概要など

課題

- カッコの中身の処理どうするか
- 参照関係ちゃんとできるか？

参照関係

Create a new end tag token, set its tag name to the empty string.

＝＞×

Append the lowercase version of the current input character (add 0x0020 to the character‘s code point) to the temporary buffer.

＝＞○

Create a new DOCTYPE token. Set the token‘s name to a U+FFFD REPLACEMENT CHARACTER character.　＝＞○

Create a new DOCTYPE token. Set its force-quirks flag to on. Switch to the data state. Emit the token.　＝＞△

➔文と文を＆で繋ぐとうまくいく.

“,”と”.”を” and”で置き換える？（htmlPraseの後）

文の解釈がおかしい

Emit文の解析結果がおかしい(例外：6-EOF)=>U+００３Cを1つのトークンとして認識させる
　　=>”.”の問題は”.”を” .”に置き換えすれば解決するかも.
9-SOLIDUS,19-(-)のswitch文の解析がおかしい
Reconsume,mutiply,flushの解析がおかしい.(命令文の解析が苦手そう、youなどの主語を最初につければ正しく解釈される)
Flush code points consumed as a character reference.
Add a numeric version of the current input character as a hexadecimal digit (subtract 0x0037 from the character's code point) to the character reference code.

Set the return state to the attribute value (double-quoted) state.
　　=>カッコを’,”に変えたらいい感じにできた

原因、解決策

StanfordCoreNLPは命令文の解釈が苦手らしい.＝＞文頭にyouなどの主語を加えて解析させると上手く解釈してくれるようになる.
（解決策）（案）
=>多少無理やりだが、前処理として命令文の文頭にyouを加えて自然言語解析させて、PraseTree->Tagの処理時、加えた”you”の部分のNodeを取り除けば出来そう.
(他：命令文の解釈に強いNLPを使う(なにがいいのか、実際に強いのかわからない)、NLPをトレーニングさせる（難しそう））

openNLPはそのままだと微妙. “you”を加えるといい感じ. Set the return state to the attribute value (double-quoted) state.ができる.

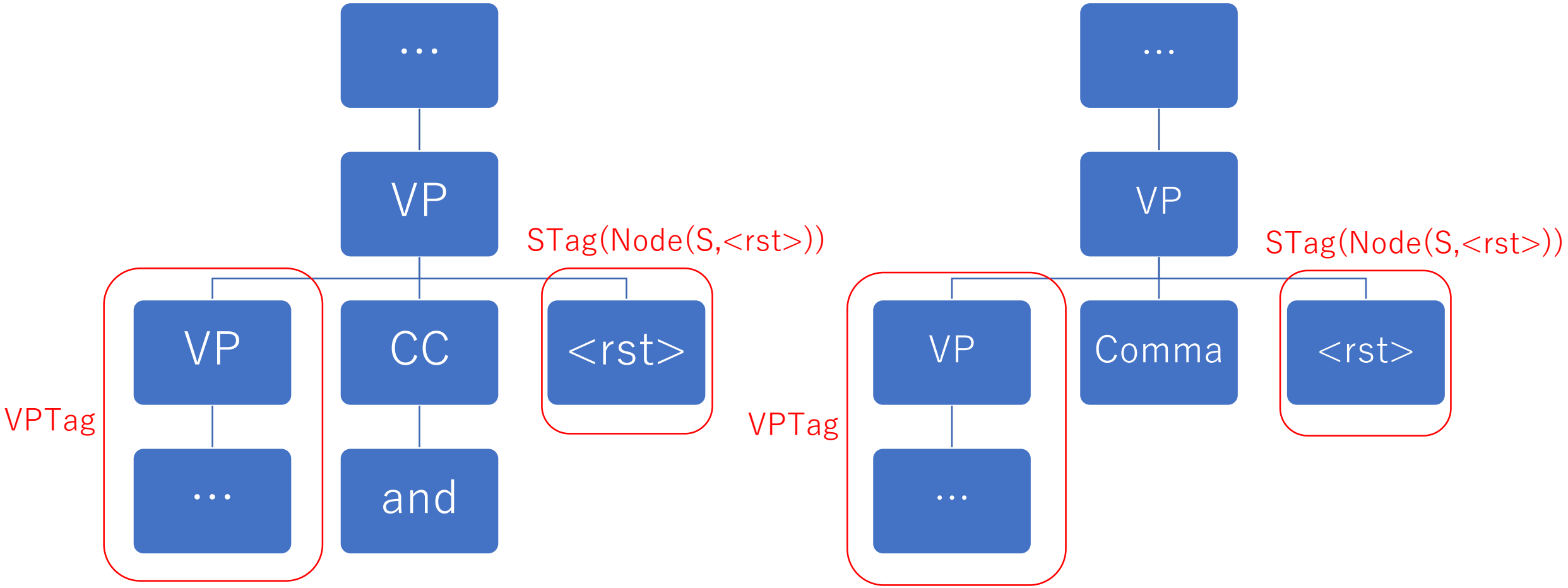
”you”の挿入方法・・・命令文の動詞の数は限られている(13個). 単語でマッチさせて、マッチした単語の前に”you “を加える.（タイミング：htmlPraseの後） （応急処置的）
(Set the return state to the attribute value (double-quoted) state.が無理.)

