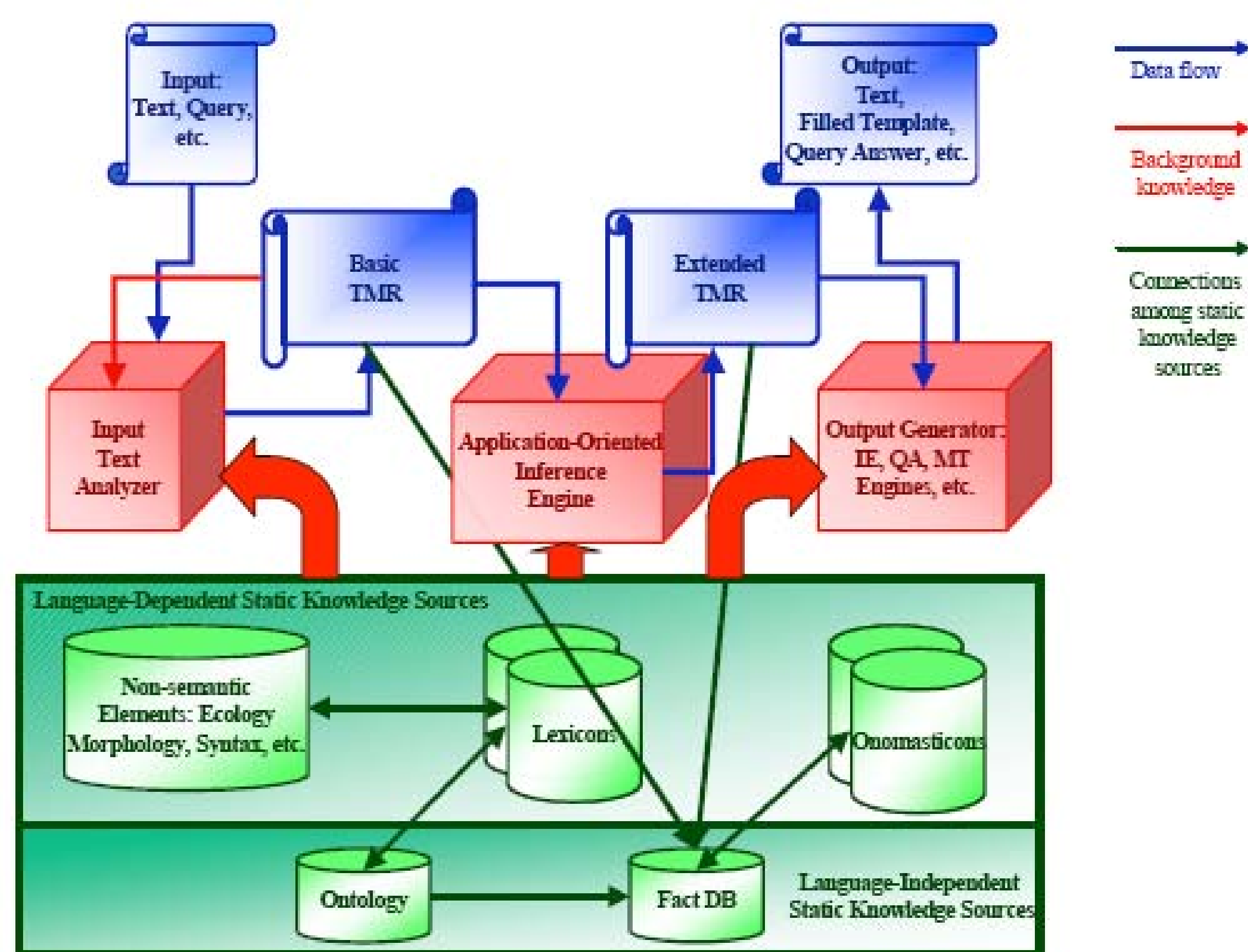


ONTOLOGY-BASED INFERENCE METHODS IN HANDLING PRIVACY POLICIES

Victor Raskin, Olga Krachina, CERIAS, Purdue University

Ontological Model Overview:



Nirenburg, Raskin (2004)

Current approaches:

- goal-oriented languages
- XML-based languages

Potential problems:

- lack of inference capabilities
- reliance on deductive methods

Alternative approach:

- integration of domain-specific resources with legacy resources (ontologies)
- inference methods based on resource structure and organization (TMR matching)

Advantages:

- handles cases of abductive reasoning
- not limited to subsumption relations
- allows dynamic inference process

Further research:

- evaluation criteria for query satisfaction

Example:

We may share your personal information with members of our corporate family to provide joint services.

EBay

Query: does 'company X' have access to PI?

