Indication and Representation

Important Terminology

Indication (Covariance Clarified)

Occurrences of S indicate that O is A, just in case if O weren't A, S wouldn't have occurred

- Tree rings indicate age
- Tree rings also indicate age

(S is a signal: word, bit pattern, neural pattern)

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Representation (Covariance With a Purpose)

Occurrences of S represent that O is A, just in case:

- S has the function of indicating that O is A

What is a Representational System?

A System with the Function of Indicating

What is a Representational System (RS)?

A system whose function is to indicate how things stand with respect to some other object, condition or magnitude

- Suppose the RS's function is to indicate whether O is in condition A or B and the way RS performs this function is by occupying one of two possible states 1 (indicating that O is A) and 0 (indicating that O is B)

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- Suppose the RS's function is to indicate whether O is in condition A or B and the way RS performs this function is by occupying one of two possible states 1 (indicating that O is A) and 0 (indicating that O is B)
- Then 1 and 0 are the elements of RS and they represent that O is A and that O is B

Kinds of Representational Systems

Three Types

- 3 importantly different kinds of RS's

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  1. Purely Conventional Systems

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  2. How the elements indicate

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  2. How the elements indicate
- We'll see examples in a moment...

Conventional Representation

A Summary

Example Conventional RS

A basketball game re-enacted with popcorn and coins

Conventional Representation: Type 1

1. Elements are called symbols

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2. Symbols indicate because there is a person making sure they covary with world

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   - Popcorn & coins indicate game because I am making them covary w/game

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3. Symbols can have the function of indicating *anything*

Conventional Representation

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Example Conventional RS

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1. Elements are called symbols
   - Popcorn kernels and coins
2. Symbols indicate because there is a person making sure they covary with world
   - Popcorn & coins indicate game because I am making them covary w/game
3. Symbols can have the function of indicating *anything*
   - We get to assign them!

Hybrid Representation

A Summary

Hybrid Representation: Type 2

1. Elements are called signs

Hybrid Representation

A Summary

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1. Elements are called signs
2. Signs indicate because of natural dependency between them and what they indicate

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   - Needle on gas gauge and fuel level
   - Needle on gas gauge and electrical current

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   - We give a gas gauge the function of indicating fuel level, not electrical current in gas tank

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4. Sign *users* determine which of these functions it has
   - We give a gas gauge the function of indicating fuel level, not electrical current in gas tank
   - But it could serve either function

Natural Representation

A Summary

Natural Representation: Type 3

1. Elements are called natural signs

Natural Representation

A Summary

Natural Representation: Type 3

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2. Natural Signs indicate because of natural dependency between them what they indicate

Natural Representation

A Summary

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   - Magnetosomes in marine bacteria indicate whereabouts of oxygen-free environments

Natural Representation

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3. Natural signs have an intrinsic function that derives from the way they are used and developed by the system of which they are part

Natural Representation

A Summary

Natural Representation: Type 3

1. Elements are called natural signs
2. Natural Signs indicate because of natural dependency between them what they indicate
   - Magnetosomes in marine bacteria indicate whereabouts of oxygen-free environments
3. Natural signs have an intrinsic function that derives from the way they are used and developed by the system of which they are part
   - Magnetosomes indicate many things, but they represent oxygen-free environments because that's their function in marine bacteria

(1) ... Tree Rings

(2) ... Smoke

(3) ... Spots

Exercise: Can you think of any other example of *natural* signs?

However, the kind of signs we are interested in this course are *artifacts* which are made to represent something.

But the ways artifacts can represent is extremely multifarious and diverse.

