Objects, concepts, terms

Introduction to terminology work

ISO 1087-1:2000

TERMINOLOGY WORK

Work concerned with the systematic collection, description, processing and presentation of concepts and their designations

Objects and concepts

OBJECTS - real or imagined - form reality.

CONCEPTS are entities constructed by means of abstraction or other procedures.
They exist only in the mind of human beings.

OBJECTS are fixed in time and space; they cannot change without losing their original character.
A change will convert them into other objects.

CONCEPTS do not have this fixation in time and space.
They change according to the progress of cognition. A change of the intension of a concept leads to a new concept, but not necessarily to a new term.

The quantitative relation between objects and concepts may change from one science to another:

| ex. | history | | physics, chemistry |
| | archaeology | <---> | mathematics, logic |

Simón Bolívar	conceptualization
II World War	
French Revolution	dominates

Therefor:

OBJECTS AND CONCEPTS

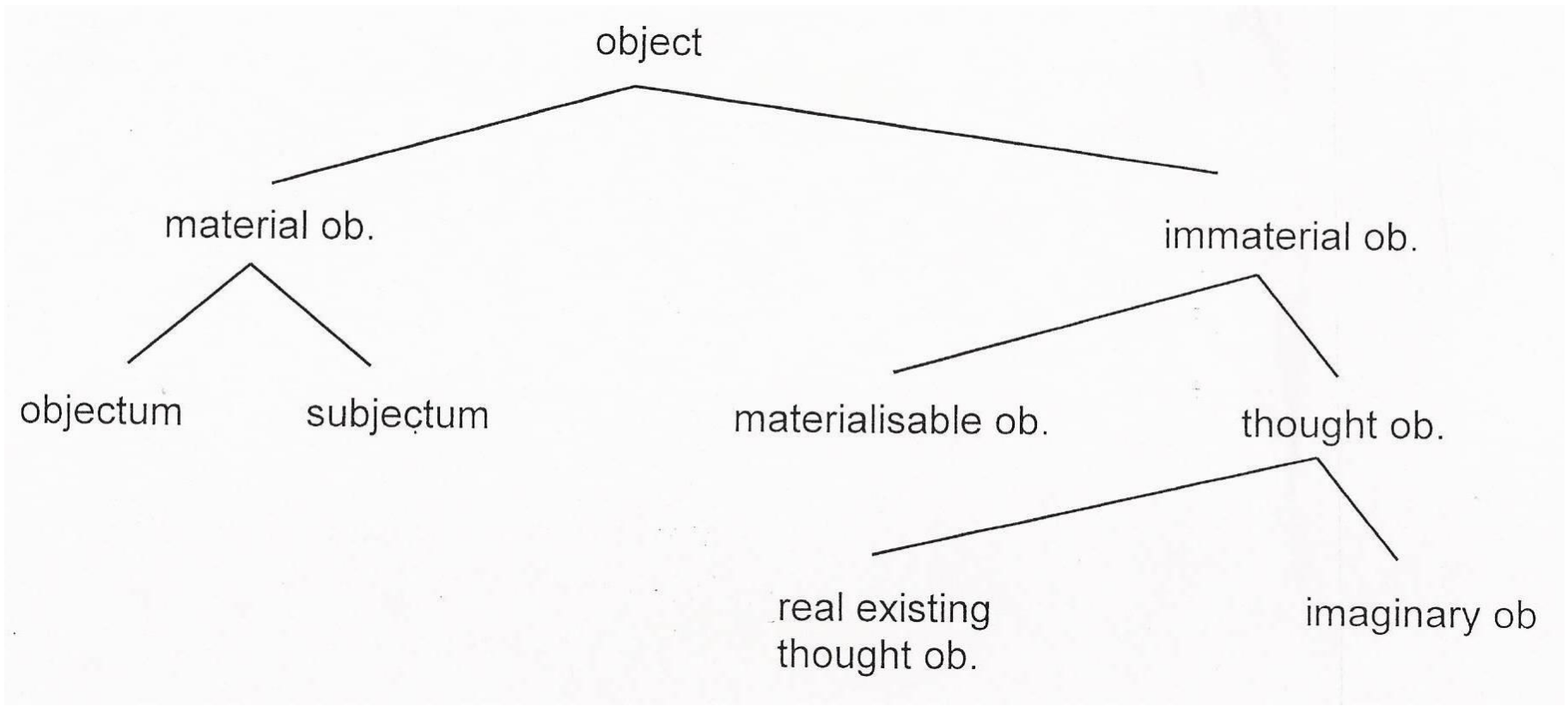ARE EQUALLY RELEVANT

FOR TERMINOLOGY

OBJECT

anything perceivable or conceivable

NOTE:

Objects may be material (e.g. an engine, a sheet of paper, a diamond), immaterial (e.g. conversion ratio, a project plan) or imagined (e.g. a unicorn).

ISO 1087 – 1

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Definitions of objects I

1. *Material object:* object which exists independently from human beings, it has a physical form which directly or indirectly can be perceived by the senses; its relation to space and time is independent of human beings.

2. *Objectum:* material object which exists as an 'Abbild' in the mind of the human being. The object is not present in the moment of imagining it, but it must have been at least once accessible to the senses.

3. *Subjectum:* material object which is present and as such it is the sign of itself.

4. *Immaterial object:* object without physical form whose existence and relation to space and time is given through the imagining subject.

Definition of objects II

5. *Materialisable object:* immaterial object which receives a physical form by a creative physical act and thus becomes a material object, for instance a planned building.

6. *Thought object:* immaterial object which only has mental existence and therefore is related to the imagining subject whereby the space-time-relation is realised.

7. *Real existing, thought object:* thought object which has a mental, but real existence, for instance the legal transfer of an estate.

8. *Imaginary object:* thought object which exists only in the imagination of the imagining subject; it has no and cannot have a material form in the real world, however it can exist in the world of belief and faith.

object

object emerged
independently of
human beings
(e.g. a lake)

object created or caused
by human beings

object deliberately
created or caused
by human beings (e.g. a war)

object unintentionally
created or caused by human
beings (e.g. an ambiental disaster)

Objects

- **Form reality**
- **Have different forms**
- **Time and space related**
- **Have properties**
- **Can be expressed by names, descriptions and illustrations**
- **Can be systematised**
- **Are units of thinking, knowledge and cognition**

CONCEPT

AS

1. UNIT OF THOUGHT

2. UNIT OF KNOWLEDGE

3. UNIT OF COGNITION

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CONCEPT

A <u>unit of thought</u> constituted through

abstraction on the basis of properties

common to a set of objects.

NOTE:

Concepts are not bound to particular languages.

They are, however, influenced by the social or cultural background.

Concept

ISO 1087 – 1:2000

Unit of knowledge created by a unique combination of characteristics.

NOTE:

> Concepts are not necessarily bound to particular languages. They are, however, often influenced by the social or cultural background which often leads to different categorizations.

Concept as unit of thinking
Proposed definition

concept constituted by the individual ideas and knowledge of the thinker; the constituting chunks of knowledge and ideas have not necessarily been submitted to intersubjective proof and may be erroneous; its life cycle depends on the cognitive changes taken place in the mind of the thinker.

Concept as unit of knowledge
Proposed definition

concept constituted by all characteristics (chunks of knowledge) intersubjectively recognised and agreed upon by a professional community at a certain point of time; it has a life cycle determined by cognition dynamics.

Concept as unit of cognition
Proposed definition

unit of knowledge which life cycle has finished and therefore will be subject to modifications of a certain number of characteristics in accordance with cognition dynamics; the result will be a new and independent unit of knowledge.

The concept

- is characterised by the common properties of a class of objects, i.e. formation of characteristics by abstraction

- may be created by other processes than abstraction

- is per se reductionistic

- is subject to cognitive dynamics

- has a life cycle determined by cognition

- is not space-time-related

- is related to a professional conceptual apparatus

- has a more or less fixed contents often tacitly agreed upon by a professional community

- is a unit of knowledge which ideally embraces the entire knowledge at a given point in time

- is as a building bloc of knowledge independent of a given context

- may suffer gliding changes in the cultural discourse

- can be made communicable by signs.

ISO 1087-1:2000

Characteristic

Abstraction of a property of an object or a set of objects.

Note:
Characteristics are used for describing concepts.

ESSENTIAL CHARACTERISTIC

Characteristic which is indispensable to

understanding a concept

DELIMITING CHARACTERISTIC

Essential characteristic used for distinguishing a

concept from related concepts.

Note: The delimiting characteristic SUPPORT FOR THE BACK may be used for distinguishing the concepts STOOL and CHAIR.

ISO 1087-1:2000

TYPE OF CHARACTERISTICS

Category of characteristics which serves as the criterion of subdivision when establishing concept systems

Note:

The type of characteristics 'COLOUR' embraces characteristics 'BEING RED, BLUE, GREEN', etc. The type of characteristics 'MATERIAL' embraces characteristics 'MADE OF WOOD, METAL', etc.

ISO 1987-1:2000

INTENSION

Set of characteristics which makes up the concept.

