Grammar

1st parser

- Terminals

$$
\begin{aligned}
TAGLSLASH &\rightarrow \text{`` } </ \text{ ''} \\
TAGLEXCLAMDASHDASH &\rightarrow \text{`` } <!\text{--} \text{ ''} \\
TAGL &\rightarrow \text{`` } < \text{ ''} \\
SLASHTAGR &\rightarrow \text{`` } /> \text{ ''} \\
DASHDASHTAGR &\rightarrow \text{`` --> ''} \\
TAGR &\rightarrow \text{`` } > \text{ ''} \\
APOST &\rightarrow \text{`` ' ''} \\
QUOTE &\rightarrow \text{`` '' ''} \\
SLASH &\rightarrow \text{`` } / \text{ ''} \\
DASH &\rightarrow \text{`` - ''} \\
UNDERLINE &\rightarrow \text{`` \_ ''} \\
SHARP &\rightarrow \text{`` \# ''} \\
STAR &\rightarrow \text{`` } * \text{ ''} \\
SEMICOLON &\rightarrow \text{`` ; ''} \\
COMMA &\rightarrow \text{`` , ''} \\
PERIOD &\rightarrow \text{`` . ''} \\
COLON &\rightarrow \text{`` : ''} \\
BAR &\rightarrow \text{`` } | \text{ ''} \\
EXCLAM &\rightarrow \text{`` ! ''} \\
INTERR &\rightarrow \text{`` ? ''} \\
NEWLINE &\rightarrow \text{`` } \backslash n \text{ ''} \\
EQUAL &\rightarrow \text{`` } = \text{ ''} \\
AMPERSAND &\rightarrow \text{``\&''} \\
SPACE &\rightarrow \text{`` ''} \\
DIGIT &\rightarrow [\text{`` 0 ''} - \text{`` 9 ''}] \\
LOWERCASE &\rightarrow [\text{`` a ''} - \text{`` z ''}] \\
UPPERCASE &\rightarrow [\text{`` A ''} - \text{`` Z ''}] \\
OTHER &\rightarrow \sim []
\end{aligned}
$$

- Non-Terminals

$$
\begin{aligned}
Article &\rightarrow WellFormed + \\
WellFormed &\rightarrow (NewLine \mid Line) \; (NewLine \mid Line)? \\
&\quad (NewLine \mid Line)? \; (NewLine \mid Line)? \\
&\quad (NewLine \mid Line)? \; (NewLine \mid Line)? \\
&\quad (NewLine \mid Line)? \; (NewLine \mid Line)? \\
&\quad (NewLine \mid Line)? \; (NewLine \mid Line)? \\
WellFormed1 &\rightarrow (NewLine \mid LineText) \; (NewLine \mid Line) * \\
WellFormed2 &\rightarrow (NewLine \mid Line1) \; (NewLine \mid Line1)? \\
&\quad (NewLine \mid Line1)? \; (NewLine \mid Line1)? \\
&\quad (NewLine \mid Line1)? \; (NewLine \mid Line1)? \\
&\quad (NewLine \mid Line1)? \; (NewLine \mid Line1)? \\
&\quad (NewLine \mid Line1)? \; (NewLine \mid Line1)? \\
Line &\rightarrow LineFormatting \; LineText? \\
&\rightarrow (Marks1 \mid Remove \mid NormalChar) \; LineText? \\
&\rightarrow Equals \\
Line1 &\rightarrow LineFormatting \; LineText2? \\
&\rightarrow (Marks1 \mid Remove1 \mid NormalChar) \; LineText2? \\
&\rightarrow Equals \\
NewLine &\rightarrow NEWLINE + \\
LineFormatting &\rightarrow (SHARP \mid STAR \mid SEMICOLON \mid COLON) + \\
LineText &\rightarrow (Remove \mid NormalChar \mid Marks) + \\
LineText1 &\rightarrow (Remove \mid NormalChar \mid Marks2) + \\
LineText2 &\rightarrow (Remove1 \mid NormalChar \mid Marks) + \\
NormalChar &\rightarrow (LOWERCASE \mid UPPERCASE \mid DIGIT \mid \\
&\quad SPACE \mid OTHER) + \\
NormalChar1 &\rightarrow (LOWERCASE \mid UPPERCASE \mid DIGIT \mid \\
&\quad OTHER) + \\
Marks &\rightarrow (EQUAL \mid TAGR \mid QUOTE \mid SLASH \mid \\
&\quad DASH \mid SHARP \mid STAR \mid SEMICOLON \mid \\
&\quad COMMA \mid PERIOD \mid COLON \mid BAR \mid \\
&\quad EXCLAM \mid INTERR) + \\
Marks1 &\rightarrow (TAGR \mid QUOTE \mid SLASH \mid DASH \mid \\
&\quad COMMA \mid PERIOD \mid BAR \mid EXCLAM \mid \\
&\quad INTERR) + \\
Marks2 &\rightarrow (TAGR \mid QUOTE \mid SLASH \mid DASH \mid SHARP \mid \\
&\quad STAR \mid SEMICOLON \mid COMMA \mid PERIOD \mid \\
&\quad COLON \mid BAR \mid EXCLAM \mid INTERR) +
\end{aligned}
$$

