

Eugen Wüster meets microcontent

–Terminological issues beyond traditional terminology science–

Klaus-Dirk Schmitz, THK
Christian Galinski, Infoterm

International Workshop on Terminology

Scientific, Administrative and Educational Dimensions of Terminology

Vienna, 24 June 2017

Overview

- Introduction – KDS
- Terminology and its applications – KDS
- New horizons: microcontent – GA
 - The theoretically “creative” 1980/90s
 - Relations to other domains/subjects
 - Findings and questions
 - The “knowledge change” point of view
- Conclusions – GA

Eugen Wüster

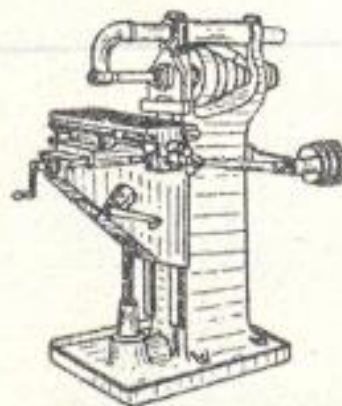
- 10 October 1898 – 29 March 1977
- Engineer, industrialist and terminologist
- Research in the field of Esperanto, Interlingua, terminology, lexicography, German orthography, UDC, bibliography, etc.
- His dissertation initiated the foundation of ISO TC37
- Terminology science and terminology standardization
- **Concept**-orientation & term autonomy
- Basis for today's terminology management (in industry/organizations)
- Basis for knowledge organization, semantic web and interoperability

Concept vs. Word

- Word and meaning vs. term and concept
- Lexicographical vs. terminological view/entries
- Dictionary (Wiktionary) vs. encyclopedia (Wikipedia)

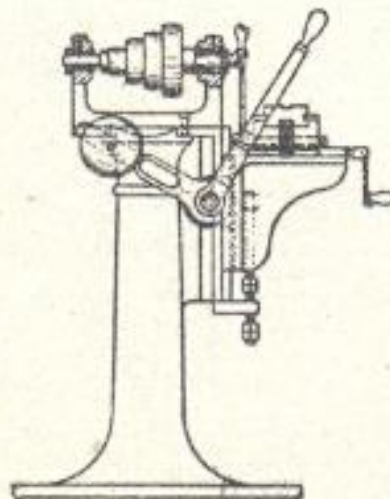


Fräsmaschine (f)
milling machine
2 machine (f) à fraiser,
fraiseuse (f)



Metallfräsmaschine (f)
3 metal milling machine
fraiseuse (f) ou machine
(f) à fraiser les métaux

Handfräsmaschine (f),
Fräsmaschine (f) mit
Handvorschub
4 hand milling machine
fraiseuse (f) ou machine
(f) à fraiser [avec cha-
riots ou avance] à main



фрезерный или шаро-
шечный станокъ (m)
fresatrice (f)
máquina (f) de fresar,
fresadora (f)

фрезерный или шаро-
шечный станокъ (m)
для металловъ; ста-
нокъ для фрез[ер]о-
ванія металловъ; ме-
таллофрезерный ста-
нокъ
fresatrice (f) per metalli
fresadora(f) para metales

фрезерный или шаро-
шечный станокъ (m)
съ подачей отъ руки
fresatrice (f) a mano
fresadora (f) á mano,
fresadora (f) con los
movimientos de la
mesa á mano

WERKZEUGMASCHINEN FÜR METALL- UND HOLZBEARBEITUNG

In sechs Sprachen:
Deutsch, Englisch, Französisch, Russisch, Italienisch, Spanisch

Unter redaktioneller Mitwirkung von
Ingenieur Wilhelm Wagner

Zweite unveränderte Auflage (Manuldruck)

Mit 2201 Abbildungen und Formeln

Band 9



MÜNCHEN UND BERLIN
DRUCK UND VERLAG VON R. OLDENBOURG

Schlomann—Oldenbourg Illustrierte Techn. Wörterbücher in 6 Sprachen

Deutsch, Englisch, Französisch, Russisch, Italienisch, Spanisch
Herausgegeben von Alfred Schlomann, Ingenieur
Alle sechs Sprachen sind in jedem Bande nebeneinander angeordnet.
Jeder Band enthält somit alle sechs Sprachen!

Bisher sind erschienen:

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Band 6:	Eisenbahnmaschinenwesen, 809 Seiten, 2147 Abbildungen, 4343 Worte in jeder Sprache.
Band 7:	Hebemaschinen und Transportvorrichtungen, 459 Seiten, 1860 Abbildungen, 3621 Worte in jeder Sprache.
Band 8:	Der Eisenbeton im Hoch- und Tiefbau, 422 Seiten, 905 Abbildungen, 2362 Worte in jeder Sprache.
Band 9:	Werkzeugmaschinen, 716 Seiten, 2291 Abbildungen, 2932 Worte in jeder Sprache.
Band 10:	Motorfahrzeuge (Motorwagen, Motorboote, Motorluftschiffe, Flugmaschinen), 1012 Seiten, 1774 Abbildungen, 2911 Worte in jeder Sprache.
Band 11:	Eisenhüttenwesen, 797 Seiten, 1883 Abbildungen, 5247 Worte in jeder Sprache.
Band 12:	Wasser-, Luft- und Kältetechnik, 1919 Seiten, 2075 Abbildungen, etwa 11200 Worte in jeder Sprache.
Band 13:	Baukonstruktionen, 1030 Seiten, rund 2000 Abbildungen und 3450 Formeln, 1445 Worte in jeder Sprache.

In Vorbereitung:
Textilindustrie (Rohstoffe, Spinnerei, Weberei), Bergbau
Siebensprachig
d. h. mit Anhang in der betr. Sprache erschien Band 1:
Holländisch — Rumänisch

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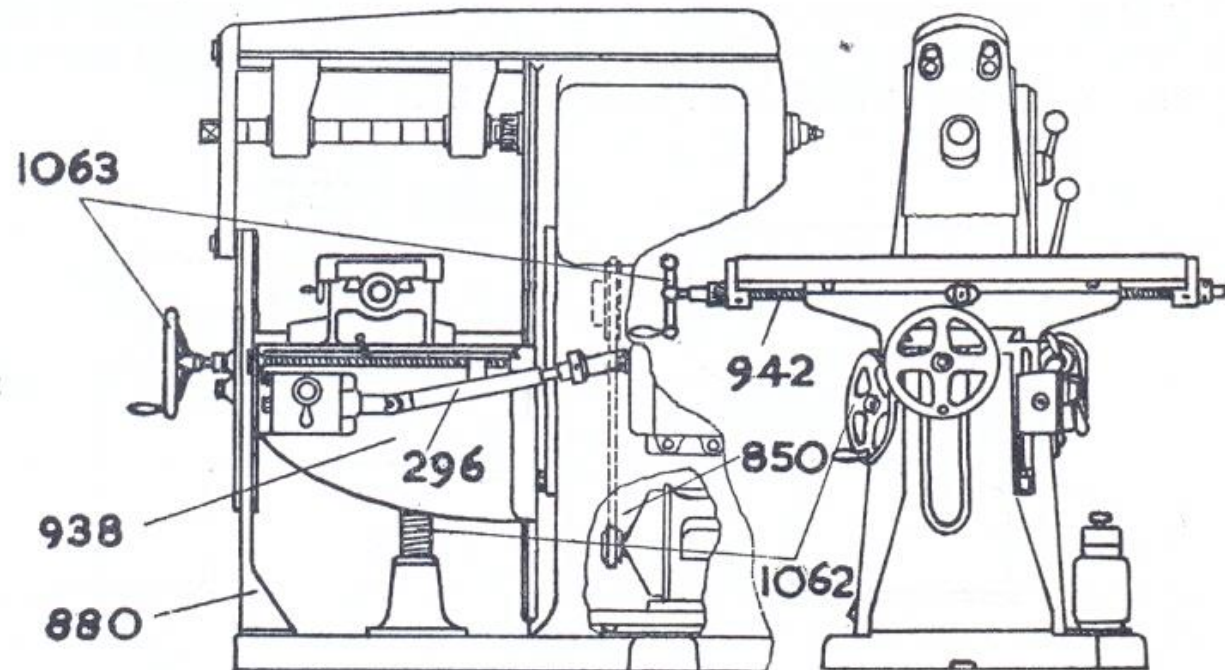
International
Organization for
Standardization

1371

UDC 621.914.3

milling machine BS; **milling-machine**; **miller**: A machine tool (810) in which a horizontal or vertical spindle (275) carries a rotating tool (1326) having many teeth (called a "cutter"); the workpiece (1390) is supported and fed (1127) by an adjustable (1060) and power-driven horizontal table (932).

machine à fraiser NF; **fraiseuse**: Machine-outil (810) dans laquelle une broche (275) horizontale ou verticale porte un outil rotatif (1326) à arêtes multiples. La pièce à usiner (1390) est fixée par serrage sur une table porte-pièce (932) réglable (1060) qui est animée de mouvements automatiques d'avance.



