

EXIST and KIF

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Knowledge Interchange Format

- Draft proposed American National Standard
 - dpANS NCITS.T2/98-004
- Example statement
(believes john `(material moon stilton))



Proposed Aims

EXIST

- Language designed for interchange of knowledge amongst disparate computer systems
- Not intended as a primary language for interaction with human users
- Not intended as an internal representation for knowledge within computer systems



Categorical Features

EXIST

- Declarative semantics
 - Meaning of an expression can be understood without recourse to an interpreter to manipulate them
- Logically comprehensive
- Provides for the representation of knowledge about knowledge (metaknowledge)



KIF Basics

EXIST

- The basis for the semantics of KIF is a conceptualization of the world in terms of objects and relations among those objects
- A universe of discourse is the set of all objects presumed or hypothesised to exist in the world
- The notion of object in KIF is broad – includes concrete and abstract things
- The language is rooted in logic



KIF and EXIST

EXIST

- (In general) statements in EXIST will have some corresponding form in KIF
 - They are not a million miles apart in expressive capability
- KIF does not directly support the notions of *class* and *classification* (nor of *set* – only *list*)
 - Classification would be modeled as a *relation*



KIF vs EXIST

EXIST

- KIF is purely a language
- There is no concept of a 'KIF Processor'
 - Only a system that may receive KIF (or a subset of KIF) for some purpose
- EXIST inherently defines an 'EXIST Processor'
 - *cf* Prolog defining a Prolog Interpreter
 - One can define functions with side-effects and manipulate expressions
- EXIST supports modularity
 - Namespaces



KIF and EXIST

EXIST

- We should retain EXIST as a language intimately connected with the notion of an EXIST Processor
 - We can define the operation of an EXIST Processor in terms of EXIST but not in terms of the generality of KIF
- We should consider KIF as an interchange format for use with an EXIST Processor
- This approach fits the stated aims of KIF