エラーの詳細

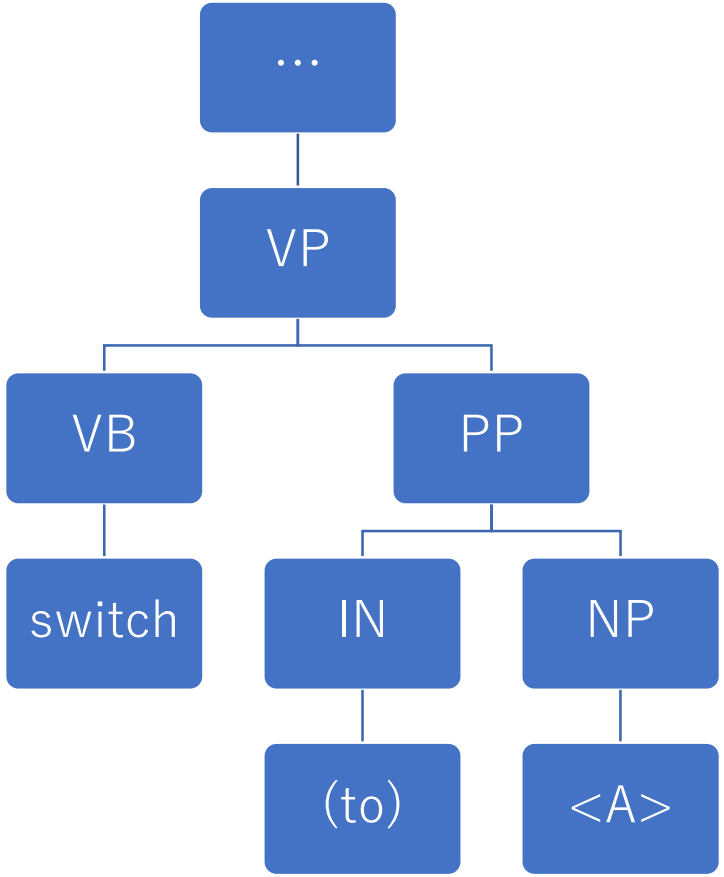
- Reconsume in …
  =>”reconsume”が辞書に載ってないから動詞だと認識されない.
- Emit a U+003E GREATER-THAN SIGN character token.
  => “U+003E”が一つの単語認識されないから変に解釈される影響
- Switch to the script data escaped dash dash state.
  => “escaped”が文全体の動詞だと認識されてしまう.
- Multiply the character reference code by 16.
  => “multiply”が副詞認識される
- Flush code points consumed as a character reference.
  => “points”が動詞だと思われる
- Set the return state to the attribute value (double-quoted) state.
  =>カッコのせいでややこしくなるから

Tree - VPTag

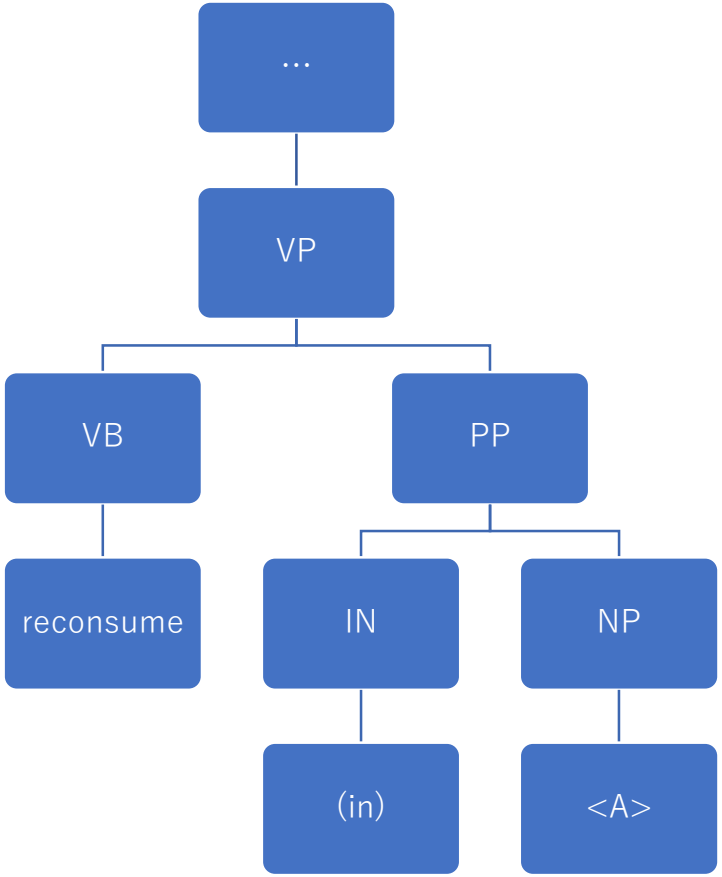
&,” ,”


…
VP
STag(Node(S,<rst>))
VP
CC
<rst>
VPTag
…
and
…
VP
Comma
<rst>
STag(Node(S,<rst>))
VP
VPTag
…

