> | | | State: 4 state type: r | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rfirst_set_rules | | 1 1 3 | | | 1 0 4 2 |
| \Rightarrow | <i>Rrule</i> | | | State: 5 state type: r | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rrules | | 2 2 3 | | | 1 0 5 3 |
| \Rightarrow | <i>Rrule_def</i> | | | State: 6 state type: s | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| c | Rsubrule_def | | 7 1 1 | | subrule-def | 6 7 7 |
| t | Rrule | | 3 1 2 | | Rsubrules | 3 8 8 |
| c | Rsubrules | | 5 2 1 | | Rsubrules <u>Rsubrule</u> | 6 8 9 |
| c | Rsubrules | | 5 1 1 | | Rsubrule | 6 19 19 |
| c | Rsubrule | | 6 1 1 | | Rsubrule_def <u>Relements</u> | 6 10 16 |
| \Rightarrow | <i>subrule-def</i> | | | State: 7 state type: r | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rsubrule_def | | 7 1 2 | | | 6 0 7 4 |
| \Rightarrow | <i>Rsubrules</i> | | | State: 8 state type: s/r | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rrule | | 3 1 3 | | | 3 0 8 3 |
| c | Rsubrule_def | | 7 1 1 | | subrule-def | 8 7 7 |
| t | Rsubrules | | 5 2 2 | | Rsubrule | 6 9 9 |
| c | Rsubrule | | 6 1 1 | | Rsubrule_def <u>Relements</u> | 8 10 16 |
| \Rightarrow | <i>Rsubrule</i> | | | State: 9 state type: r | | |
| \leftarrow | rule | \rightarrow | R# sr# Po | \leftarrow | subrule element | \rightarrow Brn Gto Red LA |
| t | Rsubrules | | 5 2 3 | | | 6 0 9 5 |

| | | | | | | | | |
|--|-------------|----------------------------|-----------------|---|----------------------------------|--|--|--|
| \Rightarrow <i>Rsubrule_def</i> | | | | | State: 10 state type: <i>s</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| c Relement | 9 2 1 | referred-T | | | 10 11 11 | | | |
| c Relement | 9 1 1 | referred-rule | | | 10 12 12 | | | |
| c Relement | 9 3 1 | eosubrule | | | 10 13 13 | | | |
| c Relement | 9 4 1 | called thread eosubrule | | | 10 14 14 | | | |
| c Relement | 9 5 1 | null call thread eosubrule | | | 10 15 15 | | | |
| t Rsubrule | 6 1 2 | Relements | | | 8 16 16 | | | |
| c Relements | 8 2 1 | Relements <i>Relement</i> | | | 10 16 17 | | | |
| c Relements | 8 1 1 | Relement | | | 10 18 18 | | | |
| \Rightarrow <i>referred-T</i> | | | | | State: 11 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relement | 9 2 2 | | | | 10 0 11 6 | | | |
| \Rightarrow <i>referred-rule</i> | | | | | State: 12 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relement | 9 1 2 | | | | 10 0 12 6 | | | |
| \Rightarrow <i>eosubrule</i> | | | | | State: 13 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relement | 9 3 2 | | | | 10 0 13 6 | | | |
| \Rightarrow <i>calledthreadeosubrule</i> | | | | | State: 14 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relement | 9 4 2 | | | | 10 0 14 6 | | | |
| \Rightarrow <i>nullcallthreadeosubrule</i> | | | | | State: 15 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relement | 9 5 2 | | | | 10 0 15 6 | | | |
| \Rightarrow <i>Relements</i> | | | | | State: 16 state type: <i>s/r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Rsubrule | 6 1 3 | | | | 8 0 16 5 | | | |
| c Relement | 9 2 1 | referred-T | | | 16 11 11 | | | |
| c Relement | 9 1 1 | referred-rule | | | 16 12 12 | | | |
| c Relement | 9 3 1 | eosubrule | | | 16 13 13 | | | |
| c Relement | 9 4 1 | called thread eosubrule | | | 16 14 14 | | | |
| c Relement | 9 5 1 | null call thread eosubrule | | | 16 15 15 | | | |
| t Relements | 8 2 2 | Relement | | | 10 17 17 | | | |
| \Rightarrow <i>Relement</i> | | | | | State: 17 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relements | 8 2 3 | | | | 10 0 17 6 | | | |
| \Rightarrow <i>Relement</i> | | | | | State: 18 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |
| t Relements | 8 1 2 | | | | 10 0 18 6 | | | |
| \Rightarrow <i>Rsubrule</i> | | | | | State: 19 state type: <i>r</i> | | | |
| ← rule | → R# sr# Po | ← | subrule element | → | Brn Gto Red LA | | | |

t Rsubrules 5 1 2

6 0 19 5

⇒ *Rrule*

State: 20 state type: *r*

← rule → R# sr# Po ←
t Rrules 2 1 2

subrule element

→ Brn Gto Red LA
1 0 20 3

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enumerate_grammar Grammar

Date: January 2, 2015 at 15:35

File: enumerate_grammar.lex

Ns: NS_enumerate_grammar

Version: 1.0

Debug: false

Grammar Comments:

Type: Monolithic

Dump aid: Enumerate grammar's components

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