The Machine Tool

An Interlingual Dictionary of Basic Concepts

comprising

An Alphabetical Dictionary and
A Classified Vocabulary
with Definitions and Illustrations

English-French Master Volume

*Prepared under the auspices of
The United Nations
Economic Commission for Europe
and under the direction of*

Eugen Wüster


TECHNICAL PRESS
LONDON

Grundbegriffe bei Werkzeugmaschinen

Deutscher Ergänzungsband zu dem Grundwerk

**The Machine Tool: An Interlingual Dictionary
of Basic Concepts**

**Dictionnaire Multilingue de la Machine-Outil:
Notions fondamentales**

(Mehrsprachiges Wörterbuch in Sach- und Abc-Folge,
mit Begriffsbestimmungen und Abbildungen)

*Ausgearbeitet auf Veranlassung der Europäischen
Wirtschaftskommission der Vereinten Nationen
unter Leitung von*

Eugen Wüster

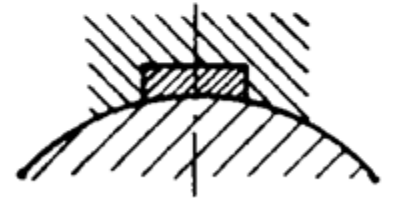
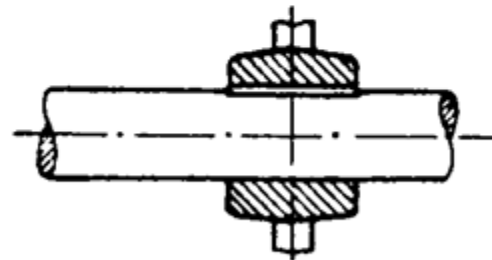

TECHNICAL PRESS
LONDON

ECE VT 1. 782

UDC 621.886.6 f3

=2 hollow saddle key BS: A taper key (775) fitting a keyway (771) in the hub (221), the bottom of the key being formed to fit the cylindrical surface of the shaft (268) BS. - (BS 46:Part 1:1929 no.9 / idem)

=4 clavette inclinée creuse sans talon NBN, clavette creuse à serrage VSM: Clavette inclinée (775) qui s'introduit sans une rainure (voir 771) du moyeu, la face inférieure de la clavette étant formée creuse pour s'ajuster sur la surface cylindrique de l'arbre (268) $\hat{=}$ BS. - (NBN 66, 1951 p.1; VSM 15 110a F.1, 1939 / $i \hat{=}$ 2)



NBN

7. 5. 32

Wd/Kom +

(NBN 66, 1951
p1)

Wüster's Machine Tool: MultiTerm 5.5

TRADOS MultiTerm - WMT-6.MTW <View>

File Edit View Search Help

Source EN Target FR

miller milling machine millings

Entry Number 1370
project subset WMT67/68
copyright Infoterm 1998
subject field SIB
classification UDC: 621.914.3
source of figure modified DubT II p 607

EN **milling machine** BS 739-1937
EN **milling-machine** MLD 772
EN **miller** ChamD 540

definition a machine tool in which a horizontal or vertical spindle carries a rotating tool having many teeth (called a "cutter"); the workpiece is supported and fed by an adjustable and power-driven horizontal table

source org def MLD 772 no 2, modified ChamD 540

definition elements machine tool 0810; horizontal; vertical; spindle 0275; rotating tool 1326; tooth; cutter; workpiece 1390; support; feed 1127; adjustable 1060; power-driven; horizontal; table 0932

see milling machine see machine 1431; milling-machine see machine 1431

relation BG machine tool 0810

FR **machine à fraiser** NFE 60-006-1937
FR **fraiseuse** LarXX 3.597

definition machine-outil dans laquelle une broche horizontale ou verticale porte un outil rotatif à arêtes multiples. La pièce à usiner est fixée par serrage sur une table porte-pièce réglable qui est animée de mouvements automatiques d'avance

source org def traduction de la définition anglaise

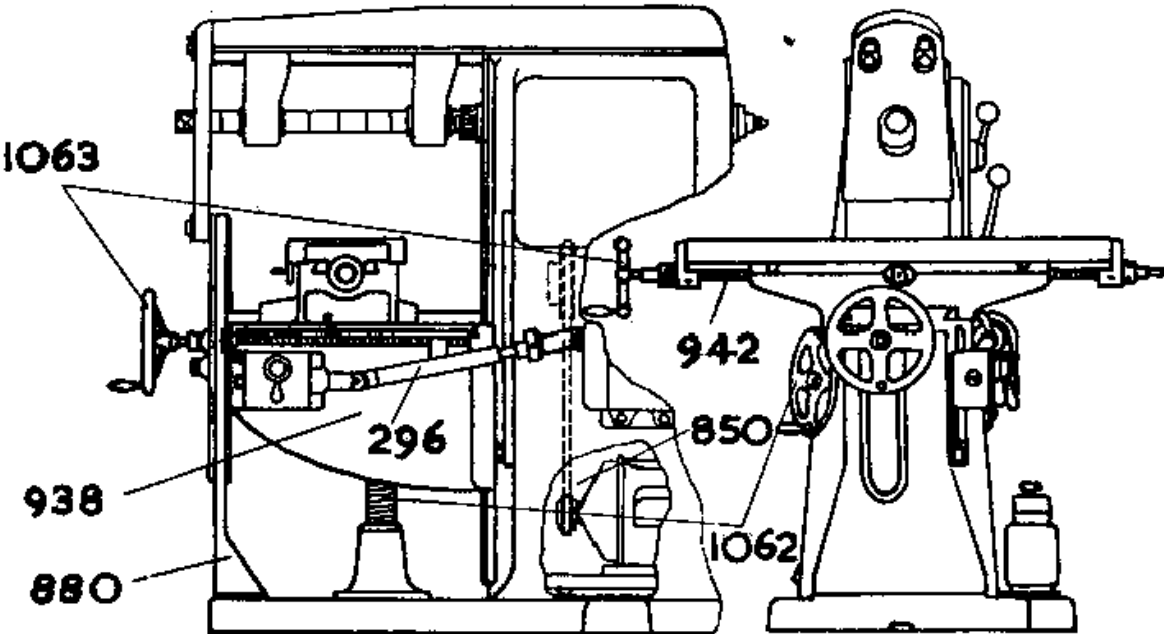
definition elements machine-outil 0810; broche 0275; horizontal; vertical; outil rotatif 1326; arête; pièce à usiner 1390; fixer; serrage; table porte-pièce 0932; réglable 1060; animer; mouvement automatique d'avance

see machine a fraiser voir fraiser 1599

relation BG machine-outil 0810

DE **Fräsmaschine** DIN 2200-1927

entry ID 1371



Data
Categories

Term
Autonomy

Better
Ordering/
Searching

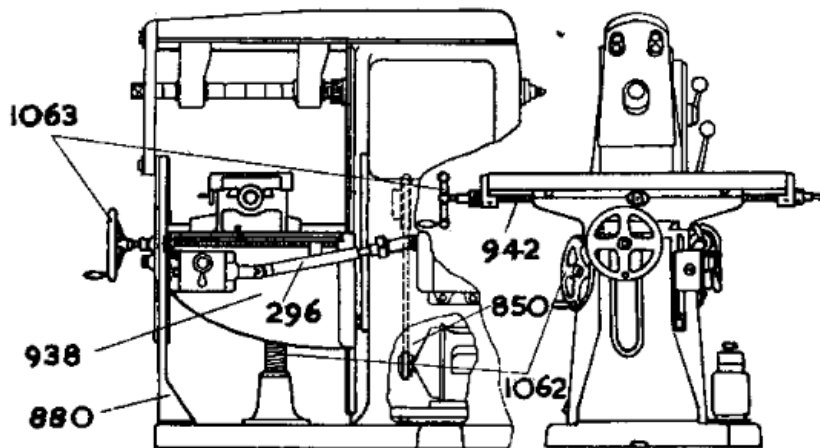
Datei Start Ansicht Add-Ins Hilfe
 EN 1370
 Umkehren
 FR
 Sprachen
 Hierarchischer Modus
 Volltextsuche
 Suche
 Erweiterte Suche
 (Ohne Filter)
 Hartfiltermodus
 Zielterminus erforderlich
 Filter
 Neu hinzufügen
 Bearbeiten
 Speichern
 Löschen
 Tasks
 (Ohne Eingabemodell)
 Formular
 Eingabemodell
 Flags layout
 75
 Anzeige
 Navigatio