switch, reconsume

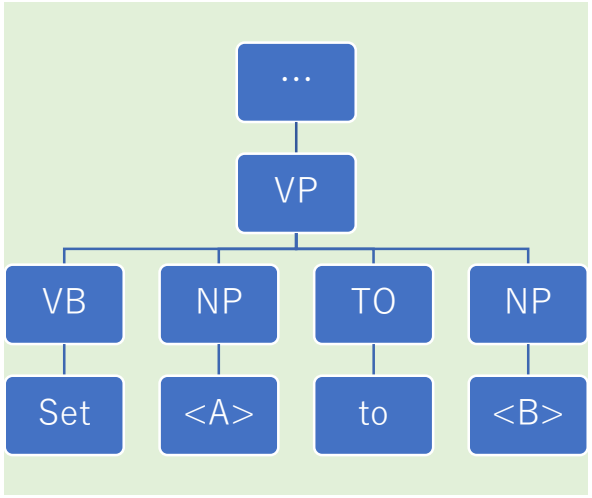


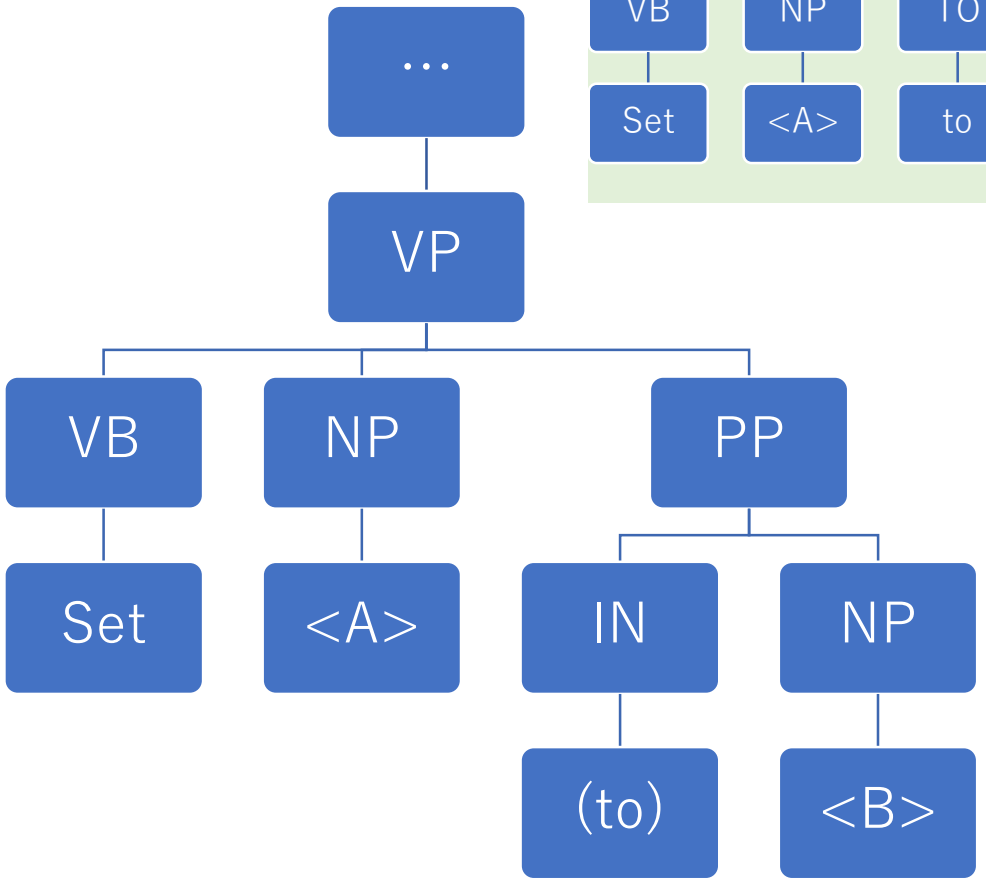
Switch(<A>)



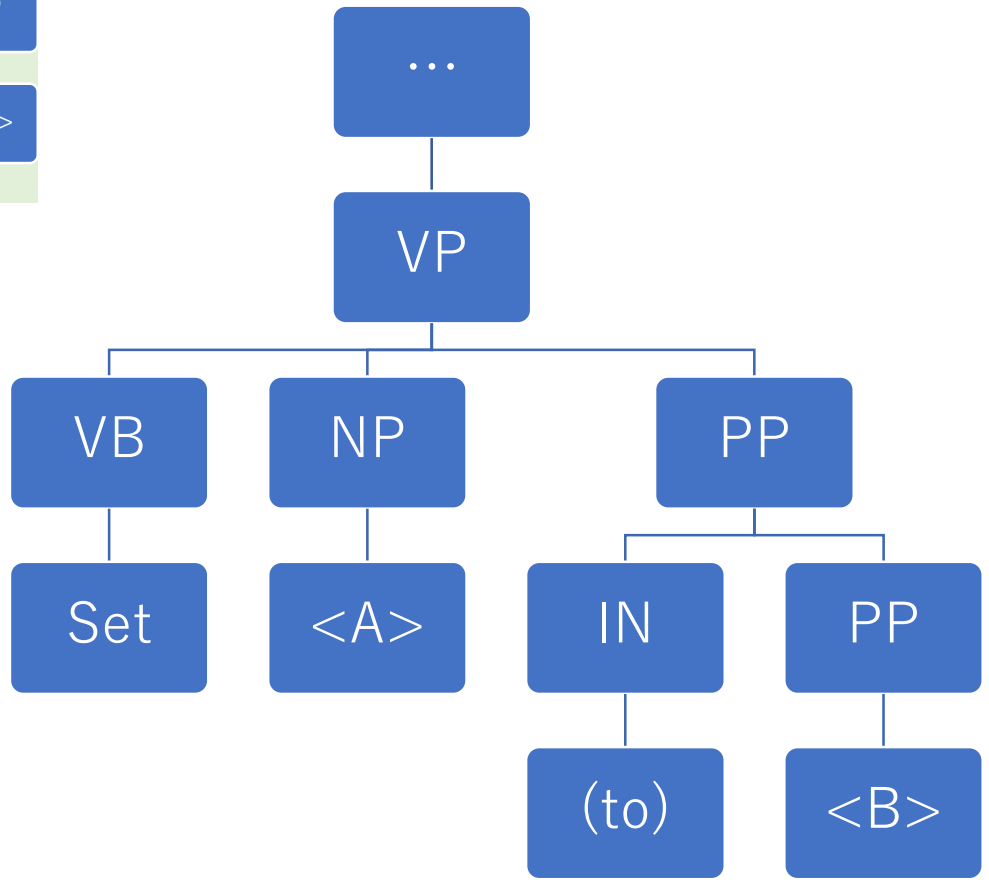
Reconsume(<A>)

set



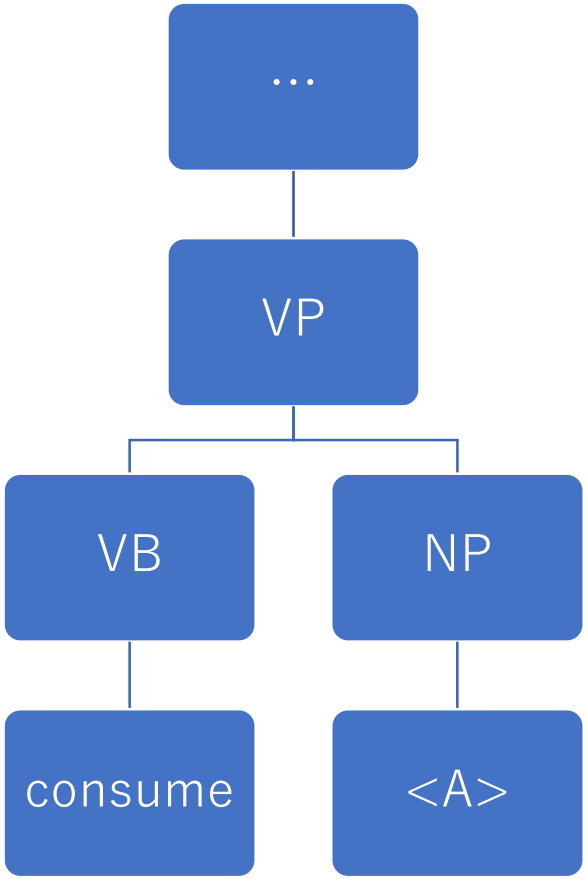


Set(<A>, <B>)

