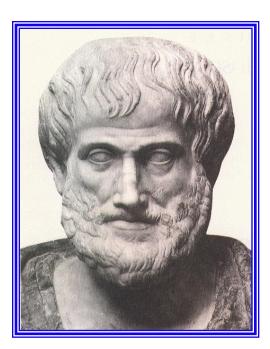
Definitions & Contexts: Adequacy and Proper Form



Aristotle
Old Greek guy who taught us how to define stuff.



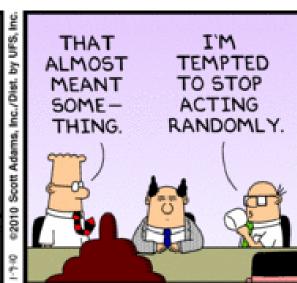
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Special Language

Saturday, January 9, 2010







Define your terms.



What was that?



- **♦** It was a bicycle.
- What is a bicycle?
- A bicycle is a vehicle.
- What are its characteristics?
 - It has two wheels.
 - It has a seat.
 - It has handlebars for steering.
 - It is human-powered with pedals.





Define bicycle

bicycle bike a vehicle with two wheels tandem, handlebars for steering, a saddle seat, and pedals by which it is propelled http://www.merriam-webster.com/dictionary/bicycle



An Implied Sentence

Implied Implied

subject: verb (copula):

[A bicycle is a] vehicle with (1) two wheels tandem, (2) handlebars for steering, (3) a saddle seat, and (4) pedals by which it is propelled

http://www.merriamwebster.com/dictionary/bicycle

(The definition itself is a predicate.)

Components of the Definition

- Subject (the designation)
 - The term (bicycle) is an implied subject. There is no real subject.
- Copula
 - Used in place of the implied verb "is"
 - Colon, dash, carriage return (in text)
- Predicate
 - Statement of genus (broader concept) & listing of essential and delimiting characteristics
- Orthographic rules
 - No capital, no period ISO style
 - Capital, period widely used in English dictionaries
 - Don't mix the two styles use one consistently!



Definition Format Rules

- State each term in its own term field.
- **DO NOT REPEAT THE TERM IN THE DEFINITION!**
- The term is an implied subject.
- ◆ DO NOT USE THE VERB [is/ist/es, etc.]. The verb "is" is implied (copula).
- Start with the appropriate article (a, an, the, or maybe any) or leave it out.
- Start with a capital letter & end with a period.
- Or no capital letter, no period.]
- [But not both in the same database! Be consistent.]



Term + Definition Form

	term:	bicycle; bike
	subject field:	vehicles
ঞ Definition প্ৰ	genus (superordinate concept):	a vehicle
	characteris- tics:	with two wheels tandem, handlebars for steering, a saddle seat, and pedals by which it is propelled



Why mention two wheels?

- Some other cycles have a different number of wheels.
- Number of wheels is a critical or determining characteristic.

Unicycles have one wheel.







Tricycles have three wheels.

Why add tandem?

- * Tandem means in-line, one in front of the other.
- Some non-bicycle vehicles have two parallel wheels.
- * Tandem/in-line is a critical characteristic.



SegwayTM PT





Diwheel "sulky".



Why mention the seat?

- Some human-powered vehicles don't have seats and are designed for standing.
- Some have seats, but no pedals.
- Seat + pedals is a critical characteristic.



Issues

- Document the singular form (unless it needs to be plural), e.g. compare:
 - •interconnected specifications
 - flags
- Single sentence fragment.
- Don't repeat the term in the definition.
- Define the concept that's apparent in your context.



Issues

- ◆ Don't just grab the definition for the generic word you are looking at, but try to figure out what the definition is for your subject-area concept.
 - An address in a computing environment may not be the same thing as an address on a paper letter.
 - The address field in a form to be filled out may not be the same thing as the address of a web service itself.



Form of Definitions

- **♦** A concept is always defined with reference to a specific subject field.
- **♦** The definition consists of 1) the statement of a superordinate or broader concept, followed by 2) a statement of the characteristics that differentiate that concept from similar concepts.



Alternate Definition

• vehicle consisting of a light frame mounted on two wire-spoked wheels one behind the other and having a seat, handlebars for steering, brakes, and two pedals or a small motor by which it is driven.

http://education.yahoo.com/reference/dictionary/entry/bicycle

♦ Is this true?



Distinguishing Characteristics

- *A time trial bike has handlebars, a seat, a frame, and wheels.
- It does NOT have:
 - Spoke wheels
 - Brakes
- The second definition defines a prototypical bicycle, but it is too restrictive as a generic definition.



Porphyry:

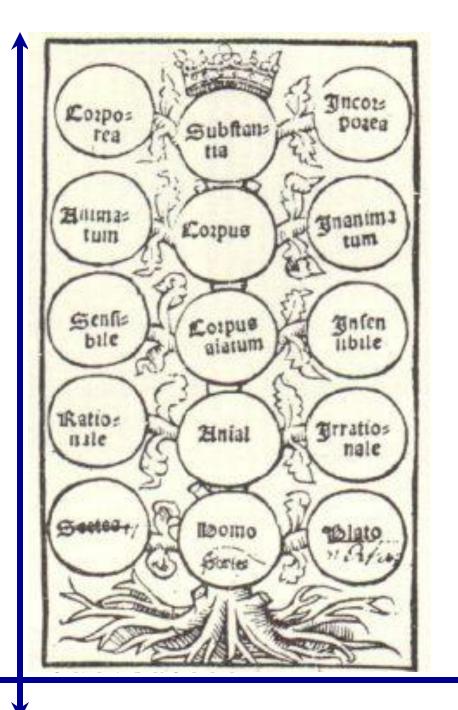
Old Phoenician / Roman guy who clarified Aristotle and taught us how to classify stuff.