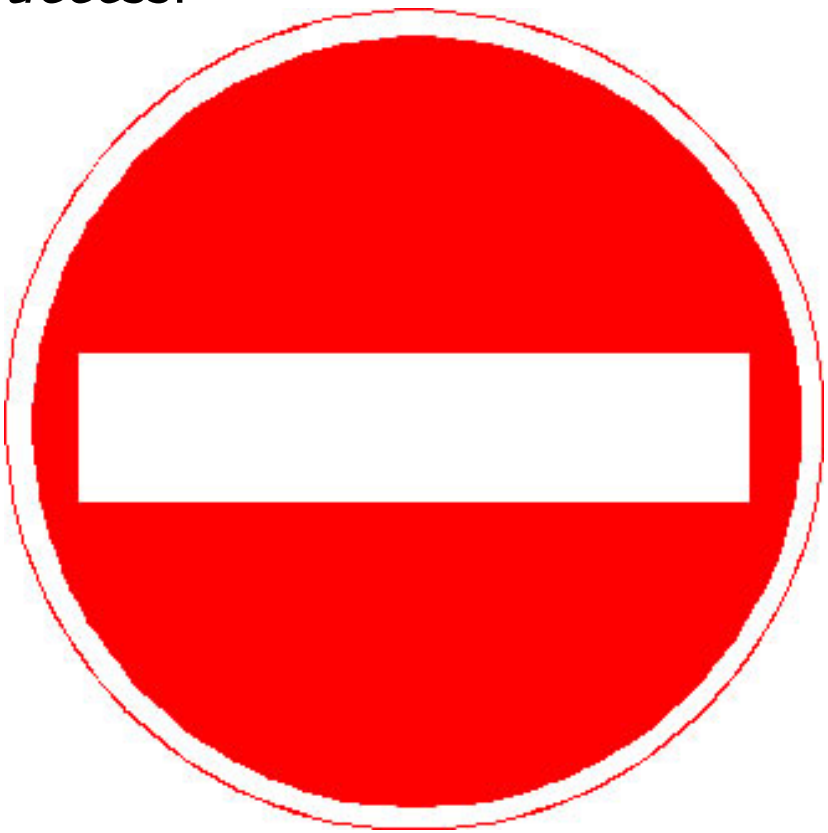
For example, consider the case of *pictures*. Pictures seem to represent by *resemblance*. Presumably, the portrait below represents the philosopher Francis Bacon by resembling *him*:

The following picture represents a ship by *looking alike* a ship:

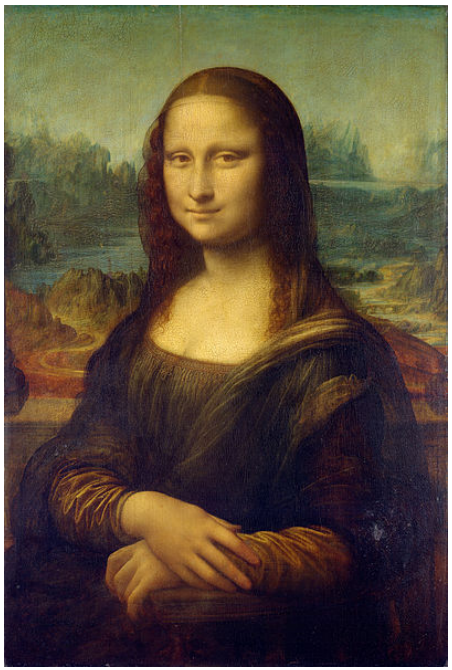
Exercise: Can you think of any counterexamples to the claim that pictures represent what they do by resemblance?

Other signs represent what they do *by stipulation*:

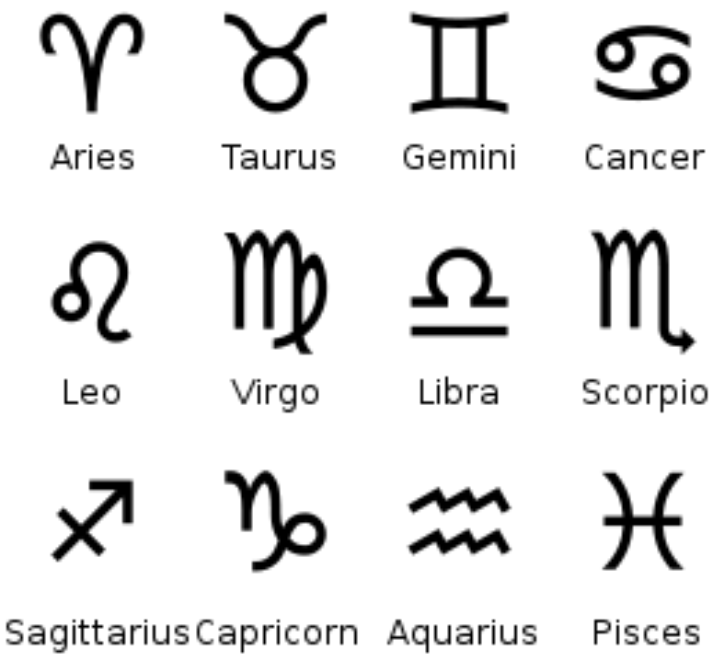
We *have* to learn that the following sign means *denial of access*:



