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The Life and Works of Alfred Schloemann: Terminology Theory and Globalization

It is an honor to address the 15th Symposium on Language for Special Purposes: New Trends in Special Discourse, hosted by the University of Bergamo. I am here because of one of life’s wonderful coincidences. Approximately one year ago I wrote to Dr. Sue Ellen Wright inquiring about her terminology seminar at Kent State University. The seminar was not being offered that summer but she kindly agreed to organize a special program for me so that I could prepare to teach Terminology and Computer-Assisted Translation in the new Translation Studies Program at the University of Florida. I arrived at Kent State and introduced myself to Dr. Wright and my first words were: “My connection to Terminology is genetic, through my grandfather, Alfred Schloemann.” Dr. Wright’s eyes opened wide and the ensuing email correspondences led to the generous invitation to speak here today. I had not previously made the connection between my grandfather’s work and my new academic interests. Once that discovery was made, the journey gained new excitement as I found an intellectual inheritance and the important connections between translation studies and the dynamic field of Terminology Research and Management.

1. Schloemann’s life and work

Schloemann was born in 1878 and died in 1952. He received a degree and later an Honorary Doctorate at the Berlin Technische Hochschule in mechanical and industrial engineering. He studied banking and finance at the Universities of Berlin and Rostock. This prepared him
to work with emergent industries, to analyze why they were failing and to recommend measures to stimulate productivity. Dr. Schloffmann was active for more than 25 years as a consulting engineer to more than 100 companies, working in countries then known as Germany, France, Italy, Austria, Czechoslovakia, Poland, The Free State of Danzig, Rumania, Hungary, Bulgaria and Palestine. The sectors he covered included machinery and machine tools, airplane manufacturing, steel, oil, plastics, the automotive industry, textiles, paper and wood, gas and gas engines, agricultural machinery, and glass works, among others. His work embraced the financial and operations divisions in commercial and industrial enterprises, and he made important contributions to raising standards of efficiency, through management techniques derived from scientific formulas and financial modeling. His activities included an examination of administrative and management operations, work force organization, wage policies, procurement of raw materials, and work flow management. Schloffmann’s system of economic research and the setting of standards for industrial production have been widely recognized. His ‘break-even point’ theory and its accompanying geometric formulas, which he elegantly termed the ‘geometry of returns’ (Schloffmann 1940: 50), is a benchmark in modern business economics, and because of this contribution and others he has been credited with introducing a new science of industrial management. In his paper titled ‘Measuring Management in Business Enterprise: The Laws Governing Enterprises’ (1940), Schloffmann states: “With the aid of geometrical methods, the ‘scientific yield’ of a product can, quite easily and exactly, be determined. The ‘scientific yield’ shows that point of an enterprise where the invested and the circulating capital are working to the highest, to a less high and to their worst extent of the financial profit. All of this can be carefully determined geometrically.” Schloffmann invented a machine called the ‘econometer’, an instrument that looks similar to the modern slide rule. He explains: “With the practical development of these (break-even) concepts, a scientific instrument has been placed at the disposal of commerce and industry for accurately checking at determined intervals, in combination with analytical geometry methods, the soundness of its investment policies, thus permitting it to place capital to work for production or sales.” (Schloffmann 1940: 56).
Schlomann’s economic theories can be linked to those of Frederick Taylor, who in 1911 published *Principles of Scientific Management*, in which he described how the scientific management of workers could improve productivity. Both Taylor and Schlomann can be considered as precursors to globalization because they recognized that modern industry was leading the world to universal standards of production and borderless economies. The industrial revolution had begun the push to standardization. Taylor and Schlomann emphasized the need for quality control and work measurement. Working in economics at the same time as Einstein was revolutionizing man’s understanding of the universe, and the relationship of parts to the whole, Schlomann and Taylor brought the scientific method to the industrial workplace. Schlomann took this a step further by linking standardization in the workplace to the standardization of terminology. His highly pragmatic implementations of terminology reflect a thoroughly grounded and, for his time, highly innovative theory of terminology management.