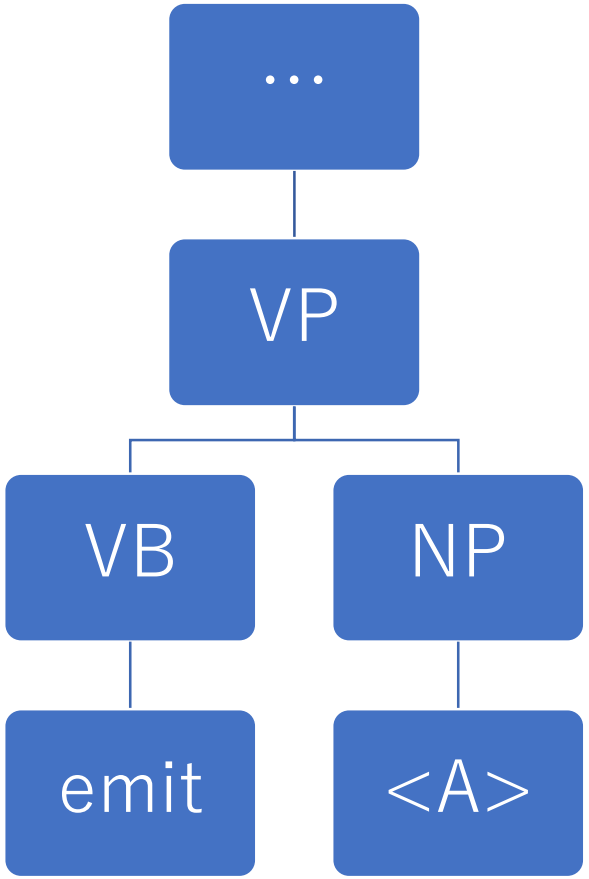


Set(<A>, <B>)

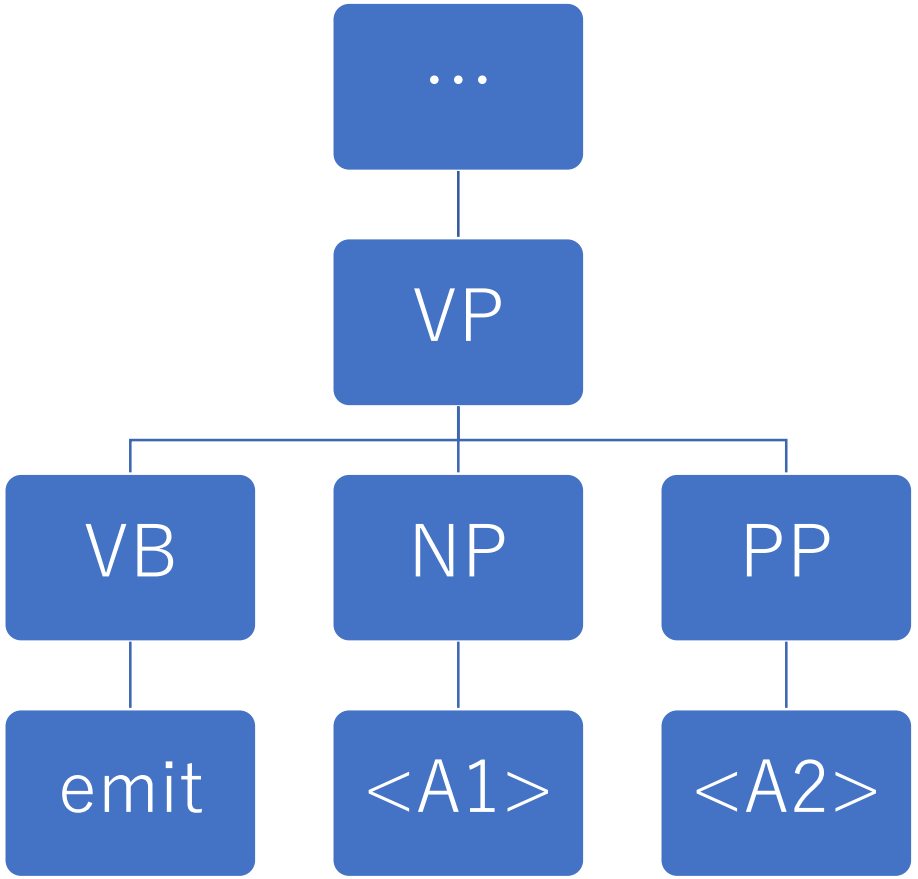
consume,emit



Consume(<A>)

