

# Defining “Information”

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Based (mostly) on Luciano Floridi’s  
*Information: A Very Short Introduction*,  
Oxford, 2010.

# Information: Three Perspectives

- Information *as* reality  
(environmental information)
- Information *about* reality  
(semantic information = data space)
- Information *for* reality  
(instructions, genetic code, algorithms, etc.)

# The General Definition of Information

Information = Data + Meaning

The information  
went data way



# The General Definition of Information

Information = Data + Meaning

Question: What is data?

# General Definition of a Datum

$Dd =_{def} x$  being distinct from  $y$

where the  $x$  and  $y$  are two un-interpreted variables and the domain is left open to further interpretation.

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# Understanding Data

What does it mean to...

Damage data

Lose data

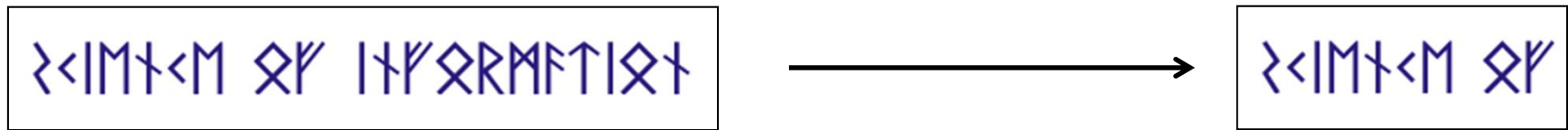
Erase Data



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# Understanding Data...



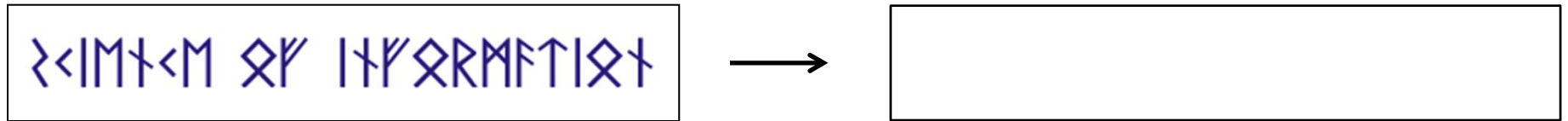
Do we now have half the data?

# Understanding Data...



Data requires some representation?

# Understanding Data...



There is no data?

# Understanding Data...



No data is still data!  
As long as there is a difference...

# General Definition of a Datum

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where the  $x$  and  $y$  are two un-interpreted variables and the domain is left open to further interpretation.





# Data is...

- *“It is the difference that makes a difference.”  
(McKay 1969)*
- A datum is reducible to a *lack of uniformity*
- The actual *format, medium, and language* of encoding of data is irrelevant.
- I.e. Information is decoupled from its representation/manifestation.

# Common/Useful Representations of Data

- Analog
- Discrete  
(digital)
- Binary  
(y'all know what that is...)

# Types of Data

- **Primary**  
(raw data in a database, or a table, ...)
- **Secondary**  
(converse of primary data, stuff that is missing...)
- **Metadata**  
(data about data, location, format, copyright,...)
- **Operational**  
(data about the operation of a data system...)
- **Derivative**  
(data extracted from other data, as in mining...)

# The General Definition of Information

**Definition:**  $\sigma$  is an instance of information, understood as semantic content, if and only if:

- 1)  $\sigma$  consists of  $n$  data, for  $n \geq 1$ ;
- 2) The data are *well-formed*;
- 3) The well-formed data are *meaningful*.