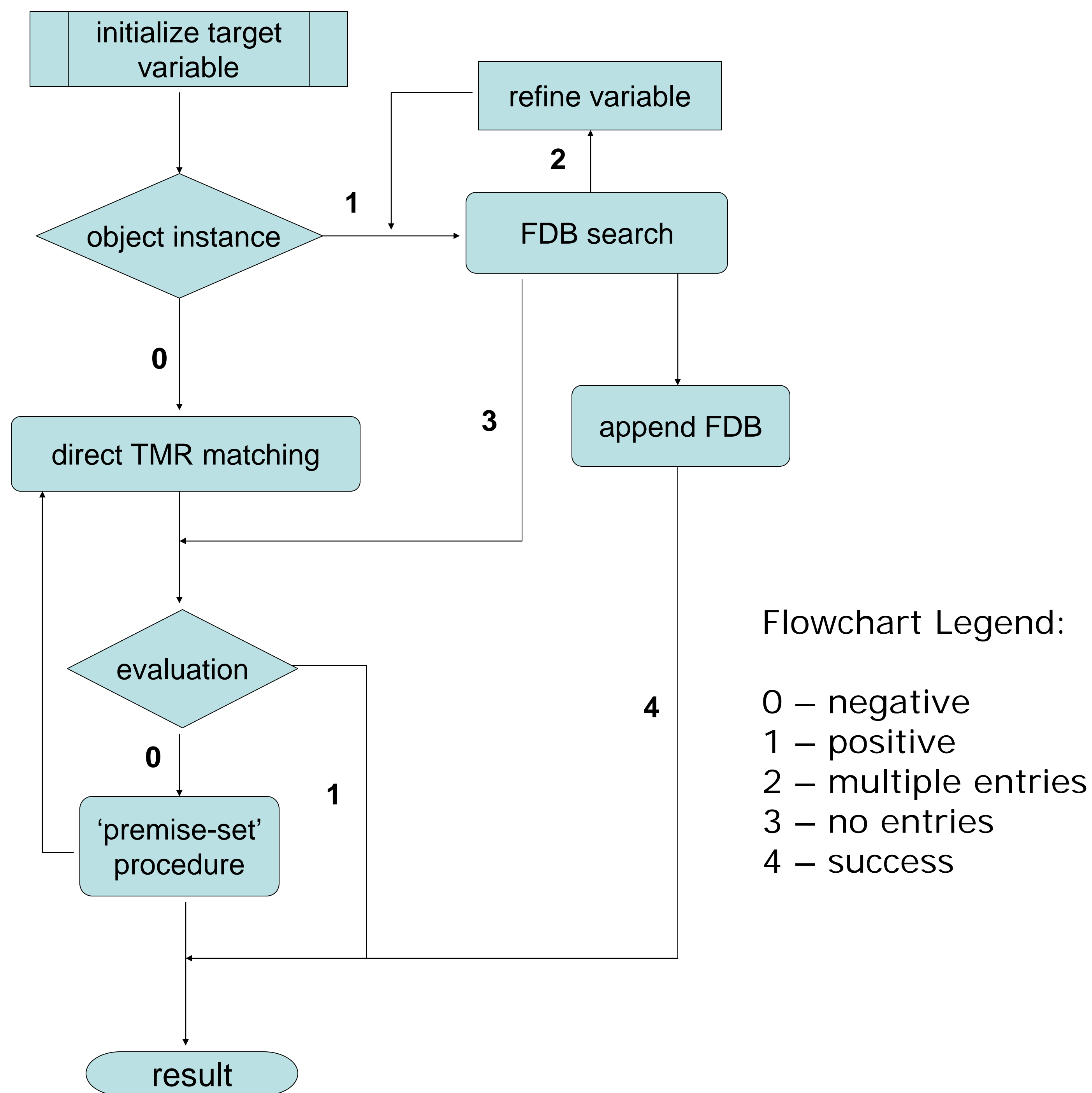
TMR

SHARE-EVENT-1
AGENT CORPORATION-1
THEME PI
BENEFICIARY CORPORATION-2
PURPOSE SERVICE-EVENT-1
TIME (< (F-A-T) >
CORPORATION-1
HAS-NAME EBAY
AGENT-OF SHARE-EVENT-1
CORPORATION-2
BENEFICIARY-OF SHARE-EVENT-1
NUMBE PLURAL
SERVICE-EVENT-1
AGENT CORPORATION-1
CORPORATION-2
BENEFICIARY HUMAN-1

TMRQ

ACCESS-EVENT
AGENT CORPORATION-1
THEME PI
PI
HAS-OWNER HUMAN-1
THEME-OF ACCESS-EVENT
HUMAN-1
OWNER-OF PI
BENEFICIARY-OF SERVICE-EVENT-1
SERVICE-EVENT-1
AGENT CORPORATION-2
CORPORATION-2
AGENT-OF SERVICE-EVENT-1
SHARE-EVENT
HAS-NAME EBAY
CORPORATION-1
HAS-NAME COMPANY-X
AGENT-OF ACCESS-EVENT
REQUEST-INFORMATION
THEME access-event.agent

TMRQ expansion due to inference process



References: S. Nirenburg and V. Raskin *Ontological Semantics* (2004), S.Beale, B.Lavoie, M. Mcshane, S. Nirenburg, T. Korelsky *Question Answering Using Ontological Semantics* (2004)