Features of Definitions

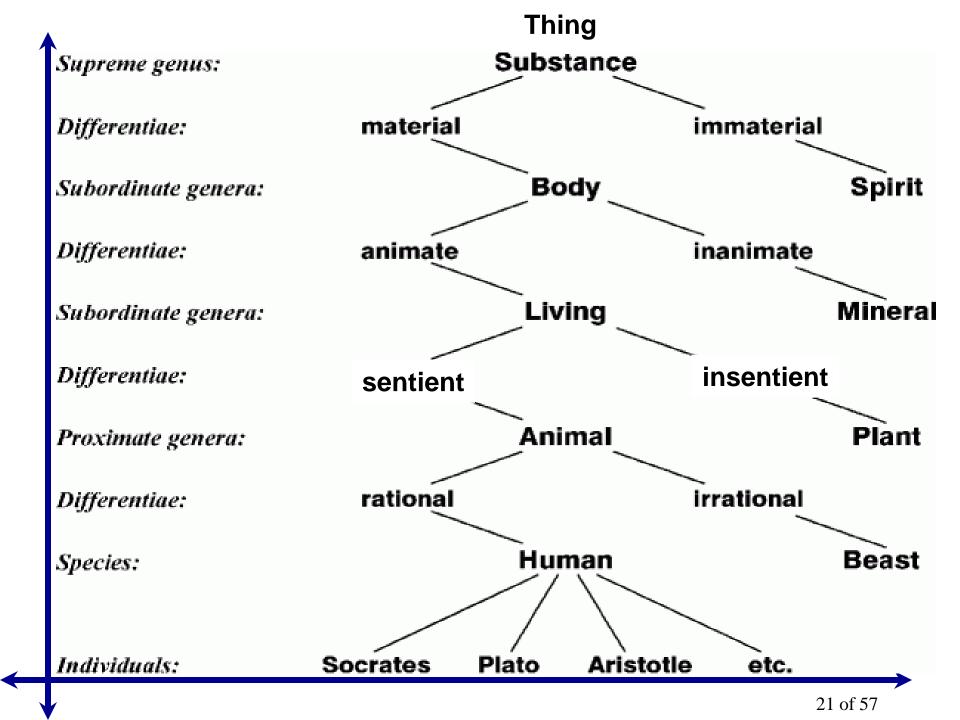
- The statement of a genus (A broader or superordinate concept)
- The statement of differentiating (defining, delimiting) characteristics





Porphyry's Tree

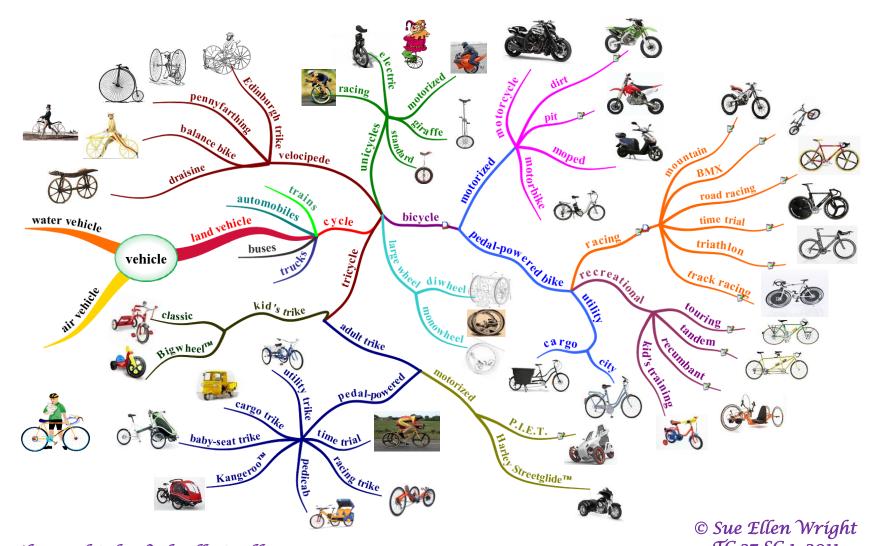
- Ontology
- Epistemology
- Definition by classification
- Genus to species
- Species to individual



How the tree works

- What is Plato?
 - An individual male human (who was also a Greek philosopher)
- What is a human?
 - A rational animal. (An animal that is rational.)
- **♦** What is an animal?
 - A sentient living being. (A living being that is sentient.)





Bikes and Other Wheelly Stuff

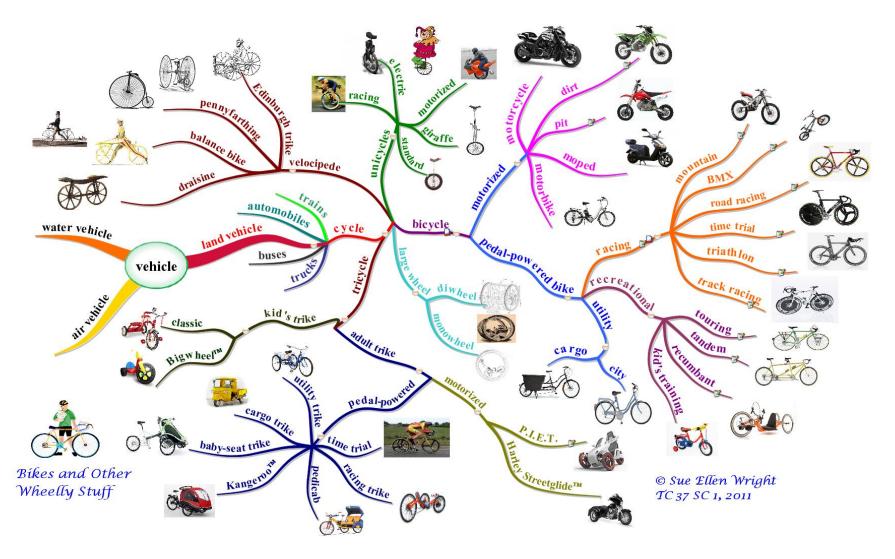
Generic System

TC 37 SC 1, 2011

Generic Concept Systems

- ◆ Generic systems show parent child relations (broader → narrower concepts)
- Generic systems show related concepts (siblings)
- Generic systems make it easy to determine critical characteristics for individual concepts