The genesis of Schlomann’s 21 volumes of specialized terminology arose from his internship with the Verein Beratender Ingenieure (VBI) as a student in Berlin in 1905. VBI had started a dictionary project and invited Schlomann to work on it. As he worked on this project, he conceived of a radically different type of dictionary that could serve the needs of industry in an international context. The vision inspiring his dictionaries was that productivity was closely linked to accurate terminology management, particularly in new fields such as aeronautics that had not yet developed universal standards. The need for special subject dictionaries in multiple languages was a novel concept. The languages chosen for the project were German, English, Russian, French, Italian and Spanish – reflecting the industrial economy of the inter-war period. The organization of the dictionaries was systematic, with illustrations, alphabetical indexes in each language, so that translation was possible from each of the six languages into any of the others. The multilingual index contains an alphabetical key for each language referring to the entry and page numbers. A review of Vol. XIV, ‘Fibrous Raw Materials’ in *Chile Textil* (1959) signals the particular aspects of this dictionary that make it versatile for the specialized user. “The volume not only identifies the technical terms but places them in relationship to
industrial processes and industry specific machinery. Thus a consultation with the volume is the equivalent of determining with certainty what specific meaning each term has in the textile industry.” Wüster (2004: 298) notes that when in 1906 Schlomann published a dictionary of machine parts with a systematic structure, “this epoch-making achievement was first attacked and then celebrated.” Schlomann’s supporters in the financing and development of the massive dictionary project were convinced by his vision. Oldenbourg Publishers in Munich agreed to take on the project, and Schlomann was able to raise financing from heads of state, companies and institutions. He organized the project as if it were an industrial enterprise. He created a company called Technische Wörterbücher Verlag, GmbH. His headquarters was a large apartment in Munich that had been renovated out of two adjoining apartments. There he housed his typists and secretaries. He invented a typewriter with an oversized carriage to accommodate the layout of the terms and their definitions in table format in the six languages. His team grew to over 1000 people in seven countries around Europe and South America and included linguists, translators, draftsmen, proofreaders and subject matter specialists. Their work was done by correspondence over the thirty-five years that the project was underway (1906-1940). A review of the reprint of Volume II (Electrical Engineering and Electrochemistry) in Babel (1957) remarks: “At the time of its appearance the second edition of this multilingual dictionary constituted the largest co-operative undertaking in the recording of terminology of a branch of engineering. On this revised edition 75 specialists for the respective subjects and languages worked for almost 9 years backed by the advice from many international societies and commercial companies. The preparation of the alphabetical indexes alone occupied 15 persons full-time for a period of six months! Authoritativeness is warranted by the large number of subject experts and contributing organizations as well as by the fact that a special volume containing the definitions of the concepts for which the terms are listed in this book was prepared with a view to ensuring a high degree of reliability and comprehensiveness.” Schlomann immigrated to the United States in 1938 and continued his work with the assistance of collaborators in Germany, such as Dr. Walter Eppner, whose name appears on the last volumes
due to Nazi controls on the publishing industry. The dictionaries were “vested” by the U.S. government in 1943 and “held in the interest and for the benefit of the United States.” A total compensation of $250 was paid to the Schlomann family for royalties upon the release of the books after the war. Meanwhile, Schlomann served the U.S. government in the strategic reconstruction of Germany, leveraging his in-depth knowledge of European industry for the purposes of building peace and a new Europe. As contemporary world events confirm the early vision of globalization, with the rise of the European Union and regional trading blocks spanning hemispheres, the need for industry and discipline-specific terminology grows. The timing is right for an online database version of the Schlomann dictionaries with new volumes addressing the knowledge spectrum of the 3rd millennium.

2. Schlomann’s contribution to terminology science

The fundamental contribution of Schlomann to modern information and terminology management is his realization that the documentation of product- and process-related terminology is relevant to the success of core business activity. Although this principle underlies broad areas of internationalization and localization today, it is still not universally recognized throughout industry. His work as an industrialist, engineer, and terminologist also prefigures the careers of Eugen Wüster and later of the special language lexicographer, Richard Ernst. In comparison to Ernst, who took a more traditional lexicographical approach to German-English technical vocabulary, Schlomann made a significant step into the semantic representation of linguistic information by presenting the kind of concept-oriented orientation that has become the hallmark of terminology management in multilingual environments.

Viewed in detail, Schlomann’s approach established a series of significant precedents for terminology management that are reflected in Wüster’s Machine Tool and in modern computerized terminology
database management. His terminological collections exhibit the following principles and information categories:

- Systematic treatment of terms and concepts organized by individual subject fields, i.e., the positioning of concepts within the context of concept systems;
- The creation of concept-oriented, multilingual entries;
- Indication of gender and number for terminological head words;
- The inclusion of synonyms in all languages;
- General tendency to document canonical forms;
- The use of industrial drawings to document terms;
- The inclusion of concept-entry numbers coordinated to language-specific indexes (AAA 1956).