Termini

Durchsuchen

- metal removing efficienc
- metal-cutting
- metal-cutting machine
- metal-removal rate
- metal-working machine
- metal-working machine tool
- metal-working tool
- metric coarse thread
- metric fine thread
- metric screw thread
- metric taper (for tools)
- metric thread
- micro-adjustemnt of cutting
- micrometer caliper
- micrometer cutting depth a
- micrometer gauge microme
- milled nut
- milled screw
- mill
- milling machine**
- milling-machine
- millings
- minimum clearance
- minimum limit
- minimum limit of size
- minimum size
- misplace
- mist lubrication
- module
- module pitch thread
- module thread
- moment of a couple
- moment of a force
- moment of a torque
- moment of force
- monkey wrench
- Morse taper

milling machine : Wüster Machine Tool
 Entry number: 1370
 Graphic:



project subset: WMT67/68
 copyright: Infoterm 1998
 subject field: SIB
 classification: UDC: 621.914.3
 source of figure: modified DubT II p 607

EN
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 source of terms: BS 739-1937
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mill
 source of terms: ChamD 540
 definition: a machine tool in which a horizontal or vertical spindle carries a rotating tool having many teeth (called a "cutter"); the workpiece is supported and fed by an adjustable and power-driven horizontal table
 source org def: MLD 772 no 2, modified ChamD 540
 definition elements: machine tool [0810](#); horizontal; vertical; spindle [0275](#); rotating tool [1326](#); tooth; cutter; workpiece [1390](#); support; feed [1127](#); adjustable [1060](#); power-driven; horizontal; table [0932](#)
 see: milling machine see machine [1431](#); milling-machine see machine [1431](#)
 relation: BG machine tool [0810](#)

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 source of terms: NFE 60-006-1937
fraiseuse
 source of terms: LarXX 3.597
 definition: machine-outil dans laquelle une broche horizontale ou verticale porte un outil rotatif à arêtes multiples. La pièce à usiner est fixée par serrage sur une table porte-pièce réglable qui est animée de mouvements automatiques d'avance
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 definition elements: machine-outil [0810](#); broche [0275](#); horizontal; vertical; outil rotatif [1326](#); arête; pièce à usiner [1390](#); fixer; serrage; table porte-pièce [0932](#); réglable [1060](#); animer; mouvement automatique d'avance
 see: machine à fraiser voir fraiser [1599](#)
 relation: BG machine-outil [0810](#)

DE
Fräsmaschine
 source of terms: DIN 2200-1927

ZU
 entry ID
 1371

Durr...
 Hitis...
 Term...

Termini
 Termbank-Management
 Administrator

Datei Start Ansicht Add-Ins Hilfe
 EN 1370 (Ohne Filter) Neu hinzufügen
 Umkehren Hierarchischer Modus Volltextsuche Erweiterte Suche Hartfiltermodus Zielterminus erforderlich
 Sprachen Suche Filter Bearbeiten Speichern Löschen Eingabemodell Anzeige Navigat

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Durr... Hitlis... Term...
 A2 Termini
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 Administrator

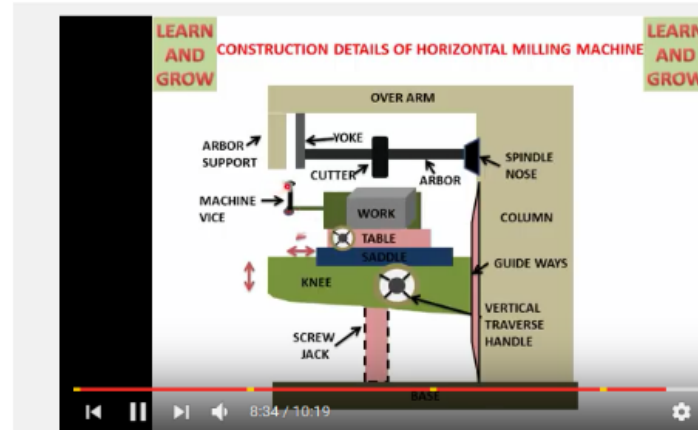
milling machine : Wüster Machine Tool

Entry number: 1370

Graphic:



milling machine



project subset: WMT67/68

copyright: Infoterm 1998

subject field: SIB

classification: UDC: 621.914.3

source of figure: modified DubT II p 607



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source org def: MLD 772 no 2, modified ChamD 540

definition elements: machine tool 0810; horizontal; vertical; spindle 0275; rotating tool 1326; tooth; cutter; workpiece 1390; support; feed 1127; adjustable 1060; power-driven; horizontal; table 0932

see: milling machine see machine 1431; milling-machine see machine 1431

relation: BG machine tool 0810



FR

machine à fraiser

source of terms: NFE 60-006-1937

fraiseuse

source of terms: LarOX 3.597

definition: machine-outil dans laquelle une broche horizontale ou verticale porte un outil rotatif à arêtes multiples. La pièce à usiner est fixée par serrage sur une table porte-pièce réglable qui est animée de mouvements automatiques d'avance

source org def: traduction de la définition anglaise

definition elements: machine-outil 0810; broche 0275; horizontal; vertical; outil rotatif 1326; arête; pièce à usiner 1390; fixer; serrage; table porte-pièce 0932; réglable 1060; animer; mouvement automatique d'avance

see: machine à fraiser voir fraiser 1599

relation: BG machine-outil 0810



DE

Fräsmaschine

source of terms: DIN 2200-1927



ZU

entry ID

1371

Info term

Technology
 Arts Sciences
 TH Köln

Multimedia
Object

Links to
External
Resources

Datei Start Ansicht Add-Ins Hilfe
 EN 1370 (Ohne Filter) Neu hinzufügen Bearbeiten Speichern Löschen
 Umkehren Hierarchischer Modus Volltextsuche Erweiterte Suche Hartfiltermodus Zielterminus erforderlich
 Sprachen Suche Filter Bearbeiten Tasks Eingabemodell Flags layout Anzeige Navigation


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Durs... Hitlis... Term...
 Az Termini
 Termbank-Management
 Administrator

milling machine : Wüster Machine Tool

Entry number: 1370
 Graphic: 

project subset: WMT67/68
 copyright: Infoterm 1998
 subject field: SIB
 classification: UDC: 621.914.3
 source of figure: modified DubT II p 607

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 see: milling machine see machine 1431; milling-machine see machine 1431
 relation: BG machine tool 0810

FR
machine à fraiser
 source of terms: NFE 60-006-1937
fraiseuse
 source of terms: LarOX 3.597
 definition: machine-outil dans laquelle une broche horizontale ou verticale porte un outil rotatif à arêtes multiples. La pièce à usiner est fixée par serrage sur une table porte-pièce réglable qui est animée de mouvements automatiques d'avance
 source org def: traduction de la définition anglaise
 definition elements: machine-outil 0810; broche 0275; horizontal; vertical; outil rotatif 1326; arête; pièce à usiner 1390; fixer; serrage; table porte-pièce 0932; réglable 1060; animer; mouvement automatique d'avance
 see: machine à fraiser voir fraiser 1599
 relation: BG machine-outil 0810

DE
Fräsmaschine
 source of terms: DIN 2200-1927
entry ID
 1371

Post Wüster Era

- Terminological data are better to document → (picklist, multimedia)
- Terminological data are easier to manage → termbases
- Terminological data are easier to find → Google
- Terminological data are easier to retrieve → Search (Fuzzy, Free Text, *)
- Terminological data are easier to use (filter, export, standards)
- Terminological data are more consistent and reliable (single source)
- Terminological data are better structured (meta model, data categories)
- Terminological data are better connected (links, concept relations, taxonomies)

Wüster's Machine Tool: TBX

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Wüster and LOD

- Semantic Web, Linked Open Data (LOD), Industry 4.0, and Internet of Things have to make (better) use of terminological data in order to handle:
 - Ambiguity
 - Synonymy (incl. spelling variants and abbreviated forms)
 - Multilinguality
 - ...
- Terminology can provide information about concepts, terms and concept relations

Wüster and LOD

Recommendations:

- Terminological resources must be accessible via the web
- Terminological resources must be identifiable via URI
- Terminological entries (concepts) should be accessible via URI (for the resource) + language + term or URI for the concept (!)
- Terminological data (microcontent of concept entries) should be accessible (URI) and interpretable (datCat meaning via URI), particularly the concept links and concept maps
- Terminological data should be more presented in RDF!

Eugen Wüster

- ❖ What is still valid?
- ❖ What has become obsolete?
- ❖ What needs revision?

