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## FOREWORD

Volume 22 (2011) of the Journal Terminology Science and Research contains two of the papers presented at the IITF-organized colloquium 'Language Policy and LSP Planning', held on August 22 and August 23 in connection with the 18th European Symposium on Language for Special Purposes at Perm State University, Russia.

In addition, it contains a paper by Professor Johan Myking, which is a slightly modified version of his keynote talk, held in the plenary session of the first day of the LSP Symposium with the title "Language management is always possible": Parameters of Special Language Planning. The paper in this volume is published by courtesy of Professor Larissa Alexeeva, who is the editor of the proceedings of LSP 2011.

Professor Heribert Picht, who was the convener and organizer and of the colloquium on behalf of the IITF, had invited a number of speakers as well as respondents for each paper. Six papers were presented, and eight respondents presented their responses to the paper which they had had the opportunity to acquaint themselves with before the colloquium.

The papers of Heribert Picht and Christian Galinski both integrate the comments made by the respective invited respondents. As Johan Myking's paper was not presented at the workshop, no respondents had been invited for his paper.

The remaining papers presented at the colloquium in Perm will be published in subsequent editions.

Vaasa and Kolding, February 2012  
Nina Pilke     Birthe Toft

This issue of Terminology Science and Research is the last one with Birthe Toft as an editor and member of the Editorial Board. On behalf of the Board I thank Birthe for her efforts to the benefit of Terminology Science and Research throughout 10 years.

Bergen, February 2012  
Johan Myking  
President, IITF

## THE WORK OF TODAY'S TC/37 IN THE LIGHT OF 'CONTENT INTEROPERABILITY' STANDARDIZATION AS AN ISSUE OF CORPUS PLANNING TAKING ELEARNING AS AN EXAMPLE

### Abstract

*This paper argues that there is a need for (1) standards to provide the requirements, rules and guidelines for global content interoperability, (2) coordinated strategies to enforce such standards (e.g. by means of certification schemes), (3) measures to guarantee that these standards are widely respected in ICT system development. "Content" here is seen as structured content at the level of lexical semantics comprising linguistic and non-linguistic representations of concepts or "objects" (incl. concepts understood as "immaterial objects"). There is a proliferation of web-based content platforms that offer users one or multiple resources on the one hand, and a lack of theoretical-methodological foundation as well as a lack of orientation at best practices and content interoperability on the other hand. A combination of means, such as standards, appropriate software, certification schemes, etc. is necessary to assure the quality – i.e. first of all reliability – of structured content. This would help to avoid a further deterioration of today's more or less chaotic development of content resources (involving a huge duplication of efforts), or at least lead to a situation where those repositories containing reliable content are clearly marked.*

### 1 SEMANTIC INTEROPERABILITY, CONCEPT ORIENTATION AND MULTILINGUALITY & MULTIMODALITY

Structured content at the level of lexical semantics largely comprises linguistic and non-linguistic representations of concepts or "objects" (incl. concepts understood as "immaterial objects"). These representations can be designative such as designations, comprising terms, symbols and appellations, or descriptive such as various kinds of definitions, or hybrid. In this connection the non-linguistic representations of concepts, which have so far been underrepresented in terminology theory and methodology, need to be integrated into the language-independent (=multilingual) approaches for managing structured content.

Over the last 10 years, the limitations of semantic interoperability under a computer science perspective have become obvious. Further to technical (i.e. hardware- and software-related) and organizational interoperability, semantic interoperability should comprise syntactic, conceptual and pragmatic interoperability. Content interoperability provides a broad and generic approach with respect to the communicative representations of information and knowledge – it also takes into account full-fledged re-usability and re-purposability of content.

**Re-purposability** may comprise for instance the adaptation of existing terminological entries

- as learning objects (LO) in eLearning or
- for being used by persons with disabilities (PwD).

This implies that not only multilinguality, but increasingly also the full range of multimodality must be covered by the data models for structured content. PwD would particularly benefit from high-quality interoperable content – whether used in eAccessibility&eInclusion applications such as ambient assisted living (AAL) or for eLearning purposes. The generic standards of the Technical Committee 37 of the International Organization for Standardization ISO/TC 37 Terminology and other language and content resources are of particular importance for content interoperability.

The Scope of ISO/TC 37 reads: "Standardization of principles, methods and applications relating to terminology and other language and content resources in the contexts of multilingual communication and cultural diversity." It includes the terms **content resources**, multilingual **communication** and cultural **diversity**. Content resources definitely cover content items (of structured content) which go beyond the

language means of communication. Diversity is more than just cultural diversity and also covers e.g. the needs of PwD. Under its new title "*Systems to manage terminology, knowledge and content*", the Subcommittee ISO/TC 37/SC 3 would be an appropriate framework for dealing with standards concerning **global content interoperability**. Its scope reads: "*Standardization of specifications and modeling principles for systems to manage terminology, knowledge and content with respect to semantic interoperability.*" [ISO/TC 37/AG 2011]

New standardizing activities for various aspects of content interoperability are driven, on the one hand, by technical developments in the direction of web-based cooperative/participatory content creation through information and communication technology, ICT (in the form of social networks, cooperation platforms, mobile communication, etc.). On the other hand, they will have a big impact on the various kinds of content and knowledge management – especially in eApplications, such as eLearning, eAccessibility&eInclusion, eHealth, multilingual product data management in eBusiness.

There are also other technical committees dealing with various – more or less generic – aspects of content interoperability, such as:

- ISO/IEC-JTC 1/SC 32 Data management and interchange (especially its working group 2, WG 2 MetaData);
- ISO/IEC-JTC 1/SC 36 Information technology for learning, education and training;
- ISO/TC 184 Automation systems and integration – especially its subcommittee 4, SC 4 Industrial data;
- ISO/TC 46 Information and documentation.

ISO/TC 37 was the first committee to take multilinguality fully into account (in fact as one of the basic principle of all its standardization efforts, which is concept-oriented, i.e. language-independent and thus multilingual from the outset) – other technical committees have followed suit, but often do not sufficiently respect this principle in practice. Today even lexicography has taken a turn towards concept-orientation (=multilinguality), as can be seen from the products of several dictionary publishers and existing large-scale online dictionaries. At the user-interface, however, the data are presented as in traditional bilingual dictionaries.

## 2 THE VOLUMES OF STRUCTURED CONTENT: TERMINOLOGY AND OTHER LANGUAGE AND CONTENT RESOURCES

According to ELRA (European Language Resource Association) language resources are:

- text corpora
- speech corpora
- (lexicographical data and) terminologies

A corpus can be described as "a body of naturally occurring language" [McEnery, Xiao, and Tono 2006], thereby distinguishing a corpus from word lists, dictionaries, databases. Similarly, a speech corpus (or spoken corpus) is a repository of speech audio files and text transcriptions. In this sense corpora are considered as **unstructured content**. These definitions are too restricted when it comes to non-linguistic elements in texts such as in technical documentation and with respect to elements of non-verbal communication such as gestures, mimics etc., necessarily accompanying spoken data.

Most of items of structured content are not developed as a goal in itself, but are necessary elements of non-structured content, such as text corpora, speech corpora, etc. Therefore, the relation between structured content and corpora – especially with a view to making structured content occurring in non-structured content productive for instance for eLearning – should be further investigated.

Recently, Galinski & Reineke (2011) made an attempt to quantify the volumes of lexicographical and terminological entries in an ever increasing number of domains or subjects. The lexis of GPL (general purpose language) in the highly developed languages may comprise up to 500,000 lexemes including a considerable share of terminology. The total number of concepts across all domains or subjects may well comprise 100 – 150 million. The number of identifiable chemical substances alone has passed the 60 million mark in 2011. In the light of these figures

- content interoperability is a prerequisite for avoiding a huge duplication of efforts;
- the ISO/TC 37 approach is becoming more and more important;
- new approaches and methods need to be developed and existing ones adapted;
- most of the present tools to manage terminologies are totally inadequate, and
- the necessity for standardization – especially with respect to standards-based quality – will increase.

In the above figures **proper names and other kinds of appellations** are not included, although in many eApplications they are indispensable data (representing individual concepts). Depending on the language (or script) and the application area, they may

- have different, but similar language versions;
- be pronounced differently in different languages;
- have to be transcribed into different writing systems;
- have to be “translated” into certain languages;
- be subject to special legal conditions (such as trade marks).

Structured content resources at the level of lexical semantics mainly comprise lexicographical data, terminological data and other kinds of concept representations.

- **Lexicographical data** cover not only words and compounds or collocations, but also morphology, idiomatic expressions etc. – and, if needed for instance in language learning/teaching (LL/LT), also phonetic transcription, pronunciation, mimics, gestures, etc.; increasingly they should also cover – if necessary – braille, sign language representations and representations in other modalities.
- **Terminological data** cover not only terms (mono-word term and multiword terms) and phraseological units, but also morphology – and if needed for instance in LL/LT also phonetic transcription, pronunciation, etc.; increasingly they should also cover – if necessary – braille, sign language representations and representations in other modalities.
- **Non-linguistic content** resources may cover visual symbols (e.g. graphical/pictorial symbols as seen in traffic signs), acoustic/audible symbols, haptic/tactile symbols, and others.

These concept representations do not only comprise the designations, but also concept descriptions, such as definitions and non-verbal representations [See: ISO 10241-1:2011], as well as other information necessary according to the data categories needed for a systematic approach in managing structured content.

Further distinguishing different kinds of structured content at the level of lexical semantics, there are:

- lexicographical data;
- terminologies and similar kinds of language resources, such as
  - nomenclatures, taxonomies, typologies, glossaries, vocabularies, etc.,
  - terminological phraseology, morphology,
  - proper names, addresses and other items of different kinds of directories,
  - graphical symbols and other non-linguistic representations,
  - (product) properties, characteristics, attributes, etc.
- thesauri, classification schemes [See: ISO/DIS 22274:2011], keywords and other kinds of documentation languages (or controlled vocabularies);
- encyclopaedic (knowledge) entries, covering among others
  - knowledge-enriched terminology entries and
  - proper names together with other kinds of data closely related to proper names;
- ontologies, topic maps and other kinds of knowledge-structuring systems.

Some of the above kinds of structured content at the level of lexical semantics can also be represented in non-linguistic/non-verbal form in addition to a verbal designation; others are created as non-linguistic/non-verbal items of structured content independent from lexicographical or terminological representations. Non-linguistic kinds of structured content are important in applications like eLearning and of vital importance in communication:

- with and among PwD (directly or through ICT devices as assistive technologies),
- between PwD and the devices they use, and

- among these devices.

All of the above kinds of structured content are becoming more and more digitally accessible today – increasingly also through mobile devices – and may

- occur in digital texts,
- be combined with each other or embedded in each other,
- have elements (letters, sounds, morphemes etc.),
- form complex content items.

In present reality, however, most of the existing repositories of structured content are not consistent within a given repository and contradictory between different repositories. Mostly they are not based on proper metadata and data modeling methods, and therefore not integrable, not reliable and full of deficiencies. This is unacceptable for instance in applications, which support PwD, particularly in our aging societies, where more and more people suffer from multiple impairments.

In order to secure the development of more **(federated) repositories of structured** content and their maintenance under **quality requirements**, the situation outlined above calls for more

- methodology standards,
- content management standards,
- workflow standards (particularly with respect to web-based cooperative/participatory development of structured content),
- quality assurance standards [See among others: ISO/TS 8000-1:2011],
- database technology standards,
- standards-based verification, validation and certification schemes/tools.

### 3 MULTILINGUALITY = TRANSLATION? THE LANGUAGE AND CONTENT TECHNOLOGIES

The standardizing activities of ISO/TC 37 in its early years (after 1951), were dominated by domain experts and standardization experts. Between the mid-sixties and the mid-seventies of the last century, information scientists and documentation experts joined it. In the 1980s, specialized translators got interested in ISO/TC 37, but its work was considered by many of them as interference to their "terminological competence". Linguists only joined in the late 1990s, which finally resulted in the establishment of ISO/TC 37/SC 4 "Language resource management" in 2002.

In the 1970s and 1980s, the issue of **multilinguality/multilingualism** at European level was closely linked to translation and translation technology parallel to similar efforts in the USA and Japan. A study report to the Directorate General for Translation of the European Commission [Language Technology Centre 2009] states:

In the 6th Framework Program, the European Union spent 135 million Euros on multi-modal interfaces and language technology, i.e. roughly 15 million Euros per year on language technology (Lazzari, 2006). The European Commission understood early on that language technology is an economic, political and cultural necessity in Europe. Breaking the language barrier would boost communication and the economy. (...) For the European Union, with its 23 official languages and many more spoken languages, the availability of fast, reliable and cheap translation is a necessity, and translation technology should be considered as strategically important.

The study concludes that beyond the European market, the demand for language technologies will be high in Japan, China, Korea and India.