ISO 1087-1:2000

SIMPLIFIED EXAMPLE OF INTENSION

MOTOR VEHICLE	LORRY	TANKER
1. VEHICLE		
2. MOTOR POWERED	1 - 3	
3. HAS STEERING MECHANISM	+	1 - 4
	4. FOR TRANSPOR-TATION OF GOODS	+
		5. FOR TRANSPOR-TATION OF LIQUIDS

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ISO 1087/1990

EXTENSION

Totality of all specific concepts included in a generic concept.

Note:

'Extension' is not to be used for the enumeration of partitive concepts.

ISO 1087 – 1:2000

EXTENSION

Totality of objects to which a concept corresponds.

EXAMPLES OF EXTENSION

1. THE EXTENSION OF THE CONCEPT 'ELEPHANT' IS

   'INDIAN ELEPHANT'

   'AFRICAN ELEPHANT'

2. THE EXTENSION OF THE CONCEPT 'SCANDINAVIAN COUNTRIES' IS

   'DENMARK'

   'NORWAY'

   'SWEDEN'

3. THE EXTENSION OF THE CONCEPT 'NORDIC COUNTRIES' IS

   'DENMARK'

   'FINLAND'

   'ICELAND'

   'NORWAY'

   'SWEDEN'

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FUNCTIONS OF THE CHARACTERISTICS

1. Determine the intension of a concept

2. Identify changes in the intension

3. Definitions

4. System of concepts

5. Formation of motivated terms

6. Equivalence

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SEMIOTIC REPRESENTATION

VERBAL
REPRESENTATION

NON-VERBAL
REPRESENTATION

OBJECT	*CONCEPT*	*OBJECT*	*CONCEPT*
name	term	picture:	drawing/ diagram
description	(symbol)	- photograph	(symbol)
	(formula)	- portrait	notation
	definition	- drawing	
	explanation	symbol	
	paraphrase	notation	
	terminological phrase		

DESIGNATION

Representation of a concept by a sign which denotes it

Note:

In terminology work three types of designations are distinguished: symbols, appellations (names) and terms.

ISO 1037-1

TERM

Verbal designation of a general concept in

a specific subject field.

Note:

A term may contain symbols and can have variants, e.g. different forms of spelling.

ISO 1087-1

RELATIONS BETWEEN CONCEPT AND TERM

1. **MONOSEMY**

2. **POLYSEMY**

3. **HOMONYMY**

4. **SYNONYMY**

5. **EQUIVALENCE**

TERM FORMATION

1. **TERMINOLOGISATION**

2. **DIFFERENT TYPES OF COMPOUNDING**

3. **DERIVATION**

4. **SHIFT OF WORD-CLASS - CONVERSION**

5. **IMPORTATION OF LOAN WORD**

6. **ABBREVIATION**

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TERMINOLOGISATION

BUTTERFLY   -   INSECT

             -    TYPE OF NUT

FOOT   -   PART OF BODY

             -    MEASUREMENT OF LENGTH

             -    IN TECHNICAL COMPOUNDS
                  WITH VARIED MEANINGS

                  -    FOOT OF SEWING
                       MACHINE

                  -    BASE

                  -    FOOT OF A PAGE
                       (FOOTNOTE)

                  -    FOOT OF A LINE

                  -    FOOT OF A BED

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TERM MOTIVATION

1. *PHONETIC MOTIVATION*
        - irrelevant → terminology

2. *MORPHOLOGICAL MOTIVATION* (derivation and composition)
        - absolutely relevant → terminology

3. *SEMANTIC MOTIVATION* (metaphor and metonymy)
        - absolutely relevant → terminology

Transparency

A term or appellation is considered transparent when the concept it designates can be inferred, at least partially, without a definition or an explanation. In other words, the meaning of a term or appellation can be deduced from its parts. For a term to be transparent, a key characteristic – usually a delimiting characteristic – is used in the formation of the term or appellation.

ISO 704 : 2009

RULES FOR TERM FORMATION

According to "Terminologi som vetenskapsgren", p. 217 f.

Linguistic principles

1. The term must relate directly to the concept and express the concept clearly

2. The term should be lexically systematic

3. The term must follow the general rules for forming words and the syntactic rules of a language

4. The term must be productive with regard to derivation

5. The term must not be pleonastic

6. The term must be short without sacrificing precision

7. The term should not have synonyms

8. The term should not have morphological variants

9. The term should not have homonyms

10. The term should be monosemous

11. The contents of the terms should be precise

12. The contents should be independent of the text

13. Motivation

14. The term must be phonetically and graphically simple (easy to pronounce and to write)

Sociolinguistic principles

1. The term must correspond to a given need

2. Aesthetic value

3. The term must correspond to the relevant linguistic level (register)

4. Relative degree of specialisation

5. The term should correspond to a given linguistic policy

Methodological principles

1. The term should be developed in cooperation with experts

2. The term should be formed according to existing models

3. The term should be developed on the basis of proper language resources

4. The system of which the term will be part of must be taken into account

5. Abbreviations should be used

DESCRIPTION OF AN OBJECT

THE DESCRIPTION OF AN OBJECT CONSISTS OF THE

ENUMERATION OF ITS **PROPERTIES** INCLUDING

THOSE INDICATING TIME AND SPACE.

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EXPLANATION OF A CONCEPT

ACCORDING TO ÖNORM A 2704:9

IF A DEFINITION, WHATEVER THE REASONS MAY BE, IS
NOT POSSIBLE, THE INTENSION OF THE CONCEPT IS TO
BE EXPLAINED BY THE INDICATION OF THE
CHARACTERISTICS WITHOUT RELATING THEM TO A GIVEN
SYSTEM OF CONCEPTS.

DEFINITION

Representation of a concept by a descriptive statement which serves to differentiate it from related concepts

ISO 1087-1:2000

INTENSIONAL DEFINITION

Definition which describes the intension of a concept by stating the superordinate concept and the delimiting characteristics.

Note: The following is an example of an intensional definition for the concept 'incandescent lamp':

'electric lamp in which a filament is heated by an electric current in such a way that it emits light'

ISO 1087-1:2000

EXTENSIONAL DEFINITION

Description of a concept by enumerating all of

its subordinate concepts under one criterion of

subdivision.

Examples:

Family 18 in the Periodic Table:

helium neon, argon, crypton, xenon, and radon.

Noble gas:

helium, neon, argon, cryton, xenon or radon

ISO 1087-1:2000

PARTITIVE DEFINITION

A definition based on the enumeration of the
concepts that refer to the main parts of an
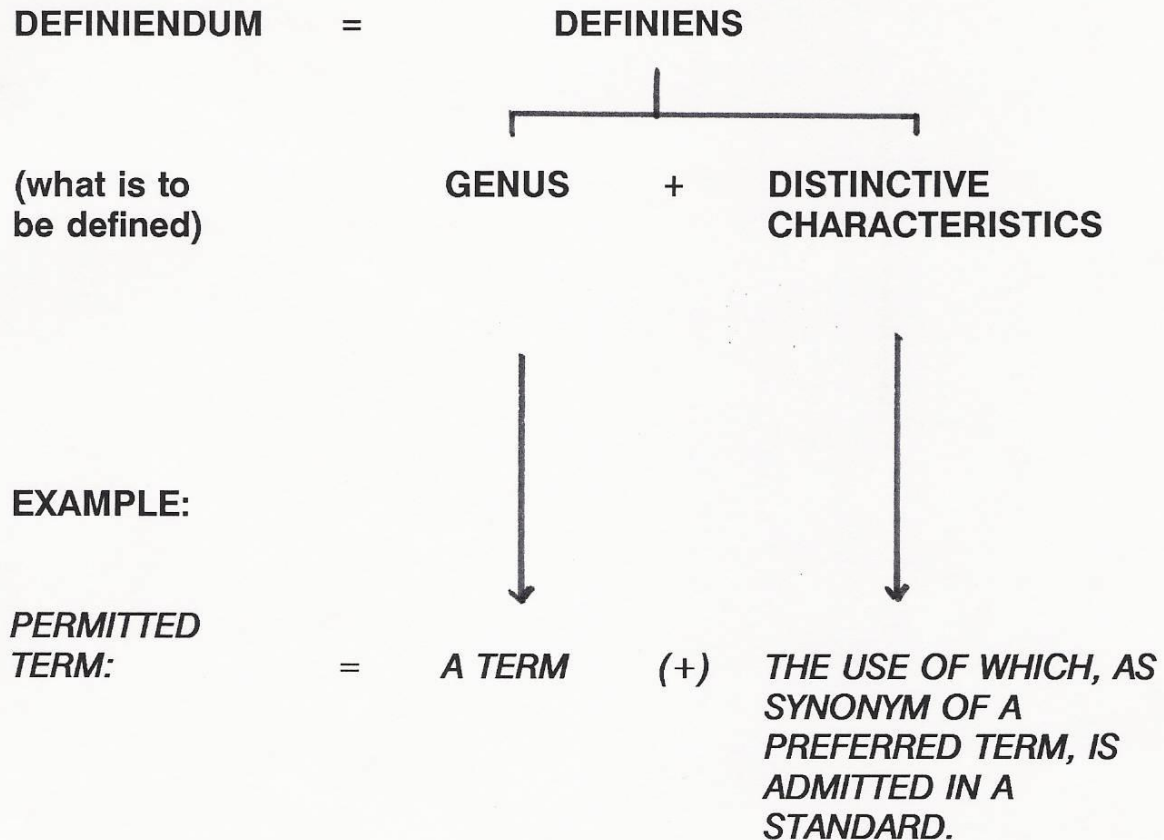object covered by a superordinate concept
in a partitive relation

Example:

*The standard computer workstation is made up of a CPU, a display
terminal, variable user input interfaces (e.g. keyboards, mice,
scanners, or any combination of these items), storage media (disk
and tape drives and the like) and various output devices (e.g.
printers, plotters, speakers, etc.)*

ISO 12 620:2000

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FORMAL STRUCTURE OF THE DEFINITION

DEFINIENDUM   =   **DEFINIENS**

(what is to   **GENUS**   +   **DISTINCTIVE**
be defined)   **CHARACTERISTICS**

EXAMPLE:

*PERMITTED
TERM:*   =   *A TERM*   (+)   *THE USE OF WHICH, AS
                                                SYNONYM OF A
                                                PREFERRED TERM, IS
                                                ADMITTED IN A
                                                STANDARD.*

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System of definitions

(atmosphere): already defined

AIR: mixture of gasses which composes the Earth's ATMOSPHERE.