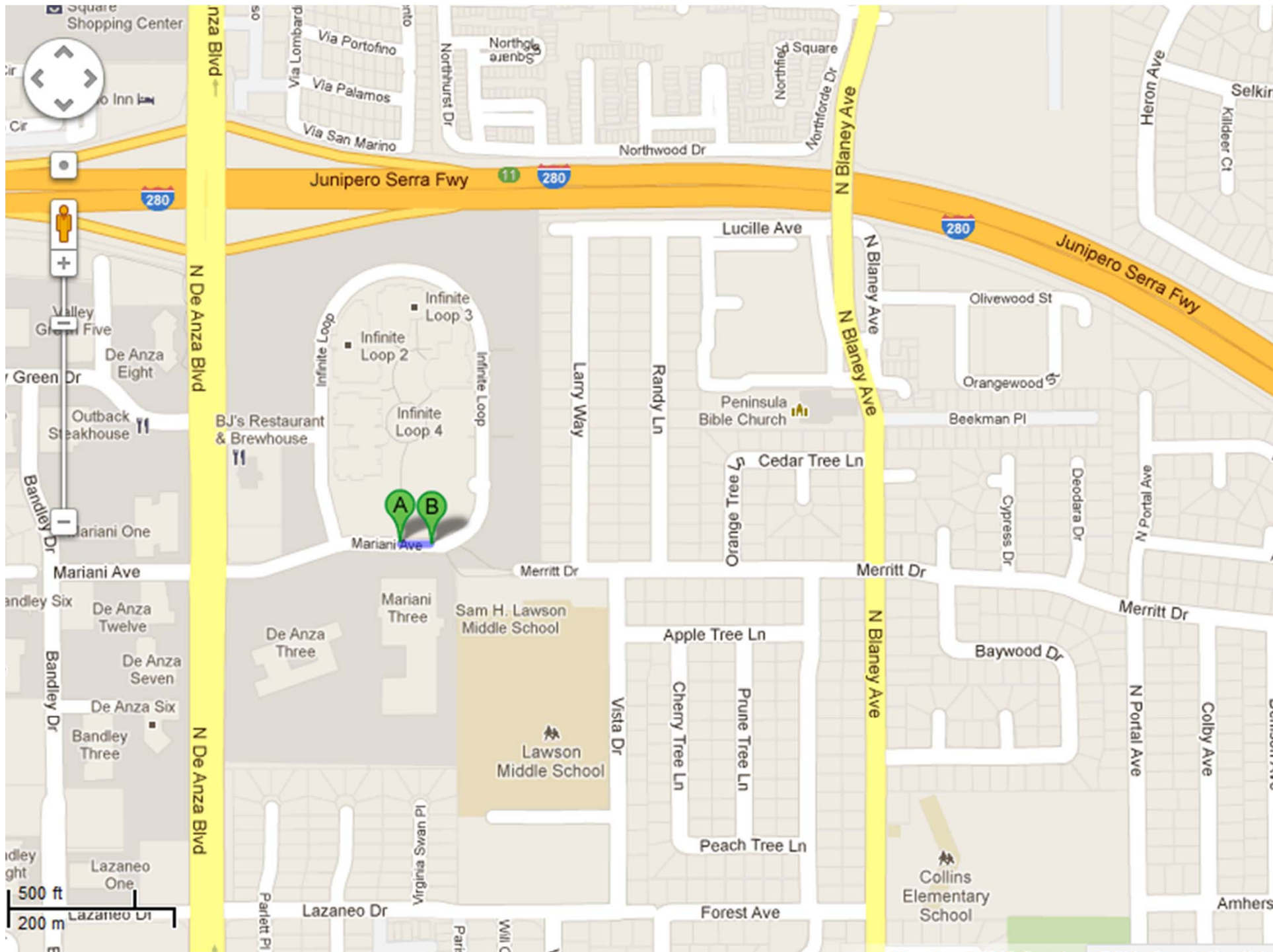
# Data are well-formed...

