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Standard Terminology in the Laboratory and Classroom

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The materials produced by modern technologists are stunning and exciting. Every one of them is, however, associated with a family of immaterials—all the concepts of substance, process, and purpose. It is concepts that are essential to transfer knowledge. It is concepts that are the stuff of terminology.

Terminology is standardized today by companies, standards organizations, governments, and other groups. Simply described, it is the pre-negotiation of the meanings of terms. Terminology has become a key issue in businesses, and terminology knowledge is essential in understanding the modern world.

The fundamental objective in terminology standardization is to decrease ambiguity in interpreting, understanding, and using language and to explain meanings of technical terms to those who are not conversant with them. It is a key element in information retrieval and database design.

This 90 minute introductory workshop introduces the concepts of terminology and methods of its standardization. Exercises are used along with the presentation to rapidly survey and experience several aspects of contemporary terminology. Some of the questions to be addressed include, as examples:

- What is a term and what constitutes a satisfactory definition statement?
- How does terminology relate to definition of data elements in databases?
- How does ASTM manage terminology in a 35,000 member organization?
- What is the role of standard terminologies in the process of explanation?
- How can terminologies be exchanged between different countries with different languages?

The objectives of the workshop are to enhance terminological awareness and to demonstrate the usefulness of ASTM source materials for both laboratory and classroom teaching.

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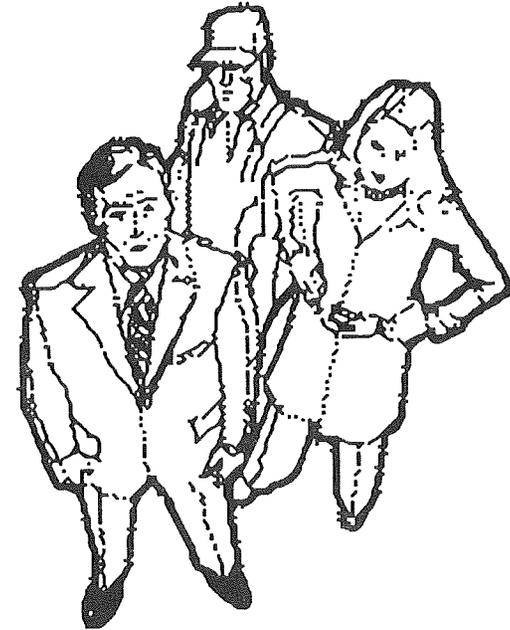
Representing the

ASTM Committee on Terminology (COT)

National Educators' Workshop

Oak Ridge, TN

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The Value of Standardized Terminology in Education

- **To know a subject is to know its concepts and its terminology.**
- **To teach a subject is to organize and present its concepts and its terminology**
- **To find information efficiently requires specialized terminology**
- **To comprehend written materials requires knowledge of their terminologies.**