Eugen Wüster

- Engineer, industrialist and terminologist
- Research in the field of Esperanto, Interlingua, terminology, lexicography, German orthography, UDC, bibliography, etc.
- **Through ISO TC37 big impact on terminology standardization**
- **Concept-orientation & term autonomy**
 - **big impacts E. Wüster had never imagined**
(largely due to the development of ICTs)
 - **basis for today's terminology management (in industry/organizations)**
- **E. Wüster has more to offer → still undiscovered – e.g. wrt Knowledge organization, content management, semantics and interoperability**

Digital or electronic content?

- **Digital content** refers to information available for download or distribution on electronic media such as an **ebook** or **iTunes song**, but many in the content industry argue that digital content is anything that can be published. (*Mullan,2011*)
- **Digital media – digital content – electronic content – eContent**

From the user's perspective, information is all content, while from the computer programmer's perspective, it is all data. (Boiko)

What is content?

- **Content:** logical unit to represent usable (and reusable) **information** contained in or related to learning, education, and training (LET) data in a formalized manner suitable for interpretation by human means cf. logical package ISO/IEC 12785-1:2009, 3.7
- **Content:** a representation of the **information** contained in or related to multimedia **data** in a formalized manner suitable for interpretation by human means.

Content refers to the **data** and the metadata ISO/IEC 15938-5:2003, 3.3.2.9

- **Content:** **data** and the associated metadata
ISO/IEC 24800-3:2010, 3.1.5
- **Content:** <XML> all **data** between the start tag and end tag of an element ISO 24531:2013, 4.11

What is data?

- **Data:** recorded **information** ISO 22005:2007, 3.1
- **Data:** **information** before it is interpreted
ISO 15784-3:2008, 3.7
- **Data:** **information** represented in a manner
suitable for automatic processing
IEC 60050-701/-721:1992, ISO 16091:2002, 3.1.4

What is information?

- **Information:** **data** set within a context of meaning

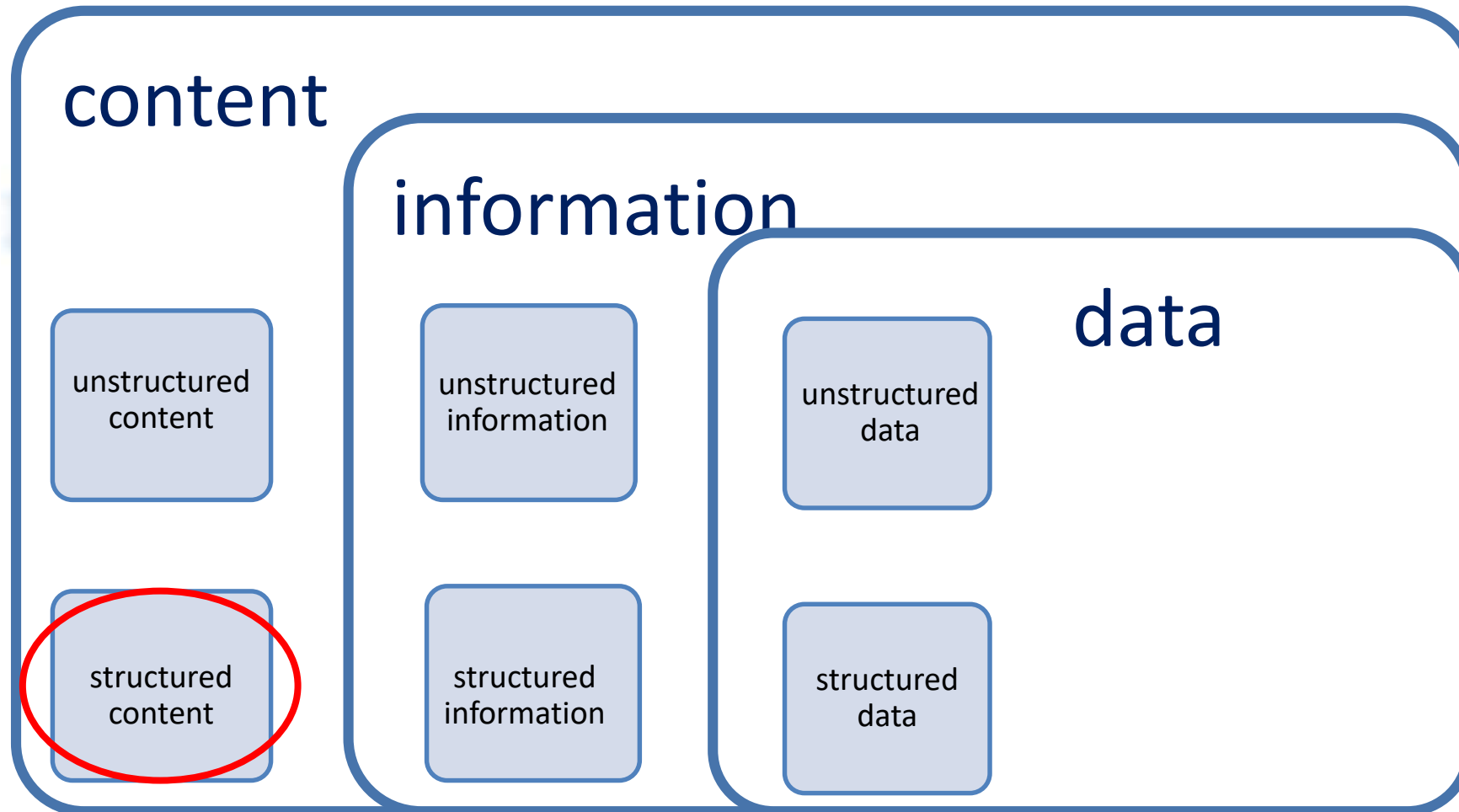
ISO/TS 25237:2008, 3.27

- **Information:** facts, concepts, or instructions

ISO 15531-43:2006, 3.1.15

- **Information:** **data** that are processed, organized and correlated to produce meaning ISO 22320:2011, 3.9

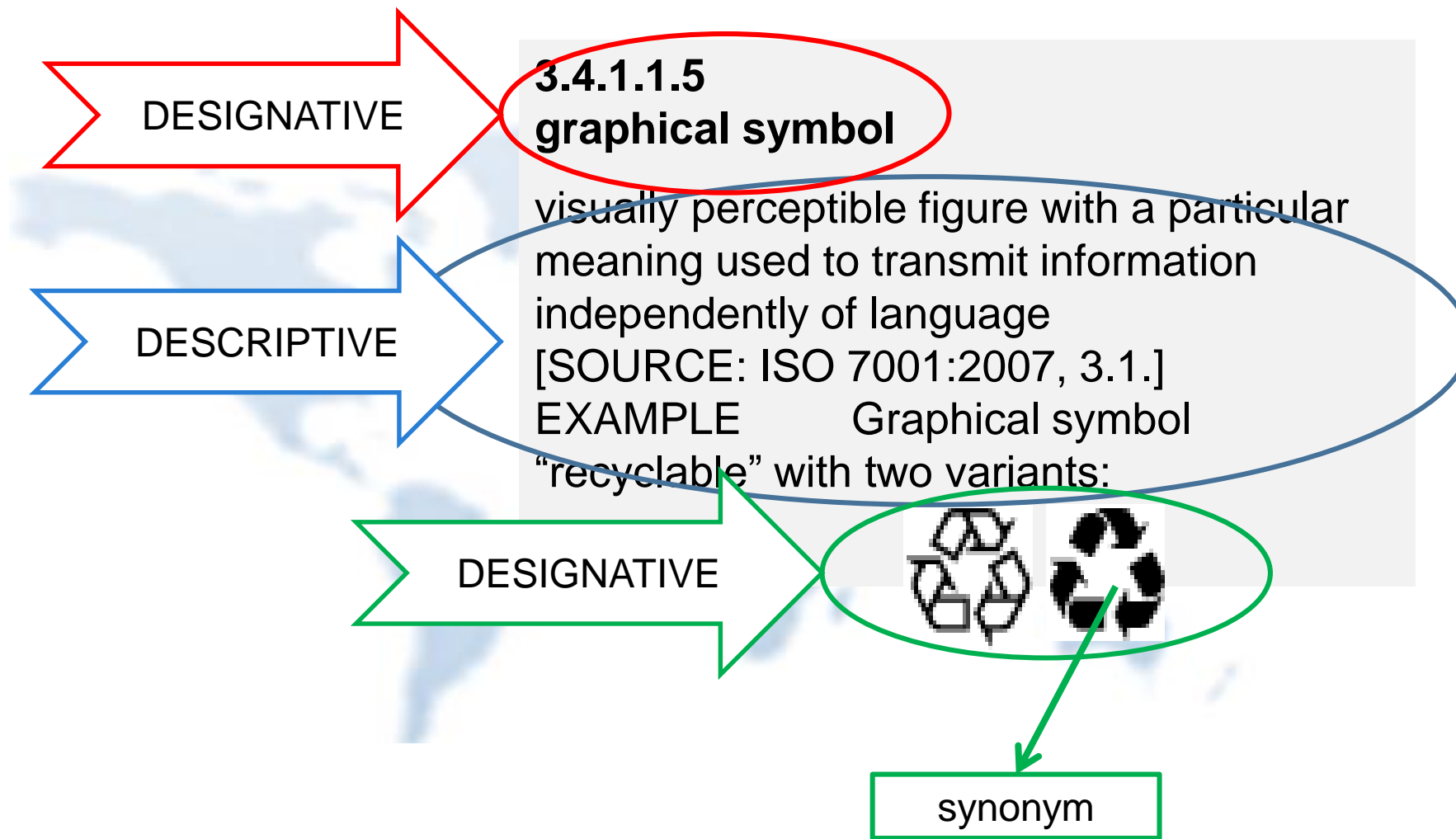
Structured content – What is it?