Today the focus covers a much broader range of issues, including ICT in general, digital content (eContent), content infrastructures, etc. In particular content infrastructures are developing as part of the rapidly evolving information and communication society. Advanced computing technologies are trying to bridge the gap between computer intelligence and human intelligence, to enable computers to be more effective in areas for which they are desperately needed, such as knowledge management and text analytics. These areas of activity and research require sophisticated approaches to the encoding and

management of content resources (...) and multilingual information frameworks. [Adapted from ISO/TC 37/AG 2011]

In nearly all eApplications, the use and re-use of all kinds of structured content across different technical platforms is becoming a must. Besides, today, strongly heterogeneous content is still more the rule than the exception. Whereas in the past the development focus was on tools (i.e. devices, computer hardware and software), it is increasingly recognized now today that communication and content are what really counts. That is why work on content related aspects is increasing all across standardization.

In any case the research focus since the late 1990s has shifted towards language technologies at large and progressively also to content (and the related technologies) in all its guises, the use and re-use of content in various eApplications, the development of new applications (incl. eLearning, eHealth, eAccessibility&eInclusion), new forms of web-based cooperative / participatory methods for content creation, maintenance and use etc. These developments have an impact on standardization activities in ISO/TC 37, which are subject to a number of push and pull factorsII:

- ICTs are developing in the direction of mobile technology (inevitably enhancing also the development of cloud computing and crowd sourcing) and social web approaches (where cooperative approaches prevail);
- new applications emerge, while others are converging;
- higher demands for content and service quality are made by the user;
- new markets for content-related data and services are emerging, etc.

Needless to say, the above-mentioned developments have a big impact on software development, as can be gathered from the documents MoU/MG/05 N0221 (2005) and MoU/MG/05 N0222 (2006). Modularity and comprehensive interoperability, capability for multilinguality and multimodality based on open standards are increasingly required. In this connection, the "Recommendation for software and content development principles 2010" (see Annex) launched by Infoterm at the 12th International Conference on Computers Helping People with Special Needs (ICCHP 2010) and endorsed among others by ISO/TC 37, will hopefully have its intended impact.

## 4 STANDARDIZATION AND CERTIFICATION

While in the past, development focus was on tools, it is increasingly recognized today that communication is ultimately the most important issue. Therefore, metadata, data models, messages, protocols, conversions of all sorts, multilinguality, multimodality, cultural and other kinds of diversity, design for all (DfA [see ICTSB 2000]), etc., have become the objective of standardization efforts related to structured content in industry (first of all in eBusiness), by specialized organizations or in public institutions. No wonder that the number of standards for content-related services and structured content is growing exponentially. Learners in education&training and persons with disabilities (PWD) are among those who will benefit the most from the development of content related standards taking their needs into account.

### 4.1 OVERVIEW OF CONTENT RELATED STANDARDS

Technically speaking, content can be subdivided into structured content (such as content recorded in database structure) and unstructured content (such as running text or streaming information). From a technical point of view, Content in content management approaches comprises:

- text (textual data),
- graph (graphical/visual data),
- sound (audible/audio data),
- multimedia (including video).

This subdivision proved insufficient from an inter-human communication perspective – not to mention the increasing need to include multilinguality and multimodality in databases for various purposes.

So far, the standardization efforts in ISO/TC 37 focused on methodology standards related to

**data categories** (not quite identical with metadata) used in the conceptual design of the entries of structured content;  
**data models** and **data modeling methods**;  
**meta models** to make competing data models interoperable;  
applications of the above;

and to some extent on standardizing content itself, which is of relevance to the Technical Committee.

If ontologies in the sense of knowledge representation tools are included, the above-mentioned meta models need to be extended towards meta-ontologies and even a meta ontology language [See: ISO/CD 17347:2012] in order to provide the possibility of making ontologies interoperable. In this connection, an ontology is seen as a "formal, explicit specification of a shared conceptualisation" [Gruber, 1993], which represents a shared vocabulary and taxonomy that models a domain — i.e., the definition of concepts and other information objects, as well as their properties and relations. An ontology language – different from mere knowledge representation – provides a meta model for such formal, explicit specifications of shared conceptualisations.

## 4.2 STANDARDIZED CONTENT

Some kinds of structured content, such as basic **terminology, coding systems** (e.g. for names of countries, currencies, languages or safety symbols), **graphical symbols**, etc. are so important that the content items themselves are internationally standardized. Nearly all TCs in ISO standardize the most important concepts of their respective domain or subject. Some others standardize also other kinds of language and content resources. ISO/TC 37's standardized structured content is largely contained in ISO 1087 *Terminology work – Vocabulary*, multipart ISO 639 Codes for the representation of names of languages and, if one includes also the data categories, in the Data Category Registry (ISO/DCR).

In the **ISO Concept DataBase** (ISO/CDB), the following standardized content is included:

- terminology,
- codes (e.g. for the names of countries, currencies, languages),
- graphical symbols.

It had been intended to include also:

- quantities and units,
- data categories,
- product classification data,
- product property data,
- chemical information,
- communication tools for certain PwD, such as BLISS symbols, sign language content items (incl. sign language notation), etc.

With a view to present and future types of structured content in the ISO/CDB the International Standard ISO 10241-1:2011 Terminological entries in standards – Part 1: General requirements and examples of presentation has been developed by ISO/TC 37. It is based on the International Standards ISO 704:2009, ISO 860:2007 and ISO 15188:2001. ISO 10241-1 is mandatory for terminology standardization in ISO and the International Electrotechnical Commission (IEC). It is not only referred to in the ISO/IEC Directives, but also applied by many terminology standardizing or harmonizing organizations in the world.

With a view to future needs of adopting individual standardized terminological entries, the International Standard ISO 10241-2 Terminological entries in standards – Part 2: Adoption of standardized terminological entries is under development. This standard will be a milestone in the direction of making standardized structured content more interoperable.

#### 4.3 STANDARDIZED DATA CATEGORIES OR METADATA

ISO 12620:2009 *Terminology and other language and content resources – Specification of data categories and management of a Data Category Registry for language resources* is the result of a long discussion in ISO/TC 37 about the basic data categories for terminological data and the **terminological data model** to be based on them. The use of data categories (not quite the same as metadata or data elements) seems to be highly appropriate for structured content.

Data categories in this connection can be sub-divided into **primary data categories** and **secondary data categories** (According to ISO 10241-1:2011) or even tertiary data categories. Primary data categories refer to core data, such as term, definition, etc. Secondary data categories refer among others to attributes, such as preferred, admitted or deprecated term. Tertiary data categories refer to additional information (if they are not regarded as secondary data categories), such as those referring to sources of terminological data (applicable also to other kinds of structured content) as outlined in ISO 12615:2004 Bibliographic references and source identifiers for terminology work.

The data category approach in ISO/TC 37 may serve as a model for all kinds of structured content. In future, the ISO/DCR might and should be extended towards other kinds of structured content beyond lexicographical and terminological data, as well as towards new eApplication needs, such as in eLearning and for eAccessibility&eInclusion purposes.

#### 4.4 STANDARDIZED DATA MODELS AND DATA MODELING METHODS

The ISO/TC 37 **data models** and **data modeling methods** for terminologies are based in general on the International Standards ISO 704:2009 Terminology work – Principles and methods, ISO 860:2007 Terminology work – Harmonization of concepts and terms and ISO 15188:2001 Project management guidelines for terminology standardization, and more specifically on ISO 26162:2010 Systems to manage terminology, knowledge and content – Design, implementation and maintenance of terminology management systems. The latter specifies criteria for designing, implementing and maintaining terminology management systems (TMS), including guidelines for selecting and using data categories for managing terminology in various environments. Standards of other technical committees, such as the multipart ISO/IEC 11179 are duly taken into account. For a couple of years, a group within ISO/TC 37 has also been dealing with the application of Unified Modeling Language (UMLII) in the field of terminology. The result is the Technical Report, ISO/TR 24156:2008 Guidelines for using UML notation in terminology work.

As a matter of fact virtually all kinds of structured content may

- be combined with each other or embedded in each other,
- have elements (letters, sounds, morphemes, etc.),
- form complex content items (such as composite learning objects vs. primitives).
- This is obvious in applications, such as technical documentation, translation systems, authoring tools, etc. In the future, therefore, these systems should
- be developed according to the requirements multilinguality&multimodality including those of PwD
- be developed in the form of cooperative/participatory work, and the resulting repositories should be federated.

This implies new needs for standardized data categories, as well as for data model(s) and data modeling methods to suit them. In the conceptual data model provided to ISO/CS in preparation of the development of the ISO/CDB, a future federation of similar databases was recommended. The federation could refer to different language versions as well as different domains or applications – based on the same data model.

## 4.5 STANDARDIZED META MODELS AND A META ONTOLOGY LANGUAGE

Among the main standards concerning meta-models in ISO/TC 37 are:

- ISO 16642:2003 Computer applications in terminology – Terminological markup framework
- ISO 24613:2008 Language resource management – Lexical markup framework (LMF)

Work continues on a meta model for multilingual terminological data and lexicographical data.

In order to fill the current gaps in modular **ontology design** and to augment current standardization efforts by an essential layer of standardised modularity and structuring guidelines, ISO/TC 37/SC 3 Systems to manage terminology, knowledge and content has adopted a new working item (ISO/NWI 17347) on Ontology Integration and Interoperability (OntoIOp) which has been conceived in the framework of a large-scale European R&D project in its work programme. The project team brings together results of the international state-of-the-art in ontology-based interoperability. This includes results from several large-scale initiatives. Thus, the proposed future International Standard ISO 17347 OntoIOp aims at bridging the above-mentioned gaps in standards and guidelines.

Partly as a result of the adoption of a description logic basis, which is typical within Semantic Web oriented information modeling, the development of more powerful and generic approaches to supporting modularity has so far been delayed. Existing meta model specifications and ontology definition standards assume that the ontologies produced are essentially compatible down to the exchange of terms and filling in of respective knowledge gaps. But this 'assumption' of ontological compatibility frequently fails to hold true, and does not match current practice nor expectations when standardization is considered across technical communities.

## 4.6 STANDARDS CONCERNING DATA ADMINISTRATION, CONTENT MANAGEMENT AND WORKFLOWS

Increasingly web-based, distributed and cooperative or participatory methods are applied today to manage the above-mentioned different types of structured content in such a way that the best suited "stakeholder" for a given kind of content can ensure the maintenance, updating and versioning as well as quality assurance of the content in the most efficient way possible. However, a number of additional efforts need to be made with respect to global content interoperability, such as:

- more and more high-quality **metadata** (or data categories, as they are more precisely called in the field of terminology) and the respective **data category registries**;
- **identification systems** for individual pieces of information;
- **business models** (including also solutions to certain intellectual property rights, IPR, issues).

In this connection the question of how to ensure the sustainability of repositories of structured content e.g. by means of commercial or non-commercial business models definitely needs more attention in future.

ISO/IEC-JTC 1/SC 32/WG 2 MetaData is the Working Group that formulates the methodology standards on metadata and metadata repositories, MDR. [See: multipart ISO/IEC 11179] International coordination groups recommend harmonization of a multitude of ID-systems for content items, which are a great barrier to the efficient exchange of structured content. For such exchange a systematic approach is necessary, including checking and quality assessment procedures, like verification, validation, and certification, etc. In product data management for eBusiness, among others, ISO 29002-5:2009 is proposed as an open, non-proprietary standard acting as the basis for applying an ID-system for identifying pieces of information at the most detailed level of content granularity.

This efficient use, re-use and re-purposing of structured content can only take place if two fundamental principles of content management methodology are fully realized: single sourcing and resource-sharing.

This cannot be realized through traditional approaches of committee work or individuals working for the rest of the world, but probably through new social web approaches via platforms which allow for participatory development and maintenance of structured content. However, standards for appropriate workflow design and organization are still at a stage of infancy.

#### 4.7 STANDARDS RELATED CONCEPTS AND CERTIFICATION

With respect to content interoperability, which is a global issue, ultimately only the international standards of ISO, IEC and the International Telecommunication Union (ITU) as well as the guidelines of the World Wide Web Consortium (W3C) can guarantee the most efficient use, re-use and re-purposing of structured content across language boundaries and system platforms. When it comes to content interoperability, more consistent, coherent, and well-coordinated international standards are required rather than competing industry standards. Not least, as a result of R&D projects of the European Union (EU), the awareness of these new requirements in respect of structured content is increasing; and new ISO standards, such as ISO/CD 17347 OntoIOp, represent developments in the right direction.

**Standardization** is an activity for establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context. In particular, the activity consists of the processes of formulating, issuing and implementing standards. Important benefits of standardization are improvement of the suitability of products, processes and services for their intended purposes, prevention of barriers to trade and facilitation of technological cooperation. [ISO/IEC Guide 2:2004] Standardization endeavours are governed by highly systemic approaches. In particular, methodology standards are aiming at generic solutions, which are applicable also to structured content to be used in different eApplications.