The contribution to terminology practice represented by this set of data elements is carried forward in Wüster’s *Machine Tool*, with the addition of a richer set of documentation elements:

- UDC classification numbers for each item;
- Indication of standardized terms by standards organization, where relevant;
- Systematic definitions;
- Cross-references to entailed terms contained in the collection;
- Explanatory notes;
- Use of lexicographical symbols to indicate such features as synonymy, quasi-synonymy, and various semantic valences.

Schlomann’s selection of terms reflects a dedication to strong support for translators and technical personnel working in multilingual environments, with the documentation of, for instance, a compendium of subordinate concepts for *yarn* which might be viewed from a standard lexicographical perspective to be free-formed collocates rather than terms: *single yarn, double yarn, regular yarn, irregular yarn, thin place in the yarn, right hand twisted yarn, left hand twisted yarn*, etc. This approach not only supports the detailed systematic view that Schlomann espoused, it also prefigures the tendency in modern translation-oriented terminology resources to provide rich access to contextual collocates, as well as the trend to document nominal forms rather than listing adjectives separately. This approach is reflective of the fact that such collocational patterns tend to be conventional rather than predictable in many cases, especially across
language communities, and therefore should be recorded explicitly. With Wüster’s focus on a narrower range of terms and his emphasis on standardized terminology, there is perhaps less richness in the presentation of such concept families, but one still finds similar examples: collet chuck, spring chuck, push-out chuck, draw-in chuck, sliding wedge chuck, clamp chuck, draw chuck, etc. In all these cases, it is important to note that in German and English, where the nucleus term (head term) in a compound word comes at the end of the word or perhaps embedded in the middle, the systematic approach provides the only opportunity to present these closely related terms in contiguous fashion where they can be viewed contextually. In today’s computer-assisted terminology management and concordance-driven document processing environments, the presentation of concordance links to terms in context fills a similar function, although few interface systems have gone on to present information with the semantic immediacy provided by the printed page in both Schломann and Wüster.

Both hard-copy resources utilize lexicographical short-hand conventions in order to save space in the paper environment in which they were working. For instance, in documenting terms with optional compound forms, Schломann reports:

repeat[ing] of design, weaving or pattern repeat (XVI, 8.1).

And Wüster lists:

taper (clamping) sleeve; douille [bague] conique (de serrage).

In modern database resources, where the conservation of physical space on the page becomes unnecessary and the ability to cut and paste actual terms in their canonical form becomes highly desirable, these terms would probably be reported as multiple synonyms:

repeat of design / design repeat / weaving repeat / pattern repeat
taper sleeve / clamping sleeve / tapered clamping sleeve
douille conique / bague conique / douille conique de serrage, etc.

With respect to modern terminology databases, the question of alphabetical vs. systematic ordering is not necessarily relevant
because sorting and ordering of terms is determined by database design and multiple sorting capabilities that are facilitated by the inclusion of targeted data element values. The inclusion of classification or concept-system-related information in modern databases facilitates the generation of graphics displays and the leveraging of semantic content. Interestingly, strong movement toward so-called ad hoc terminology management (non-systematic ordering) in the 1980s and 1990s of the previous century has shifted today toward a much renewed emphasis on ontological ordering with an eye toward automatic processing of information retrieval in semantically enabled knowledge organization systems. The creation of top-down ontologies for use in specific working environments is enabling automatic generation of concept fields in some sophisticated terminology management systems, but much more remains to be done before online systems will be able to provide the clear juxtaposition of concepts that we see in the printed resources from the first half of the previous century.

Surely the logistical scope of the Schlamann’s undertaking, which predates the advent of computerization and electronic communications, is amazing. Today’s localization environments work with up to 40 languages and utilize a wide variety of computational tools. In this regard, Schlamann’s efforts to create his own typewriters prefigure the development of software solutions, multilingual font faces, and Unicode script representation in today’s computing venues. It is difficult to compare Schlamann’s organizational enterprise to current terminology management undertakings within the framework of major governmental initiatives (e.g., Canada’s Termium or the European Union’s Eurodicautom resources), or ongoing in-house resources such as the localization-oriented Microsoft™’s contextually-linked terminology files or IBM’s in-house hybrid lexicography/terminology resources. These efforts have been implemented through the investment and commitment of nations and of the world’s largest companies, whereas Schlamann’s accomplishments reflect the entrepreneurial zeal of a single individual and his ability to inspire powerful supporters to underwrite his venture. We owe him a great debt for initiating an approach to linguistic knowledge organization that not only remains
viable, but that promises to provide us with the tools to create more advanced knowledge management resources in the future.

References


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1 The first three items of the references were found in Schlomann’s archives. Unfortunately, the authors’ names were missing.