Microcontent

“Microcontent (in the sense of structured content at the level of lexical semantics) **indicates content that conveys one primary idea or concept”**

Terminological data and similar



[ISO 10241-1]

Helicopter marshalling signals

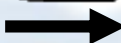


What is “structured“?

Structured content refers to information or **content** that has been broken down and classified using **metadata**. Structured content often refers to information that has been classified using **XML**, but can also relate to information classified using other standard or proprietary forms of **metadata**.

Concept ID	1690
Dictionary	Multi-dictionary Demo
Section	Animals and more
Domain	SCIENCES > biology
Definition	warm-blooded egg-laying vertebrates characterized by feathers and forelimbs modified as wings
Source	wordnetweb.princeton.edu/perl/webwn 2009-08-18
Image	
English	bird
Chinese (Han (Simplified variant))	鸟
French	oiseau
German	Vogel
Japanese	鳥 (トリ)
Swedish	fågel
Swedish	pippi

Example: Traffic informatics



5km

Way to the airport – turn right in 5 km



Way to the train station – down to the right



E, 9^d

ZONE = verbal

red ring = (morphology) prohibition sign

30 = micro-proposition: max speed 30km/h

→ variable message sign boards
communicating with car-driver system

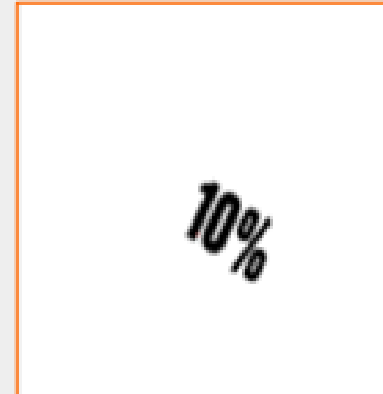
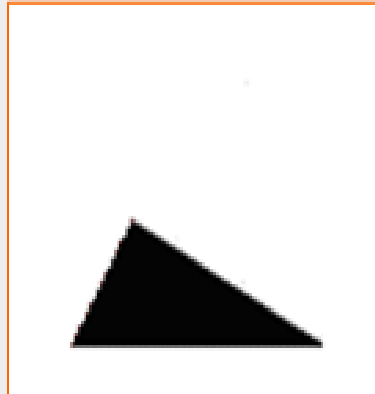
“Morphology” of pictogrammes

■ Representation elements



- **automatic segmentation?**
- **“fuzzy search”?**

=



AAC for cognitively disabled

Swedish Dutch English	födelsedag verjaardag birthday	pappa vader father	ge geven give	jag mij me	gåva kado present	hund hond dog	lille klein small
PCS							
Picto							
Bliss							

This image shows six different ways to express the same sentence: "For my birthday, father gives me a small dog". Vertically, each single concept is represented in different languages (keywords) and in different symbol systems (PCS, Picto, Bliss).

Example: Mobile phone user interface



How many menu items and messages?
(incl. icons) **in how many languages?**

→ **16,000 in
more than 100 Languages**
(maybe today already more than
1000 languages)

Structured content

It's all
catalogues ?

→ repositories of structured content at the
level of lexical semantics = microcontent

Example: product catalogue

e.g. complex entry in a product catalogue

- Name of company ([®] *enterprise*)
- Name of product (model) ([™] *enterprise*)
- Generic name of product (e.g. © *HS*)
- Class (name under which the product falls) (e.g. © *eCI@ss*)
- Verbal/textual description (© *enterprise*)
- Picture (© *enterprise*)
- Technical data
 - (unified) branch properties (e.g. © *OAGi*)
 - Standardized characteristics (e.g. © *DIN*)
 - Enterprise product specific data (e.g. *for collaborative business*)
 - Enterprise internal data (*maybe confidential/secret*)



225/55/16 V

Microcontent

- Not only terminology and other semantic elements in specialized communication, but also

- Lexicographical data
- Proper names of all sorts
- Product properties
- Product classification
- Metadata
- ...

→ needs standards

→ **Different kinds of standards!**

Findings and questions 1

- <LSP p-o-v:> no clear-cut borderline between specialized texts and general language texts
- <question:> does this also apply to the **relation between terminology and lexicography**? – Why not?
 - terminologisation (e.g. of phraseological entities)
 - determinologisation (e.g. general computer terms)
 - popularization / vulgarization / simplification
- Several roles of terminology:
 - concepts: condensing and structuring knowledge (to reduce complexity)
 - representation of specialized knowledge at the level of lexical semantics
 - indispensable elements in specialized communication
 - micro-level access to knowledge contained in texts or in databases

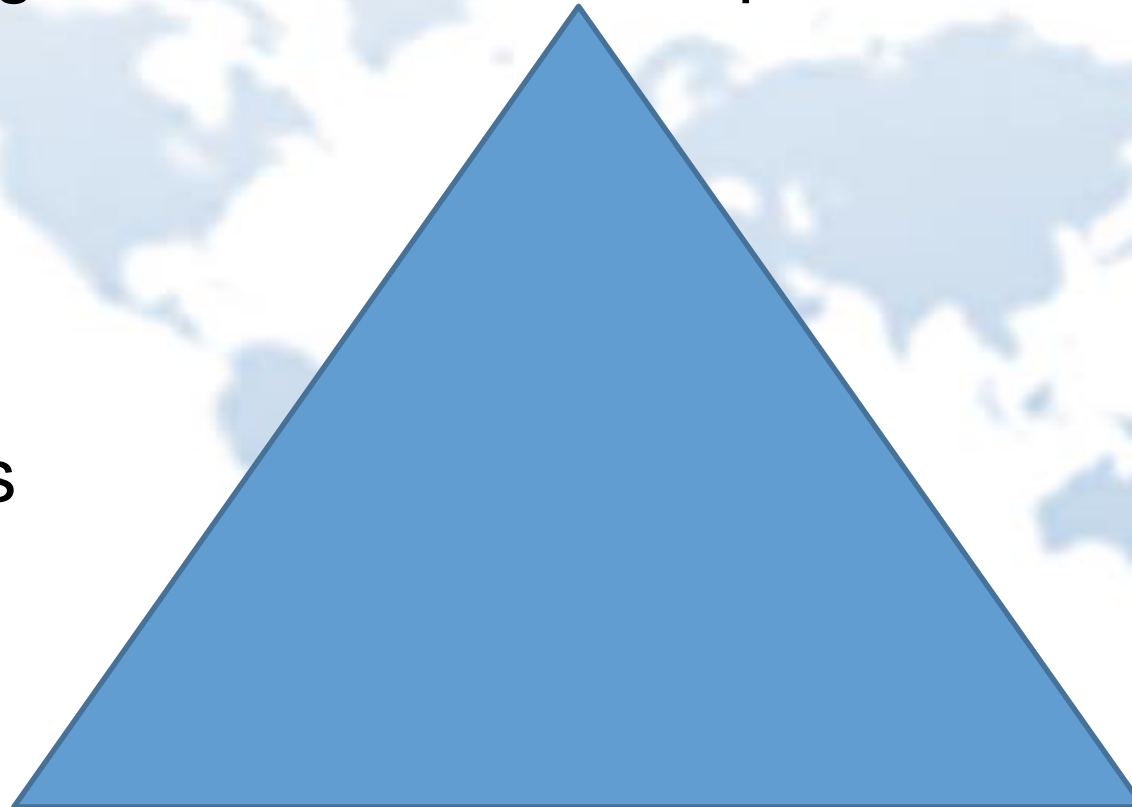
TSR 14 (2003) articles

by: B.E. Antia, S.E. Wright, G. Budin, H. Picht, etc.