The preparation of standards is based on **consensus**, which is a general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties (namely industry, research, public administration, consumers) concerned and to reconcile any conflicting arguments. [ISO/IEC Guide 2:2004] Therefore, standards published by formal standards bodies are called open standards in contrast to industry standards, which are usually proprietary. Great efforts are undertaken to harmonize existing open standards at national, regional and international levels so that they do not contradict each other. In Europe the regional formal standards bodies CEN, CENELEC and ETSI are all involved in eAccessibility&eInclusion standardization in some way or other – well-coordinated with the international standardizing organizations. Naturally, this does not apply to the same degree to industry standards, although cooperation with formal standards bodies has increased during the recent years.

**Certification** is defined as a procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements. [ISO 14050:2009] Certification involves a number of documented processes, at the end of which a documented assessment result is obtained.

The idea that data structures and data should be standards-compliant and that they may, if they are potentially highly content interoperable, be certified is relatively new. This standards compliance needs to be assessed according to validation or verification criteria, defined as policy, procedure or requirement, and used as a reference to which evidence is compared. In this connection, two closely related systematic, independent and documented processes are of relevance:

- **Verification**, for the sake of the evaluation of assertions against agreed verification criteria, applies objective evidence that specified requirements which define an intended use or application have been met. Whenever specified requirements have been met, a verified status is achieved.
- **Validation** uses objective evidence to confirm that specified requirements which define an intended use or application have been met. Whenever all requirements have been met, a validated status is achieved.

Today, attestation is often used as a collective term for the above or for the assessment of the qualification and skills of persons involved.

There are many ways to verify that requirements have been met, such as testing, performing demonstrations, carrying out alternative calculations, comparing a new design specification with a proven

design specification, or inspecting documents before one issues them. The process of validation can be carried out under realistic use conditions or within a simulated use environment.iv

The above-mentioned concepts emerged during many years of discussion of standards-based quality management systems and the requirements associated with them. In this connection, quality has been defined as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. The quality of data and data-related services and tools has only recently become an issue in quality assessment and certification approaches. Needless to say, the potential for quality of data and related services and tools is higher than if they are not standards-based.

**Quality** of something as defined by international standards is a relative concept which:

- can be determined by comparing a set of inherent characteristics with a set of requirements; *If those inherent characteristics meet all requirements, high or excellent quality is achieved. If those characteristics do not meet all requirements, a low or poor level of quality is achieved.*
- therefore, is a question of degree.

As a result, the central quality question is: How well does this set of inherent characteristics comply with this set of requirements? In short, the quality of something depends on a set of inherent characteristics and a set of requirements and how well the former complies with the latter. By linking quality to requirements, ISO 9000:2005 argues that the quality of something cannot be established in a vacuum. Quality is always relative to a set of requirements.iv

The assessment of quality management systems and services takes place by means of an audit, which is a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. **Audit criteria** are a set of policies, procedures or requirements used as a reference against which audit evidence is compared. A distinction is made between **internal audits**, sometimes called first-party assessment, and **external audits**, including those generally termed second-and third-party assessment. [ISO 19011:2002] Third-party audits are conducted by external, independent auditing organizations, such as those providing registration or certification of conformity with the requirements of ISO 9001:2000 or ISO 14001:2004.

While quality assessment and certification through audits is relatively well developed in industry and services, the verification and validation of structured content and related services and tools is still in its infancy. Data on factual and physical properties can comparatively easily be validated. Other properties, e.g. those relating to "soft" criteria, such as functions, can probably only be validated if validation is performed against a limited number of pre-defined values.

Ultimately, high quality of content itself, of related tools, and of services and human competences can only be achieved if it can be assessed on the basis of standards which have been devised with certification in mind.

#### 4.8 SPECIAL: SKILLS CERTIFICATION IN THE FIELD OF ICT

**eCertification** in Europe can be considered the set of processes by which an individual gains a credential in a particular ICT skill or more generally in a range of skills. Such credentials are usually granted by recognized bodies, themselves often, but not always, accredited by some governmental or official organization. In order to achieve such qualification, that individual must achieve a declared standard, judged by a formal assessment process. The whole scheme is governed by quality assurance processes, covering both the development and maintenance of the skills standard and the assessment procedures [See: CEN Workshop Agreement, CWA 16052:2009].

CWA 16052 refers to the following definitions of eCertification:

(1) "Certification often means the awarding of a certificate, or other testimonial, that formally recognizes and records success in the assessment of Knowledge, Skills and/or Competencies, as the final step in the completion of a Qualification. However, it is also used, in particular in relation to ICT Practitioner occupations, to mean the Qualification as a whole. It is important to be aware of these two meanings of Certification." [Dixon and Beier in CWA 15515:2006]

(2) "Certification is the process of formally validating knowledge, know-how and/or skills and competencies acquired by an individual, following a standard assessment procedure. Certificates or diplomas are issued by accredited awarding bodies." [Tissot: 2004 cit. in CWA 16052]

(3) "In general, ICT professional certifications are seen as a credential – the result of an objective assessment procedure run by an approved third party, in which an individual meets the performance specifications delineated in job profiles which are recognised by industry stakeholders." [CEPIS: 2007; Cedefop: 2006]

Three ISO standards are related to eCertification, viz.:

- ISO/IEC 17024:2003 *Conformity Assessment – General requirements for bodies operating certification of persons*;
- ISO/IEC TR 19759:2005 *Software Engineering – Guide to the Software Engineering Body of Knowledge (SWEBOK)*;
- ISO/IEC 24773:2008 *Certification of software engineering professionals – Comparison framework*.

Whereas it has been recognized that certification provides value in both the labour and product segments of the ICT market, the HARMONISE report [CEPIS: 2007] describes over 600 often overlapping qualifications from over 60 providers as a "certification jungle", causing confusion to prospective users. The rapid growth in these industry qualifications has been driven by the market over recent years; indeed this market barely existed 15 years ago. They usually relate to a more specific set of skills, including those relating to specific products, and are generally more practical in their approach than traditional academic qualifications.

As these market certifications compete and co-exist with those of the traditional university based education system, resistance and even hostility towards these certifications exists, e.g. in academic quarters in some countries. They are seen as developing skills, not as competence based on proper education, i.e. they are considered little more than marketing aids to the commercial interests of the vendors. [CWA 16052:2009]

Participants at the above-mentioned ICCHP 2010 confirmed that available training and formal studies are not sufficient – even if certified under given certification systems – with respect to the skills and qualifications needed in order to become familiar with the issues involved in global content interoperability and particularly in eAccessibility&eInclusion.

## 5 NEW DEVELOPMENTS AND OUTLOOK

**Content interoperability** – exceeding the concept of semantic interoperability in computer science – is the capability of content items to be:

- integrated into or combined with other types of content items;
- extensively re-used for other purposes, including sub-items to be re-purposable;
- searchable, retrievable, and re-combinable from different points-of-view [Galinski & Van Isacker 2010].

This applies to all kinds of structured content, whether linguistic or non-linguistic. Increasingly, all kinds of structured content have to be re-usable and re-purposable across system platforms. In addition, progressively web-based cooperative and distributed methods for content development should be developed in cooperation with interrelated fields under an integrative approach.

**International Standards for content interoperability** are a prerequisite for:

- avoiding huge duplication of efforts,
- developing methods, including certification and devices to assure content quality,
- introducing content interoperability into educational and training schemes,
- enabling many eApplications to re-use and re-purpose existing structured content extensively.

In the course of these developments, **stronger methodological and system design relations** between **content resource management** and **corpus linguistics** should be developed, in order to make better use of

- existing and future corpora with improved features for this purpose, e.g. for extracting individual items of structured content in a systematic way, e.g. also taking into account the frequencies of occurrence depending on domain, register and application in order to improve extraction of learning objects in context;
- items of structured content in existing and future repositories for the sake of improving the processing of corpora for present and new purposes;
- existing and emerging methods as well as tools in fields which have so far shown a low degree of methodological interrelation and integration, for the sake of mutual benefits;
- learning objects systematically created and maintained by participatory efforts, in particular for content and language integrated learning (CLIL).

With a view to the sustainability of content repositories, business models, whether commercial or non-commercial, deserve more attention than they have received so far. Efforts in standardization (and cooperation in standardization) should be increased. On the basis of pertinent standards, a whole range of certification / attestation systems may evolve. In addition, efforts need to be undertaken to introduce these developments into ICT-related education and training as soon as possible.

**Annex:** Recommendation formulated at the 12th International Conference on Computers Helping People with Special Needs (ICCHP 2010) and adopted by ISO/TC 37 and other committees.

## RECOMMENDATION ON SOFTWARE AND CONTENT DEVELOPMENT PRINCIPLES 2010

### Purpose

This recommendation addresses decision makers in public as well as private frameworks, software developers, the content industry and developers of pertinent standards. Its purpose is to make aware that multilinguality, multimodality, eInclusion and eAccessibility need to be considered from the outset in software and content development, in order to avoid the need for additional or remedial engineering or redesign at the time of adaptation, which tend to be very costly and often prove to be impossible.

### Background

In software development, globalization<sup>1</sup>, localization<sup>2</sup> and internationalization<sup>3</sup> have a particular meaning and application. In software localization they have been recognized as interdependent and of high importance from a strategic level down to the level of data modelling and content interoperability.

In 2005 the Management Group of the ITU-ISO-IEC-UN/ECE Memorandum of Understanding on eBusiness standardization adopted a statement (MoU/MG N0221), which defines as basic requirements for the development of fundamental methodology standards concerning semantic interoperability the fitness for

- multilinguality (covering also cultural diversity),
- multimodality and multimedia,
- eInclusion and eAccessibility,
- multi-channel presentations,

which have to be considered at the earliest stage of

- the software design process, and
- data modelling (including the definition of metadata),

and hereafter throughout all the iterative development cycles.

The above requirements are a prerequisite for global content integration and aggregation as well as content interoperability. Content interoperability is the capability of content to be combined with or embedded in other (types of) content items and to be extensively re-used as well as re-purposed for other kinds of eApplications. In order to achieve this capability, software must support these requirements from the outset. The same applies to the methods and tools of content management – including web content management.

### **Recommendation**

Software should be developed and data models for content prepared in compliance with the above-mentioned requirements to facilitate the adaptation to different languages and cultures (localization) or new applications (re-purposing), the personalization for different individual preferences or needs, including those of persons with disabilities. These requirements should also be referenced in all pertinent standards.

<sup>1</sup> **Globalization** refers to all of the business decisions and activities required to make an organization truly international in scope and outlook. G11N is the transformation of business, processes and products to support customers around the world, in whatever language, country, or culture they require.

<sup>2</sup> **Localization** is the process of modifying products or services to account for differences in distinct markets. Therefore, L10N is an integral part of G11N, and without it, other globalization efforts are likely to be ineffective. The interdependence of G11N and L10N has also been coined **glocalization**.

<sup>3</sup> **Internationalization** is the process of enabling a product at a technical level for localization. An internationalized product does not require remedial engineering or redesign at the time of localization. Instead, it has been designed and built from the outset to be easily adapted for a specific application after the engineering phase.

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ISO/IEC TR 19759:2005 Software Engineering – Guide to the Software Engineering Body of Knowledge (SWEBOK)

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ISO/TS 8000-1:2011 Data quality – Part 1: Overview

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ISO 10241-1:2011 Terminological entries in standards – Part 1: General requirements and examples of presentation

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ISO/DIS 22274:2011 Systems to manage terminology, knowledge and content – Concept-related aspects for developing and internationalizing classification systems

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## END NOTES

<sup>I</sup> Birthe Toft was the respondent to this paper at the IITF Symposium. Her comments have been taken into account by the authors as much as possible.

<sup>II</sup> eAccessibility concerns the design of Information and Communication Technology (explained once already) ICT products and services so that they can be used by PwD. eInclusion aims to achieve that "no one is left behind" in enjoying the benefits of ICT. Both include the special needs of the elderly.

<sup>III</sup> Push factors here referring to developments within the field of terminology science and its applications, while pull factors are coming from outside, for instance out of software engineering development and eApplications in need of global content integration and interoperability.

<sup>iv</sup> <http://www.uml.org/>

<sup>v</sup> European Committee for Standardization (CEN), European Committee for Electrotechnical Standardization (CENELEC), European Telecommunications Standards Institute (ETSI)

<sup>vi</sup> <http://www.praxiom.com/iso-definition.htm#Validation>

<sup>vii</sup> <http://www.praxiom.com/iso-definition.htm#Quality>

**PARALLELLINGUALISM AND PARALLEL LANGUAGE USE IN THE RHETORIC OF NORDIC LANGUAGE PLANNING. FROM CONFUSION TO RELATIVE CLARITY AND CONSCIOUS EFFORTS**

1 BACKGROUND

Language issues are political issues. This becomes evident when following current debates about globalization and its effects on the position of national languages. In his critique of the depoliticizing of language in recent political discussions, Ives (2010: 517) points out that in order to understand the complex ongoing changes concerning language, political community and globalization, we need more explicit engagement with the politics of language. An example, of when such deeper engagement seems to be needed is in the discussions of multilingualism in the European Union (Phillipson, 2003; Van Parijs, 2004) as well as of the role of English in globalization (cf. e.g. Fishman 1998).