DRY AIR: in thermodynamics, AIR that contains no water vapour.

MOIST AIR: in thermodynamics, AIR that is a mixture of DRY AIR and water vapour.

SATURATED AIR: MOIST AIR of such a mixing ratio that the AIR can exist in natural equilibrium with an associated condensed phase of water (liquid of solid) at the same temperature and pressure, the surface of separation being plane.

FUNCTIONS OF THE DEFINITION

1. DETERMINATION OF A CONCEPT

2. FIXATION OF A CONCEPT
   (--> STANDARDIZATION)

3. ISOLATION OF A CONCEPT FROM OTHER, RELATED CONCEPTS

4. SETTING CONCEPTS IN RELATION TO ONE ANOTHER
   (--> SYSTEMS OF CONCEPTS)
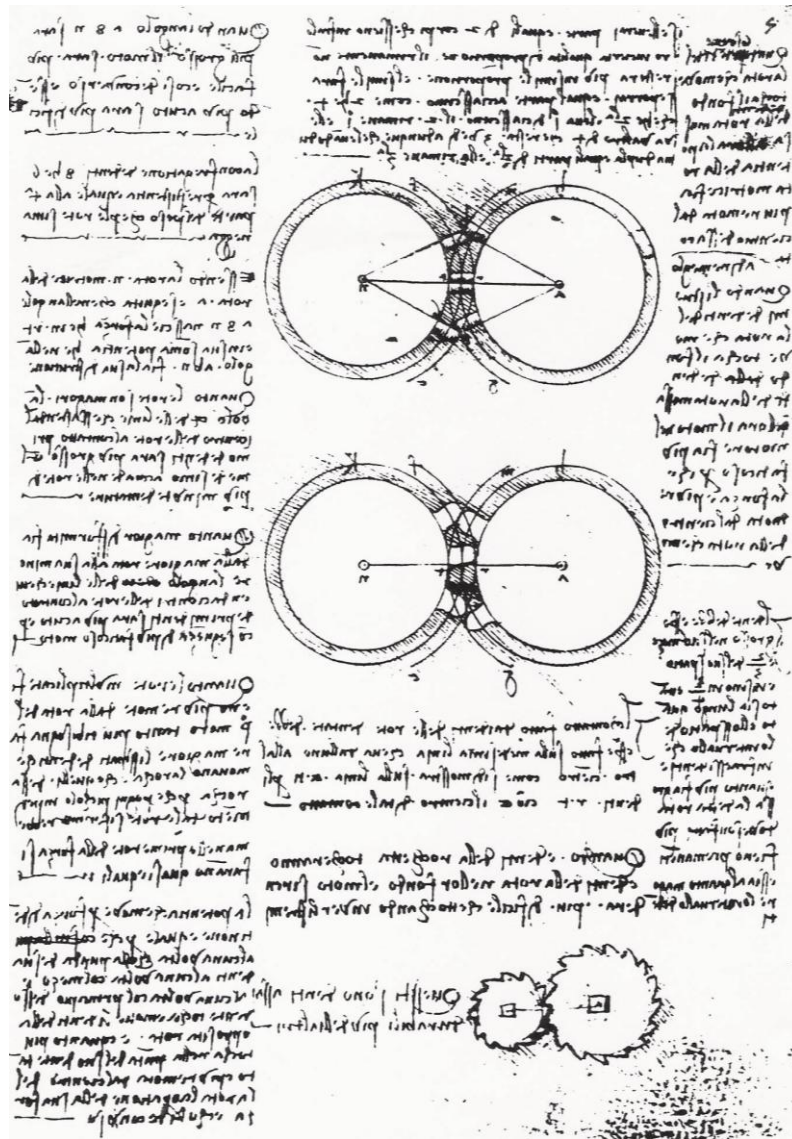
Leonardo da Vinci (1452 - 1519), Tekst og tegning af tandhjul , Codex Madrid I, Folio 5 recto).

HOW CAN DIFFERENT TYPES OF OBJECTS BE REPRESENTED

	PHOTO	PORTRAIT	DRAWING	MODEL
MATERIAL OBJ.				
OBJECTUM	-	+	+	+
SUBJECTUM	+	+	+	+
IMMAT. OBJ.				
MATERIALISABLE OBJ.	-	+	+	+
THOUGHT OBJ.				
REAL EXISTING THOUGHT OBJ.	-	-	-	-
IMAGINARY OBJ. ***	-	+	+	+

