Dual n-gram LM

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$$P[w' \mid w] = \begin{cases} P_1[w' \mid \langle \mathtt{s} \rangle] & \text{if } w' \in \mathrm{V}_1 \\ P_2[w' \mid \langle \mathtt{s} \rangle] & \text{if } w' \in \mathrm{V}_2 \\ 0 & \text{if } w' = \langle /\mathtt{s} \rangle \end{cases} \qquad \text{for } w = \langle \mathtt{s} \rangle$$

$$P[w' \mid w] = \begin{cases} P_1[w' \mid w] & \text{if } w' \in \mathrm{V}_1 \cup \{\langle /\mathtt{s} \rangle\} \\ P_1[\langle \mathtt{sw} \rangle \mid w] \cdot P_2[w' \mid \langle \mathtt{sw} \rangle] & \text{if } w' \in \mathrm{V}_2 \end{cases} \qquad \text{for } w \in \mathrm{V}_1$$

$$P[w' \mid w] = \begin{cases} P_2[w' \mid w] & \text{if } w' \in \mathrm{V}_2 \cup \{\langle /\mathtt{s} \rangle\} \\ P_2[\langle \mathtt{sw} \rangle \mid w] \cdot P_1[w' \mid \langle \mathtt{sw} \rangle] & \text{if } w' \in \mathrm{V}_1 \end{cases} \qquad \text{for } w \in \mathrm{V}_2$$

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