The Semiotic Triangle – Triangle of Reference: true or false?

thought / reference / concept / sense / meaning / ...

words / terms
/ symbols /
definiens /
definiendum



referent /
object /
real
“thing” /
...

...

Findings and questions 2

- <science theory p-o-v:> human brain is condensing and structuring information, thus reducing data volumes in order to cope with information affluence
 - **Q:** are terminological data, lexicographical data, controlled vocabularies, classification etc. **complementary and necessary** for the highly self-referential system of knowledge? – **???**
- differences/commonalities? → all are **mental constructs!**

Findings and questions 3

- <terminology theory p-o-v:> **“term autonomy”**
- **Q1:** <from a knowledge change p-o-v:> “autonomy” also applies to **“objects” and “concepts”**? – **???**
→ knowledge change aspect **1**: level of lexical semantics
- **Q2:** <from a microcontent p-o-v:> “autonomy” also applies to thesaurus terms, classification classes, etc.? – **???**
- Concepts <terminology science p-o-v:> units of thinking/thought, knowledge and communication
→ <from a pragmatics p-o-v:> all three are correct

TSR 1 (1990) containing articles

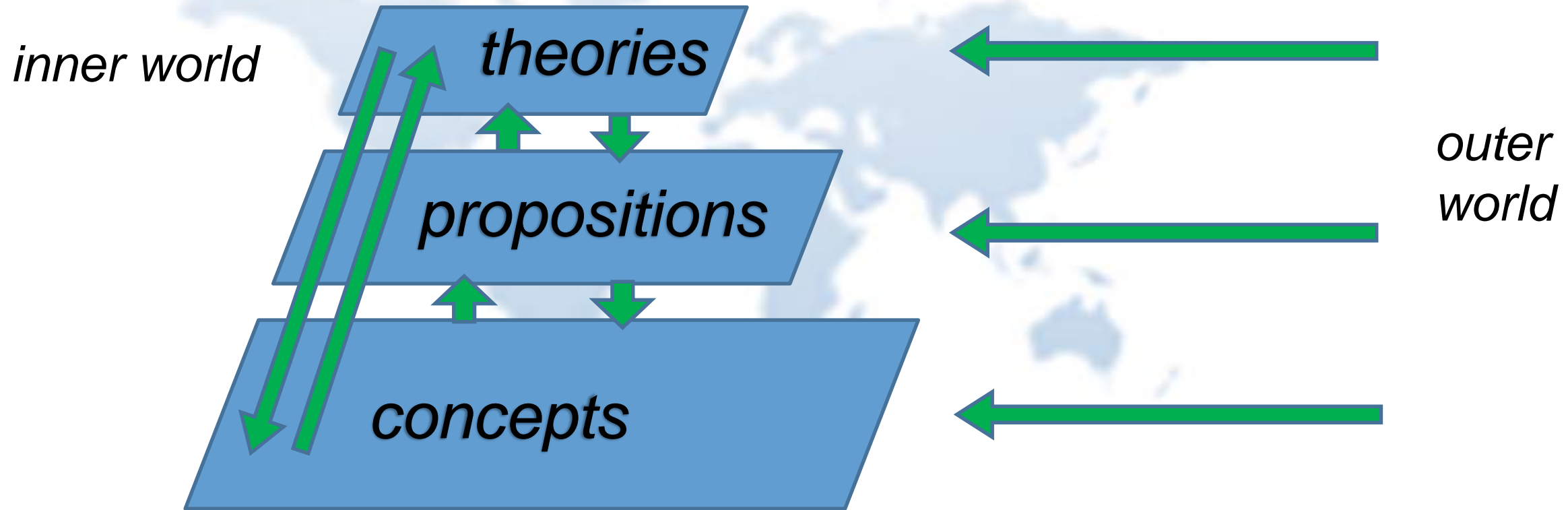
by: H. Picht, G. Budin, C. Galinski, etc.

Info
term

Technology
Arts Sciences

TH Köln

Knowledge change aspect **3**: p-o-v “levels of knowledge”



Findings and questions 4

- From the **knowledge change** p-o-v: change can be triggered
 - in the ‘inner world’ of the human brain (at different knowledge levels)
 - in relation with the ‘outer world’ (communication, society, environment etc.)
- Conceptual thinking: a brain mechanism common to humans
- Knowledge is **not only “scientific-technical knowledge”!**
- From a structured content (=microcontent) p-o-v, terminology is a **specific kind of microcontent having specific roles**

Terminology management: **good practice** *Info term*

Technology
Arts Sciences
TH Köln

The field of terminology is a 'good practice' in

- multilinguality of interhuman communication
- domain/subject specific communication
- CAT – computer-assisted translation
- Application of machine translation on specialized texts
- Success of major nomenclatures
- Widely used scientific classification schemes or thesauri
- Standardization: hardly any standard without standardized terminology
- **Many uncovered treasures → Terminological methods are applicable beyond terminology**

New requirements

- System integration → content integration
- Content interoperability

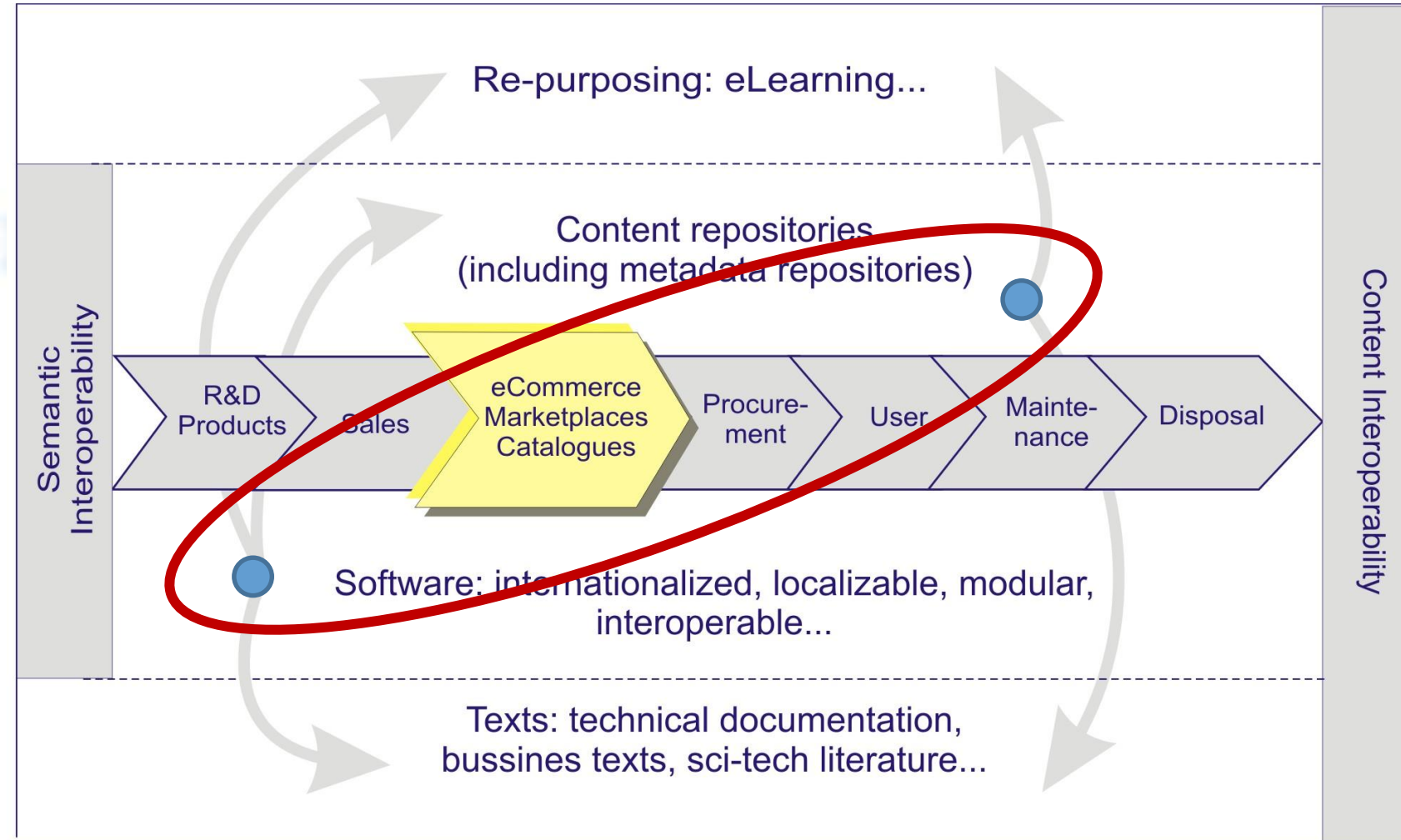
[“Recommendation on software and content development principles 2010”] basic requirements for comprehensive semantic interoperability: fitness for

