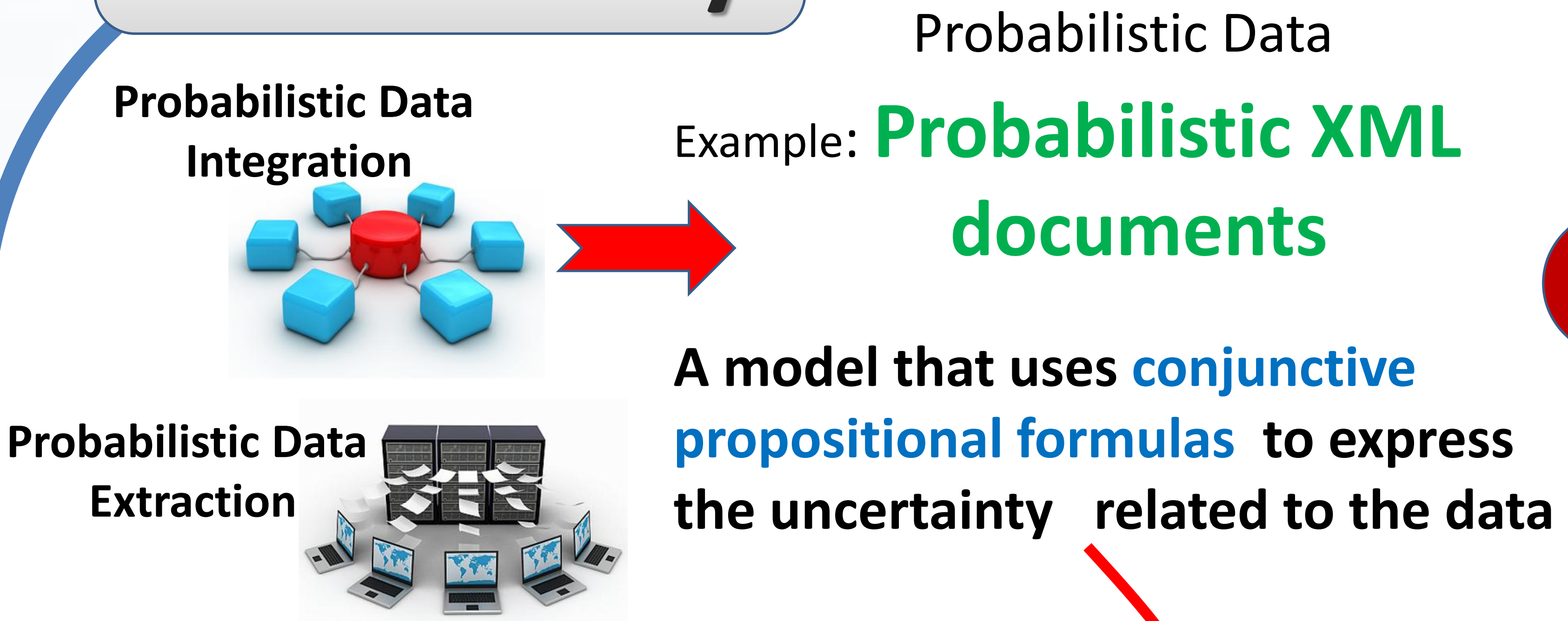
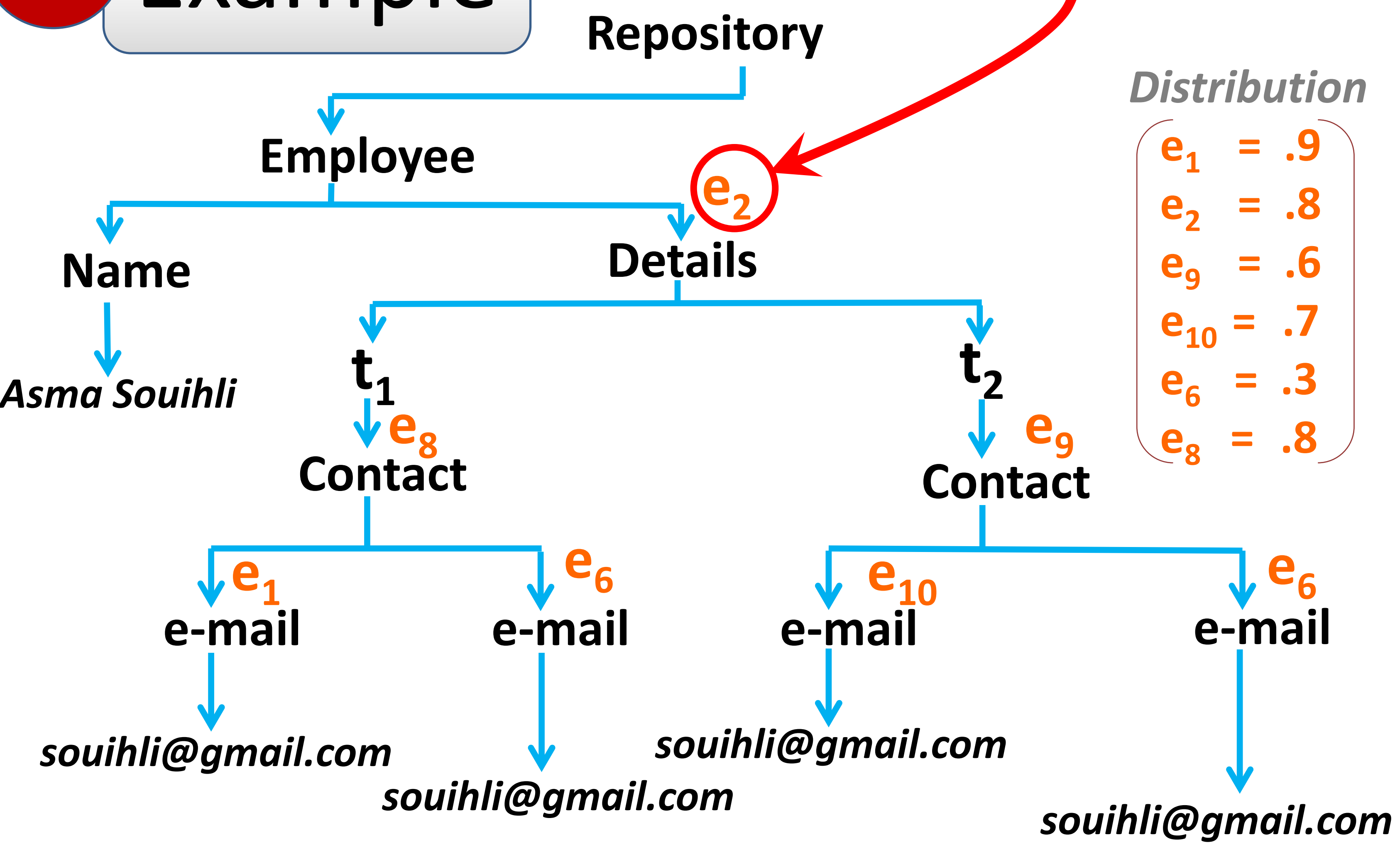


