Grammar

$$egin{align*} J
ightarrow H \mid A \ H
ightarrow hP_{H} \mid htR_{H} \mid hfF_{A} \mid hoI_{A} \ A
ightarrow aP_{A} \mid atR_{A} \mid afF_{H} \mid aoI_{H} \ P_{H}
ightarrow xH \mid sB_{H} \mid yA \ P_{A}
ightarrow xA \mid sB_{A} \mid yH \ I_{H}
ightarrow iH \mid iA \ I_{A}
ightarrow iA \mid iH \ B_{H}
ightarrow mI_{A} \mid nrH \mid nrA \mid noI_{A} \mid nF_{H} \mid mF_{H} \mid m \mid n \ B_{A}
ightarrow mI_{H} \mid nrH \mid nrA \mid noI_{H} \mid nF_{A} \mid mF_{A} \mid m \mid n \ R_{H}
ightarrow bH \mid gI_{H} \ R_{A}
ightarrow bA \mid gI_{A} \ F_{H}
ightarrow I_{H} \mid F_{H} \mid sB_{H} \ F_{A}
ightarrow I_{A} \mid F_{A} \mid sB_{A} \ \end{align}$$