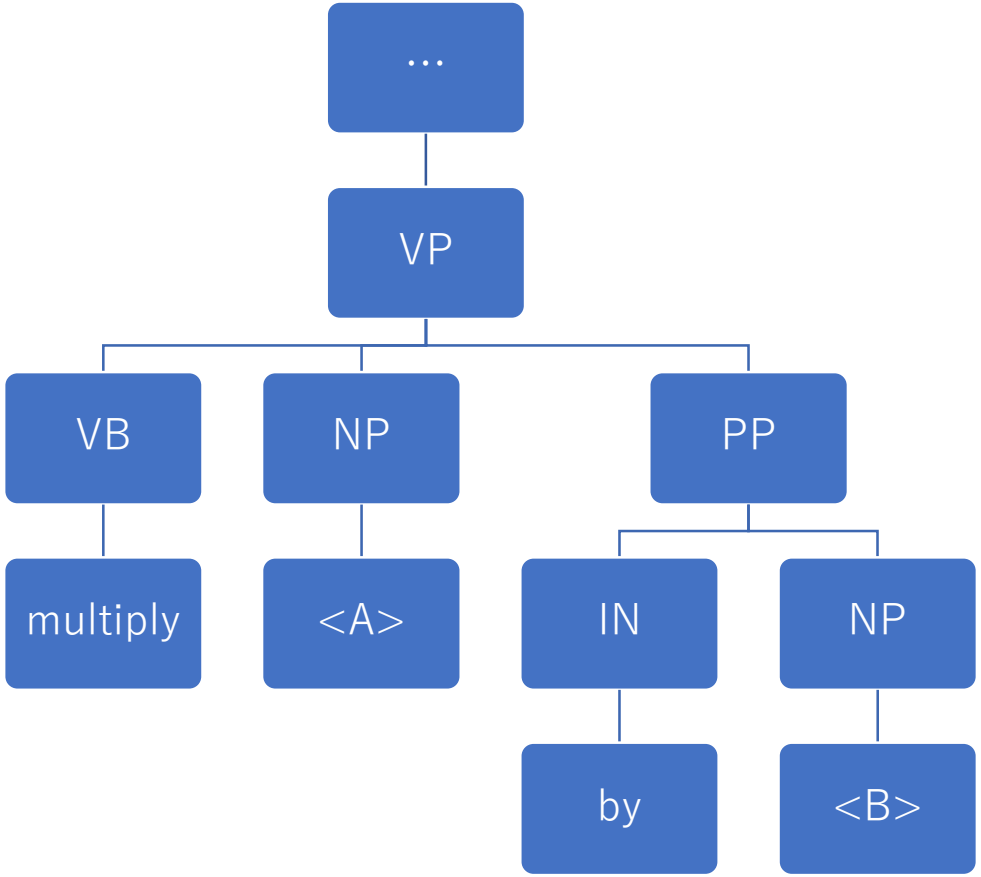


Emit(<A>)

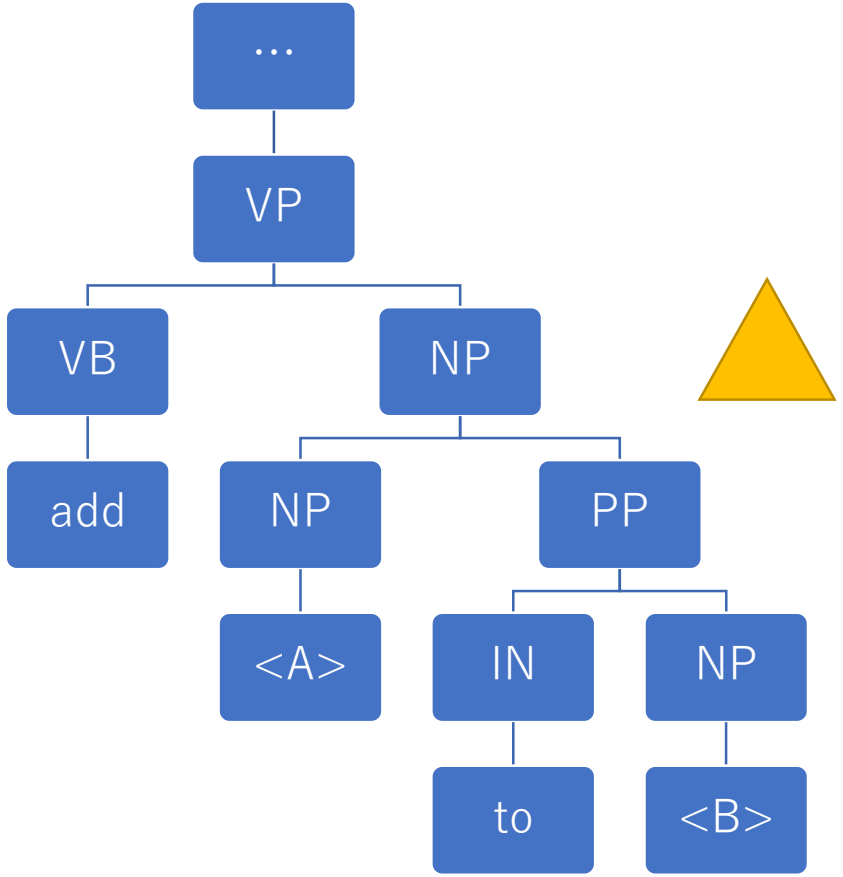


Emit(<A1><A2>)

Multiply,add



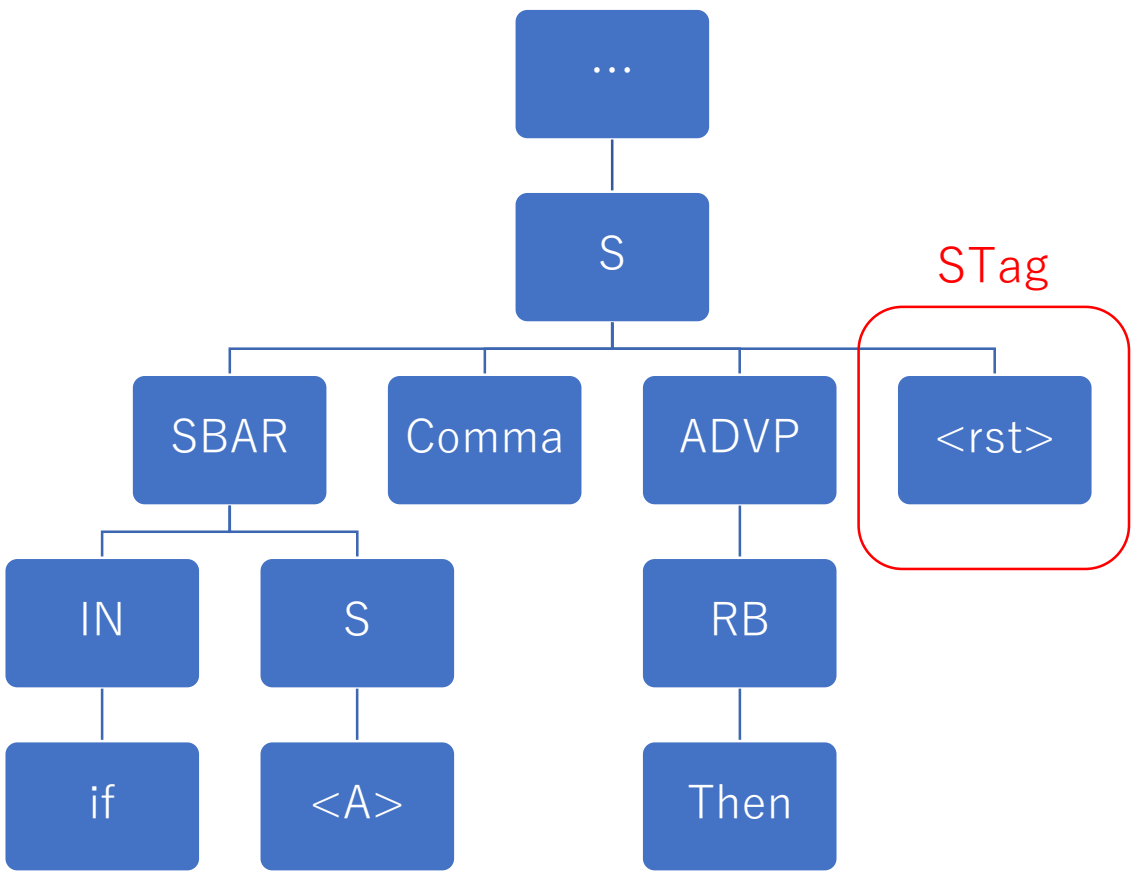
Multiply(<A>, <B>)