*** Only if a pictorial imagination exists, e.g. a god, ogre, unicorn, etc.

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Resterne af Athena Pronaia tem-
plet i Delfi. Det var ikke den
vigtigste helligdom på stedet,
men står i dag som måske den
smukkeste overlevering fra en
svunden tid. De tre doriske søjler
stammer fra rundtemplet – *tholos*
– i midten. Ligesom også Apol-
lontemplet blev det ødelagt ved
det store jordskælv i ÷ 373, men
genopbygget tre år senere. Se
rekonstruktionen på næste side.
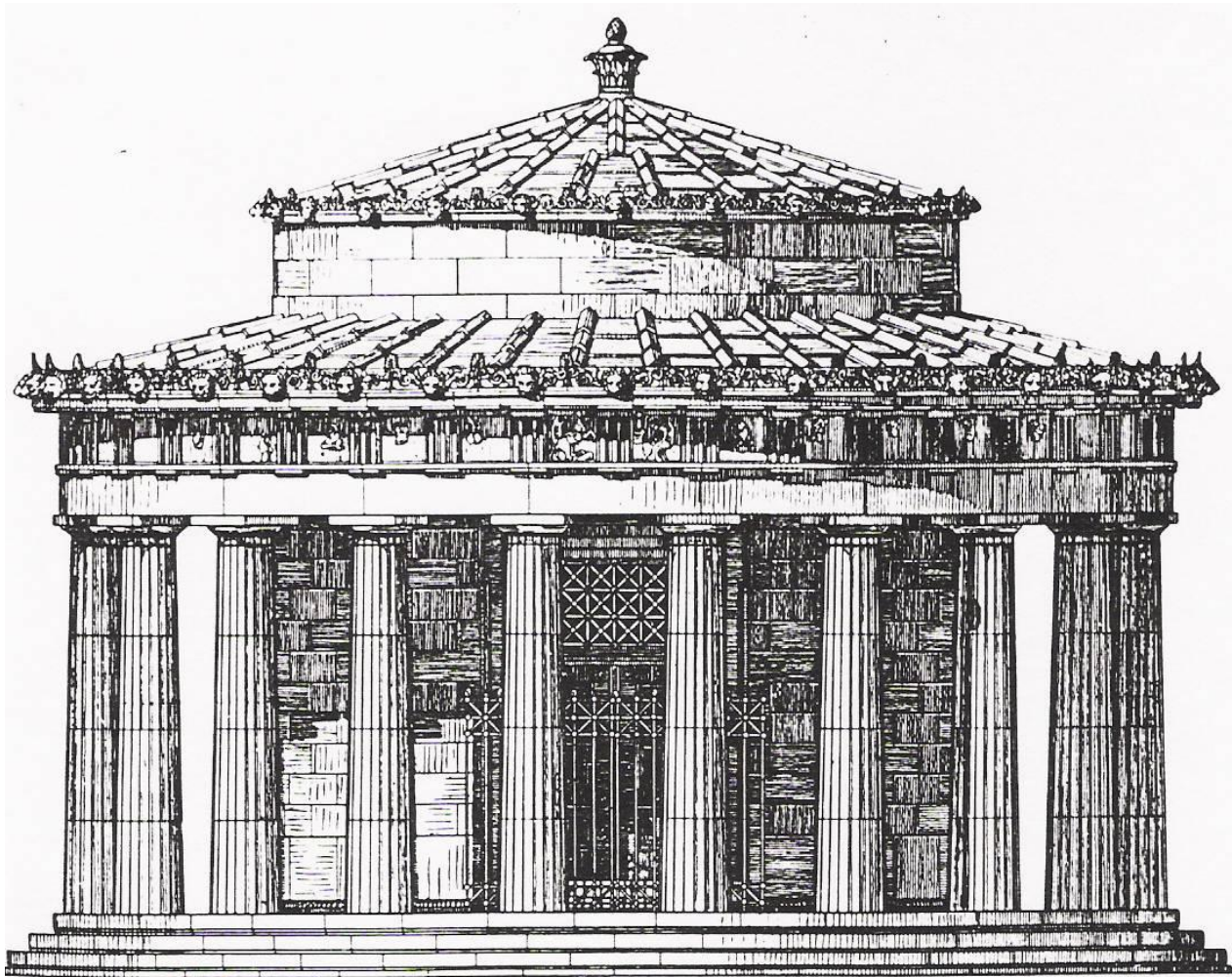
Rekonstruktion af rundtemplet i
Athena Pronaia helligdommen i
Delfi. (Tegning: H. Pomtow).
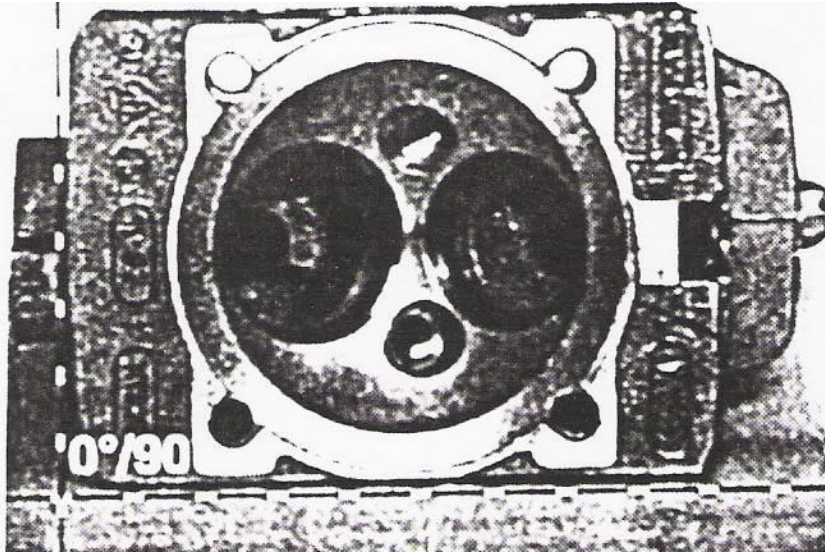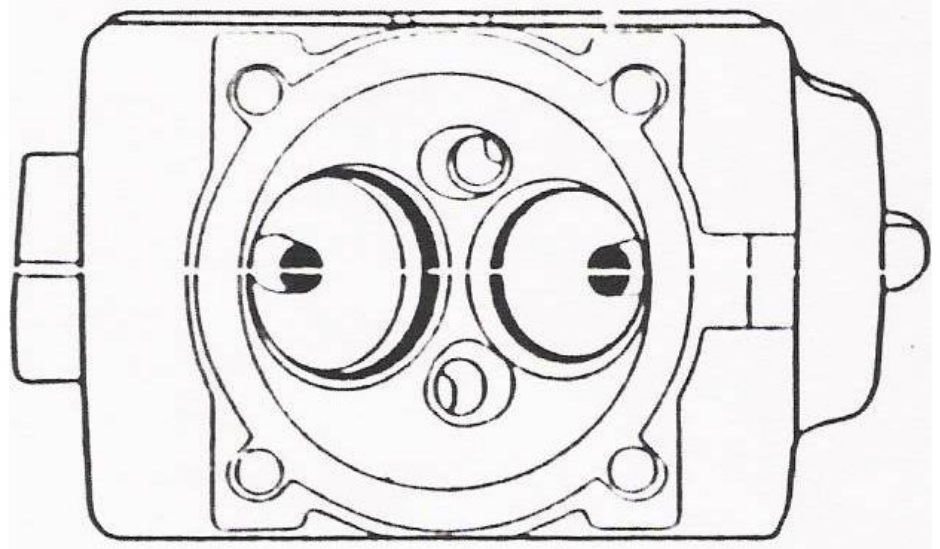
Photo   **Line Drawing**

REPRESENTATION OF DIFFERENT TYPES OF CONCEPTS

|	FORM	EXAMPLE
CONCEPTS BASED ON MATERIAL OBJ. (ABSTRACTION)	- FIGURATIVE REP.	A TREE, A COMPUTER
	- PICTOGRAM	TELEPHON, MEETING POINT
	- SYMBOL	A VALVE IN A CIRCUIT
CONCEPTS NOT BASED ON MATERIAL OBJ. ('THEORETICAL' CONCEPTS	- GEOMETRICAL MEANS (LINE, POINT, ETC.)	MERIDIAN, EQUATOR, POLE
	- DIAGRAM	
	- STATIC	COMPARISON OF VALUES OF DIFFERENT SHARES
	- DYNAMIC	COMPARISON IN TIME OF SHARE VALUES
	- MODEL	SAUSSURE'S MODEL
	- FORMULA	E=mc2 (Einstein's equation)
	- SYMBOL	Ø = DIAMETER DOVE OF PEACE / HOLY SPIRIT

