ChemTK Command Grammar

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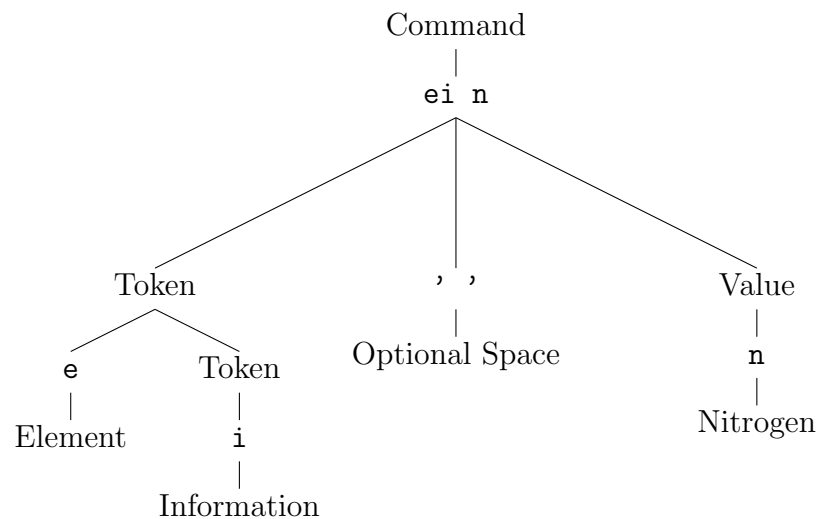
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0.1 Example Tree

The tree of the command, `'ei n'`, is shown below. In English, this command says, *print the element information about nitrogen.*

```
                            Command
                               |
                             ei n


              Token              ' '              Value
                                  |                 |
          e         Token    Optional Space         n
          |           |                             |
       Element        i                          Nitrogen
                      |
                 Information
```

0.2 BNF

```
(* ChemTK Command BNF *)
   <command> ::= <token> <opt-whitespace> <value> <end>
   <value> ::= <data> <value> | ""
   <token> ::= <const> <token> | ""
   <const> ::= <alpha> | <num>
   <data> ::= <const> | <punct>
   <opt-whitespace> ::= <space> <opt-whitespace> | ""
   <space> ::= <SPACE> | <TAB>
   <end> ::= <NEWLINE> <NUL>
```
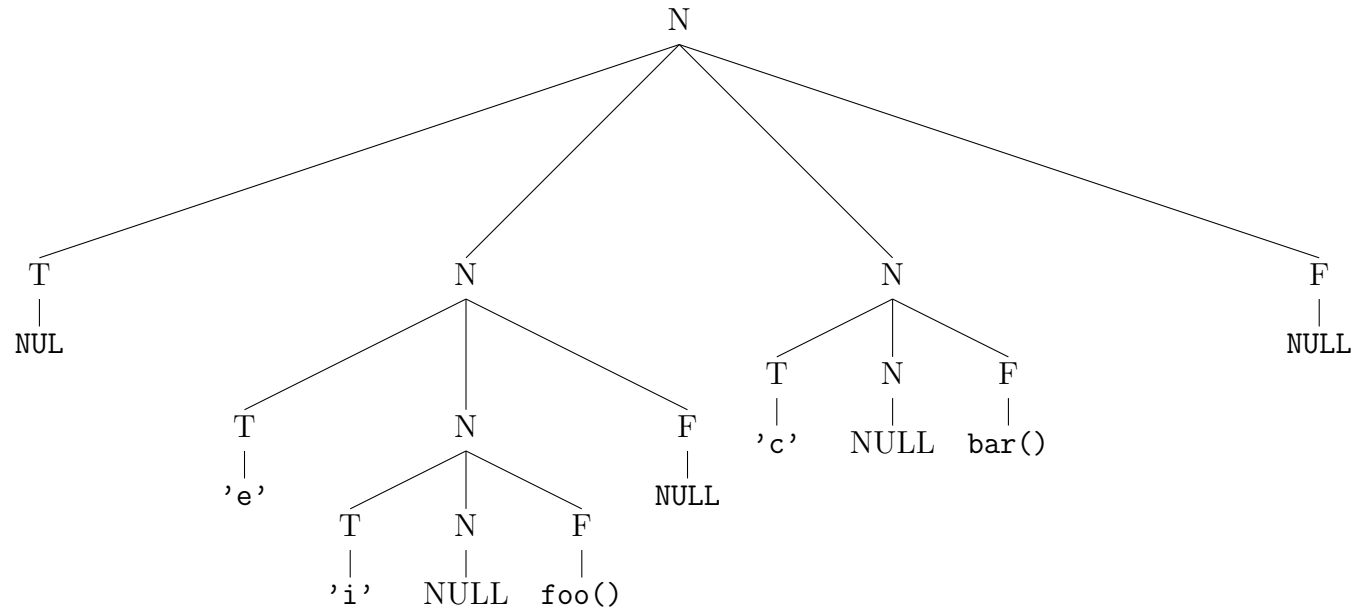
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0.3   The Global Command Tree

The command tree will look something like this. The struct member `name` was ommitted for space.

```
                                            N
            ┌───────────────────┬───────────────────┬───────────────────┐
            T                   N                   N                   F
            │          ┌────────┼────────┐      ┌───┼───┐               │
           NUL         T        N        F      T   N   F              NULL
                       │    ┌───┼───┐     │      │   │   │
                      'e'   T   N   F    NULL   'c' NULL bar()
                            │   │   │
                           'i' NULL foo()
```

0.4   Command Tree Structure

```
struct table {
    char token;
    char *name;
    struct table *next;
    void (*func)(char *);
    };
```