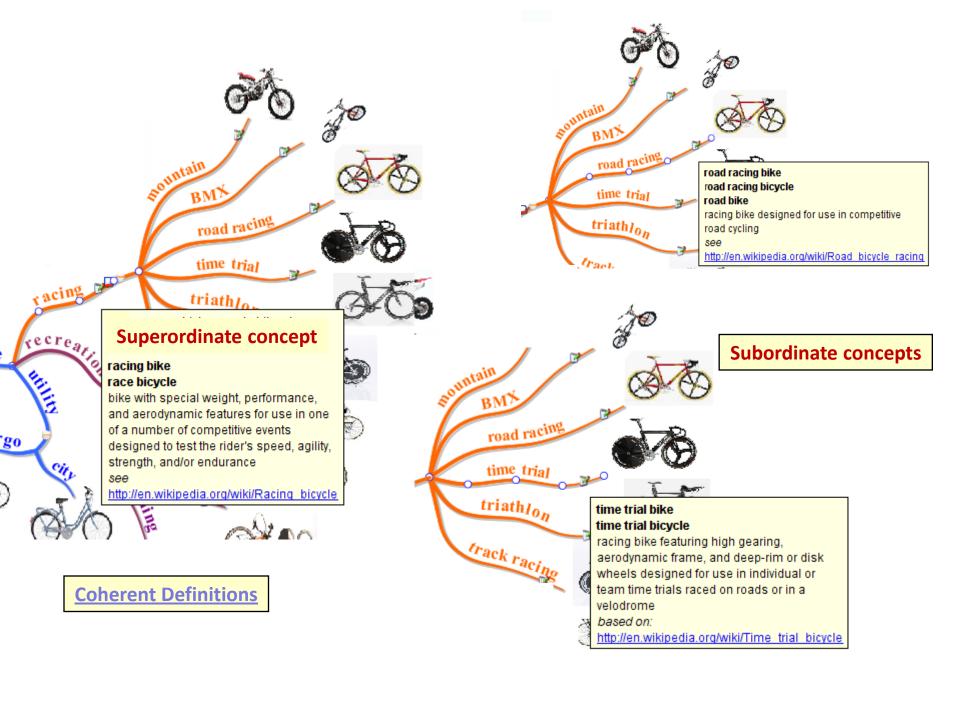




A time trial bike is a kind of racing bicycle.

A racing bicycle is a kind of bicycle.

A bicycle is a kind of land vehicle.

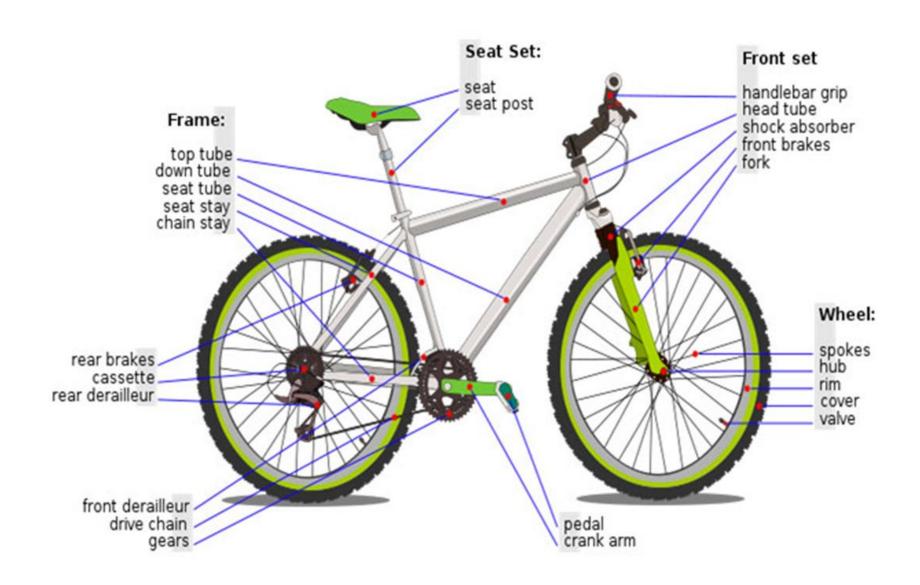


Part-Whole Systems

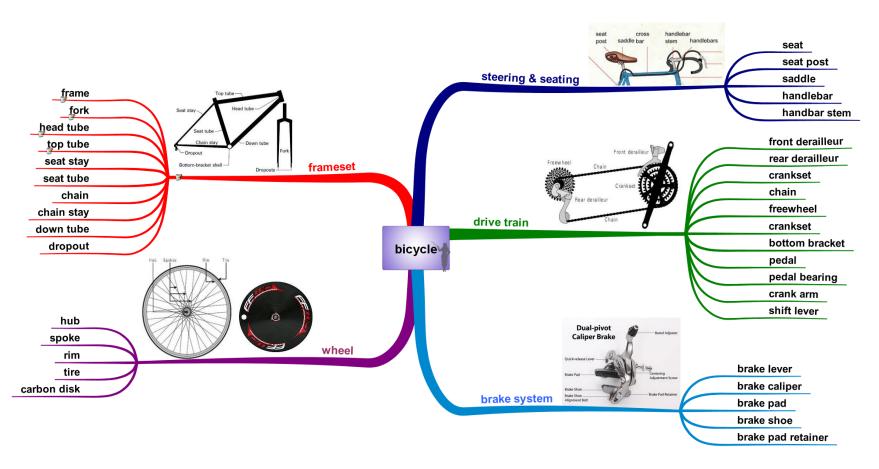
- (Partitive, Meronymic)
- Part-whole systems demonstrate the constituent parts of an object.
- ◆ Part-whole systems can demonstrate the differences between related concepts by showing differences in components.