Specific Skills for Terminology Standardization Work

Identifying terms

Developing a concept system

Identifying concept characteristics

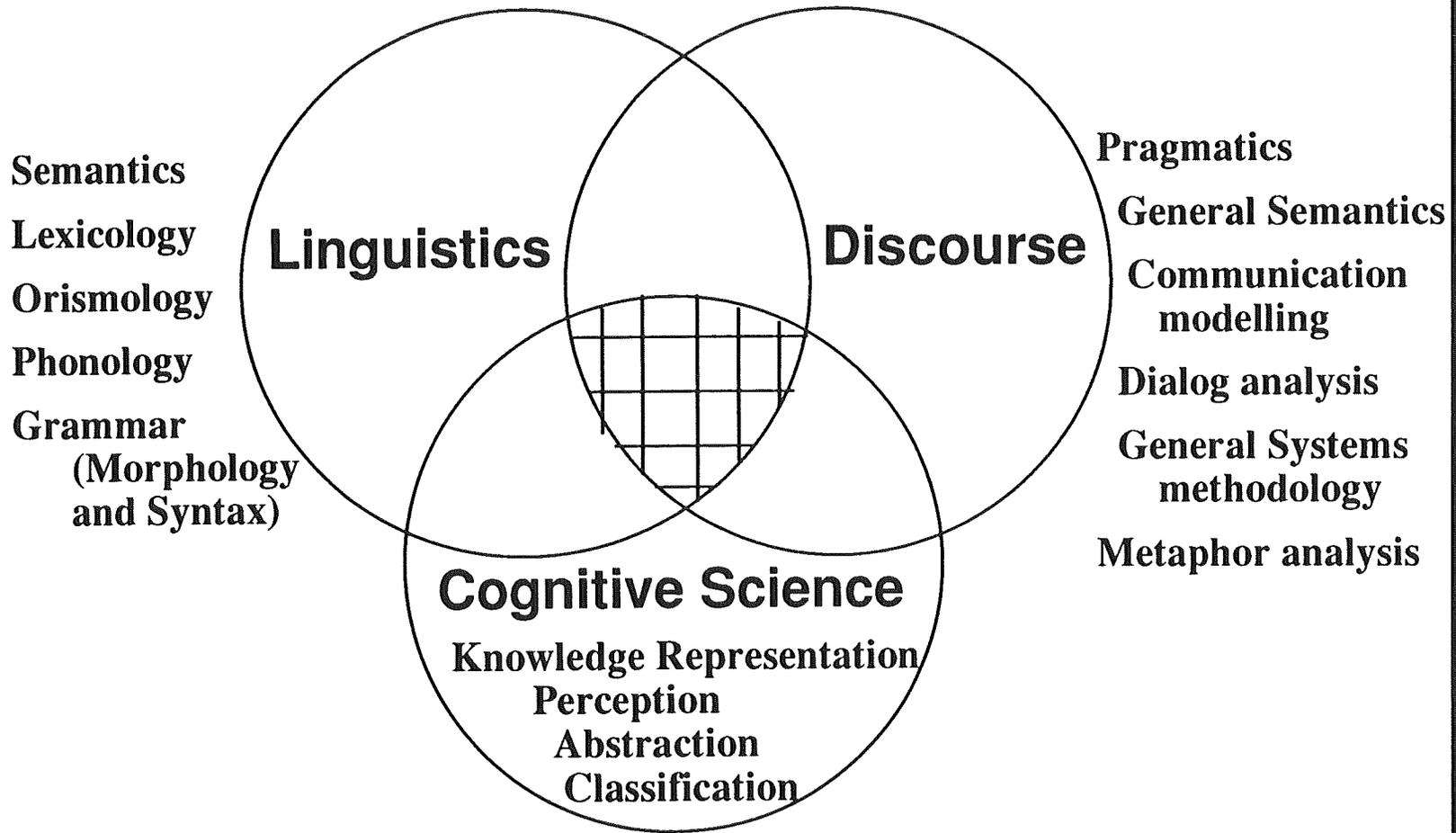
Writing definitions and term entries

**Composing and designing
terminology products**

Terminology defined —

- 1. The set of practices and methods used for the collection, description, and presentation of terms.**
- 2. A theory explaining the relationships between concepts and terms.**
- 3. A vocabulary of a special subject field.**

Terminology involves several disciplines.

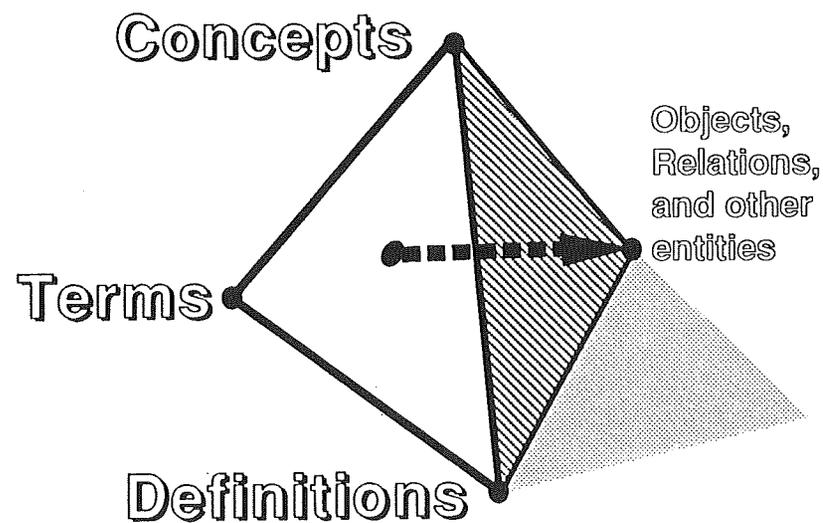


What is a term?—

**a word belonging to specialized areas
of usage in one or more languages**

**An exercise:
Identifying terms**

Terminology provides the access to concepts that permit us to talk about the world.



Types of Terminology Exercises

- **Identify terms representing concepts from a corpus**
- **Select those terms appropriate for standardization**
- **Define the term**
- **Organize concepts for clarity and completeness**
- **Present terminology products in a useful way**
- **Practice in the use of terminologies**

Canonical Form Definitions—

Genus + Differentiating characteristics

- **Genus is the type of entity or relation.**
- **The differentiating characteristics are those properties that distinguish the particular item for others of the same type.**

An exercise—definition

Fundamental Concept Analysis

- A concept is described by a set of characteristics, properties, and other relations.
- For a definition we select those characteristics that carry meaning for the particular concept—those that are both semantically relevant and are central to the concept.

Information on definitions?

Part E, Form and Style for ASTM Standards, 8th ed.

Peter Achenstein, Concepts of Science, Johns Hopkins Press, Baltimore, Md, 1968.

**Standardization of Technical Terminology:
Principles and Practice, ASTM STP 806,
C.G.Interrante and F. J. Heymann, Eds., 1983.**

**Standardization of Technical Terminology:
Principles and Practice, Second Volume, ASTM
STP 991, R. A. Strehlow, ed., 1988.**

Representation of Terminologic Data may be done in many ways:

- **Conventional definitions**
- **Thesauri and word lists**
- **Tree structures**
- **Semantic space maps and nets**
- **Frames and schemata**
- **Predicate calculus**
- **Tables and lists**
- **Data based structures (SGML)**

Exercises with Terminology Standards

E-44-84 Heat Treatment of Metals

Compare case hardening, induction hardening, and surface hardening. Suggest a way to harden an iron foil.

E-673-90 Surface Analysis

**How is a Koster-Kronig (K-K) transition distinguished from a super K-K transition?
Hint: (See Auger transition)**