- Multilinguality (covering also cultural diversity)
- Multimodality and multimedia
- eAccessibility and eInclusion
- Multi-channel presentations

as well as a high degree of

- **content integratability**
- **content reusability,**
- **content re-purposability**
(e.g. for eLearning purposes)

Product data – Software – Content



➔ **Modularity everywhere**

The theoretically “creative” 1980/90s

- **First TKE 1987** organised in Trier (GTW founded 1986)
- **Joint theory workshops in Vienna:** *science theory, theory of terminology, LSP theory and applications, language mediation (translation and interpretation), computer science, information science, documentation studies, classification research, conceptology, etc.* → **UNESCO support**
- **Cooperation with I&D, classification and LSP communities**
- **Data categories** discussion development towards DCR
- **From mainframe computers via minicomputers & PCs to today's tablets and smart phones**
- **TermNet** (1988) and **IITF** (1989) founded

The above development triggered a substantial body of publications

Relations to other domains/subjects

- **Science theory:** from positivism & constructivism to societal aspects and applications concerning specialised knowledge
- **LSP** becoming a strong aspect, tying up with translation studies, specialised lexicography, specialised communication
- **I&D** (incl. thesaurus development and indexing, as well as classification studies)
- **Computer science** and **computational linguistics** (in particular machine translation)
- **+eApplications** (eBusiness&eCommerce, eHealth, eGovernment, eProcurement, etc.)
- **+AI** (artificial intelligence)

Conclusion I

- **Microcontent** = structured content at the level of lexical semantics
- **Terminology** = semantically structured content developed in/for specialized communication and specialized knowledge representation
- Different **depths of semantics** within microcontent
- **Metadata** → structuring of microcontent (based on standards)
- **Content** in/for the ICTs is first of all microcontent
- Microcontent can be turned into (light-weight) **ontologies**
- **H2H and H2M communication** is heavily based on content
- **M2M communication** also cannot do without content
- Old issues remain: **reliable & interoperable content**

Conclusion II

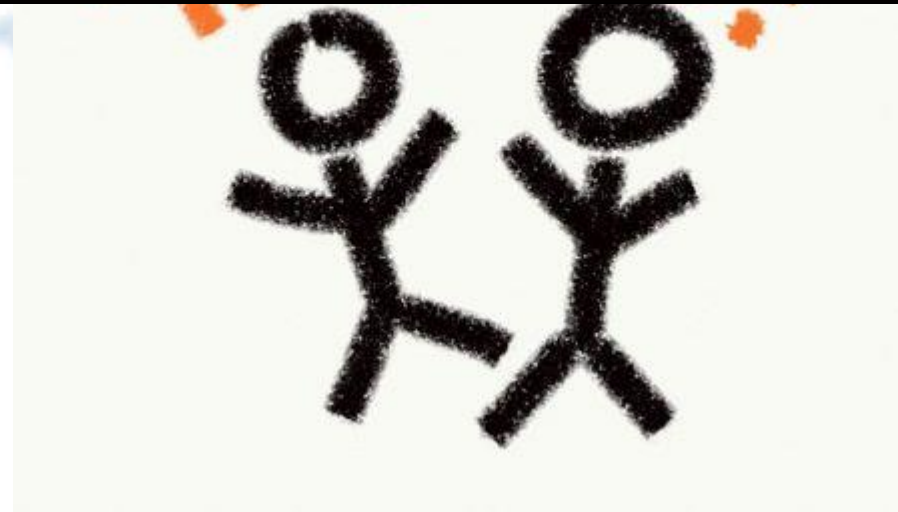
- Microcontent
 - Comprises all kinds of linguistic and non-linguistic representations of information/knowledge
 - Low-complexity entities of structured content can be called “primitives”
 - High-complexity entities of structured content can be called “composites”
 - For reuse **and re-purposing**, it is necessary to add further data/information
- Complexity of microcontent = **low complexity for ICT developers** → because it's all based on rules

Conclusion III

- Our life is deeply governed by standards – including our **language and communication**
- On the one hand the ICTs try to avoid “language” and semantics by coding “things”
- On the other hand more and more kinds of content – in particular microcontent – has to be standardized
- Standardization results in standards (and standards-like documents) whose normative authority is second only to law
- A minimum knowledge about standardization is an asset for every enterprise; engagement in standardization may result in advantages – **especially in educational institutions**

Eugen Wüster

- ❖ **What is still valid?** → the fundamentals
→ should be further “systematized”
- ❖ **What has become obsolete?** → terminology work with
hardcopy publication in mind
but also hardcopies and other products are based on structured data
- ❖ **What needs revision?** → the exclusive focus on terminology
→ comprehensive theory of microcontent



Structured vs. unstructured content

Structured data – structured information – structured content are
commonly used interchangeably
(~ data – information – content)

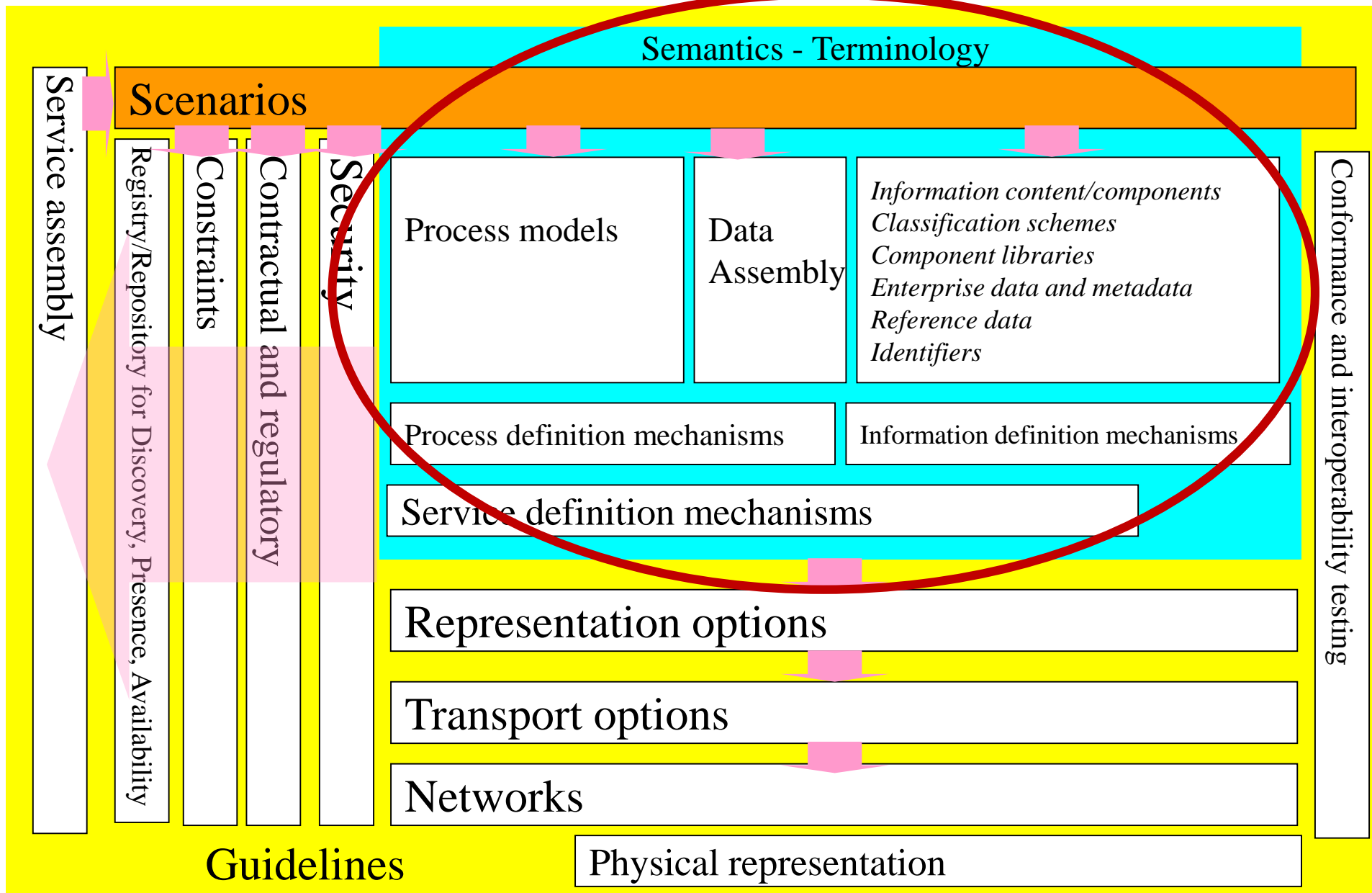
Entities of structured content:

high degree of *semantic*
structuring based on *metadata*
covering also the *semantic*
context;
typically processed and managed
in databases
(capable of handling more than
one language?)