D d
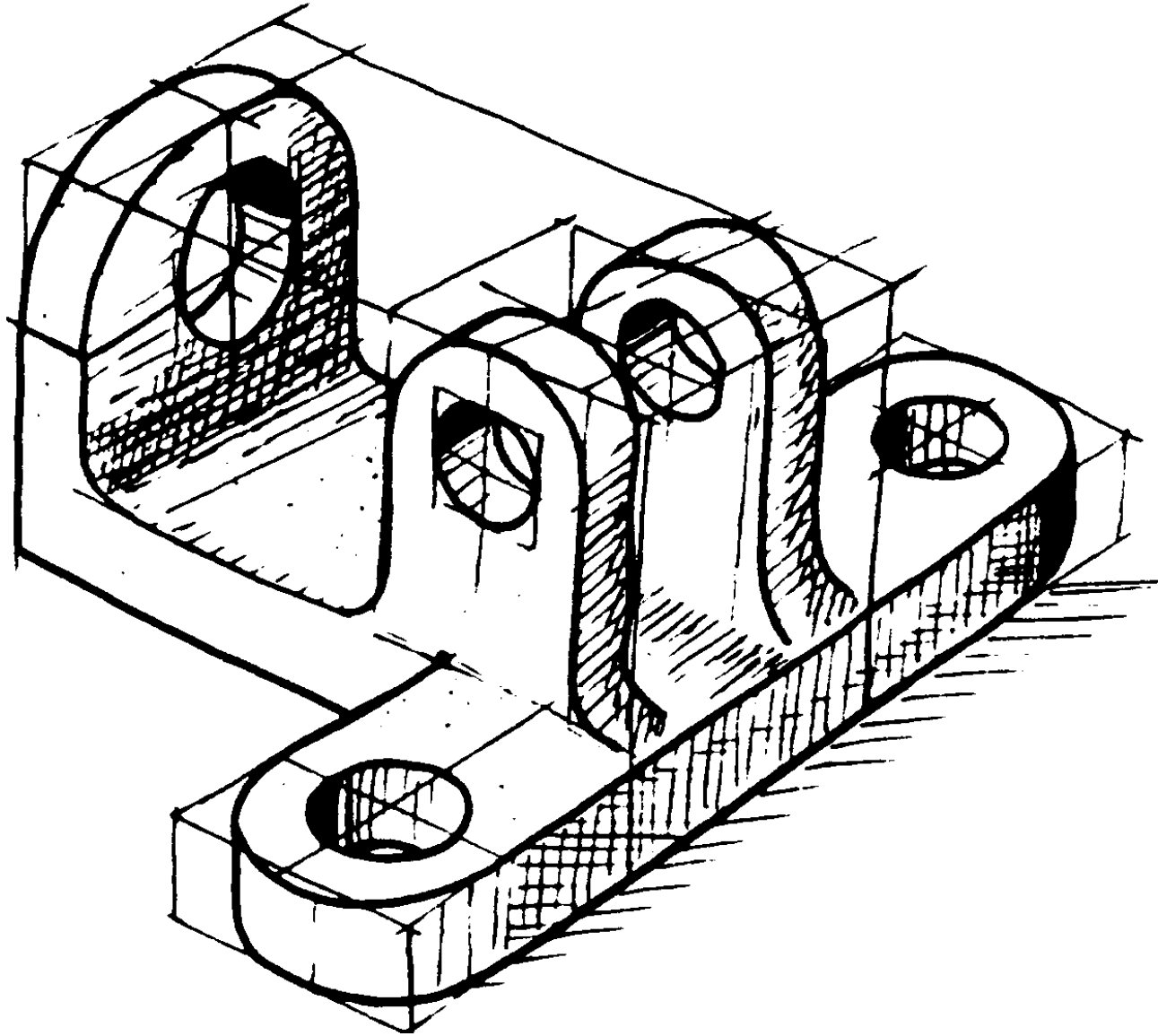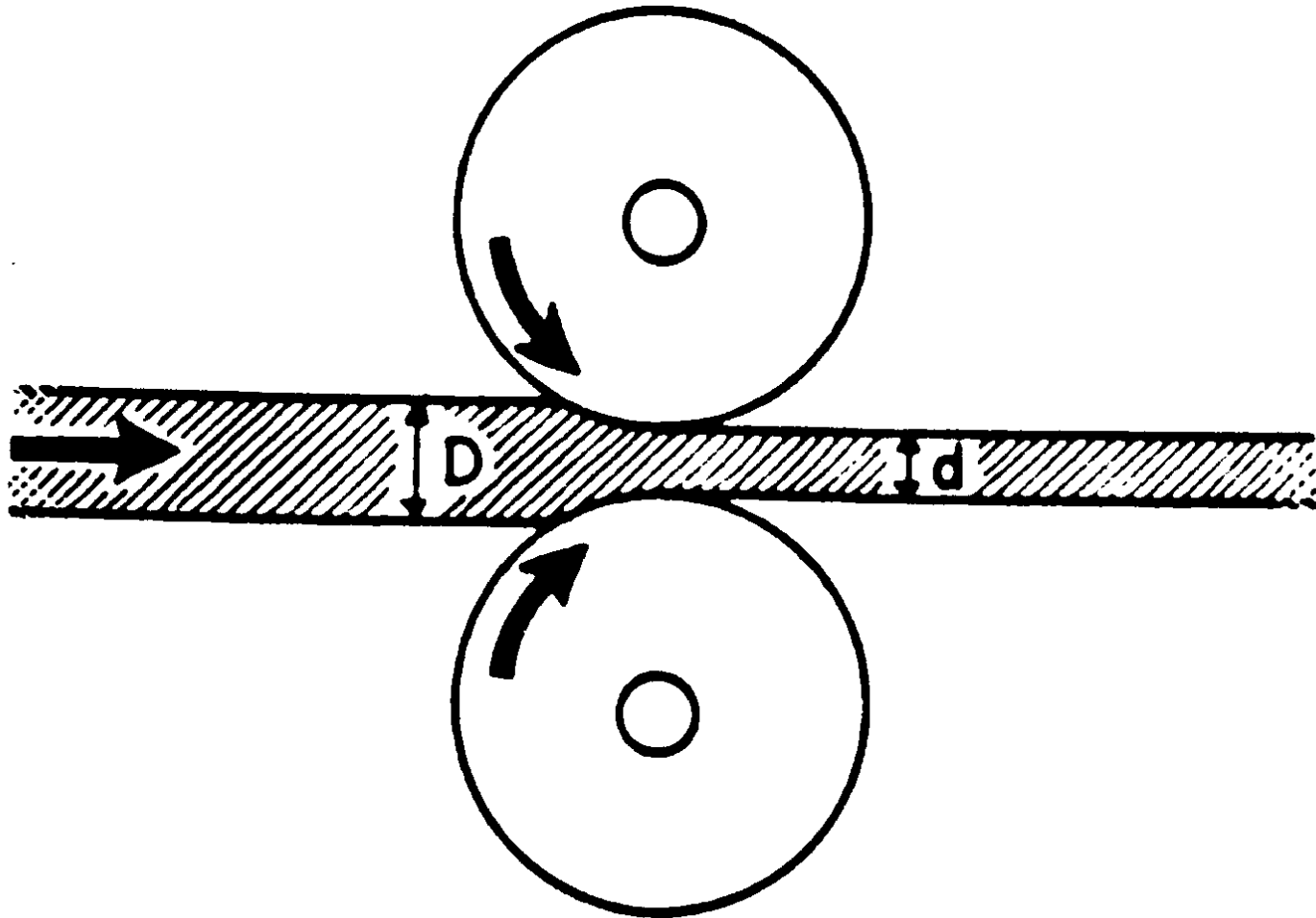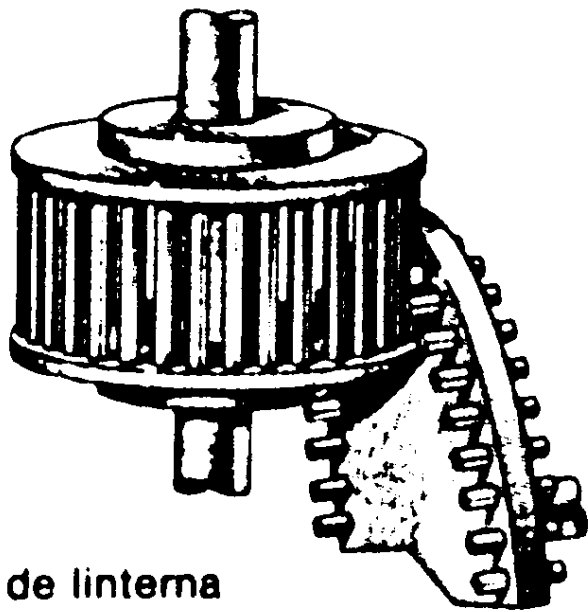
de linterna
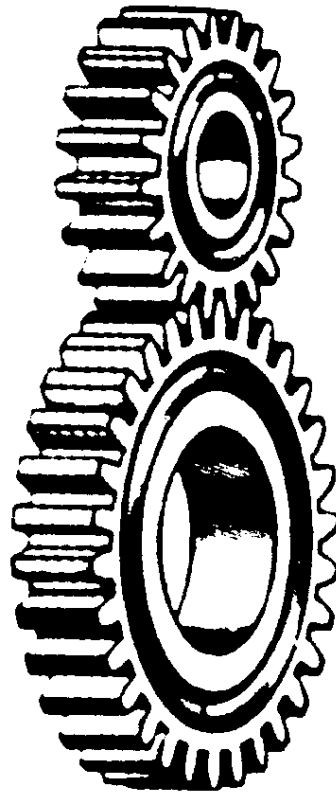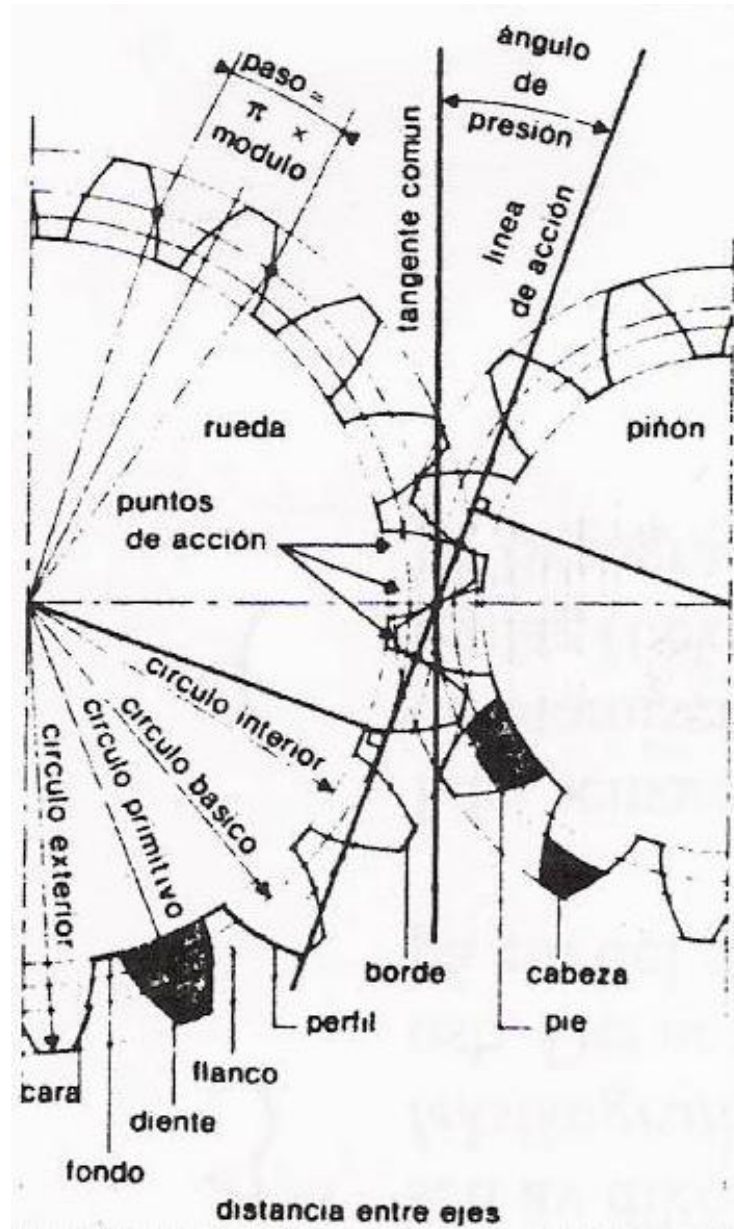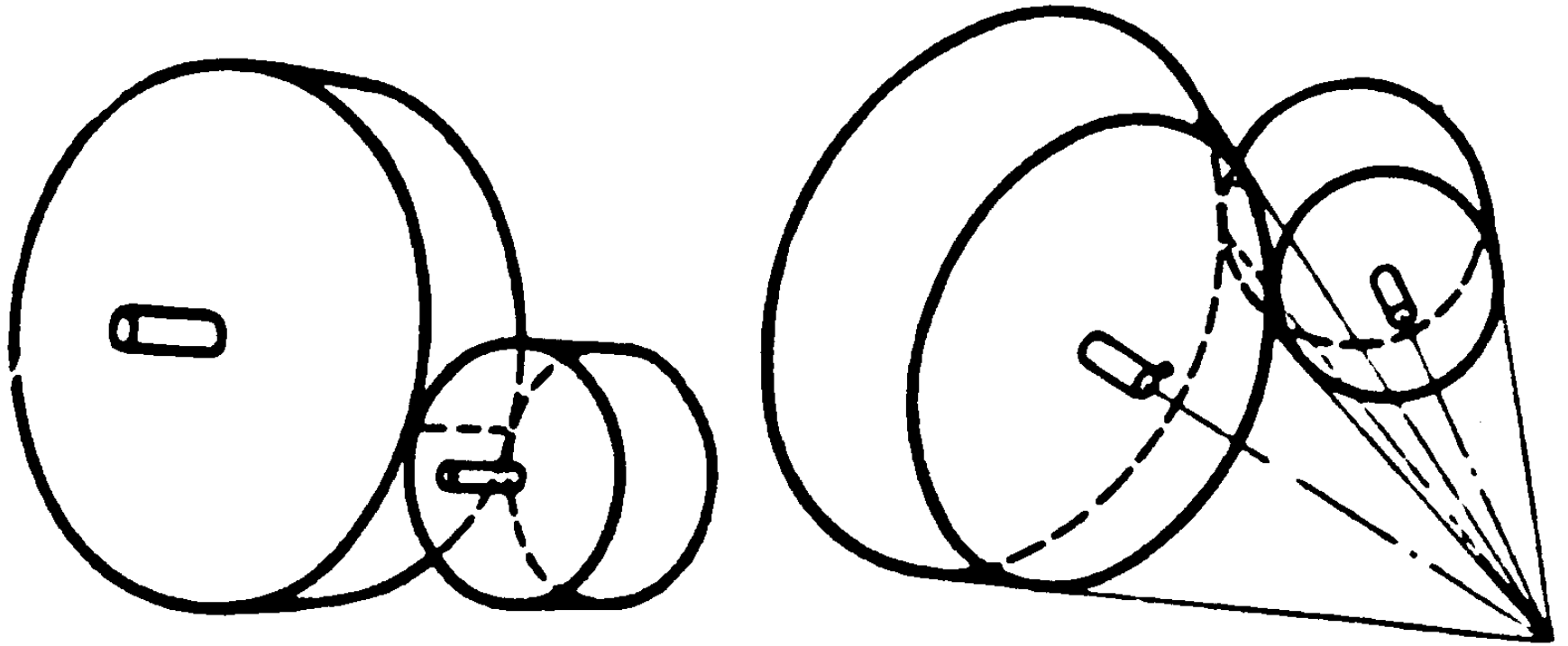
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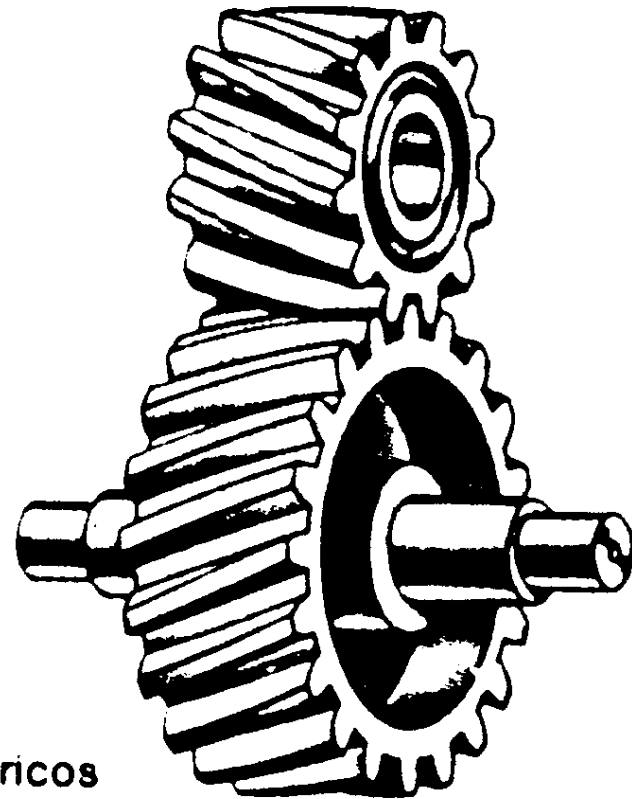
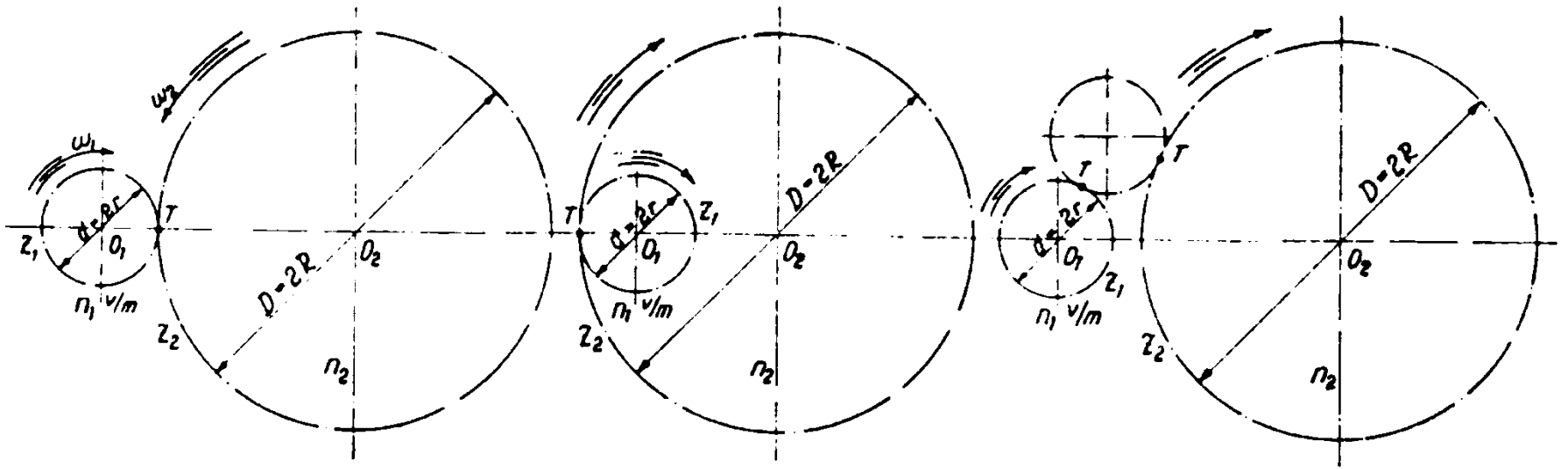cilindricos