Diagram of a Bicycle



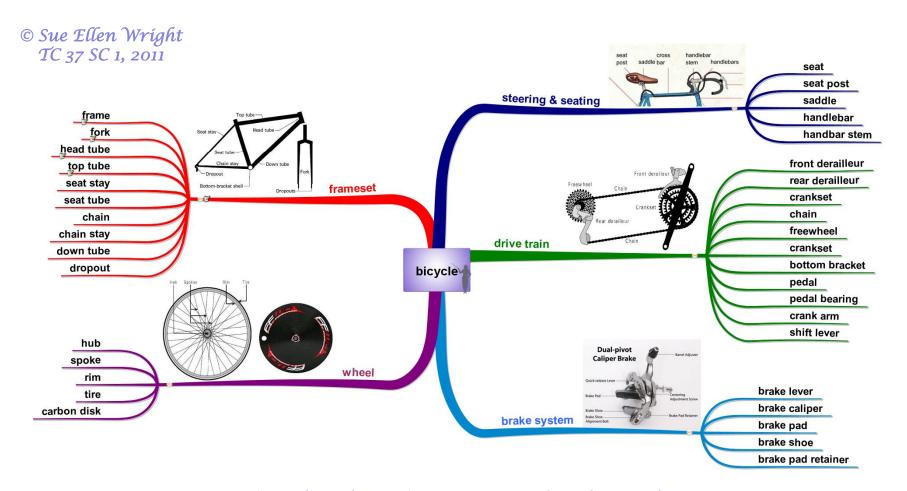
Bikes: Parts and Part Sets



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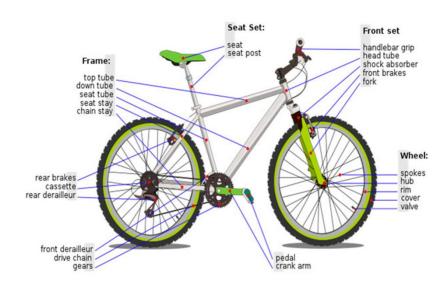
Partitive System

Bikes: Parts and Part Sets



A wheel set is a part of a bicycle. A wheel is a part of a wheel set. A spoke is a part of a wheel.

Coordinate Concepts



Atypical: time trial bike

Prototype: city bike road bike

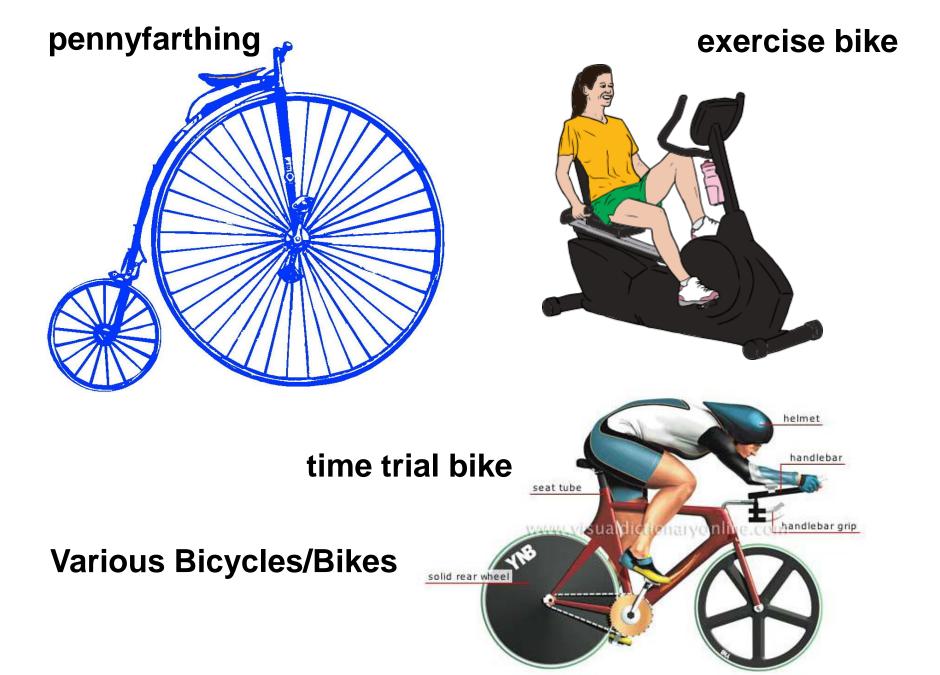




How do they differ?

- Straight vs. down handbars
- Spoked vs. carbon disk wheels
- Brakes vs. no brakes
- Steel vs. carbon frame
- Gearing with derailleur vs. straight chain drive
- But they are both still bikes!