$$
\begin{aligned}
Marks3 \;\to\; & (EQUAL \;\mid\; TAGL \;\mid\; TAGR \;\mid\; SLASH \;\mid\; DASH \;\mid\; \\
& UNDERLINE \;\mid\; SHARP \;\mid\; STAR \;\mid\; \\
& SEMICOLON \;\mid\; COMMA \;\mid\; PERIOD \;\mid\; COLON \;\mid\; \\
& BAR \;\mid\; EXCLAM \;\mid\; INTERR \;\mid\; AMPERSAND) + \\
Marks4 \;\to\; & (DASH \;\mid\; UNDERLINE \;\mid\; SHARP \;\mid\; STAR \;\mid\; \\
& SEMICOLON \;\mid\; COMMA \;\mid\; PERIOD \;\mid\; COLON \;\mid\; \\
& BAR \;\mid\; EXCLAM \;\mid\; INTERR \;\mid\; AMPERSAND) + \\
Equals \;\to\; & EQUAL \;\; (EQUAL + \;\; LineText1 \;\; EQUAL \;\; EQUAL+)? \\
Remove \;\to\; & TAGL \;\; Tag? \\
\to\; & Tag1 \\
\to\; & Comment \\
\to\; & Symbol \\
\to\; & Underline \\
\to\; & Apostrophe \\
Remove1 \;\to\; & TAGL \;\; Tag? \\
\to\; & Comment \\
\to\; & Symbol \\
\to\; & Underline \\
\to\; & Apostrophe \\
Tag \;\to\; & SPACE* \;\; (LOWERCASE \;\mid\; UPPERCASE) + \\
& Html? \;\; SPACE* \;\; ((TAGR \;\; ((LineText2 \;\mid\; NewLine) \\
& WellFormed2*)?) \;\mid\; SLASHTAGR) \\
Tag1 \;\to\; & TAGLSLASH \;\; SPACE* \;\; (LOWERCASE \;\mid\; \\
& UPPERCASE) + \;\; SPACE* \;\; TAGR \\
Html \;\to\; & EQUAL \;\; SPACE* \;\; ((QUOTE \;\; (NotApostQuote \;\mid\; \\
& APOST)* \;\; QUOTE) \;\mid\; (APOST \;\; (NotApostQuote \;\mid\; \\
& QUOTE)* \;\; APOST) \;\mid\; NotApostQuote1) \;\; (SPACE + \\
& (DIGIT \;\mid\; LOWERCASE \;\mid\; UPPERCASE) + \\
& SPACE* \;\; EQUAL \;\; SPACE* \;\; ((QUOTE \\
& (NotApostQuote \;\mid\; APOST)* \;\; QUOTE) \;\mid\; (APOST \\
& (NotApostQuote \;\mid\; QUOTE)* \;\; APOST) \;\mid\; \\
& NotApostQuote1)) * \\
\to\; & (SPACE + \;\; (DIGIT \;\mid\; LOWERCASE \;\mid\; \\
& UPPERCASE) + \;\; SPACE* \;\; EQUAL \;\; SPACE* \\
& ((QUOTE \;\; (NotApostQuote \;\mid\; APOST)* \;\; QUOTE) \;\mid\; \\
& (APOST \;\; (NotApostQuote \;\mid\; QUOTE)* \;\; APOST) \;\mid\; \\
& NotApostQuote1)) + \\
NotApostQuote \;\to\; & (NormalChar \;\mid\; Marks3) + \\
NotApostQuote1 \;\to\; & (NormalChar1 \;\mid\; Marks4) +
\end{aligned}
$$

$$
\begin{aligned}
Comment &\rightarrow TAGLEXCLAMDASHDASH \quad WellFormed1? \\
&\qquad DASHDASHTAGR \\
Symbol &\rightarrow AMPERSAND \quad (SHARP? \quad (LOWERCASE \quad | \\
&\qquad UPPERCASE \quad | \quad DIGIT) + \quad SEMICOLON?)? \\
Underline &\rightarrow UNDERLINE \quad (UNDERLINE \quad UPPERCASE + \\
&\qquad UNDERLINE \quad UNDERLINE)? \\
Apostrophe &\rightarrow APOST +
\end{aligned}
$$