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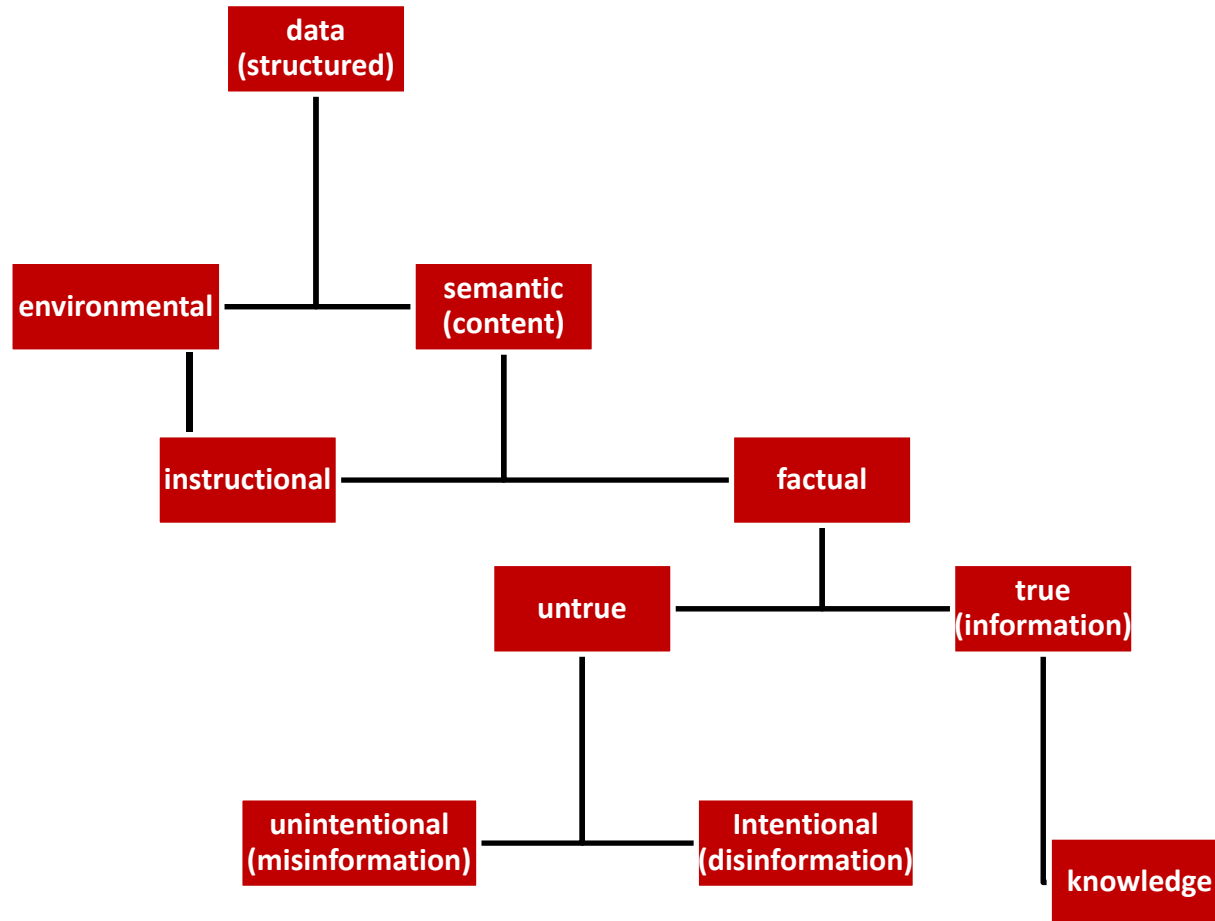
𐌸	𐌰	𐌰	𐌸	𐌹	𐌰	𐌶	𐌰
f	u	þ	a	r	k	g	w
fehu wealth	ūruz aurochs	þurisaz giant	ansuz god	raipō riding	kaunaz ulcer	gebō gift	wunjō joy
𐌺	𐌶	𐌶	𐌸	𐌹	𐌰	𐌶	𐌶
h	n	i	j	ī	p	z	s
hagalaz hail	naupiz need/hardship	isa ice	jera year/harvest	eihwaz yew tree	perþ luck	algiz sedge (?)	sōwulō sun
𐌹	𐌶	𐌹	𐌸	𐌶	𐌸	𐌸	𐌸
t	b	e	m	l	ng	d	o
teiwaz the god Tyr	berkana birch twig	ehwaz horse	mannaz man	laguz water	inguz the god Ing	dagaz day	ōþila inherited land

# Data are well-formed...





# Information: A Taxonomy





Next,

# The Foundations of Information