EXAMPLE 1: bicycle

The specific *objects* designated by the visual representation below have the following specific properties:





- is a vehicle
- is human-powered
- is pedal-driven
- has a saddle/seat



- is a concrete object
- is a vehicle
- is human-powered
- is pedal-driven
- has a saddle/seat



- is a concrete object
- is a vehicle
- is human-powered
- is pedal-driven
- has a saddle/seat

EXAMPLE 1: bicycle

The specific *objects* designated by the visual representation below have the following specific properties:



- is a concrete object
- is a vehicle
- is human-powered
- is pedal-driven
- has a seat
- has down handle bars
- has two wheels
- wheels equal size
- has spokes
- has tubular steel frame
- has chain drive
- has sprocket
- has derailleur
- has caliper brakes
- has pneumatic tires
- is vellow



- is a concrete object
- is a vehicle
- is human-powered
- is pedal-driven
- has a seat
- has hand rest bar
- has two wheels
- wheels unequal size
- has spokes
- has external metal frame
- has direct drive
- has no sprocket, no chain
 has no sprocket
- has no derailleur
- has spoon brake
- has solid rubber tires
- is blue



- is a concrete object
- is a vehicle
- is human-powered
- is pedal-driven
- has a seat
- has aerobar handlebars
- has two wheels
- wheels equal size
- has deep dish + disk wheels
- has welded aero frame
- has chain drive
- has no derailleur
- has no brakes
- has clincher tires
- is red and black

multispeed bike

penny farthing bike

time trial bike

(prototypical)

Essential or Delimiting Characteristics

- ◆ Essential characteristics: those characteristics that distinguish the subordinate concept from the superordinate concept (parent).
- ◆ Delimiting characteristics: those characteristics that distinguish a concept from other parallel concepts (coordinate concepts, siblings).



Inherited Shared Characteristics

- Essential, inherited from broader concept (bicycle)
 - is a concrete object
 - is a vehicle
 - is human-powered
 - is pedal-driven
 - has a saddle/seat
 - has handle bars (down)
 - has two equal wheels (spoke)
 - has brakes (caliper)
 - has a tubular steel frame





Delimiting Characteristics

Penny farthing bicycle

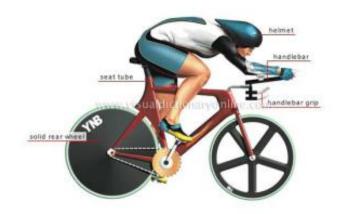
- has wheels unequal in size (big wheel + trailing wheel)
- has external frame
- has direct drive (no sprocket, chain, derailleur)
- has spoon brake
- has solid rubber tires



Delimiting Characteristics

Time trial bicycle

- has aerobar handlebars
- has deep dish + disk wheels
- has welded aero frame
- has chain drive (no sprocket or derailleur)
- has no brakes
- has clincher tires





Object Properties

- Individual design feature
 - Color
 - Handlebar style (straight, down)
 - Brake style (caliper, coaster)
 - Tire design
 - Bike size
 - Men's vs. women's bikes

women's cruiser bike





The Exercise Bike

- Why is it not included in the concept system?
 - It is not a vehicle
 - It has no wheels
 - It does not transport anyone anywhere



exercise bike



Kinds of Deficient Definitions

- No broader concept stated.
- Definition is a complete sentence.
- The term is restated or another form of the term is hidden (like a full form).
- Extra sentences are included in the definition.
- Circular definitions the term is defined with its components.



Tautologies

- The definition repeats the components of the term:
 - Deficient definition:
 time trial bicycle
 bicycle used for time trials
 - racing bike featuring high gearing, aerodynamic frame, and deep-rim or disk wheels designed for use in individual or team time trials raced on roads or in a velodrome



Tautologies

- ◆ A complementary entry mirrors the definition in a related entry. (Term "A" is a function of term "B"; term "B" is the complementary function of term "A"
 - transitive verb

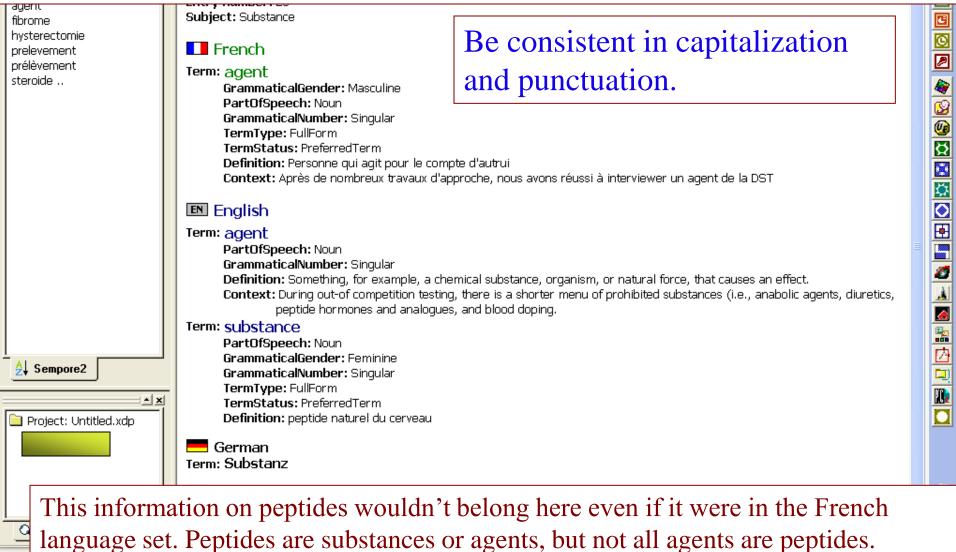
 verb that takes a direct object
 - direct object object associated with a transitive verb

