Adaptive Bayesian Inference (W16)

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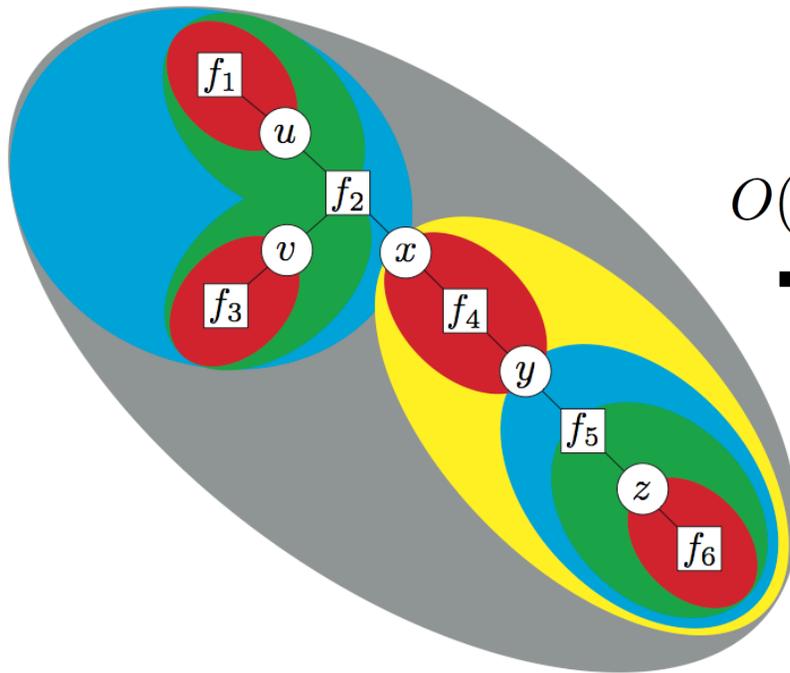
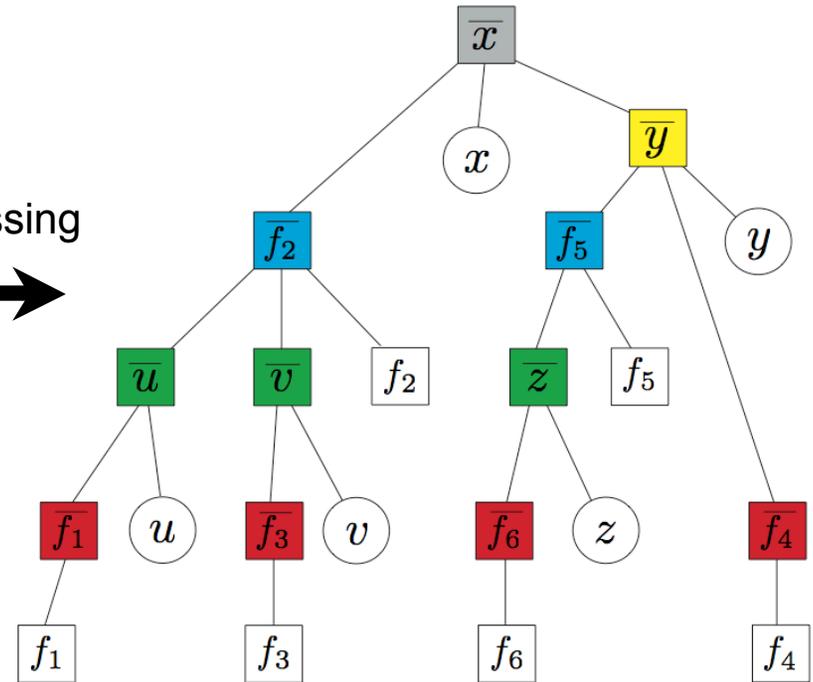
Input Factor Tree

$O(n)$ preprocessing

Balanced Cluster Tree

Updates to CPDs/structure: $O(1)$

Marginal queries: $O(n)$

Updates to CPDs/structure: $O(\log_2 n)$

Marginal queries: $O(\log_2 n)$

Yields 10-100x speedup for applications where updates are frequent (e.g. computational biology).