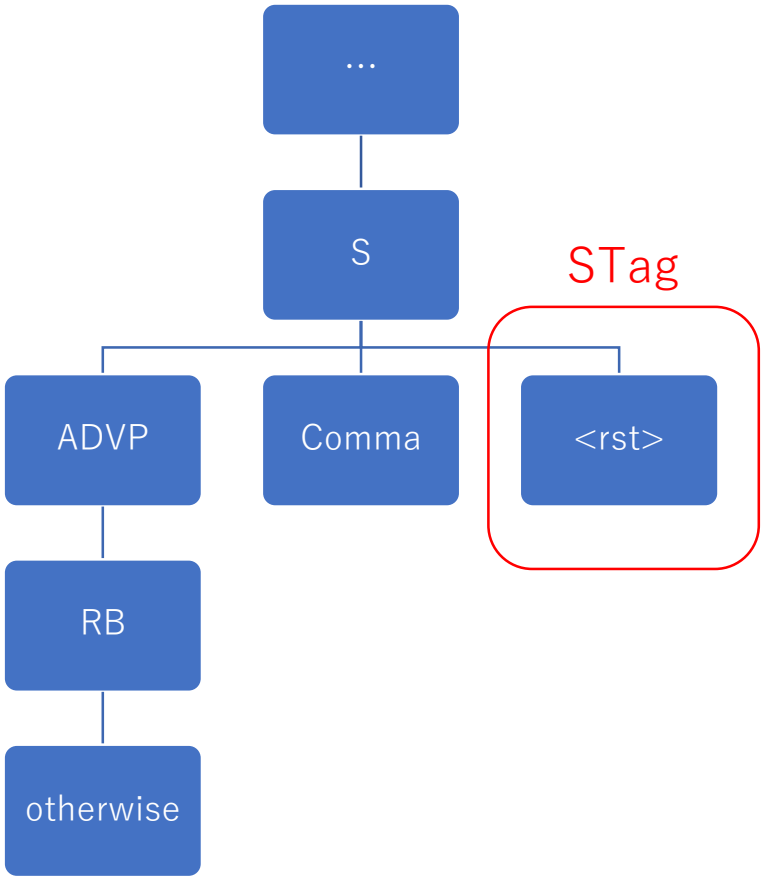
Add(<A>, <B>)

Tree – STag

If,otherwise

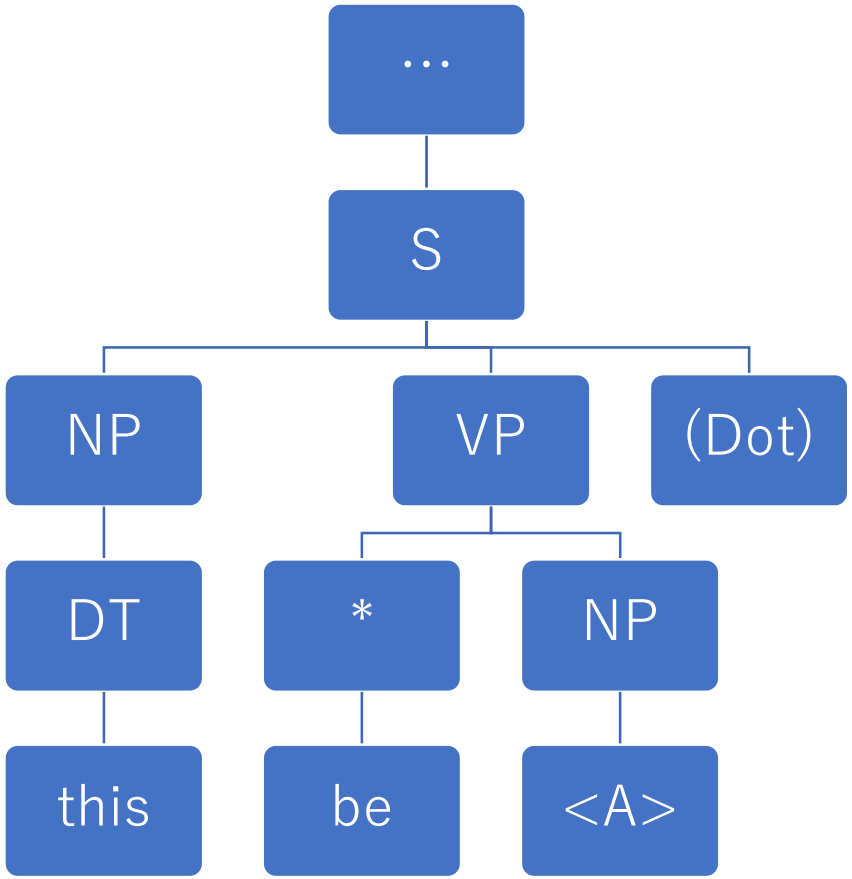


If(<A>, STag(<rst>), null)