The politics of language often equate with protectionist efforts in the form of restrictive language policies. One of the most notable examples of such policies was the "Loi Toubon" in France in 1994, a law promoting the French language by making it compulsory in all official and some commercial contexts. Interestingly, there have been similar efforts made with English. The drive for public recognition of other languages and the pressure of increased immigration, mainly from South-America and China in the USA led the US Senate to vote on the status of English as the "national language" of the United States (Hulse 2006).

Nevertheless, most cases of language policies and legislation seem to have their roots in the spread of English as the dominant language in business, computing, law, science and politics (see Fishman 1998). Language policies reflecting this development have been introduced all over Europe, including the Nordic countries. In 2006, the Nordic ministers of education adopted a Nordic declaration on language policy describing the linguistic rights of Nordic citizens and setting goals for a Nordic language policy. In Sweden, a new language policy for multilingual Sweden was enacted in 2005 that declared Swedish to be the main language of Sweden. In Denmark there is no official statutory document that nominates Danish as the national language, but the Danish language authority has set various guidelines in order to strengthen the position of the Danish language, see for example the report "Sprog til tiden" of 2008. In Norway, a similar document was published in 2008 under the name of "Mål og mening. Ein heilskapleg norsk språkpolitikk" that aimed to secure the position of the Norwegian language in relation to English (Kultur- og kyrkjedepartementet 2008: 14). The document was unanimously approved by Stortinget (the Norwegian parliament) in 2009, and it has a strong political authority. In Finland, a plan of action for the Finnish language was initiated by the Research Institute for the Languages in Finland in 2009. The recommendations in the plan concern public administration, education at different levels, research, technology, and enterprises. The paper also discusses the EU context and cultural aspects. (Suomen kielen tulevaisuus 2009.) A similar plan was published in 2003 for Swedish, the minority language with equal status to Finnish in Finland (Tandelfelt 2003). Recently, in 2011, a steering group set up by the Swedish Assembly of Finland, led by President Ahtisaari released an action programme with 25 proposals for supporting a Finland with two national languages (Folktinget 2011).

Interestingly, Phillipson (2008) comments that the political and academic circles in Scandinavian countries seem to be concerned about the risks of domain loss, but that there is no adequate research on the topic because the issue is surrounded by many terminological problems. One of the problematic concepts is that of 'domain' (cf. Picht 2011). Another very good example of the terminological problems connected with the issue is the introduction of the term parallellingualism (see for example Linn & Oakes 2007: 65). The Nordic equivalent of the term is frequently used in the Nordic rhetoric of language planning to describe a principle of co-existence of two languages in a society, namely a national language and English. The present article is a concept analytical discussion concentrating on the concept of parallellingualism. The discussion is based on the official debate and written documentation on language policy in the Nordic countries. The methods used are terminological concept analysis and content analysis.

## 2 THE PREMISE OF INTERNATIONAL COMMUNICATIVE NEEDS

The concept of parallellingualism, 'parallelspråklighet' in Swedish, was first introduced in the Nordic language policy discussion by Olle Josephson in 2001. The idea was that parallellingualism would be a possible counter to the serious threat to the existence of minor languages, like the Nordic languages, as "complete languages", that is, languages that can be used in all areas affecting a society's life. In other words, the concept was seen as a positive phenomenon that would be beneficial for the Nordic countries in the globalized world.

The concept was considered important because minor language communities cannot cope with the challenge of globalization using their mother tongue as the only means of communication. Furthermore, it is a fact that English at the moment is the language used in all internationally relevant areas, whether we are talking about scientific areas (exchange of knowledge, including teaching and publishing activity), enterprises with international connections or cultural and societal life beyond the boundaries of the language community in question. Another fact is that languages such as French, Spanish and German have suffered domain losses within the field of scientific publication activities, the number of language studies in these languages has decreased and the use of these languages in internationally dominated trade and industry has diminished.

Taking into consideration the language situation today in the Nordic countries, the idea of parallellingualism was introduced in order to satisfy international communicative needs and to ensure professional communication in the mother tongue. In the light of these general considerations parallellingualism appeared to be an ideal solution. However, the concept is connected with at least two problems that may cause confusion. First, it does not seem to have an appropriate definition, and second, the Nordic language term parallelspråklighet seems to have two alternative equivalents in English, namely parallellingualism and parallel language use. Before discussing these issues, we will first take a closer look at which problem it is that the concept is supposed to solve, because this necessarily affects how it should be defined. Above we mentioned that originally the problem to be solved by parallellingualism was the loss of status of minor languages as complete languages. Simultaneously, meeting the challenges of globalization and enhancing international communication were mentioned as benefits. However, the questions that language policy discussions are addressing seem to vary, which creates confusion around the use of the concept of parallellingualism. The following problems are amongst those that have arisen in the discussions:

- Nordic languages are endangered to the point of being threatened with extinction (as the Encyclopedia of language and linguistics List of Languages claims [Brown 2006:143-487])
- Nordic languages are losing the domain of science to English
- Nordic researchers are happy to hand over the domain of science to English because they think they are so good at it
- English monolingualism (lingua franca) suffocates innovation and new-thinking by not allowing thinking as precise as in the mother tongue
- not even the good command of English in the Nordic countries is guaranteeing their strong position in the economic competition of the global world
- Nordic researchers and students cannot perform sufficiently internationally because they concentrate on functioning on their own languages.

Comparing the problems indicated reveals that each could not be solved by the same means. Different measures and language policies are needed. In summary, it would be beneficial for the discussion if the diffuse topics were clearly analysed and the different aims with the "remedies" were made explicit.

## 3 INSIGHTS INTO THE INTENSION OF THE CONCEPT OF PARALLELLINGUALISM

In the Nordic discussions of language policy, the Nordic equivalent of the term parallellingualism has typically been used more often as an everyday word with a rather fuzzy and context-sensitive meaning than as a term representing a concept with an operational definition within a subject field. In addition, those engaging in the discussion have resorted to broad descriptions of the concept rather than terminological definitions with essential characteristics. We will present some examples of such descriptions below. There are no definitions contained in the pertinent official documents. However, when

analysing the official documents, one finds chunks of explanations and even characteristics which give rise to doubts about the clear meaning that the authors intended to convey.

### 3.1 DEFINING CHARACTERISTICS

On the basis of the official documents, central articles and contributions to the general discussion, several characteristics can be isolated that offer an insight into the intension of the concept of parallellingualism:

1. two languages are used side by side
2. the two languages are used simultaneously
3. there must occur neither supersession nor substitution of one of the languages
4. there must be neither subordination nor marginalization of one of the two languages
5. the main areas of application are the sciences, higher learning and trade and industry, meaning a series of functional realms
6. English and the national language can be used in all areas of society
7. parallellingualism will lead to the development of LSPs and the corresponding terminologies in the national language for all areas relevant to the society for which the national language is the main language.

Comparing these statements it becomes obvious that they are not free of contradictions. The first contradiction is that in some documents, the general expression two languages is used. This implies that in principle, any language apart from the national language can function as a parallel language – not only English. In the majority of the cases, however, (international) English is explicitly stated to be the second language in question. The fact that any language is mentioned seems to be political cosmetics, especially if we consider the ever weaker status of French, Spanish and German in the Nordic countries. The second contradiction can be derived from the indication of the national language as a main language - although with reservations. In that case the idea of equal status is invalidated.

According to Harder (2008) parallellingualism is balanced domain-specific bilingualism that exists when two languages are used side by side and when one language is not subordinated or marginalized in relation to the other (translation Heribert Picht). Very similar wording can be found in the Nordic declaration (2007: 13f):

Parallellingualism means the simultaneous use of several languages within one or several domains. One language does not supersede the other; the languages are used in parallel. (Translation HP.)

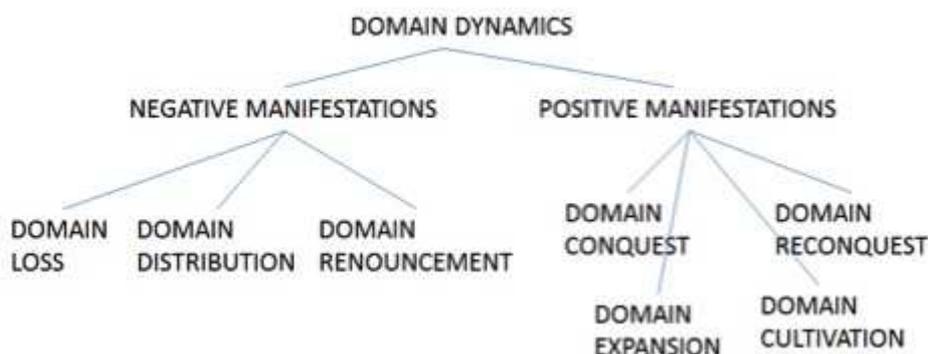
Harder's definition does not offer sufficient characteristics for a more profound understanding of the concept. However, it seems important to state that his concept is related to domains. The Nordic declaration and other documents also talk rather vaguely about areas without indication of what kind of areas. From the rest of the declaration, however, it can be deduced that the authors mean professional areas, which establishes a clear relation to LSP and professional communication. In a report from a conference on language use within institutions of higher learning the Norwegian Språkrådet (2011) describes parallellingualism as a systematic equal status of two or various languages in academic sphere. Thus, in order to be able to elaborate a reasonable definition of the concept of parallellingualism a widely accepted definition of the area of application (domain) has to be reached. In other words, it must be made clear what 'domain' stands for with respect to parallellingualism.

### 3.2 THE CONCEPT OF DOMAIN

The concept 'domain' was introduced into sociolinguistics by Fishman (1979: 19) who characterizes domains as institutional contexts or socio-ecological co-occurrences. They are therefore names for "major clusters of interaction situations that occur in particular multilingual settings" (ibid.). Today we can observe two main interpretations of the concept. The first interpretation is based on a sociolinguistic understanding with many similarities to Fishman's definition. Domain is here defined as areas of use such as institutions of higher learning, organizations, trade and industry. The second interpretation represents a completely different viewpoint. In this understanding, domain stands for different subject fields, fields of knowledge or disciplines; usually the traditional array of disciplines such as natural sciences, social

sciences and humanities with their corresponding subdivisions and inter-disciplinary and trans-disciplinary fields of knowledge (cf. e.g. Jarvad 2001). The same train of thought was applied by various authors working in the field of terminology, for instance the works of Laurén, Myking, Jónsson and Picht (2004, 2008). They define 'domain' as a "subject field or field of knowledge with the corresponding linguistic and other professional communicative resources."

In the Nordic discussions of language policies concerning language and globalization, the question of domain loss for national languages has been considered a serious threat. In the context of LSP planning, a Nordic research group (Laurén, Myking, Picht 2004) has proposed a concept system called 'domain dynamics' in which 'domain loss' is only one of the concepts necessary for the description of the reality in the field. The concept system is illustrated in Figure 1.



**Figure 1.** Domain dynamics as a concept system.

In the context of domain dynamics, 'domain loss' can be defined as a loss of ability to communicate in a language at all levels of an LSP field because of deficient further development of the necessary LSP resources. Domain loss therefore always occurs if a language community fails to develop suitable means of communication (Laurén, Myking & Picht 2004).

In the documents discussing Nordic language policy, the following interpretations have been presented as candidates for domains where parallellingualism is used and needed: all areas of society, all areas relevant for the Nordic society, a series of functional realms, and science, higher learning, trade and industry. The first three interpretations reveal that the concept of domain is understood rather vaguely; in fact these are arguably not domains at all. Nevertheless, they may function as the superordinate concept for a specification of domains. The last one, including as it does four different contexts, comes closer to the above mentioned sociolinguistic conception of a domain, but leaves the concept of domain as an explicit field of knowledge unclear. However, in these "domains" parallellingualism can exist, but its practical application still needs a solid dose of relativism.

