

# PROBABILISTIC CYK PARSING

Book the flight through Houston

<b>S :.01, VP:.1,</b> <b>Verb:.5</b> <b>Nominal:.03</b> <b>Noun:.1</b>		<b>S:.05*.5*.054</b> <b>=.00135</b>		<b>S:.0000216</b>
	None	<b>VP:.5*.5*.054</b> <b>=.0135</b>	None	
				<b>NP:.6*.6*</b> <b>.0024</b> <b>=.000864</b>
	<b>Det:.6</b>	<b>NP:.6*.6*.15</b> <b>=.054</b>	None	
		<b>Nominal:.15</b> <b>Noun:.5</b>	None	<b>Nominal:</b> <b>.5*.15*.032</b> <b>=.0024</b>
			<b>Prep:.2</b>	<b>PP:1.0*.2*.16</b> <b>=.032</b>
				<b>NP:.16</b> <b>PropNoun:.8</b>

Pick most probable parse, i.e. take max to combine probabilities of multiple derivations of each constituent in each cell.

S → NP VP 0.8  
 S → X1 VP 0.1  
 X1 → Aux NP 1.0  
 S → book | include | prefer  
     0.01 0.004 0.006  
 S → Verb NP 0.05  
 S → VP PP 0.03  
 NP → I | he | she | me  
     0.1 0.02 0.02 0.06  
 NP → Houston | NWA  
     0.16 .04  
 NP → Det Nominal 0.6  
 Nominal → book | flight | meal | money  
     0.03 0.15 0.06 0.06  
 Nominal → Nominal Noun 0.2  
 Nominal → Nominal PP 0.5  
 VP → book | include | prefer  
     0.1 0.04 0.06  
 VP → Verb NP 0.5  
 VP → VP PP 0.3

Aux → does  
     1.0  
 Det → the | a | that | this  
     0.6 0.2 0.1 0.1  
 Pronoun → I | he | she | me  
     0.5 0.1 0.1 0.3  
 Verb → book | include | prefer  
     0.5 0.2 0.3  
 Noun → book | flight | meal | money  
     0.1 0.5 0.2 0.2  
 Proper-Noun → Houston | NWA