2nd parser

- Terminals

$$
\begin{aligned}
BRACEL &\rightarrow \text{ `` \{ ''} \\
BRACEL &\rightarrow \text{ `` \} ''} \\
BRACKETL &\rightarrow \text{ `` [''} \\
BRACKETR &\rightarrow \text{ ``] ''} \\
DASH &\rightarrow \text{ `` - ''} \\
SHARP &\rightarrow \text{ `` \# ''} \\
COLON &\rightarrow \text{ `` : ''} \\
BAR &\rightarrow \text{ `` | ''} \\
NEWLINE &\rightarrow \text{ `` } \backslash n \text{ ''} \\
SPACE &\rightarrow \text{ `` ''} \\
LETTER &\rightarrow [\text{`` A ''} - \text{`` Z ''}, \text{`` a ''} - \text{`` z ''}] \\
OTHER &\rightarrow \sim []
\end{aligned}
$$

- Non-Terminals

$$
\begin{aligned}
Article \;\rightarrow\;& WellFormed + \\
WellFormed \;\rightarrow\;& (NewLine \;\mid\; Line)\;\;(NewLine \;\mid\; Line)? \\
& (NewLine \;\mid\; Line)?\;\;(NewLine \;\mid\; Line)? \\
& (NewLine \;\mid\; Line)?\;\;(NewLine \;\mid\; Line)? \\
& (NewLine \;\mid\; Line)?\;\;(NewLine \;\mid\; Line)? \\
& (NewLine \;\mid\; Line)?\;\;(NewLine \;\mid\; Line)? \\
WellFormed1 \;\rightarrow\;& (NewLine \;\mid\; Line1)\;\;(NewLine \;\mid\; Line1)? \\
& (NewLine \;\mid\; Line1)?\;\;(NewLine \;\mid\; Line1)? \\
& (NewLine \;\mid\; Line1)?\;\;(NewLine \;\mid\; Line1)? \\
& (NewLine \;\mid\; Line1)?\;\;(NewLine \;\mid\; Line1)? \\
& (NewLine \;\mid\; Line1)?\;\;(NewLine \;\mid\; Line1)? \\
WellFormed2 \;\rightarrow\;& (NewLine \;\mid\; Line6)\;\;(NewLine \;\mid\; Line6)? \\
& (NewLine \;\mid\; Line6)?\;\;(NewLine \;\mid\; Line6)? \\
& (NewLine \;\mid\; Line6)?\;\;(NewLine \;\mid\; Line6)? \\
& (NewLine \;\mid\; Line6)?\;\;(NewLine \;\mid\; Line6)? \\
& (NewLine \;\mid\; Line6)?\;\;(NewLine \;\mid\; Line6)? \\
WellFormed3 \;\rightarrow\;& (NewLine \;\mid\; Line7)\;\;(NewLine \;\mid\; Line7)? \\
& (NewLine \;\mid\; Line7)?\;\;(NewLine \;\mid\; Line7)? \\
& (NewLine \;\mid\; Line7)?\;\;(NewLine \;\mid\; Line7)? \\
& (NewLine \;\mid\; Line7)?\;\;(NewLine \;\mid\; Line7)? \\
& (NewLine \;\mid\; Line7)?\;\;(NewLine \;\mid\; Line7)? \\
Line \;\rightarrow\;& (Marks \;\mid\; Remove \;\mid\; NormalChar) + \\
Line1 \;\rightarrow\;& (MarksNoBrace \;\mid\; Remove \;\mid\; NormalChar) + \\
Line2 \;\rightarrow\;& (MarksNoBracket \;\mid\; Remove \;\mid\; NormalChar) + \\
Line3 \;\rightarrow\;& (Marks1 \;\mid\; Remove \;\mid\; NormalChar)\;\;(Marks2 \;\mid \\
& Remove \;\mid\; NormalChar) * \\
Line4 \;\rightarrow\;& (Marks3 \;\mid\; Remove \;\mid\; NormalChar) + \\
Line7 \;\rightarrow\;& (Marks6 \;\mid\; Remove \;\mid\; NormalChar) + \\
NewLine \;\rightarrow\;& NEWLINE + \\
NormalChar \;\rightarrow\;& (LETTER \;\mid\; SPACE \;\mid\; OTHER) + \\
UrlChar \;\rightarrow\;& (LETTER \;\mid\; OTHER \;\mid\; MarksNoBracket) + \\
LetterDash \;\rightarrow\;& (LETTER \;\mid\; OTHER \;\mid\; DASH) + \\
Marks \;\rightarrow\;& (DASH \;\mid\; SHARP \;\mid\; COLON \;\mid\; BAR \;\mid \\
& BRACER \;\mid\; BRACKETR) + \\
MarksNoBrace \;\rightarrow\;& (DASH \;\mid\; SHARP \;\mid\; COLON \;\mid\; BAR \;\mid \\
& BRACKETR) + \\
MarksNoBracket \;\rightarrow\;& (DASH \;\mid\; SHARP \;\mid\; COLON \;\mid\; BAR \;\mid \\
& BRACER) +
\end{aligned}
$$

