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R:

~~$S \rightarrow QAO$   
 $A \rightarrow QBO | e$   
 $B \rightarrow I | A$~~

~~$L$  is generated by  
CFG  $G = (\{S, A, B\}, \{O, I, e\}, S)$~~

assume

1.  $Z = O^n I^n O^n \in L \quad |Z| = 3n > n$
2.  $O^n I^n O^n = Uvwxy$  show  $Uwy \notin L$

for  $|Uwx| \leq n \quad vwx = O^k \quad 0 < k \leq n$   
or  $I^k$

$$|Ux| = q > 0$$

$$\begin{aligned} &\text{or } O^i I^j \\ &\text{or } I^i O^j \end{aligned} \quad 0 < i+j \leq n$$

$Uwy$