1 Context Uncertainty



2 Example



XPath query Q1:
/Employee [Name= "Asma Souihli"] // e-mail / text()

- Matches in the database:
- gmail.com: e2 ∧ e8 ∧ e1 C1
 - gmail.com: e2 ∧ e8 ∧ e6 C2
 - gmail.com: e2 ∧ e9 ∧ e10 C3
 - gmail.com: e2 ∧ e9 ∧ e6 C4

3 The probability of the gmail address is:
→ Pr(gmail.com) = Pr(C1 V C2 V C3 V C4)

4 Complexity

Probabilities of the satisfying assignments for the DNF (lineage formula) : #P-Hard problem

No polynomial time algorithm for the exact solution if P≠NP

#P problems ask "how many" rather than "are there any"

How many graph coloring using k colors are there for a particular graph G?

5 Approach

ProApproX reveals its originality through the following major features:

- ✓ A broader range of XPath queries
- ✓ a more general data model
- ✓ A cost model for a variety of probability evaluation algorithms (including Monte Carlo and the Self-Adjusting Coverage Algorithm)
- ✓ Lineage Decomposition into independent computational units
- ✓ Custom-made error bound ε and confidence δ for the desired probabilistic approximation
- ✓ Well-grounded propagation mechanisms of ε and δ between computational units
- ✓ An exploration of the space of evaluation plans based on the proposed cost model