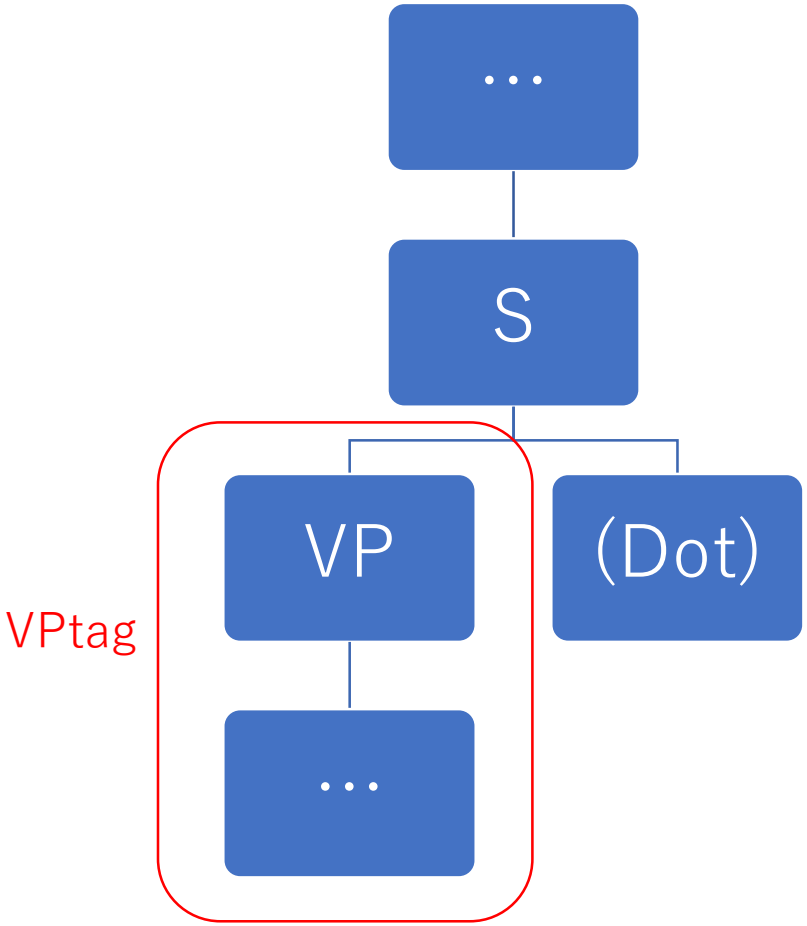
If(null, null, STag(<rst>))

Error



Error(<A>)

命令文

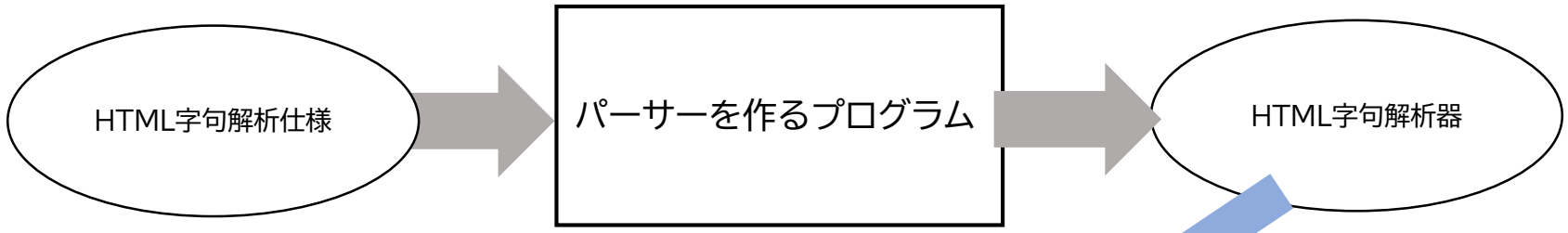


流れ

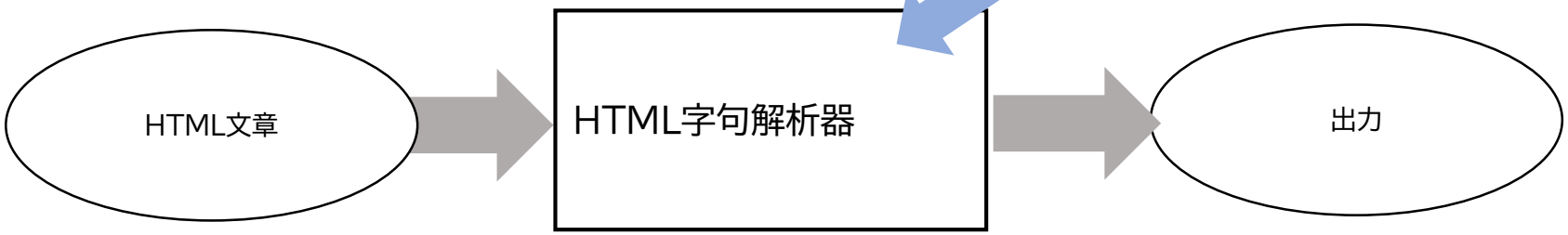
研究のおおまかな感じ

イメージ

① 字句解析器を作る



② 字句解析器を実行する(テスト)



①の大まかな感じ

§ **12.2.5.1 Data state**

Consume the next input character:

↪ **U+0026 AMPERSAND (&)**
Set the *return state* to the data state. Switch to the character reference state.

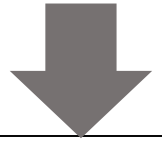
↪ **U+003C LESS-THAN SIGN (<)**
Switch to the tag open state.

↪ **U+0000 NULL**
This is an unexpected-null-character parse error. Emit the current input character as a character token.

↪ **EOF**
Emit an end-of-file token.

↪ **Anything else**
Emit the current input character as a character token.

