Third Manifesto Concerns

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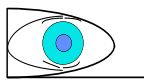
The Third Manifesto
Implementers' Workshop
2nd – 3rd June 2011



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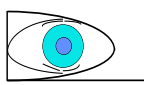
Topics

1. Scalar Types :
   - Categories
   - Logical Values Only
   - Rational Numbers
2. Relational Truth Values
3. View Updating



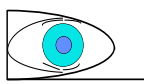
Categories of Scalar Types

***Third Manifesto* categories are :**

- User-Defined with Possreps.
- System-Defined with Possreps.
- System-Defined without Possreps.
- Plug-ins. Either User-Defined or System-Defined, but must have Possreps (?)

Simpler categorisation is :

- Types ***with*** Possreps.
- Types ***without*** Possreps.



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Recognition of Categories

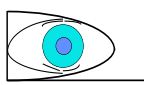
By user :

- ***With Possreps*** (with Selector and THE_ operators).
- ***Without Possreps*** (Innate representation).

This is how the user reads & writes scalar values.

By DBMS :

- ***With Possreps***. DBMS can use ***one*** standard procedure to recognise values of ***all*** such types.
- ***Without Possreps***. DBMS needs to incorporate one procedure for each such type. These types are essential requirements anyway.

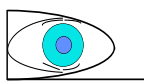


RAQUEL Categorisation of Scalar Types

- ***Primitive*** Types, with Innate representation.
  ≡ *TTM* System-Defined without Possrep.
- ***Non-Primitive*** with Selector representation.
  ≡ *TTM* ???-Defined with Possrep.

Example of Geometric Shape Type :-

- **IF** represented by graphical shapes (e.g. via a GUI)
  THEN type is a new ***primitive*** type.
- **IF** represented by values of pre-existing types
  (e.g. numeric values representing vertices)
  THEN type is a new ***non-primitive*** type.



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Scalar Types : Logical Values Only

Example 1 :

Percent **<==Type** Integer >= 0 **And** Integer <= 100

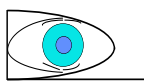
Huge **<==Type** Number >= 1000000

System decides on physical storage.

⇒ 32-bit and 64-bit integer values (say) legitimately used in same calculation. DBMS must handle.

Example 2 :-

'Picture' primitive type : several types of physical file storage, e.g. JPEG, TIFF. DBMS must handle 2+ file types in picture processing.



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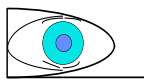
Scalars : Rational Numbers

- Versus **Real** (and **Floating Point**) ?
- 1/3 is easily stored in Trinary arithmetic, but not in Decimal or Binary. Does this affect the principle ?



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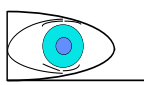
Relational Truth Values

To return all employees who have children, I want to write :

Emp **Restrict[** *Child* **Project[ ]]**

Emp

			Child



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View Updating to Support Assignments

(*Emp* **Restrict[** Loc = 'Ncle' **]**)

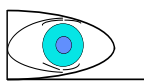
<--Amend[Sal <-- Sal * 1.1 **]**

Do ***not need*** view updating for this.

Do need view updating for this :-

(*Sales* **Join[** SID **]** *SalesItems*) **<--Insert** { { .. }{ .. } }

Useful to have a general algorithm for all assignments.



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