#### 4 PARALLELLINGUALISM AND PARALLEL LANGUAGE USE – SYNONYMY OR POLYSEMY?

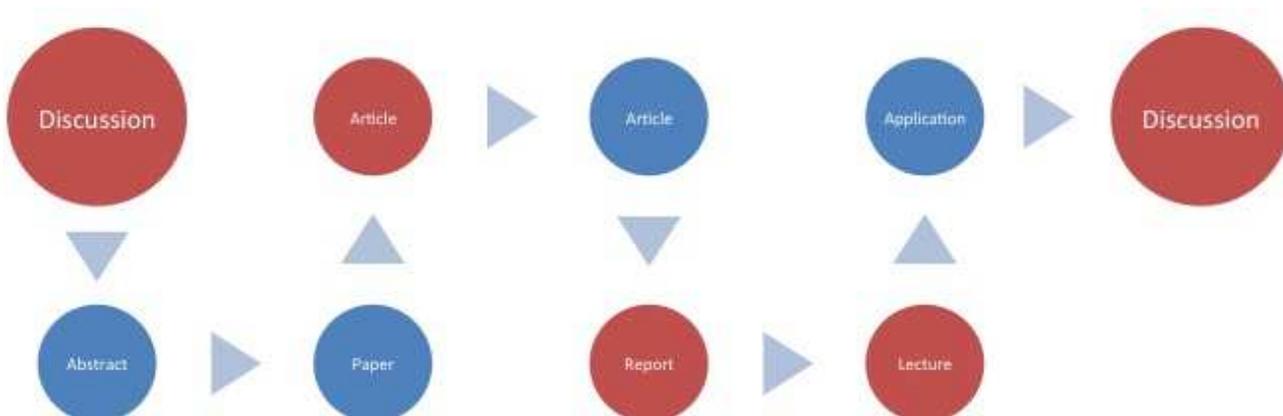
As stated above, the concept of parallellspråkighet may cause some confusion when used in English because the Nordic language term is rendered by two terms. These are parallellingualism and parallel language use. The confusion caused by the two alternative terms illustrates how the choice of term in another language lends additional characteristics and interpretations to the concept (cf. Nissilä & Pilke 2004: 208). In this case, the term parallellingualism seems to be referring to **a state of affairs**, whereas the term parallel language use (NB. also the Nynorsk equivalent parallellspråksbruk) stands for **a concept of action**. In addition, it seems that the semantics of 'parallel' includes two dimensions: spatial and temporal. The spatial aspect includes two points or lines equidistant from one another or the same overall direction where two lines do not intersect or coincide at any point. The temporal aspect again includes the idea of performing multiple tasks at the same time. The interpretation is further complicated by the dimensions of individual and social, but also of the quantitative and qualitative dimensions. Both spatial and temporal dimensions can very well be applied to a social practice where different people stand for different tasks and the collective result of their actions is a state of affairs, but the spatial dimension does not make much sense when describing **individual action** because the languages do coincide and intersect in the individual's head or in their functions. The temporal aspect is equally problematic for the

concept of action because it is not possible for an individual to use two languages at the same time. It therefore seems that the concept must be understood as something social rather than individual, and that in the final definition it should be stated how much (quantity) and what kind of language use (quality) is required before the state of affairs is attained.

For example, Harder's review of the concept presented above concerns parallelsproglighed, parallellingualism, not parallel language use, as the formulation of the definition reveals. If parallellingualism is seen as a state of affairs, as Harder's description (domain specific bilingualism) implies, the language use within any subject field or domain is naturally characterized by multilingualism. This means that both monolingual and multilingual situations are possible within the domain. In this respect, domains (i.e. subject fields) differ. For example, within medicine, English is the norm for academic research, but clinical applications still happen in the mother tongue. In Finland, for example, there is a scientific society, Duodecim, which works to improve the standing of the Finnish language in medicine. The organization has a terminological board and publishes the most important medical journal in Finnish. They also publish both terminological publications and those for professionals and the general public. In other words, there is intense development of the LSP resources going on in Finnish, in spite (or because) of the fact that the academic research is undertaken through the lingua franca, English.

In spite of the obvious potential of parallellingualism, it is arguable that there are many areas that are less affected or not at all affected by globalization and where the national language is the predominant means of communication. One has to consider that socialization into a society is dependent on a good command of the national language. In addition, knowledge transfer takes place at different levels and not only at universities. Furthermore, by no means all people with an academic degree will be employed in international enterprises, institutions or organizations, meaning that it is not a given that the internal or external customers of those graduates will understand English. One cannot for example imagine a vet talking English to a Danish or Finnish farmer about milk fever. Professional schools of different kinds (for example within handicraft and agriculture) generally cannot use English as their teaching language, because the students' general command of English is not sufficient, especially with regard to LSP. These examples raise the question about the extension of the "domain" in which parallellingualism should be exercised. All areas of society may need foreign languages to some extent, but not to the extent that the Nordic discussion of parallellingualism implies.

These few examples show that a national language which includes all relevant LSPs and their registers is indispensable for the satisfactory functioning of a society. As a state of the art, parallellingualism can be understood as a collective practice of multilingualism. Figure 2 illustrates the functioning of a multilingual domain in research, which is everyday life for many researchers with minor languages as their mother tongue. Research questions can arise from discussions in the mother tongue (marked in red), be developed into abstracts, papers, or articles in English and in other languages (marked in blue). The Figure illustrates the concept by showing how two languages can function in relation to each other within one subject field.



**Figure 2.** A multilingual domain in research.

The alternative term to parallellingualism, parallel language use seems to refer to an individual action rather than a societal practice. If parallel language use is to be defined as a concept of action it should be

done in terms of typical characteristics of concepts of action in general. These are agent, aim, method, circumstances, place and time (Pilke 2000: 320).

For example, from an individual researcher's point of view the characteristics for the domain of research can be:

- Agent (who): researcher who is a speaker of a minor language
- Aim (why): to function nationally and internationally
- Method (how): by applying a double strategy
- Circumstances (under which conditions): globalization
- Place (where): university
- Time (when): always

Each of the characteristics can then be discussed further. For example, when it comes to the **agent**, it should be made clear whether the concept should be looked at as a social level phenomenon or something an individual is responsible for or both. The concept also requires that the agent is a speaker of a minor language, in which case we need to define what we mean by minor language. The following interpretations and points of view arise: the term minor language can designate (cf. Språkrådet 2011):

- the languages of national minorities (e.g. Swedish in Finland),
- lesser-used languages (e.g. Russian in Finland),
- languages of limited diffusion (e.g. Danish),
- less-taught languages (other than Spanish, French, and German ), and
- endangered languages (e.g. North Frisian) in relation to extinct languages (e.g. Merya).

As the list shows, the concept of minor language is far from clear, but in the example above, it comes closest to applying to languages of limited diffusion.

Of all the defining characteristics, **aim** is the most important because it answers the question to which problem parallel language use provides a solution. The **aim** set for parallel language use in the example is that in order to be successful, a researcher needs to reach out to a national audience (e.g. students, fellow researchers in the home country), but also to an international audience (e.g. the research field internationally). It follows that a national language would have functioning LSP resources for relevant fields of research in order to guarantee the precise thinking allowed in the mother tongue, thereby allowing as much new-thinking as possible for the benefit of the society (utilizing all human resources available to solve problems of the world).

As **method** the above example offers a double strategy. By double strategy we mean a process of linguistic decision-making, which requires a conscious effort by individuals and collectives within a domain. For the individual researcher it is a question of choice. One needs to decide what to publish in what language. Inevitably, the intended readership and publication forum dictate the kinds of contents that can be presented. In order to cover both the needs of global science and the needs of local societies, both national language and lingua franca are required. For example, Uwe Pörksen has stated that in research on Ibsen, referring to Ibsen only in English leads to "Ibsen without Ibsen". However, it should be noted that the decisions made by individuals should be guided by a more comprehensive strategy and conscious efforts by the language community, that is, shared aims within the field.

**The circumstances** in which individual researchers work today are characterized by globalization. Phillipson (2011) lists the following causal factors that drive globalization processes: European integration as a regional variant of globalization; the EU as a project, product and process; and Global English as project, product and process. He states that all these are permeated by language policy, and are therefore subject to the requirements of serious status planning.

**The universities'** task is twofold: apart from the obligation to publish in foreign languages in order to fulfill the requirements of internationalization and globalization, they have to serve society. That means that they have to cultivate the LSPs of a foreign and of the national language, which could be the promising fundament for parallellingualism. Furthermore, any discrimination in favour of research publications in the national language is counter-productive to the project of parallellingualism.

**The aspect of time** for parallel language use can be said to be connected with the Bologna process, a single European higher education and research initiative that was instigated at the start of the century and was supposed to be completed in 2010. This development has by 2011 led to a situation where

English as a lingua academica is structurally favoured, so affecting esteem and career prospects (Phillipson 2011).

To sum up, as the discussion above reveals, 'parallelsproglighed' covers two concepts (polysemy), which becomes obvious in English because of the two alternative terms used. Each of the terms indicates a different interpretation (state of affairs, static or action, dynamic). In the rhetoric of Nordic language planning, such a distinction is not applied, which leads to ambiguity and terminological confusion. Therefore, in practical applications, for example at universities, 'parallelsproglighed' can be manifested in very different forms.

## 5 FROM IDEALS TO PRACTICE

As the discussion above illustrates, the term and the concept of parallellingualism and domain have been applied in various contexts without a precise definition or deeper consideration. Because of the vagueness of the concept, very different kinds of practices of language use count as parallellingualism, which dilutes the original idea of parallelism. One example is the **language policies and strategies** lately introduced in different organizations, such as universities. Even though there are some successful examples – the Faculty of Engineering at Lund University in Sweden and The Centre for Internationalisation and Parallel Language Use (CIP) at the University of Copenhagen in Denmark comes to mind – there are also many that only include a list of principles without defining who is responsible for what and what consequences the principles have in a broader perspective. What is more, many universities have not reacted to the issue at all.

In the official documents the only suggestions made are about who might maintain, plan, develop and update a domain's national LSP and terminology, and precisely how all that might be achieved. It is obvious that hardly any institutions would be able to fulfill this task for all possible domains at all levels.

Before discussing practical matters and measures, several superordinate and extremely complex questions with political, economic, sociological and psychological facets have to be answered.

1. How can the linguistic awareness of a language community be developed?
2. Is there a willingness within a language community to maintain the national language as a complete language?
3. Can all or most members of a language community recognize the negative consequences of the loss of a complete language?
4. Can an explicit language policy support the planning, maintenance and further development of a complete national language?
5. How can an entire professional community at all levels be motivated to maintain and develop their LSP and its corresponding terminology?

As long as no positive and viable answers are found, parallel language use will remain a dream and wishful thinking. Finally, as a kind of conclusion, we will set forth some proposals and measures. Several of them are already included in the official documents. A **language policy** is by no means solely a legal issue. Some of the Nordic countries have a legally defined language policy; others follow a more liberal attitude by leaving it to the national players (universities, institutions, and enterprises) to design and implement a language policy. Both models have their strengths and weaknesses, and the realization of a defined language policy depends on the language awareness (including skills, knowledge and attitudes) of the people towards their national language and other languages, the willingness of the national players to support parallellingualism economically as a national project, and the readiness of the government to support the chosen language policy. It is evident that parallellingualism in practice cannot live only on an idealistic idea and through some enthusiastic advocates; it needs an institutional framework supported economically by all interested parties and professionally staffed, especially by well-trained and experienced terminologists.

One important measure would be the creation of terminological data banks which professionals in different functions and at different levels, such as researchers, teachers and authors of teaching material, could access. Term banks should be institutions combined with a service function similar to the consulting service offered by TNC or the Danish Language Council. Term banks could also be joint efforts of different institutions as for example the Bank of Finnish Terminology in Arts and Sciences that is currently establishing a bank of Finnish terminology that covers many disciplines of arts and sciences that are

practiced in Finland. The project is a joint effort by the University of Helsinki and the Federation of Finnish Learned Societies as well as other institutions. (See BFT 2011.)

## 6 CONCLUSION

The present paper has discussed the concept of parallellingualism based on the debate and documentation of language policy in the Nordic countries from a concept analytical point of view. We have demonstrated how one concept, 'parallelsproglighed', has been used in order to solve many different kinds of problems of language use, even though the definition of the concept remains weak or arguably even contradictory. A concept analysis reveals that the term parallelsproglighed has been used more as an everyday word acquiring its meaning from each context rather than being used as a technical term representing a concept with a precise definition. In this way the term has become an umbrella for various practical solutions concerning language use in organizations as well as in society at large. The analysis of characteristics of the concept also reveals that the discussion in English includes polysemy, where one term seems to stand for a state of art (parellellingualism) and another for action (parallel language use). This adds to the overall confusion surrounding the concept. From a terminological point of view, the semantics of the word parallel do not seem to provide optimal tools for describing what the concept is all about. A simple solution suggested by Brock-Utne (2007: 377) is that the expression multilingualism should be used instead of parallellingualism if the context, in her case the language strategy of the University of Oslo, involves more than two languages:

Parallel normally means two. Even though the committee explains that to them "parallel-lingualism" means encouraging staff and students to attain high levels of proficiency in foreign languages (sic), while preserving Norwegian as the primary language, one is likely to think that the committee encourages Norwegian academics to have two languages, English and Norwegian. If the committee wants to encourage staff and students to attain high levels of proficiency in foreign languages like German, French, Spanish, Chinese, Russian, Arabic or Kiswahili the expression "parallel-lingualism" does not give the right connotations. What about multilingualism?

Another potential solution is proposed by Garcia (2007: xiii) who talks about: 'translanguaging...[which]...normalizes bilingualism without diglossic functional separation'. In our opinion, this term could very well be used for the concept of parallel language use even in a broader sense than bilingualism alone. In this way it would be possible to attain at least relative clarity and avoid additional confusion caused by new terms without a properly defined concept to refer to.