helicoidales
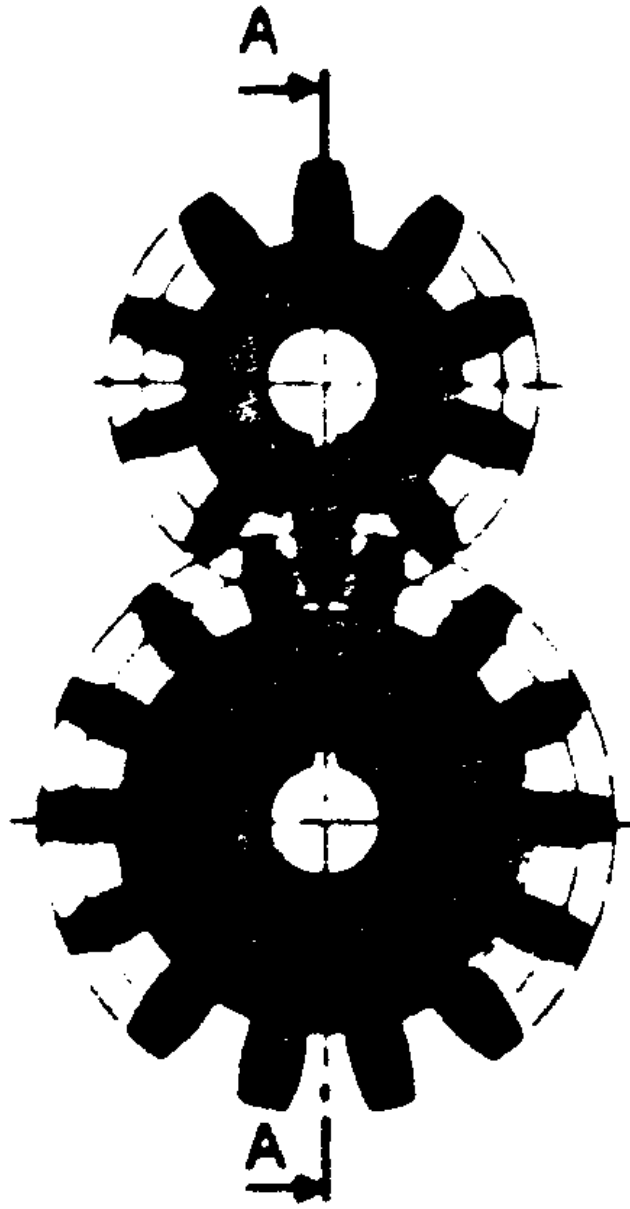
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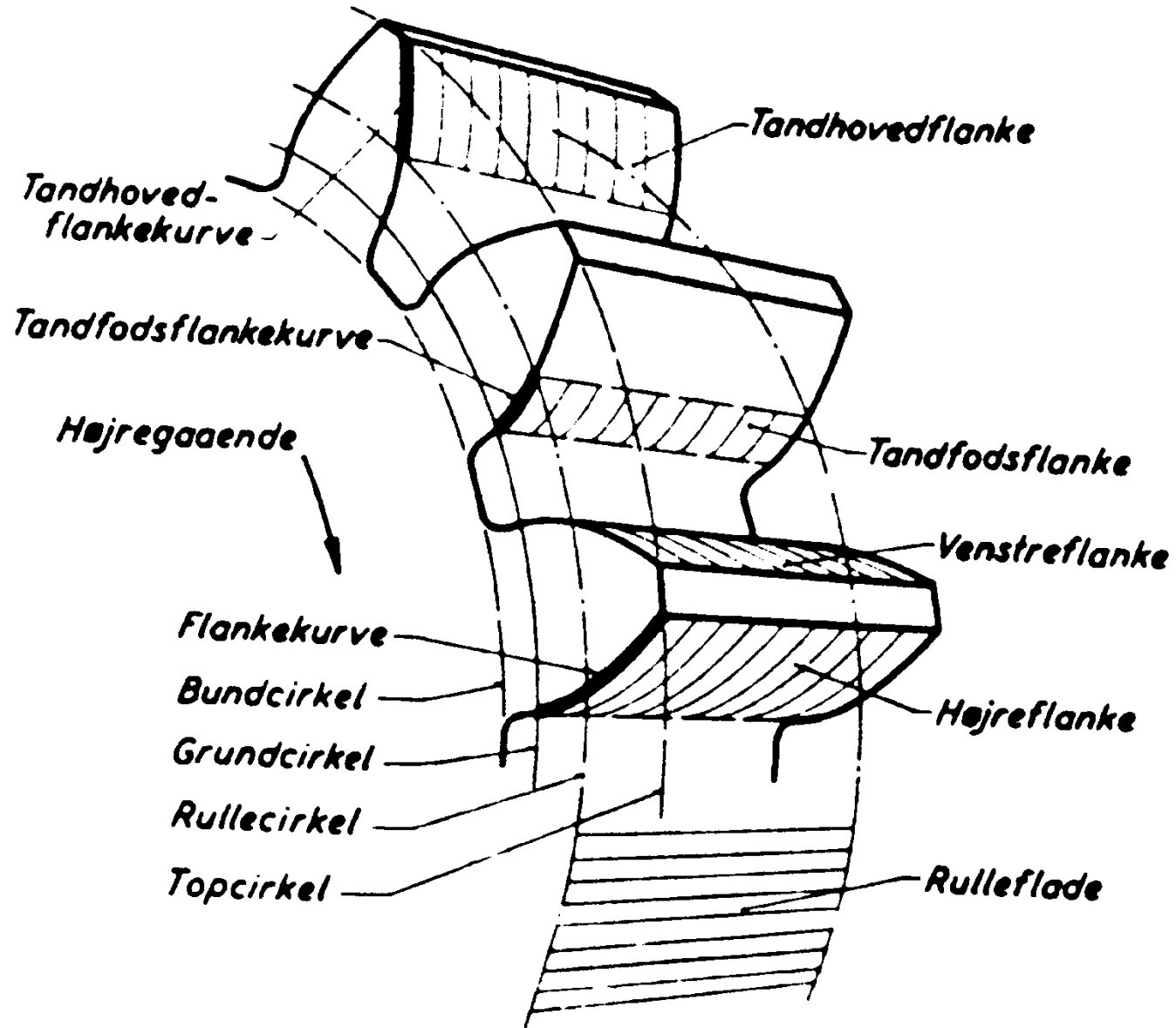
RELATIONSHIPS