Scalaの関数



パーサー作成

```
def DataState() = {
        character match {
          case “&” => Set(returnState, dataState); Switch(characterReferenceState)
          case “<” => Switch(tagOpenState)
          case NULL => Error(unexpected-null-character); Emit(currentInputCharacter)
          case EOF => Emit(end-of-file)
          case _ => Emit(currentInputCharacter); Switch(dataState)
        }
}
```

①-1. HTMLで書かれた字句解析仕様の前処理(構造化する)

目的:
自然言語処理がうまくできるように、前処理として、構造的に書かれている文章をScalaでそのまま改めて構造化する

HTMLで書かれた字句解析仕様

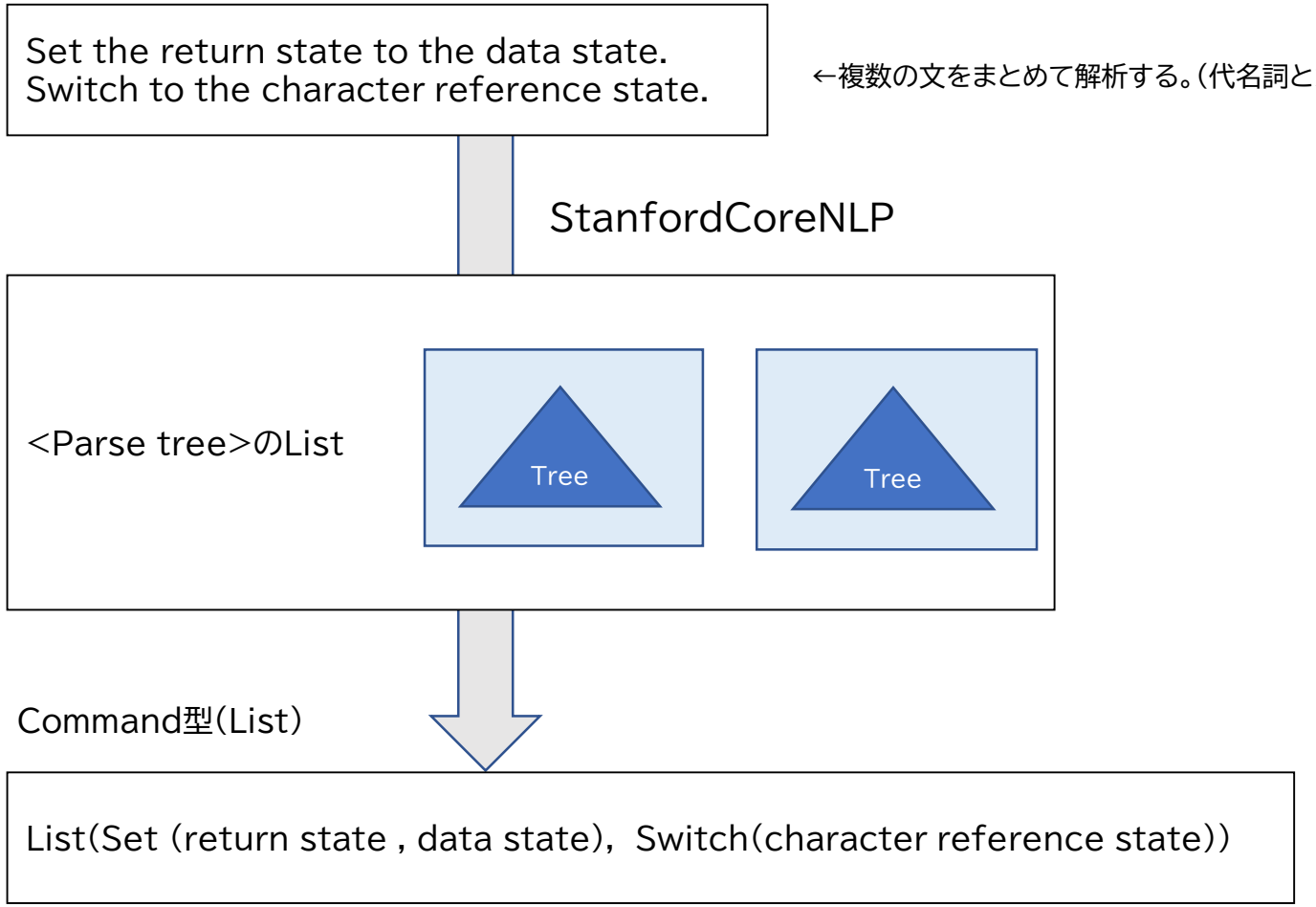
```
  <h5><span>12.2.5.1</span> <dfn>Data state</dfn><a></a></h5>
  <p>Consume the <a href=#next-input-character id=data-state:next-input-character>next input character</a>:</p>
  <dl class=switch><dt>U+0026 AMPERSAND (&amp;)<dd>Set the <var id=data-state:return-state><a href=#return-state>return state</a></var> to the <a href=#data-state id=data-state:data-state>data state</a>.
   Switch to the <a href=#character-reference-state id=data-state:character-reference-state>character reference state</a>.
```

こんな感じの型に当てはめる

```
class  state ( name: String ,  prev処理: String ,  文字を消費する処理: List[trance] )
class  trance ( character: string ,  処理内容: string )
```

```
        state ( Data state ,  Consume the next input character,
              List ( trance( U+0026, Set the return state to …),  trance(…) )
        )
```

① -2. 自然言語で書かれた文章の解析



NLPを使って解析する理由

便利、楽だから
&で繋がる文、カンマで繋がる文など柔軟性のある対応ができる。
参照関係見つけられる。

Append the lowercase version of the current input character (add 0x0020 to the character's code point) to the current tag token's tag name.

①-3. 最終系

state (Data state , Consume the next input character,
List (trance(U+0026, Set the return state to …), trance(…))
)

自然言語処理

state (Data state , Consume (next input character),
List (trance(U+0026, Set (return state , data state)), trance(…))
)

何らかの処理

```
def DataState() = {
        character match {
                case “&” => Set(returnState, dataState); Switch(characterReferenceState)
                case “<” => Switch(tagOpenState)
                 case NULL => Error(unexpected-null-character); Emit(currentInputCharacter)
                case EOF => Emit(end-of-file)
                case _ => Emit(currentInputCharacter); Switch(dataState)
        }
}
```

77/80個のstateの命令がこの形で書けそう

```
def    state名    () = {
                      処理
       character match {
            case □ =>                    処理
                 …
       }
}
```

余談

気になる

・Html Parseと自然言語処理を同時にやれたら、精度が高くなりそう.

Htmlのタグ構造で単語をまとまり化すれば、変な場所で単語同士のつながりが断たれたりしないと思う.