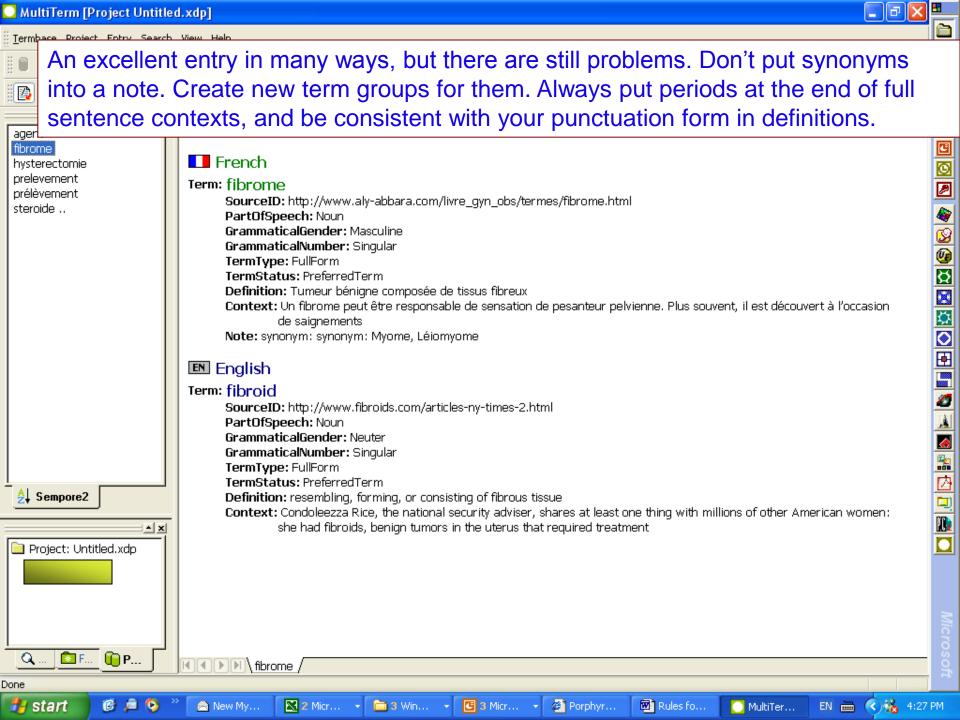


Problem: The French concept doesn't match the English concept.

Personne and chemical substance are two different meanings of agent.

Note the French info in the English word substance. It just happens that the fr synonym is also substance. It should be added to the fr section





_ 6 Excellent entry – but: Term capitalized (don't do it!) 🎉 🍱 liz Term: Fibrilación ventricular PartOfSpeech: Noun Adrenalina GrammaticalGender: Feminine agente GrammaticalNumber: Singular dópina Definition: Un ritmo cardíaco seriamente anormal (arritmia) que ocurre cuando los ventrículos se contraen Fibrilación ventricular independientemente de las aurículas y algunas áreas de los ventrículos se contraen mientras que otras se están glándula sebácea relajando, de una manera desorganizada y que, a menos que sea tratado de inmediato, causa la muerte. muestra. Context: Otro reciente trabajo, del Hospital Central Universitario de Helsinki, investigó las alteraciones cardiacas aparecidas Próstata . en cuatro atletas varones sometidos a largos ciclos de dopaje con esteroides, en combinación con intensos substancia. programas de levantamiento de pesas. Entre las patologías cardiacas apreciadas figuraban fibrilación ventricular Vasoconstricción. durante el ejercicio, fibrosis miocárdica y trombos arteriales. Los cuatro deportistas presentaban hipertrofia del músculo cardiaco. Hidden term! **EN** English Term: Ventricular fibrillation PartOfSpeech: Noun

Definition: Very rapid uncoordinated fluttering contractions of the entricles of the heart resulting in loss of synchronization between heartbeat and pulse beat -- abbreviation VF

Context: It was supported that anabolic steroids may elevate the levels of sodium, potassium, calcium and phosphate and thereby increase the risk of atrial and ventricular fibrillation (Neumann and Schenck 1987, Sullival et al. 1999). Also, anabolics were found to cause a deep prolonged depression of the stimulation threshold of the heart (Svorcik and Bicikova 1978), Nieminen and colleagues reported the increased automaticity as the possible electrophysiological mechanism of ventricular fibrillation which was observed in an athlete using anabolic steroids (Nieminen et al.

1976). Graphic2:



∖Fibrilación ventricular / Done



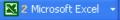
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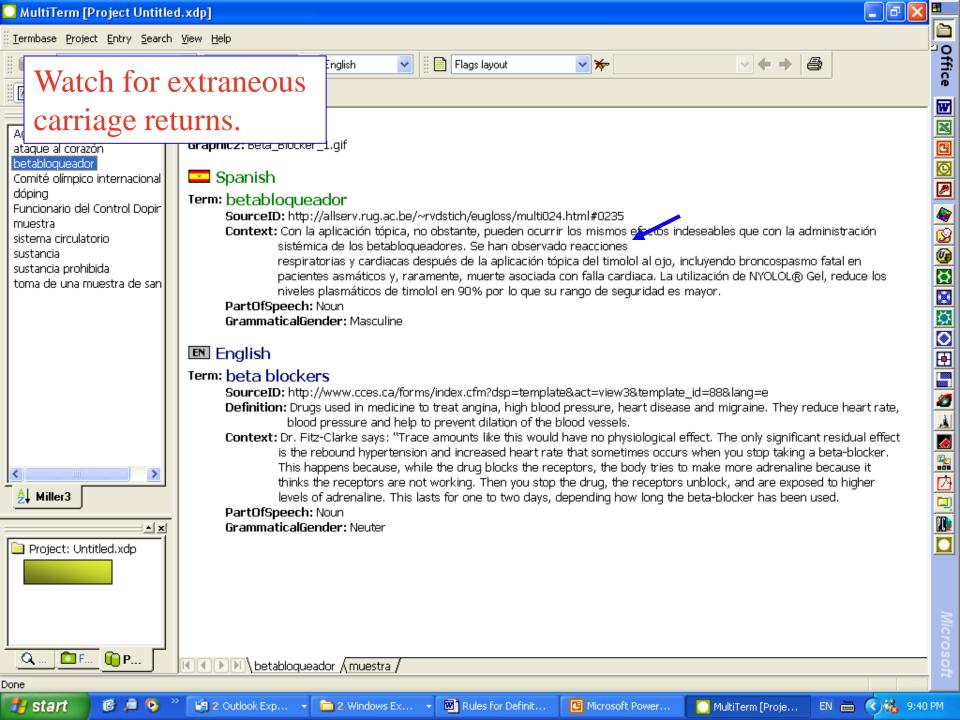