DIFFERENTIATION BETWEEN:

1. **RELATIONSHIPS BETWEEN OBJECTS**

2. **RELATIONSHIPS BETWEEN CONCEPTS**

3. **RELATIONSHIPS BETWEEN CONCEPT AND TERM**

RELATIONSHIPS BETWEEN

1. **OBJECTS ARE ONTOLOGICAL RELATIONS**

2. **CONCEPTS MAY BE**

   LOGICAL (GENERIC) RELATIONS

   OR

   ONTOLOGICAL RELATIONS

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RELATIONSHIPS BETWEEN CONCEPTS

I. *LOGICAL(GENERIC) RELATIONS*

--> *SIMILARITY OF CONCEPTS*

II. *ONTOLOGICAL RELATIONS*

1. PARTITIVE RELATION
→ *IN SPACE*

2. SEQUENTIAL RELATION
→ *IN TIME*
→ *CONCEPTS REPRESENTING PROCEDURES*

3. PRAGMATIC RELATION

4. CAUSAL RELATION.
→ *CAUSE - EFFECT*

5. **GENETIC RELATION**
→ *PRODUCER - PRODUCT*

6. **PRODUCTION RELATION**
→ *MATERIAL - PRODUCT*

7. **TRANSMISSION RELATION**
→ *SENDER - RECEIVER*

8. **INSTRUMENTAL RELATION**
→ *TOOL - APPLICATION*

9. **FUNCTIONAL RELATION**
→ *ARGUMENT - FUNCTION*

10. **OTHERS**
f.ex. DEPENDENCE
→ *WARD - GUARDIAN*

(According to ISO 1087 (1990) and DIN 2330 (1979))

CONCEPT SYSTEM

(SYSTEM OF CONCEPTS)

Set of concepts structured according to

the relations among them

ISO 1087-1

CONCEPT DIAGRAM

Graphic representation of a concept system

ISO 1087-1

REPRESENTATION:

LOGICAL RELATION

GENUS

1. LEVEL OF ABSTRACTION

2. LEVEL OF ABSTRACTION

3. LEVEL OF ABSTRACTION

4. LEVEL OF ABSTRACTION

1.2.1

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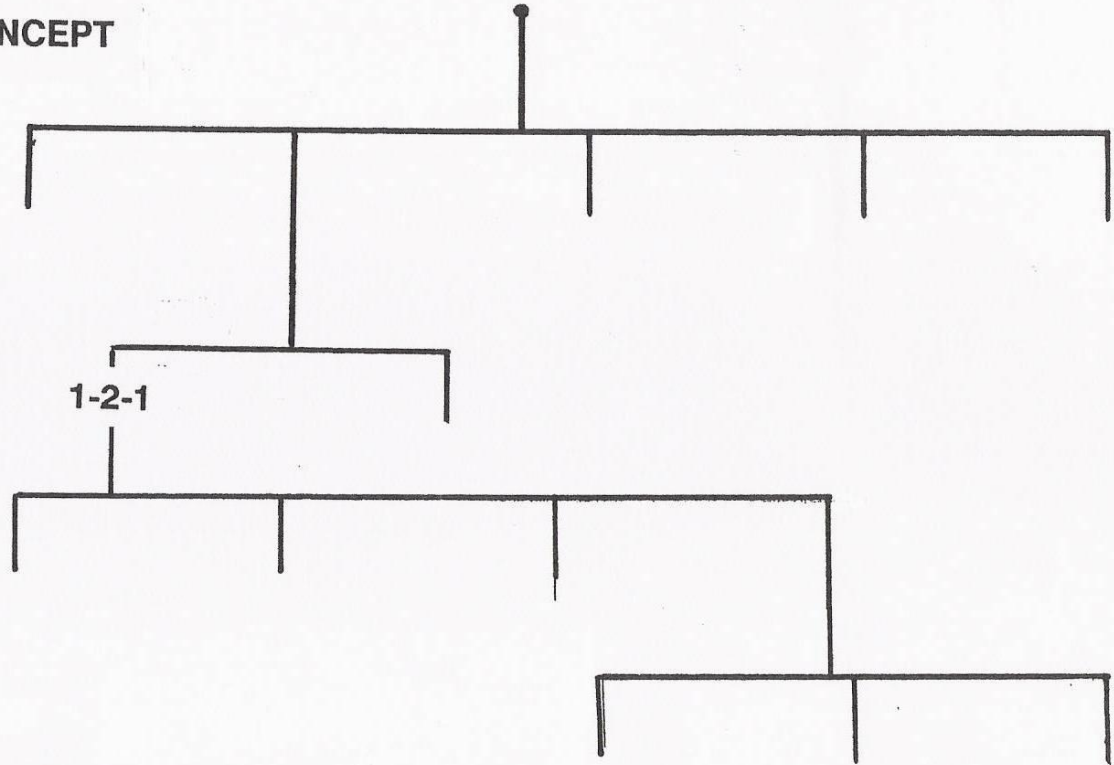# REPRESENTATION:

