| Input: word lattice | Input to the system is a word lattice output by an ASR system. | WAS → RETURNED → TO → US → ~SIL; RETURN → TO → ICE → ~SIL |
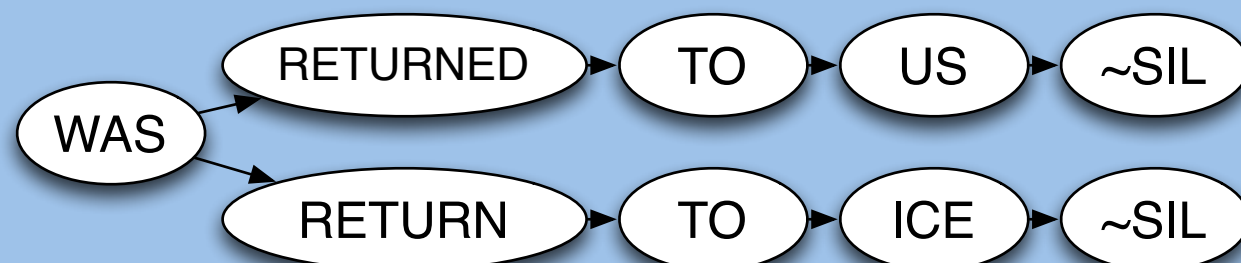
data preprocessing

| Database tables | DATABASE |
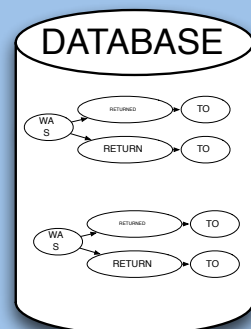
lattice	cand_id	word
L1	L1-2	RETURNED
L1	L1-3	RETURN

feature extraction

| Extracted features | | | | |

lattice	cand_id	word	feature
L1	L1-2	RETURNED	confirm=1
L1	L1-3	RETURN	2gram=RETURN TO

factor graph generation

Factor graph

TO : *variables*

confirm=1 : *factors*

confirm=1   Infrequent bigram   Frequent bigram   bigram=US ~SIL

conflict constraint   RETURNED   TO   US   ~SIL
                       RETURN   TO   ICE   ~SIL
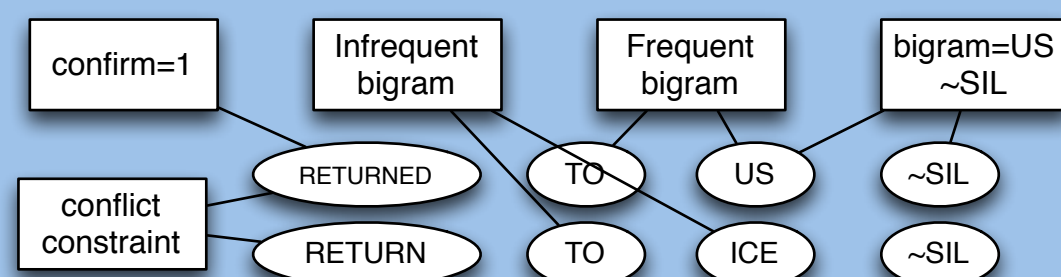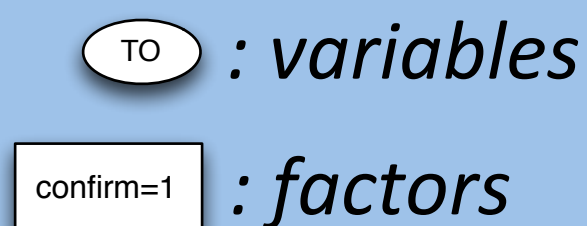
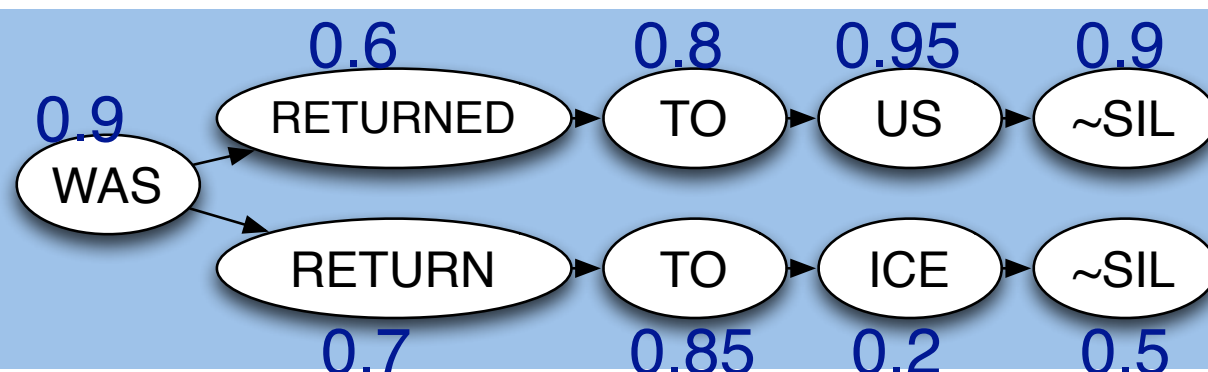**statistical inference and learning**

Candidates with probabilities

Learn weights for factors, and compute marginal probabilities for variables

0.9 WAS
0.6 RETURNED   0.8 TO   0.95 US   0.9 ~SIL
0.7 RETURN   0.85 TO   0.2 ICE   0.5 ~SIL

finding best-path

Best path (or best N paths)

Search for a best path that optimizes edit distance (WER)

WAS → RETURNED → TO → US → ~SIL
RETURN → TO → ICE → ~SIL