Semantic Search for Quantity Expressions

Tom Wiesing

Supervisor: Michael Kohlhase
Co-supervisor: Tobias Preusser

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Overview

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- Motivation: Problem and State Of The Art

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- Our Approach: Structure Of The Search Engine

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- The Implementation

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- The Implementation
- Time for Questions

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- everything is quantified

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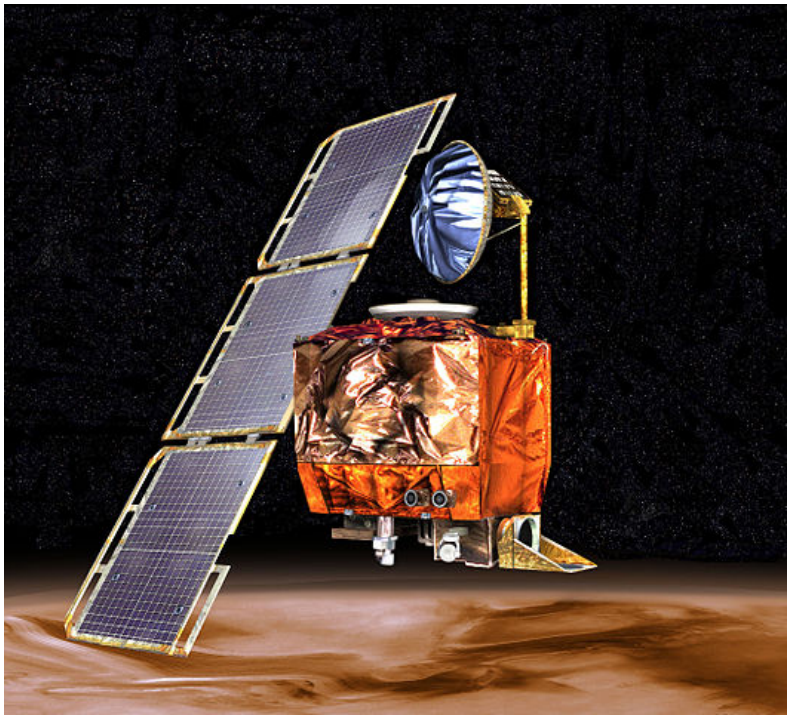

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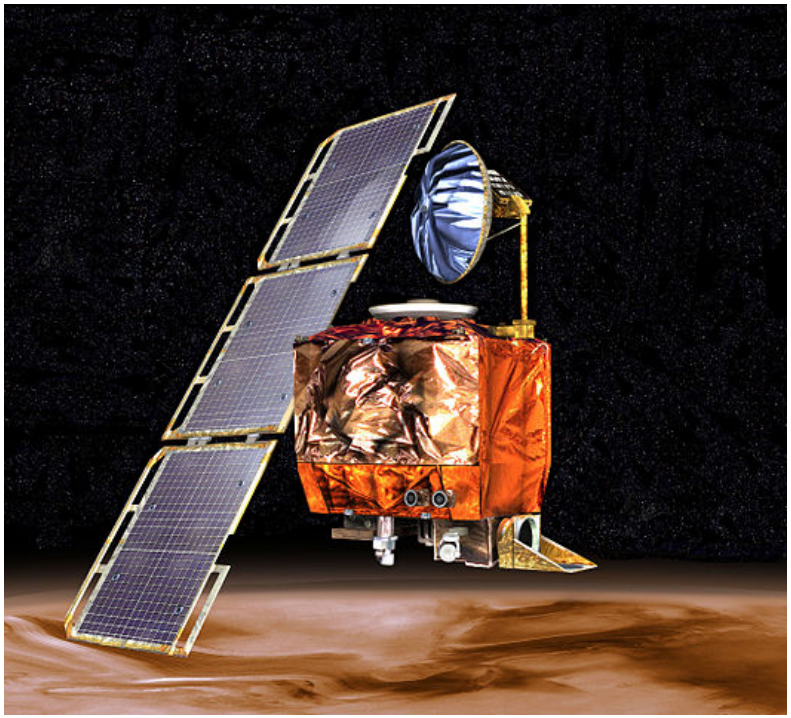

- Different Units are a big problem

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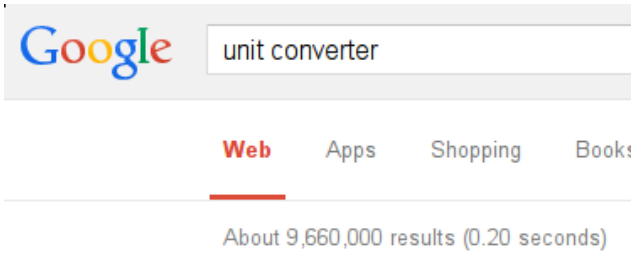

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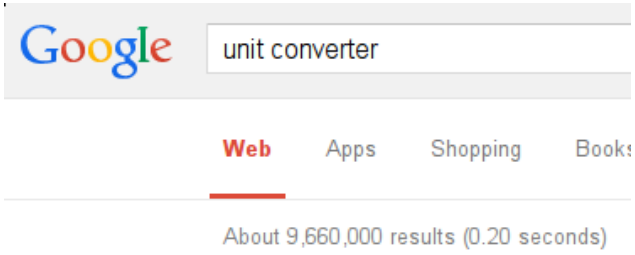
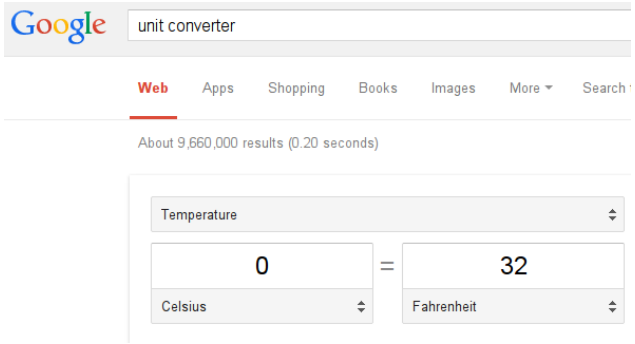


  - Google itself has one integrated



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- This is the kind of search engine we have built

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- Spotter is done by *Stiv Sherko*
- We only need to worry about the *Unit System*, the *Search Algorithm* and the *Frontend*

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- so we have 9 basic dimensions

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- We can use this to get a meta-mathematical formalisation of dimensions

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Dimension		
dimension	:	type
none	:	dimension
count	:	dimension
length	:	dimension
mass	:	dimension
time	:	dimension
current	:	dimension
temperature	:	dimension
luminous	:	dimension
amount	:	dimension
$\cdot$	:	dimension $\rightarrow$ dimension $\rightarrow$ dimension
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- this results in the following formalisation:

Our Approach: The Unit System (5)

Quantity Expression		
QE	:	$\text{dimension} \rightarrow \text{type}$
QENMul	:	$\forall x : \text{dimension.number} \rightarrow \text{QE}\,(x) \rightarrow \text{QE}\,(x)$
QENDiv	:	$\forall x : \text{dimension.QE}\,(x) \rightarrow \text{number} \rightarrow \text{QE}\,(x)$
QEMul	:	$\forall x : \text{dimension.}\forall y : \text{dimension.QE}\,(x) \rightarrow \text{QE}\,(y$
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