PARTITIVE RELATION

COMPREHENSIVE (INTEGRATIVE) CONCEPT
(superordinate concept)
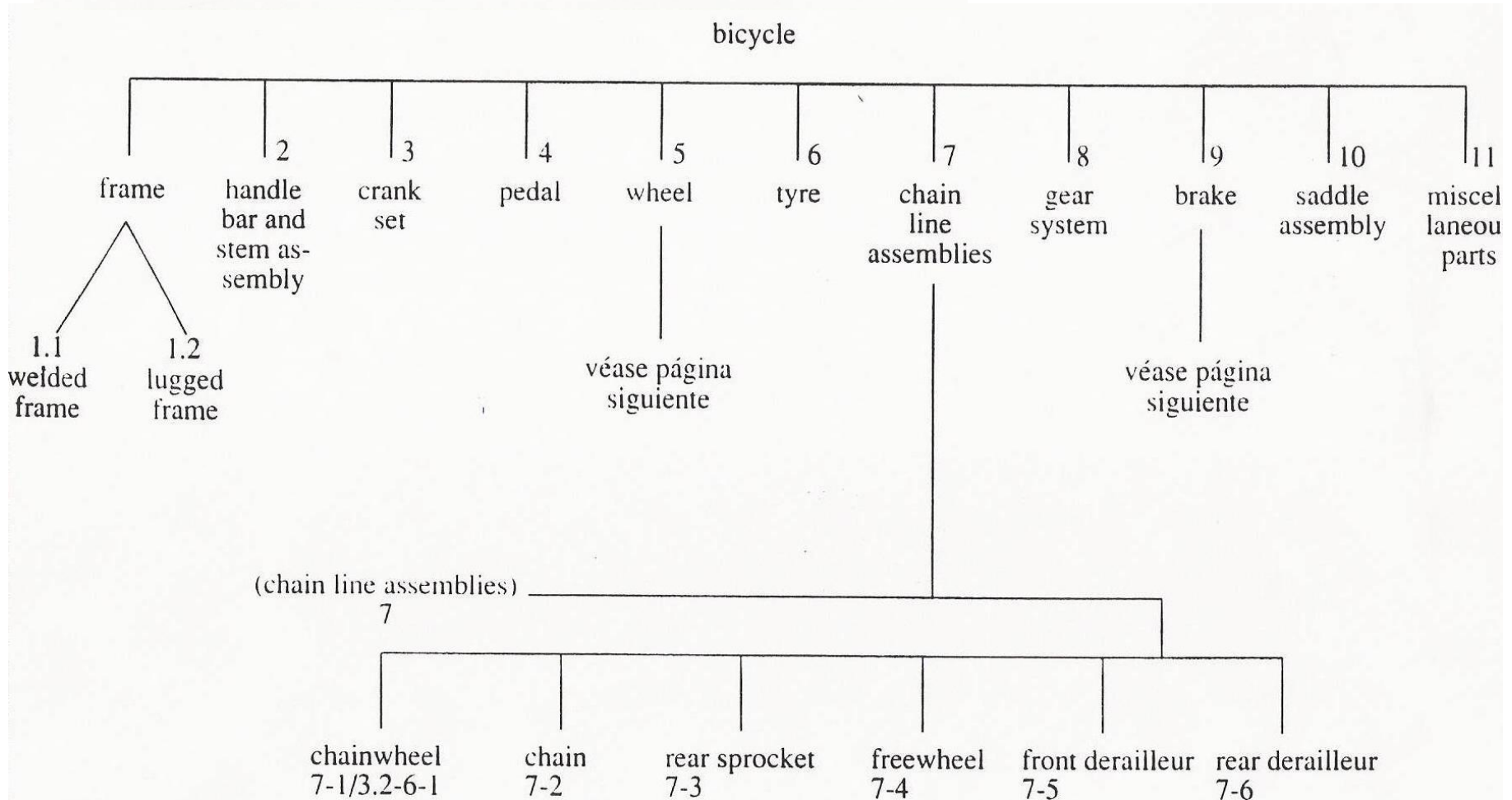
1. LEVEL OF DIVISION

2. LEVEL OF DIVISION

1-2-1

3. LEVEL OF DIVISION

4. LEVEL OF DIVISION

Bock, A. (1979): Cykelterminologi. En terminologisk undersøgelse af en cykels hoveddele. Tesina; Handelshøjskolen i København, Institut for Engelsk. En: Reiner Arntz; Heribert Picht: Introducción a la Terminología. Biblioteca del Libro. Fundación Germán Sánches Ruipérez. 1995; pág. 131/132.

bicycle

- frame
  - 1.1 welded frame
  - 1.2 lugged frame
- 2 handle bar and stem as-sembly
- 3 crank set
- 4 pedal
- 5 wheel — véase página siguiente
- 6 tyre
- 7 chain line assemblies
- 8 gear system
- 9 brake — véase página siguiente
- 10 saddle assembly
- 11 miscel laneou parts

(chain line assemblies) 7
- chainwheel 7-1/3.2-6-1
- chain 7-2
- rear sprocket 7-3
- freewheel 7-4
- front derailleur 7-5
- rear derailleur 7-6

TERMINOGRAPHY

Part of terminology work concerned with

the recording and presentation of

terminological data

Note: Terminological data may be presented in the form of term banks, glosseries, thesauri, or other publications.

ISO 1087-1

Source: Chr. Laurén; J.Myking; H.Picht (1997): Terminologi som vetenskapsgren.

	LEXICOGR. PRODUCTS	TERMINOGR. PRODUCTS	TERM BANK
1. FORM OF PRESENTATION BOOK		DOMINANT	IRRELEVANT
2. FORM OF PRESENTATION ELECTRONIC MEDIUM		INCREASING	ONLY MEDIUM
3. NUMBER OF LANGUAGES		ONE OR MORE	NO LIMIT
4. NUMBER OF SUBJECT FIELDS		ONE OR MORE	NO LIMIT
5. SEMANTIC INFORMATION		NO OR LITTLE	NO LIMIT

6. GRAMMATICAL INFORMATION	YES	YES	NO LIMIT
7. PHRASEOL.INFORMATION	LIMITED	SOME-TIMES	NO LIMIT
8. ORDERING OF ARTICLES	MOSTLY ALPHABET.	USUALLY ALPHABET.	IRRELEVANT
9. NORMATIVE/DESCRIPTIVE		NEARLY ALWAYS DESCRIPTIVE	IRRELEVANT
10. FREQUENCY DIC.	YES	SOME-TIMES	POSSIBLE
11. ETYMOLOGICAL DIC.	YES	NO	POSSIBLE
12. DIC. OF DIALECTS	YES	NO	POSSIBLE
13. ORTHOGRAPHICAL DIC.	YES	NO	POSSIBLE

14. DIC. OF PRONUNCIATION	YES	NO	POSSIBLE
15. STILISTIC INFORMATION	YES	SOME-TIMES	NO LÍMITE
16. IDIOMATIC INFORMATION	YES	NO	POSSIBLE
17. DIC. OF FOREIGN WORDS	YES	NO	POSSIBLE
18. ILLUSTRATIONS	YES	YES	NO LIMIT
19. HYPERMEDIA	NO	NO	YES

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LEXICOGRAPHY   TERMINOGRAPHY
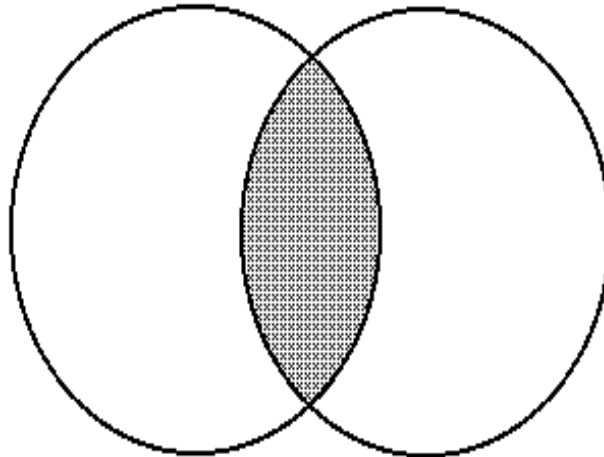
→ LSP TRANSLATION

→ TECHNICAL WRITING

→ KNOWLEDGE BASED
SYSTEMS

LESS ←——————→ MORE

SPECIALIZATION

KNOWLEDGE - SPARSE   KNOWLEDGE - RICH

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SEMASIOLOGICAL APPROACH

'BRIDGE'

1. architecture

2. dentistry   IN ONE SINGLE

3. ship   ENTRY

4. part of string
   instrument

ONOMASIOLOGICAL APPROACH

ENTRY   puente - bridge - Brücke - bro

DANTERMKLAS.: K 5000

ENTRY   puente - bridge - Brücke - bro

DANTERMKLAS.: H 8200

ENTRY   puente - bridge - Brücke - bro

DANTERMKLAS.: I 1600

ENTRY   puente - bridge - Steg - stol

DANTERMKLAS.: B 4000

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