Presumably, we don't have to learn that the following picture represents a woman thus and so (although, of course, we need to be told who the woman featured *is*):

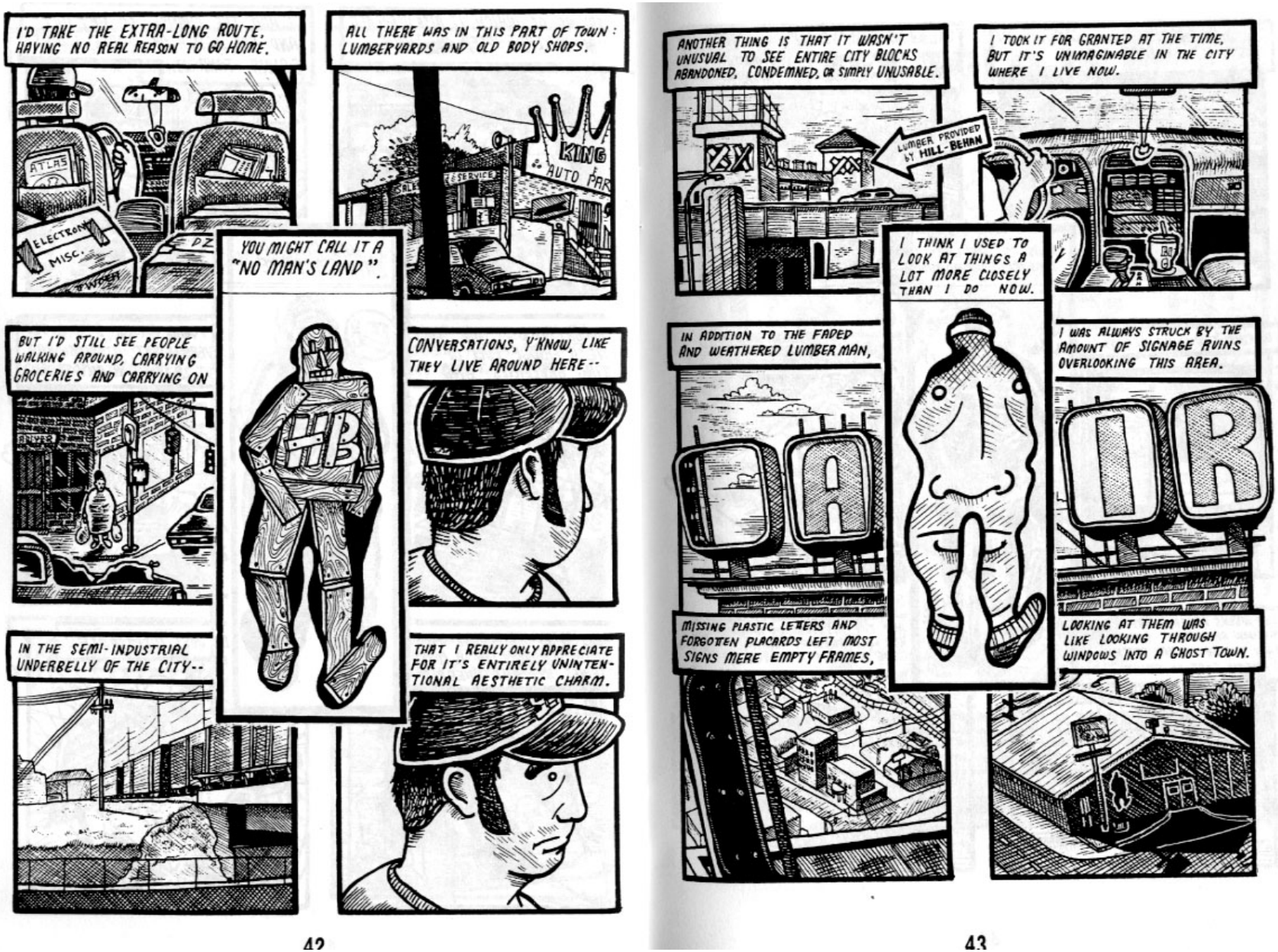


Other kinds of signs represent by a mixture of stipulation and resemblance:



Another example of mixed representation:

Still another one:



Representational Systems

What Kind?

Representational Systems

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