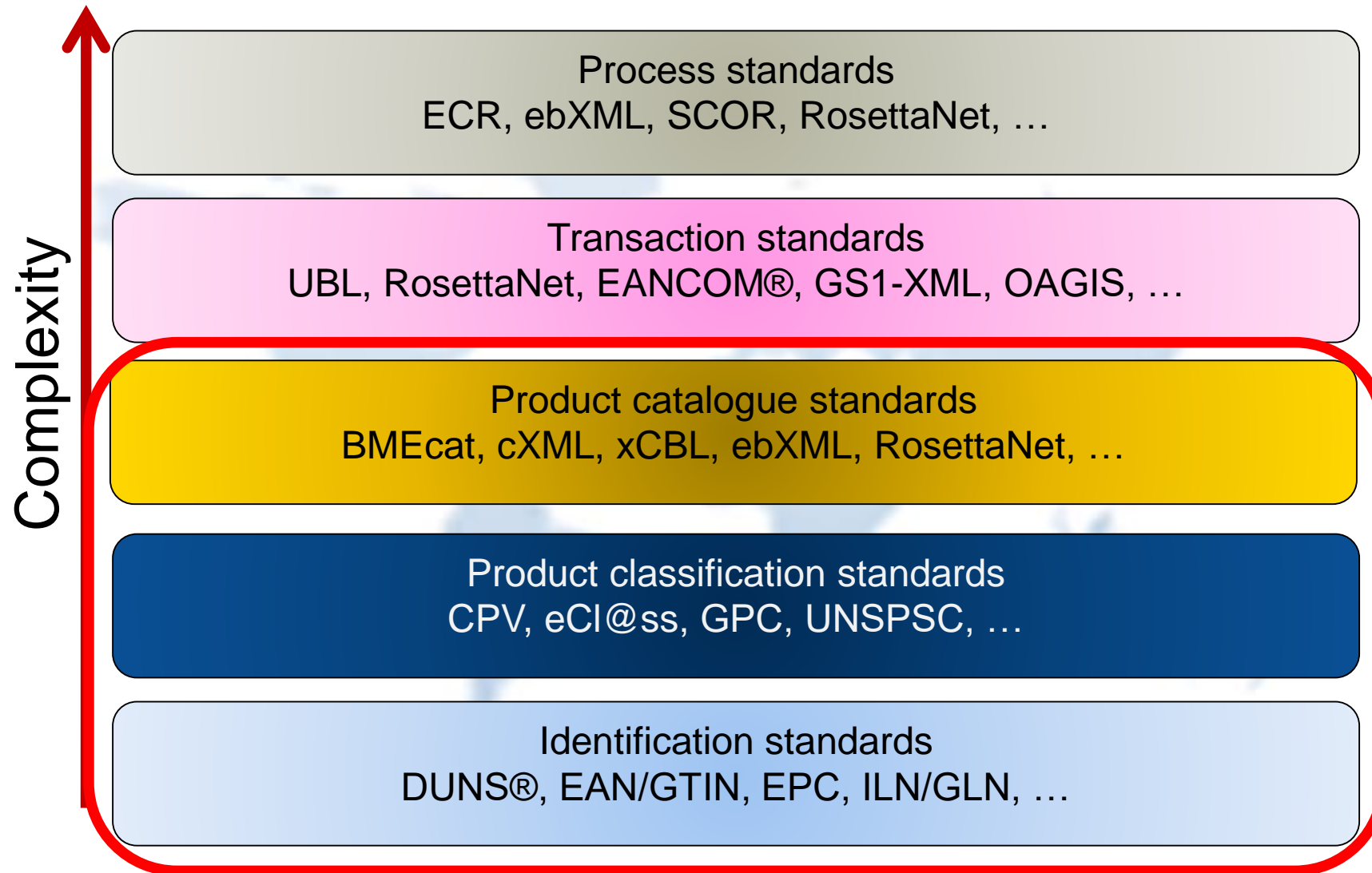
→ **Need for more semantically
structured content**

Unstructured/semi-structured content:

contains several/many entities of
structured content in *co-text*,
even if semantically tagged, un-
structured content does/can/should
not reveal full *semantic context* of
each *entity of structured content*
contained.
(*unstructured content* usually is
monolingual – although it may contain
elements in other languages or
modalities)

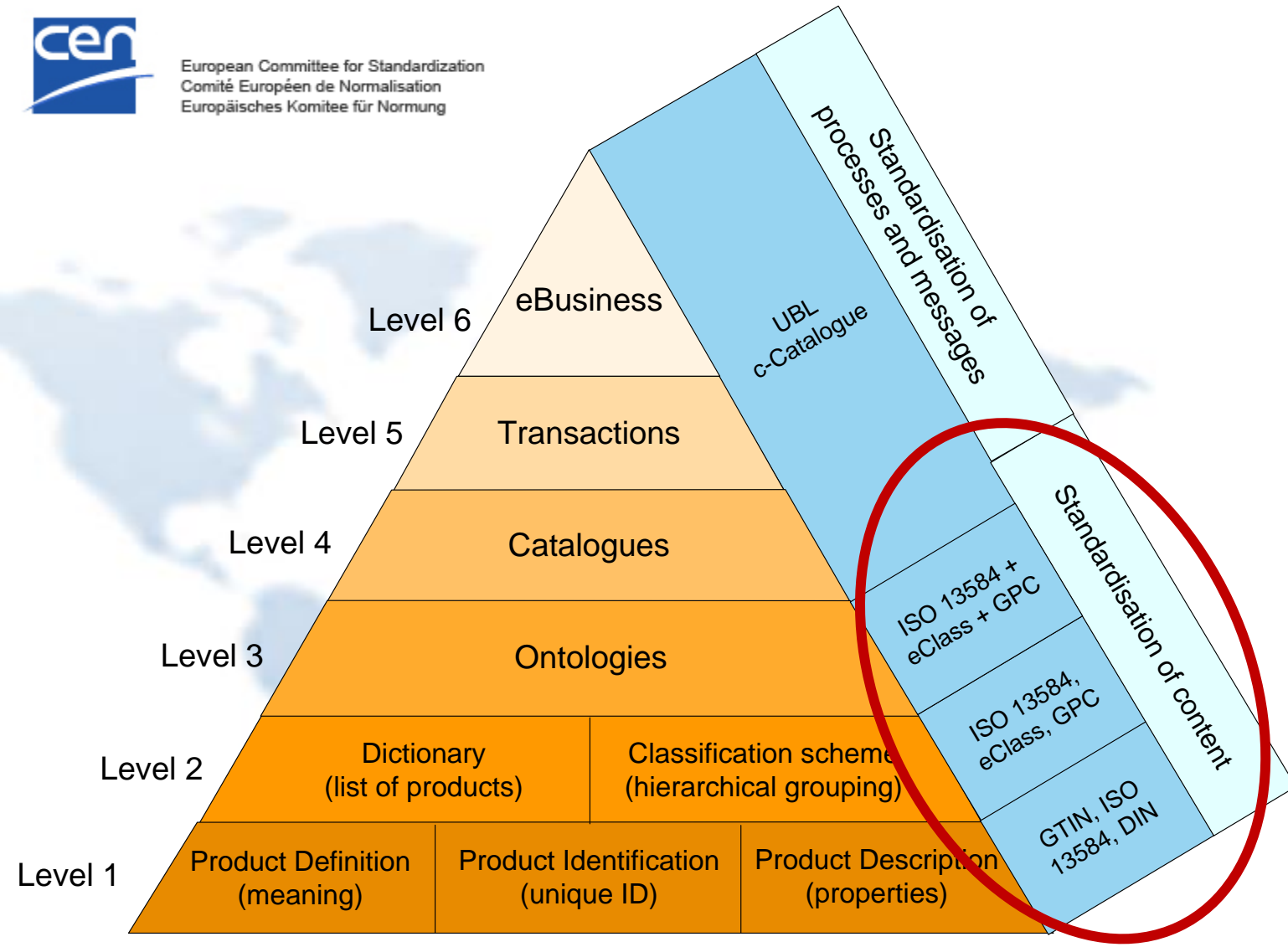


eProcurement – Standardization





European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung



Enterprise Content Delivery