$$
\begin{aligned}
Marks1 \;\;\rightarrow\;\; & (DASH \;\;|\;\; BRACER)+ \\
Marks2 \;\;\rightarrow\;\; & (DASH \;\;|\;\; COLON \;\;|\;\; BRACER)+ \\
Marks3 \;\;\rightarrow\;\; & (DASH \;\;|\;\; SHARP \;\;|\;\; COLON \;\;|\;\; BRACER)+ \\
Marks4 \;\;\rightarrow\;\; & (SHARP \;\;|\;\; COLON \;\;|\;\; BAR \;\;|\;\; BRACKETR)+ \\
Marks6 \;\;\rightarrow\;\; & (DASH \;\;|\;\; SHARP \;\;|\;\; COLON \;\;|\;\; BRACKETR)+ \\
Remove \;\;\rightarrow\;\; & Template \\
\rightarrow\;\; & Brace \\
\rightarrow\;\; & Link \\
\rightarrow\;\; & Url \\
Template \;\;\rightarrow\;\; & BRACEL \;\; BRACEL \;\; SPACE* \;\; NewLine? \\
& ((LetterDash \;\; SPACE* \;\; ((BAR \;\; WellFormed3* \\
& (BAR \;\; WellFormed1*)? \;\; BRACER \;\; BRACER) \;\;|\;\; \\
& (WellFormed1* \;\; BRACER \;\; BRACER))) \;\;|\;\; ((Remove \\
& Marks4) \;\; WellFormed1* \;\; BRACER \;\; BRACER))? \\
Brace \;\;\rightarrow\;\; & BRACEL \;\; (WellFormed1* \;\; BRACER)? \\
Link \;\;\rightarrow\;\; & BRACKETL \;\; BRACKETL \;\; SPACE* \\
& ((COLON \;\; Line2? \;\; (BRACKETR \;\; BRACKETR)?) \;\;|\;\; \\
& (LetterDash \\
& \quad ((COLON \;\; Line2? \;\; (BRACKETR \;\; BRACKETR)?) \;\;|\;\; \\
& \quad (Line3 \;\; (SHARP \;\; SPACE* \;\; Line4?)? \;\; (BAR \\
& \qquad SPACE* \;\; Line2?)? \\
& \quad (BRACKETR \;\; BRACKETR)?) \;\;|\;\; \\
& \quad (SHARP \;\; SPACE* \;\; Line4? \;\; (BAR \;\; SPACE* \\
& \qquad Line2?)? \;\; (BRACKETR \;\; BRACKETR)?) \;\;|\;\; \\
& \quad (BAR \;\; SPACE* \;\; Line2? \\
& \qquad (BRACKETR \;\; BRACKETR)?))? \\
& \quad (BRACKETR \;\; BRACKETR)?) \;\;|\;\; \\
& (Remove \;\; Line3? \;\; (BAR \;\; SPACE* \;\; Line2?)? \\
& \quad (BRACKETR \;\; BRACKETR)?) \;\;|\;\; \\
& (SHARP \;\; SPACE* \;\; Line4? \;\; (BAR \;\; SPACE* \\
& Line2?)? \;\; (BRACKETR \;\; BRACKETR)?))? \\
Url \;\;\rightarrow\;\; & BRACKETL \;\; SPACE* \;\; ((UrlChar \;\;|\;\; Remove)+ \\
& (SPACE+ \;\; Line2?)? \;\; BRACKETR?)?
\end{aligned}
$$