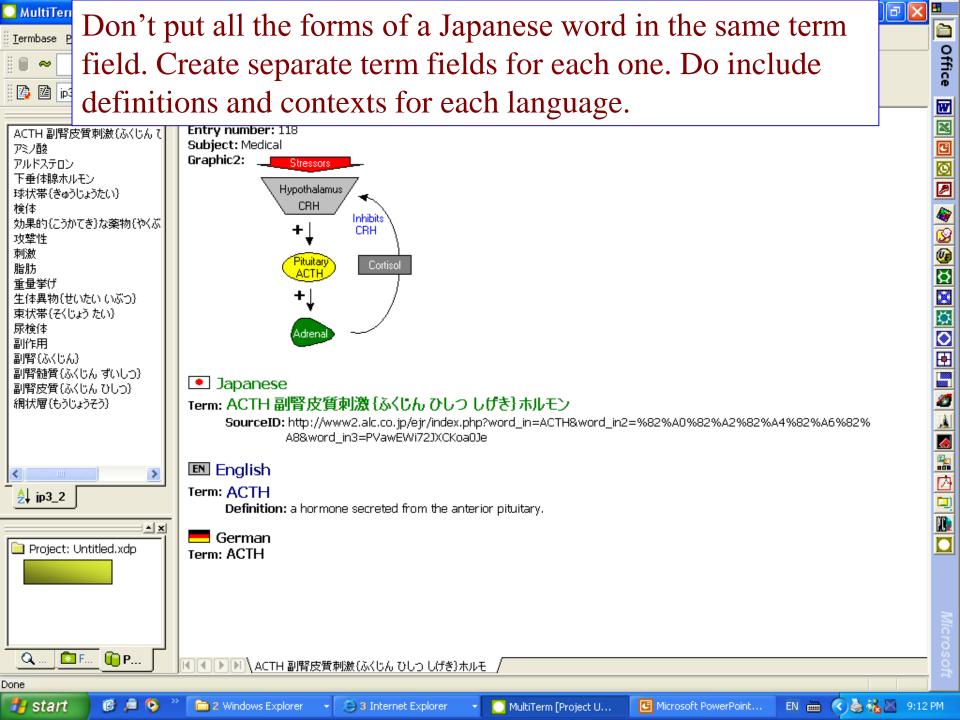


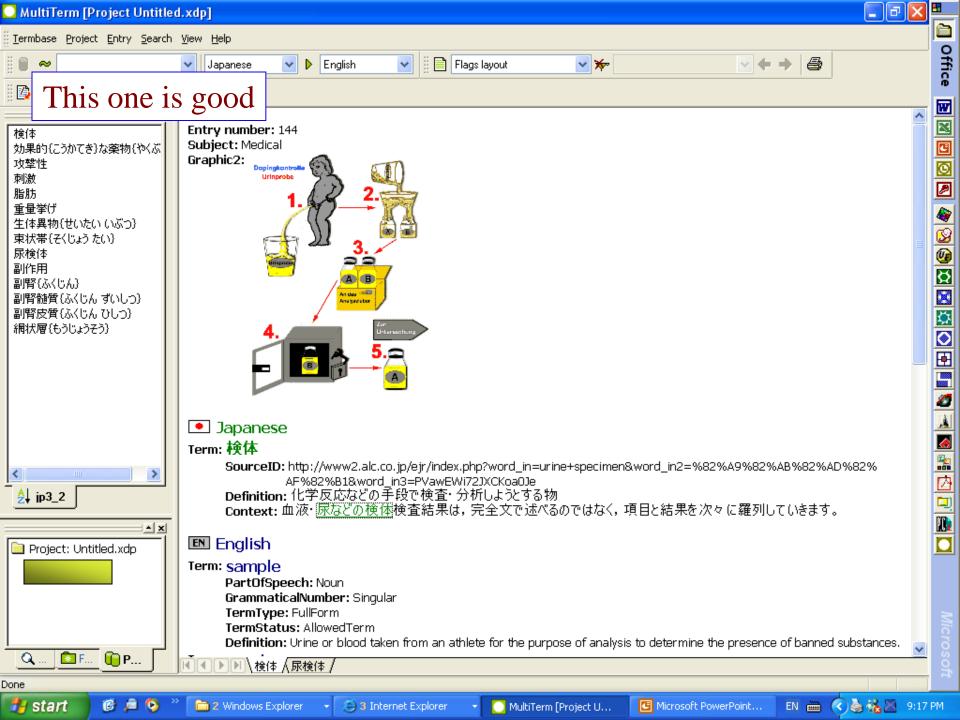


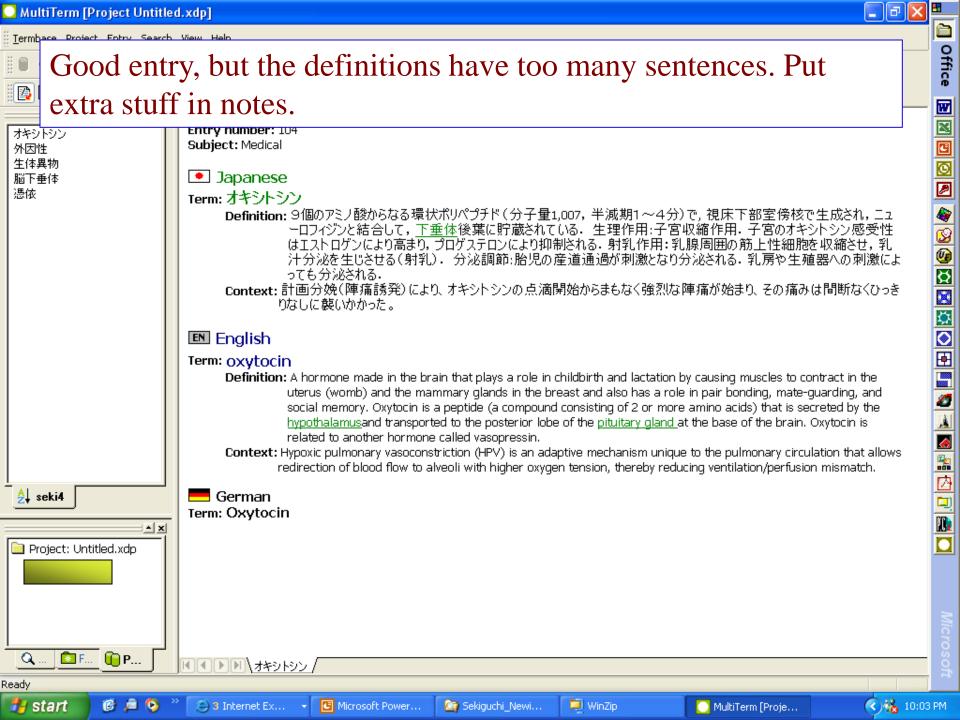




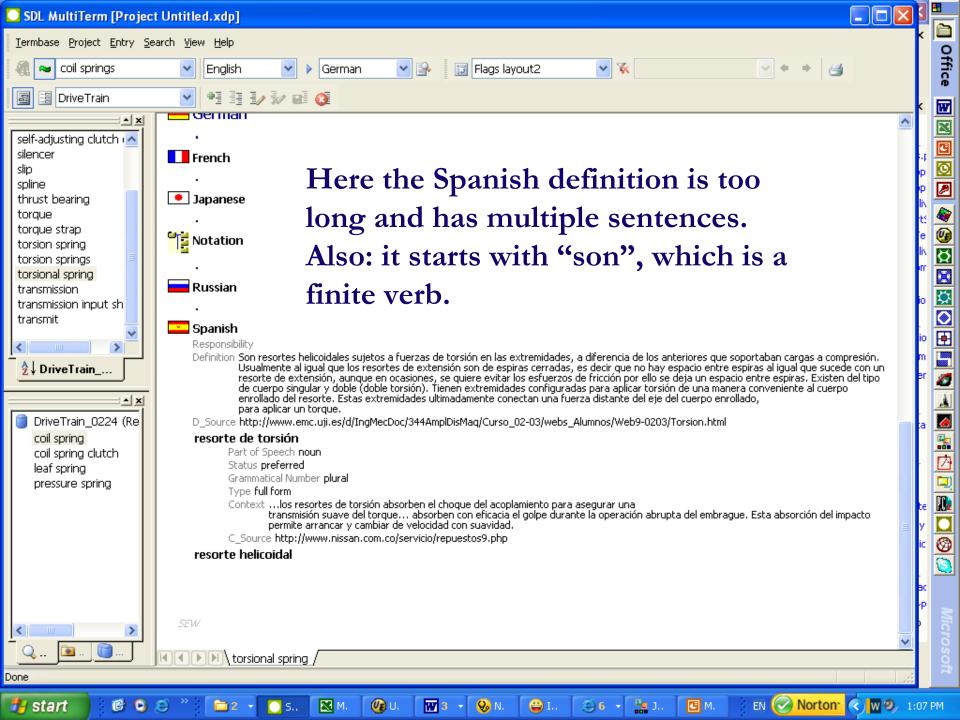












Fixing a definition

Son resortes helicoidales sujetos a fuerzas de torsión en las extremidades, a diferencia de los anteriores que soportaban cargas a compresión. Usualmente al igual que los resortes de extensión son de espiras cerradas, es decir que no hay espacio entre espiras al igual que sucede con un resorte de extensión, aunque en ocasiones, se quiere evitar los esfuerzos de fricción por ello se deja un espacio entre espiras. Existen del tipo de cuerpo singular y doble (doble torsión). Tienen extremidades configuradas para aplicar torsión de una manera conveniente al cuerpo enrollado del resorte. Estas extremidades ultimadamente conectan una fuerza distante del eje del cuerpo enrollado, para aplicar un torque.



Fixing a definition

- Definition: resorte helicoidal sujeto a fuerzas de torsión en las extremidades, a diferencia de los anteriores que soportaban cargas a compresión
- Note: Usualmente al igual que los resortes de extensión son de espiras cerradas, es decir que no hay espacio entre espiras al igual que sucede con un resorte de extensión, aunque en ocasiones, se quiere evitar los esfuerzos de fricción por ello se deja un espacio entre espiras. Existen del tipo de cuerpo singular y doble (doble torsión). Tienen extremidades configuradas para aplicar torsión de una manera conveniente al cuerpo enrollado del resorte. Estas extremidades ultimadamente conectan una fuerza distante del eje del cuerpo enrollado, para aplicar un torque.



Criteria for Contexts

- Contains the term itself
- Contains discourse elements that provide cognitive clues to the meaning of the term
- Contains collocational information on term usage in context



"Rules" for Contexts

- Must contain the term.
- And that's it!
 - •Any syntactical form, punctuation, etc., but generally: start with a capital, end with a period or ellipsis ...
 - No set length
 - Defining, explanatory, and associative types