In the light of our results we can conclude that more explicit engagement and conscious efforts with language policy are needed. A good macro-level strategy is necessary in order to guarantee functioning micro-level practices. What could be called a "linguistic consequence evaluation" of strategic decisions is also required. By this we mean a process which incorporates estimating the consequences of the proposed measures in advance of their implementation.

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## **SPECIAL LANGUAGE MANAGEMENT – PARAMETERS AND CONSTRAINTS**

### Abstract

*This paper deals with principles of language planning within LSP. Some initial theses are presented, a distinction is made between 'management' and 'planning', and five parameters of such planning/management are discussed. The paper firmly asserts that the free forces of the 'language market' should be constrained, and that language management is possible.*

### 1 AIM AND SCOPE

The purpose of this paper is to deal with the ways in which language planning, or rather language 'management' as I shall put it, deserves theoretical discussion and semiotic underpinning like any other tenet or subfield of LSP. My point of departure is the following thesis: "Language management is always possible" (cf. Laurén & al. 2008, thesis 10, below). The concept of 'management' is used in a broad sense to include all sorts of steps constraining free language development. In particular, in the second part of my paper, I shall discuss the following five parameters of Special Language Planning (SLP):

1. Domain dynamics
2. Horizontal vs. vertical specialization
3. Convention and subversion
4. Indeterminacy

The acronyms LP (Language Planning) and LSP are well established and have a very precise reference. If nothing else is explicitly stated I shall in the following be using the convenient and not so established or precise acronym "SLP" for "Special Language Planning" in a broad sense referring to "language planning in an LSP context". This acronym will then be used to refer to LSP, Terminology and Terminology Planning as well as all other relevant aspects of LSP that imply prescriptive measures.

The background and main source of my paper is Laurén, Ch. & J. Myking & H. Picht in collaboration with S. Jónsson: *Insikter om insikt. Nordiska teser om terminologi och fackkommunikation* (= "Insights about insight. Nordic theses about special communication", Laurén & al. 2008). My initial thesis is one of a set of ten theses that read as follows:

1. Specialised communication is a cultural and semiotic phenomenon;
2. Specialised communication is a legitimate object of linguistic research;
3. Research in specialised communication (including terminology) should be considered a subdiscipline of linguistics just as socio- or psycholinguistics, etc.;
4. There are no fixed boundaries between specialised communication and other forms of communication;
5. There are, consequently, no fixed boundaries between terms and vocabulary & phraseology in general;
6. The relationship between a special subject field and its forms of representation is arbitrary, but not necessarily unmotivated;
7. Forms of representation vary according to communicative needs;
8. Conversion between forms of representation is always possible, but the outcome is not always predictable;
9. A special subject field has a conscious conceptual ordering (structuring), which changes according to epistemological development;
10. Both language usage and language system are subject to management (re-worded as already quoted).

Why is this thesis necessary, and how is it motivated? To some, this thesis is self-evident to the extent of being trivial; to others, the idea is controversial to the extent of being completely unacceptable. There is a conflict between the social relevance of LSP, which is generally recognised, and recent challenges from theoretical directions questioning the idea of 'prescriptivism', especially in terminology during the last decade (cf. Myking 2001). Whether trivial or unacceptable, this thesis is, I believe, crucial to the social rationale of SLP, and consequently its scope as well as its limitations should be explored. We maintain that LSP and Terminology always have had language intervention as their *raison d'être*; further, we maintain that this has always been generally accepted by practitioners within these fields of research. Nevertheless, the idea that language can be 'planned' has not yet been fully recognised, and the idea of LSP as a 'prescriptive' discipline is not generally accepted.

To the extent that LSP and Terminology have an integrated theoretical framework, language management must also be included in this framework. A joint theoretical effort must be made in broad and inclusive terms. The inclusive framework for joint theorising on language is semiotics; that is the reason why our theses as well as the five parameters to be discussed first and foremost are conceived of from a semiotic perspective.

## 2 TERMINOLOGY PLANNING AND 'PRESCRIPTIVISM'

The theoretical discussions within terminology during the past decade have to a great extent been framed by the dichotomy of 'descriptive' vs. 'prescriptive' (Myking 2001, Cabré 2003, Picht & al. 2006 and our joint work Laurén & al. 2008). Recent trends in terminology such as socio-cognitive terminology (e.g. Temmerman 2002) and socioterminology (e.g. Gaudin 1993) have criticised 'traditional' terminology for being biased towards prescription, thus making terminology a set of techniques or tools aimed at standardisation instead of analysis and theory aimed at producing linguistic insight.

This alleged theoretical antagonism should not, however, disturb our discussion here. It seems true that in certain recent directions of terminology there is no apparent ambition to integrate language planning into the theoretical framework. It is also a fact that from the ranks of "traditional terminology" we witness an increased interest in sociolinguistic issues to the extent that LP is reflected in normative documents (notably RaDT's position paper on "Domänenverlust" 2004 and ISO 29383 on Terminology policies, 2010).

On the other hand, upon a closer look, the interest in issues of language planning is not restricted to the alleged 'traditional' terminology, but is well incorporated into the seminal textbooks of Sager (1990, & al. 1980) as well as of Cabré 1999. At the corpus level, Sager's discussion of 'purist' vs. 'permissive' attitudes to term formation is one such noteworthy example. Language intervention such as the handling of synonymy and of translation is an essential issue of terminology irrespective of school. Even if some approaches seem less interested in language planning as such, it would not be correct or appropriate to accuse them of neglecting problem solving or the societal motivations of LSP and terminology.

The thesis we are dealing with, "language management is always possible", is a contradiction of the underlying opposite theses that "management of language is never possible" or "language can never be managed". I consider such theses to be definitely wrong from all theoretical or practical points of view: social motivations and inspirations for SLP in a broad sense are historical facts and intuitively self-evident, and terminologists are 'managing' language all the time, irrespective of their theoretical preferences or 'schools'. It seems fruitful, however, to discuss these joint issues in broader and more semiotically-based terms.

## 3 THE CONCEPT OF 'LANGUAGE PLANNING'

The concept of 'language planning' is well established and rather clearly delimited as referring to a well-established branch of the sociology of language:

all conscious efforts by planners to sustain language by positively affecting the structure or function of language varieties (ISO 29383)

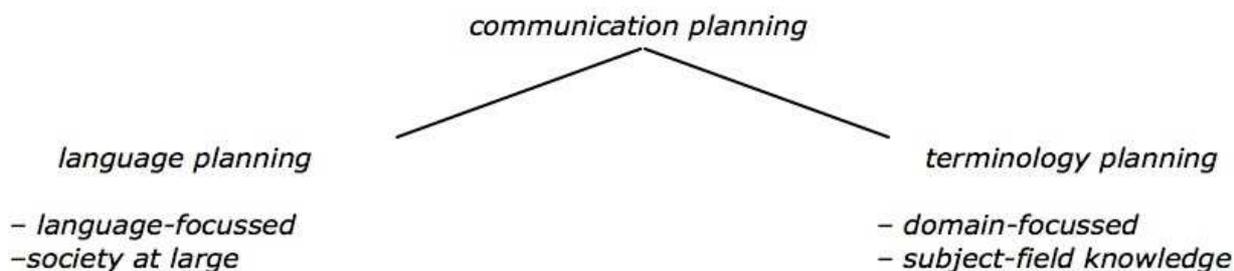
Originating from the famous language planning model of Einar Haugen – Norm, Codification, Elaboration and Implementation – a number of models and modification have been put forward, in particular the distinction of Status planning vs. Corpus Planning by Heinz Kloss. The normative ISO document on Terminology Policies (ISO 29383) seems to have adopted a ‘canonical’ set of definitions and concepts that are sufficient to serve the purpose of the present discussion:

Terminology planning and language planning are two complementary concepts under a broader concept represented by the term communication planning.

Language planning is closely related to ‘terminology planning’:

**terminology planning**

planning activity, which can be either driven by language development or subject-field knowledge, and which develops terminology largely according to the needs and requirements of domain communication. According to ISO 29383, ‘language planning’ forms a subordinate concept of ‘communication planning’ and is a complementary concept to ‘terminology planning’. We could visualise the relationship by a simple hyponymical set:



**Figure 1.** Communication planning according to ISO29329.

General language planning and terminology planning are quite interdependent – “The degree of interdependency between terminology planning and language planning is a result of the specific environment in which they are applied” (ISO 29383). There is nevertheless a common belief that the concept of language planning is more “political” and thus relates to overall ideologies and political conditions of a society, and, conversely, that the concept of terminology planning is more “technical”, dealing with specific tasks within specific and delimited sectors of a community. It is obvious that both involve corpus as well as status aspects and largely identical methodologies, and neither general nor terminological language planning is performed independent of some sort of political context. Given the concept of ‘management’ below, we can make the following brief summary of LP within the context of LSP by means of the convenient acronym of “SLP”:

- SLP is domain-oriented (status) and corpus-restricted (mainly lexicon);
- SLP focusses on the lexical and textual levels (terms & genres);
- SLP is policy-dependent and subject to political agendas.

SLP is in principle not restricted to the problem of English as the international Lingua Franca, although this is regarded as the major concern and key topic of most evolving national language polices, at least in Europe. Within models of dominance and linguistic hegemony, English can be replaced by a number of other languages, and there is a variety of challenges involving linguistic intervention. But again inspired by the Nordic Language Declaration it is possible to outline the main, generalised goal of current terminology planning as preserving the national language(s) as “languages that are complete and essential to society”. For a national language to be “complete and essential to society”, domain-related terminology planning is required. For a domain to be communicatively versatile, multilingual terminology work is required, and national language planning might provide support and inspiration. This does not imply that all terminologists feel explicitly motivated by language planning; such motivations are subject to interpretation and re-interpretation. Even within allegedly ‘transparent’ and ‘democratic’ language policies, e.g. the language policies of the Nordic region, practitioners of LP and LSP do not always communicate well (cf. Myking 2011).

No general sociolinguistic model of hegemony seems to have incorporated aspects specific to LSP. This does not mean, however, that LSP is ‘neutral’ with respect to ‘ideology’. The broad public is entitled to

specialised information ("access to knowledge"), but may be prevented from it. Some professional communities have the power to maintain control over their language. It is also a well-known fact that many specialists have a sceptical attitude towards language management out of fear of cognitive and semantic dilution. Awareness of the fact that popularising is a type of functional code-switching is often not sufficiently developed. Conversely, it is often questionable whether general bodies of language planning have a clear awareness of the legitimate specific features of specialised communication.

#### 4 (LANGUAGE) PLANNING VS. 'MANAGEMENT'

Categories and concepts that express goals and modes of work are needed and should be refined, and should at least not be misleading. Whereas language planning is a well-established and precise term referring to a well-defined linguistic subdiscipline, we need a term that can be used more broadly and loosely to cover a range of phenomena involving deliberate restrictions on "free language development", because restricting free language development is at the core of LSP. Our Scandinavian term is *styring*, corresponding to German *Steuerung* or *Lenkung* and more or less to English control or regulation and French *dirigisme*. Other English near-synonyms such as leadership or governance carry connotations of "top down" hierarchical control that do not conform to the main idea of this paper. I therefore choose the somewhat vaguer term management to deal with this idea.

The concept of 'management' is not identical or equivalent to 'planning' – there is no established linguistic discipline named "language management". We are aiming at a term broad enough to encompass all sorts of constraints on the "free forces of the language market". How, then, do we define the concept (or notion) of language 'management'?

Language policy is a social process involving human individuals acting intentionally on the basis of a framework of ideology and sets of values. To us, doing research into LSP (and SLP) means that the idea of "free market forces" should be refuted as counter-productive. Instead we maintain that rational and democratic management on the part of society is necessary and desirable. The concept of 'management' should, however, not be interpreted as hierarchical, top-down control, and not only as governmental control by means of legislation. Any counter-force to accidental, chaotic and arbitrary developments, any attempt at ordering by means of discursive negotiation, are examples of 'management'. The concept of 'domain dynamics', which I will return to in a moment, should be interpreted as a description of a collective intention, the sum of a variety of intentional processes. A sum of individual intentions may stimulate or provoke management as well as block it or slow it down.

Several factors promote language management, such as business needs requiring multilingual communication, political and cultural concerns for preserving a national culture, individual and collective identity-making, etc. Like all other conflicts, language conflicts also generate a need for management.

The factors slowing down or preventing management are the same as the factors promoting it. Shortage of resources is often an important problem, although there need not exist any correlation between the standard of living and the will to make language investments in a given society.

Lack of awareness of language management may be rooted in lack of general social and cultural awareness, but, in such cases more fundamentally in various types of hegemonic dominance by a language and/or culture. Anti-authoritarian reactions to language management (anti-standardisation, anti-purism) might also strengthen the hegemonic forces.

A discussion of the concept of management must also take into account the semiotic and structural constraints that can promote as well as prevent management. In LSP communication there is a semiotic drift towards linguistic efficiency as well as semiotic forces preventing such efficiency. The basic tenet of 'motivated structures' within cognitive or functional linguistics may be interpreted in favour of language-internal or pragmatic auto-regulation as well as of language-external management.

