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Input: state  $\mathbf{a}, n^{(X)}, n^{(Y)}, n^{(Z)}$ , intermediate Inside matrix  $\alpha$ 
emitProb  $\leftarrow 0$ ;
foreach  $\mathbf{b} : \exists \mathbf{a} \rightarrow \mathbf{b}$  do
  | emitProb  $+= P(\mathbf{a} \rightarrow \mathbf{b}) \alpha_{\mathbf{b}}(n^{(X)}, n^{(Y)}, n^{(Z)})$ ;
end
foreach  $\mathbf{b} : \exists \mathbf{a} \rightarrow \mathbf{l} \mathbf{b} \mathbf{r}$  do
  | if  $c_{in}(\mathbf{b}; n^{(X)}) \notin \mathcal{F}^{(X)}$  or  $c_{in}(\mathbf{b}; n^{(Y)}) \notin \mathcal{F}^{(Y)}$  or  $c_{in}(\mathbf{b}; n^{(Z)}) \notin \mathcal{F}^{(Z)}$  then next;
  | emitProb  $+= P(\mathbf{a} \rightarrow \mathbf{l} \mathbf{b} \mathbf{r}) \alpha_{\mathbf{b}}(c_{in}(\mathbf{b}; n^{(X)}), c_{in}(\mathbf{b}; n^{(Y)}), c_{in}(\mathbf{b}; n^{(Z)}))$ ;
end
return emitProb;

```