Grammar

$$egin{aligned} J &
ightarrow H \mid A \ H &
ightarrow h P_H \mid h t R_H \mid h f F_A \mid h o I_A \ A &
ightarrow a P_A \mid a t R_A \mid a f F_H \mid a o I_H \ P_H &
ightarrow x H \mid s B_H \mid y A \ P_A &
ightarrow x A \mid s B_A \mid y H \ I_H &
ightarrow i H \mid i A \mid I_A \ I_A &
ightarrow i A \mid i H \mid I_H \ B_H &
ightarrow m I_A \mid n r H \mid n r A \mid n o I_A \mid F_H \mid m \mid n \ B_A &
ightarrow m I_H \mid n r H \mid n r A \mid n o I_H \mid F_A \mid m \mid n \ R_H &
ightarrow b H \mid g I_H \ R_A &
ightarrow b A \mid g I_A \ F_H &
ightarrow I_H \mid F_H \mid s B_H \ F_A &
ightarrow I_A \mid F_A \mid s B_A \end{aligned}$$