The concept of 'prescription' covers a wide range of combinations of three major sociolinguistic factors: 'acceptance', 'consensus', and 'authority'. Prescription is the tacitly agreed or explicitly performed measure of managing a language, determined by some configuration and intensity of these three factors. A gradient scale of prescription exists between the two extremes: 'free language development' and 'absolutely controlled languages' (cf. Picht & al. 2006).

Free language development in terminology occurs in the form of individual instances of primary term formation. The term creator strives to establish the relation between expression and concept by means of an explanation or a definition, authorised by his/her professional expertise and reputation. He or she will try to obtain peer consensus enhancing stability of communication. The next step will be acceptance or rejection by the relevant discourse community, which thereby will show its inherent authority.

In short: The essence of thesis 10 concerns the possibilities of, limitations on, and constraints on language management with regard to practical manifestations as well as theoretical considerations, including semiotic considerations. The concept of 'language management' may, according to this thesis, be defined in the following way:

Any intervention – irrespective of form, degree of intensity, initiator or domain – aiming at preserving, changing, reestablishing, further developing, harmonising or standardising language as a means of communication, and LSP in particular, by ensuring and enhancing special communication as a cultural manifestation in a given language (Laurén & al. 2008, transl. JM).

What we are aiming at, consequently, is a generalised and semiotic foundation of language management. This is the basis for discussing the five semiotic parameters that come into play whenever management is undertaken. It is therefore time to give an account of a principled, generalised and semiotics-based set of parameters applicable to a variety of normative activities.

## 5 FIVE PARAMETERS OF SPECIAL LANGUAGE PLANNING

The use of the term parameter is justified by the fact that it refers to dimensions, goals or strategic positions of Special Language Planning (but is also applicable to LP in general). It displays varying degrees of specificity:

**Table 1.** Five planning parameters according to the corpus/status distinction.

STATUS	1. Domain dynamics
	2. Parallel language use
	3. Horizontal vs. vertical specialisation
CORPUS	4. Convention and subversion
BOTH	5. Indeterminacy

### 5.1 DOMAIN DYNAMICS

The best-known and perhaps also the most important key concept in current language planning is 'domain loss', introduced around 1990 in the Nordic communities. It is important, however, to take into account that no social process can be seen as unidirectional or deterministic; domain loss is not the only possible outcome of status change. We have therefore placed domain loss in a context of 'domain dynamics' to account for the social and sociolinguistic complexity constraining language management. 'Domain dynamics' can be defined as

a set of processes of language status change caused by sociolinguistic and cognitive factors. (Laurén & al. 2008, transl. JM)

or, further,

The interplay of social, political, economic and cultural conditions existing at a certain point of time in a language community which is characterised by a will (directly or indirectly manifested) to maintain its overall cultural identity by a language (Gesamtsprache) that

can function in all areas of life, or the partial or complete abandonment of this identity, respectively. (Picht & al. 2006)

The important point is that this is not a unidirectional or deterministic process: Domains can be lost, but also conquered or re-conquered.

A fruitful use of these concepts requires a clear understanding of the key concept of domain. An apparent confusion regarding this concept can be seen e.g. in recent Nordic language policy documents. In terminology the key concept of 'domain' seems to be replacing 'subject field':

**domain**

scientific or technical subject field or other specialized field of expertise (ISO29383)

This concept has a long history in sociolinguistics and in the theory of language planning, and is currently the key word framing and dominating all discussions of language policy at least in Northern Europe. The concept suffers from indeterminacy; a perfect and commonly agreed definition does not exist. University language policy documents seem to equate 'domain' with 'subject field' without any thorough discussion. To some extent the way of defining it may have practical consequences: Are universities or enterprises domains, encompassing a diversity of subject fields? Are BA and MA levels within a university different domains or subdomains? We have proposed the following broad definition:

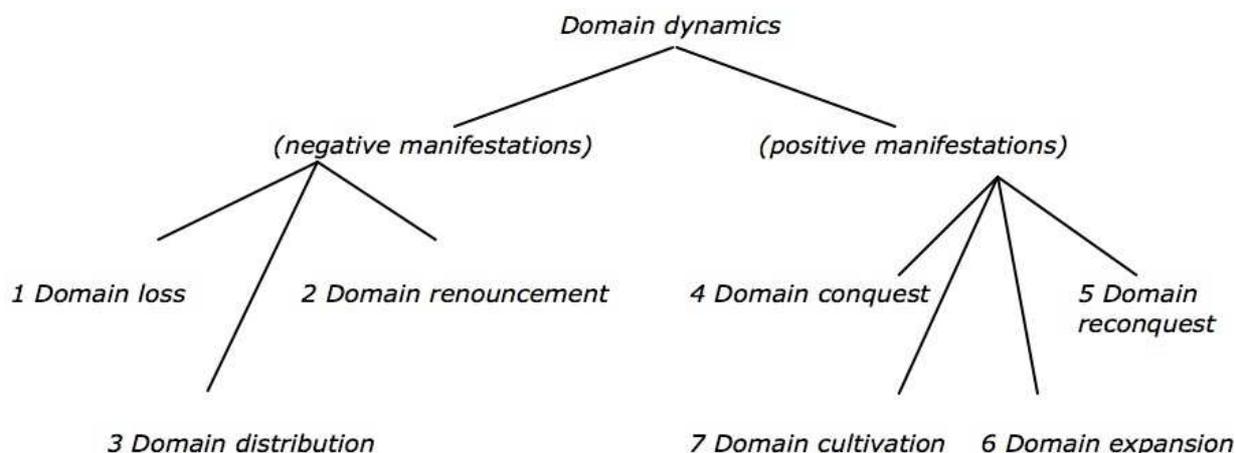
**domain**

Subject field or field of knowledge with corresponding linguistic and other professional communicative resources (Laurén & al. 2008, transl. JM).

The language in question has the required set of linguistic resources and is therefore able to function within the relevant domain. Further, a domain is a cognitive as well as social space forming a subculture within the society at large. A 'domain' is knowledge, knowledge is human, humans form society; any definition by means of the synonym 'subject field' must take into account that subject fields are developed and maintained by people. Consequently, a domain is also a space where individuals face problems of language choice. This is a complex and extended understanding of the concept compared to the traditional terminological definition coined by ISO, but the central role of the concept within terminology and also SLP as a whole is emphasized.

### 5.1.1 A TAXONOMY OF DOMAIN DYNAMICS

To account for the most important of these processes we have developed a taxonomy of domain dynamics:



**Figure 2.** A taxonomy of domain dynamics according to Laurén & al. 2008).

We consider this taxonomy an open system; neither categories nor terms are fixed once and for all. The domain dynamics consist of a set of processes that we call status changes (cf. Kloss, status vs. corpus). These status changes group around a positive and a negative pole as we see it from our set of values. We are aware that our taxonomy also applies to general language, because general language, too, has its domain dynamics. With respect to this taxonomy, four concepts are of particular relevance as they display quite different connotations (the following definitions are based on Picht & al. 2006).

Negative manifestations:

(1) Domain loss: Loss of the ability to communicate in one's national language at all levels of an area of knowledge because of insufficient further development of the necessary means of professional communication. Examples: The publication policy of certain Nordic universities that rank a publication in English higher than one in the national language, although the content does not differ.

(2) Domain renouncement: Voluntary or forced abandonment of the possibility of using one's national language in professional communication in multilingual contexts. Example: Contracts between parties with different national languages are drawn up in English and only this version is valid. Translations are produced only for informative purposes and are without validity.

The manifestation of domain distribution is perhaps more ambiguous than negative:

(3) Domain distribution: The fact that two or more languages distribute domains in a community among each other resulting in (nearly) monolingual domains while the language community as a whole becomes bi- or plurilingual.

This development may be caused by deliberate decisions or by inherent dynamics (cf. the strategy of parallellinguism or parallel language use, Koskela & al. (2011, this volume)). Example: The international enterprise Scania has decided to use Swedish only at its head office in Sweden whereas the official language is English.

Of the positive manifestations we focus on domain conquest:

(4) Domain conquest: Development of the necessary means of professional communication needed for communication at all levels of a domain for which means of communication were previously lacking or only available to an insufficient degree.

One very illustrative example is the deliberate creation of Norwegian petroleum terminology (Myking & Sæbøe 2002). In educational contexts, a very practical example concerns ensuring the student's 'personal domain conquest': Without access to the concepts of the domain in question in the student's first language, the student will be unable to communicate adequately with his or her own language community, and the domain in question will not be sufficiently conquered.

Taxonomies of social facts are developed as descriptive tools; in this case the taxonomy is developed to describe domain dynamics as a social process. The taxonomy may be applied at the individual as well as the collective level, the two levels being linked by a simple causal connection. The question of term motivation always affects the interpretation of a term, and some of the terms in this taxonomy may appear questionable. Why, for instance, do we consider domain distribution a 'negative' manifestation? Why could it not rather be interpreted as "peaceful co-existence"? This depends on the point of view, but there are several problems connected to the implementations of strategies of parallel language use, as indicated below.

The language policy implemented at (Nordic) universities results in researchers not being able to communicate in their own field of research in their first language. Their "personal domain conquest" never occurs. At a certain point the sum of failing personal domain conquests might result in a collective domain loss within the entire language community.

Such cases of domain loss need not be intentional, but it seems almost taboo to discuss the negative consequences of Anglification. The fact that this type of monocultural anglification might harm the national competitiveness has not become an issue of public debate.

Domain dynamics is not, however, a concept solely linked to the problem of English. The case of Iceland demonstrates that the concepts on the positive pole – cultivation, expansion, conquest and reconquest – express a sociolinguistic dynamism that stretches over centuries. Icelandic functions as a scientific and specialised language as a result of domain expansion and cultivation, and in a historical perspective this is a reconquest of its status as a learned language (Jónsson 2007).

Finally it should be noted that the definitions of 'domain' given here are by no means unanimously agreed on. Ljosland (2008) points to the distinction between 'emic' vs. 'etic' definitions: 'emic' domains are domains as perceived by the language users themselves and delimited by norms; 'etic' domains are domains as conceived of by the researchers (or, in our context, the policy-makers) and delimited by language observation and knowledge of the emic domains. The design and implementation of language policies require both types of knowledge. No delimitations are "objective", and emic and etic domains need not coincide. As an example Ljosland points to the problem of determining whether "universities" are domains in their own right or, rather, bundles of domains. The definitions of domain loss etc. in this paper are clearly etic insofar as they rest on the criterion of terminology resources; emic definitions might have emphasised other aspects. Language users may make different language choices according to emic conceptions of situation types, which may be different or similar across subject-fields. Policy-makers may implement different strategies in different subject fields according to etic conceptions of a university as consisting of several domains. Such considerations are of vital and practical importance to all policy-makers.

## 5.2 PARALLEL LANGUAGE USE

The concept of 'parallel language use' is a neologism probably dating from 2001 and at present totally dominating Nordic public discourse about language policy. It is presented as a solution to the problem of domain loss, and is defined in the following way by the Nordic Language Declaration:

The parallel use of language refers to the concurrent use of several languages within one or more areas. None of the languages abolishes or replaces the other; they are used in parallel.

Cf. further Koskela & al (2011, this volume); I will leave the elaboration of this concept to them and only briefly outline some problems: parallel language use is sometimes interpreted as giving up some domains and abandoning others, in which case a state of domain distribution may occur that is harmful to multilingual communication within that domain. Examples: giving up a language at the postgraduate level, if the postgraduate level is defined as a domain; leaving the domain of astrophysics monolingually English, if a domain is defined as a 'subject field'. It is also a problem that the notion of 'parallel' almost always seems to include English, and that the question may be raised whether the concept applies to persons, institutions or simply to practices. At least to some extent the static presence of English and the risk of harmful domain distribution make the notion of 'parallel' "elusive" (Laurén & al. 2008).

## 5.3 HORIZONTAL VS. VERTICAL SPECIALISATION

It is a well-known insight of the theory of LSP that LSP occurs at different levels within a domain and with different degrees of knowledge complexity. Kalverkämpers model establishing gradient scales of "LSP-ness", of "Fachlichkeit" vs. "Fachsprachlichkeit" respectively, is perhaps the best-known expression of this insight (cf. also Hoffmann 1976). In combination with the concept of domain distribution this parameter affects the principle of parallel language use. With regard to domain dynamics and parallel language use, two approaches to policy specialisation are possible: a) 'Horizontal specialization' – some domains are left alone while language policy concentrates on other domains deemed more "strategically important", or quite simply "easier" to protect from domain loss, or more easily accessible to domain conquest, respectively. b) 'Vertical specialisation' – all cognitive and communicative levels within a domain need the same communicative versatility.

Is complete horizontal and vertical parallelism of language use possible or feasible? At which level(s) within a given domain or sets of domains should a language policy be targeted, and with which level of ambition; does every square inch of a scientific domain have to be linguistically covered in parallel?

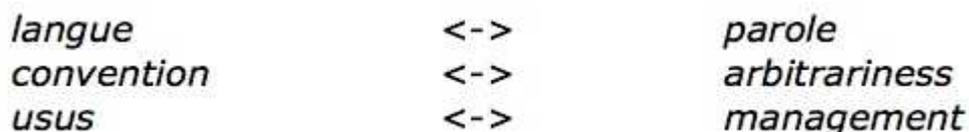
Horizontal specialisation is, on the one hand, compatible with the view that "a domain is a subject field". domain distribution of language(s) may exist in domains at equal levels, cf. the traditional horizontal taxonomy of technolects. Within universities, this allows for peaceful coexistence of astrophysicists being left alone with their English, lawyers with their national language, and most other disciplines trying to cope with some intermediate position. Vertical specialisation, on the other hand, corresponds to the view that "within domains, there are different levels of knowledge and skills". If domains are viewed as distinct levels of specialisation, either in a field or institution, this may result in domain distribution of languages according to elementary vs. advanced levels. There is practical evidence that university policies encourage the use of English at PhD level, and of national language at BA level, resulting in a language deficit insofar as owing to lack of linguistic resources and competence, advanced matters cannot be communicated in the national language.

In terminology and also in LP theory there is a strong tradition supporting the main principle that language resources should be developed to serve all levels of specialisation. A terminological database may fulfill this requirement more easily than an individual human being: developing and storing a complete set of national equivalents is not the same as one individual being able to communicate at all levels. There is no tenet of LSP stating that full vertical specialisation of language is impossible, and this will also have to be the fundamental tenet of SLP policies: anything that is not impossible, is possible.

The principle of parallel language use in SLP must, accordingly, be defined as "complete vertical specialisation within all subject fields", even though there will of course always be practical constraints on the application of the principle.

#### 5.4 THE SEMIOTIC STRUGGLE: CONVENTION AND SUBVERSION

Failure of management is often attributed to individual incompetence or lack of resources; or, failure at the corpus level may be explained by an inherent linguistic resistance towards being 'managed'. In our view, the latter is an example of false ideology that may often be used as an excuse for not doing anything. Failure of success should in our view not be used as a reason for supporting the the idea of 'free language development'. Language-internal forces should of course not be completely neglected, and it seems that both aspects can be described and explained by Ramirez' (1995) semiotic dichotomy defining langue/convention as oppression, parole as subversion:



**Figure 3.** Three semiotic parameters.

Two questions arise: Are such constraints on management language-internal? Or are they purely psychological?

All practitioners of SLP know very well that management is not always successful, and that its effects are very difficult to predict. The "leave your language alone" attitude is rarely accepted in LSP communication, but nevertheless, conflicts between official language bodies and language attitudes in the general public appear to be a universal phenomenon both at the corpus and status levels. A paradox exists insofar as attempts at ordering often result in increased disorder. This is well-known in terminology where secondary term formation often results in an increased number of synonyms and terminological pairs. 'Official' language bodies tend to favour systematic and morphologically transparent equivalents in order to exploit indigenous resources. This is psychologically important because it contributes to strengthening the social status of the national language and also to ensuring that new terms can be correctly incorporated and learnt. This 'purist' attitude need not be consequent nor strict (Sager 1997, 41), and the complementary 'permissive' attitude may also require measures of management in order not to be counter-productive.

Following, then, the ideas of (Ramírez 1995) we may conclude that active language management rests on the Saussurean semiotic thesis of the arbitrary sign. Ramirez analyses the semiotic pairs of 'arbitrariness vs. convention' and 'langue vs. parole' in terms of power and freedom of action applied to

systems of norms. According to Ramírez, 'la langue' means description and addresses the past, whereas 'parole' is innovative and looks to the future. Langue is established norm whereas parole is action and thus impossible to grasp. According to Ramírez, most language theories address the langue and avoid parole and thus "without knowing it, subject themselves to the perspective of power (transl. JM)". Instead of consensus, convention is the result of innovations that are imposed upon signs. Langue is an instrument of power that is difficult to change, and change can only take place on the level of parole, where "everything" is possible: creativity, innovation – i.e. anything that may be subsumed under the concept of 'management'.

The idea of arbitrariness interacts with the principle of convention, linking expression and content to make signs valid for communication. Arbitrariness and convention form an operative pair of which the two members have a complementary function: Arbitrariness is a prerequisite for linguistic freedom of choice, including the possibility of management. In cases of failure as a result of optimism, this is a non-intended result of management. Convention means 'habit', which is a static factor and thus an obstacle to impulses of management.

Official language bodies, including terminological ones, introduce changes at the level of parole, whereas the users or the general public react to the suggestions because being restrained by the power of the convention or 'langue'. Any rational calculus of these reactions is futile. The main challenge to this semiotic balance is over-estimating arbitrariness ("everything is possible") and under-estimating convention ("the language structure prohibits") – thus resulting in unfounded optimism on behalf of management. It is not easy to identify the border line between system immanency and psychology in such cases. Does the language itself react, or do language users react?

The lexical level is the linguistic level at which convention is most often challenged, and it is also the level at the top of awareness, drawing most attention. From this point of view, terminological neology management and standardisation is the main semiotic battlefield between arbitrariness and convention. In this battlefield, all theories or 'schools' of terminology take part in some way or another. They are, consequently, performing activities of management whether they define their approaches explicitly in terms of language planning or not.

By combining the dichotomies of 'langue' and 'parole' with the dimensions of power and action, Ramirez is also able to transfer the same dialectics from the system level to the social level. Our concept of 'domain dynamics' illustrates this: Domain renouncement and conquest are actions at the level of parole performed by people. Consequently, domain loss is also a result of actions, i.e. the sum of linguistic choices to abandon the use of the mother tongue in question. Linguistic and cultural hegemony represents a system of internalised power, and the attitude of "leaving your language alone" means accepting this power. Attempting management means provoking rejection or even scorn. Loans are introduced into a language community by the free linguistic market, whereas management is perceived of as bureaucratic or authoritarian when attempts are made at regulating this market.

Purist solutions may be rejected or ridiculed by the language users because the adaptation procedures may be perceived as "made up" or "artificial" or "comic" for another reason. Some examples: In Norway we have examples indicating that a modest phonological-orthographical adaptation is more often attacked than are transparent alternatives or even direct loans. Mona Baker quotes similar instances from Arabic, and also Icelandic provides such examples. The concept of 'telephone' in Arabic is named *irzīz* ("the sound of rain") and not accepted, in Icelandic *sími* ("thread") is completely accepted and conventionalised. In Arabic the term *quitār* 'train' (lit. "camel caravan") was easily accepted. In Icelandic the identical concept of 'train' is identically or at least analogically motivated: *lest* 'train', lit. 'train of horses carrying load' (cf. 'last' = "load"). Archaisising solutions of this and similar types could of course be considered an expression of ideological 'philologism' (cf. Jónsson 2007 and Laurén & al. 2008). Norwegianisation of the type *bacon* > *beiken* created public outrage in 2002 and was rejected as an example of pure 'philologism'. The problem seems to be that public opinion considers regularised word pictures to be unusual and hence by definition 'perverted'.

The resemblance or dissimilarities of the Arabic, Icelandic and Norwegian linguistic cultures should of course not be exaggerated on the basis of selected examples, but at a general level such examples nevertheless reveal striking parallels. Apparently, in the introduction of neologisms one example that attracts negative attitudes risks putting the acceptance of an entire package in jeopardy, and it would be useful to be able to predict or 'calculate' such negative attitudes in order to avoid them. The problem is, in our view, not structural, but psychological and hence semiotic – the challenge of convention and the

calculus of the irrational. If we accept the idea of conscious language planning and management in society, we also have to accept irrational reactions and single failures.

## 5.5 INDETERMINACY

We then return to the same main problem – calculating semiotic obstacles to and constraints on management in order to overcome them. Calculating irrationality means calculating what Robert de Beaugrande termed ‘indeterminacy’ (Beaugrande 1997) and this is a fact of pragmatics rather than of system immanency: The language user is the center of the problem, but the internalised linguistic norm system constrains and restricts the user’s freedom of action.

The concept of ‘indeterminacy’ has played a very important role in the philosophy of science of LSP, and it has been assigned a number of meanings and has been used with reference to a variety of phenomena (see Antia (ed.) 2007, in particular p. XVI). Indeterminacy is often linked to or even identified with vagueness, which should not imply that language policies are vague, only that the outcome of policies is often uncertain or unintended. (On the metalevel indeterminacy also – evidently – affects our own difficulties conceptualising ‘management’.) To Beaugrande, indeterminacy is linked to complexity within a model of how to maximise a scientific model’s control of its domain (1997: 92). The opposition between determinacy and indeterminacy as a design parameter of such a model constitutes the following concise dichotomy:

Determinacy versus indeterminacy: whether decisions among competing alternatives are clear or unclear (Beaugrande 1997: 88).

If we try to apply this dichotomy to prescriptive actions such as language management and policies, the concept of indeterminacy seems fruitful to apply to the relationship between goals, means and effects, but also to other parameters concerning how to address and implement a successful policy. Determining the strategic potentials of language domains and selecting them for active implementation of language policy involves indeterminacy, and so does calculating the degree of success.

The complex and open relationship between language, culture and society does not allow for total control of actions and effects; to some, this is a reason for resisting active management. We sometimes hear the argument that only successful measures should be applied, and since we are not sure about the success, we had better drop the measures. This would mean giving the free forces of the language market free rein, a position already refuted above.

There is always the risk that the saussurean idea of system immanency may result in over-emphasising the idea of “one system – one language – one monolingual society”, both language and society being perceived of as idealised abstractions. The discipline of sociolinguistics – in a broad sense – has offered theoretical and descriptive tools to overcome this limitation and include the dimension of power and conflict into models of language planning.

The main goal of language planning is twofold: equal access to language, and hence access to knowledge, for all. This democratic and anti-hegemonic ideal is – or should be, at least – common to LSP and LGP, and consequently the potential degree of success is also identical to both registers.

The best kind of success that can be hoped for, irrespective of type of language policy, is probably what may be referred to as ‘partial success’. This is because partial success demonstrates the absence of a total hegemony at the status level – within domain dynamics – and also at the corpus level, within term harmonisation and other forms of normalisation and standardisation. Impulses of management at the level of parole are the success criteria, because they represent a constant challenge to the static level of langue. These impulses are produced by the language users and may cause effects as well as (unforeseen) side-effects because many conflicting interests and many types of management impulses co-exist. This interplay is complex, but not more complex than other sectors of society.

One important example of ‘successful’ management in a macro-perspective is the policy of Francophonisation in Quebec from the 1970s onwards, or the Icelandic language policy. One example of ‘partial’ success within a more restricted domain is the creation of a Norwegian petroleum terminology (e.g. Myking & Sæbøe 2002). Partial success also corresponds to the common micro-pragmatic principles

of human communication as outlined by Grice, i.e. the interplay of conversation maxims (quantity, quality, relation and manner) that cannot always be met simultaneously.

We maintain that thesis 10 is still valid, but needs rephrasing and an important addition: Management of language structure and use is possible, but with no guarantee of achieving the intended result.

## 6 CONCLUSIONS

It is time to draw some conclusions. This paper argues that the main goal of domain-protecting SLP must be the establishment of ambitious parallel language strategies. We can sum up the implications of our five parameters in three general statements:

1. Speaking in terms of domain dynamics, the main goals refer to active domain conquest and prevention of loss. It is possible that too much discussion has been centred around the negative aspects of domain loss, and that a positive shift of focus towards domain conquest would be more productive.
2. In terms of parallel language use, the practice aims at context-flexible parallel configurations, the place of a lingua franca within such configurations being a matter of political, social or cultural hegemony. Combined with the parameter of specialisation, we make the following claim of an 'ideal' language policy: "Complete vertical and parallel specialisation within a domain, adjusted for social relevance"
3. Further, speaking in terms of semiotic struggle and indeterminacy, we arrive at a modified version of our initial thesis 10: "Language management is always possible; its outcome is, however, unpredictable."

Is this just naïve idealism? Despite all limitations of these principles, language is still a 'contract' that, like all other contracts, can be (re)negotiated – in ideal cases based on consensus, but, more realistically, through conflict of interest, taking the dimension of dominance and power into account. Democratic consensus requires democratic participation in society rather than authoritarian governance from above. This is at least the ideal of our so-called 'Nordic' model, in which the idea of democratic and transparent language planning is rooted – and consequently also the idea of management in a variety of forms.

The consequence of our thesis is not a presupposition that the intended goals are achievable. Management of domain dynamics by means of language planning and policies must be considered an "input" from society. Precisely as in economics, there is no one-to-one relationship between input and profit. This is why it is justified to state that "partial success" is the best success, because it demonstrates that hegemony is challenged.

Combining a tough ambition of managing corpus and status (= domain dynamics; parallelism; vertical specialisation) with sound and rational modesty with regard to the potential for success (convention/subversion; indeterminacy), we should adopt the "No fixed boundaries" approach. As I see it, the element of 'management' is a common denominator: Just as there are no fixed boundaries between general and special language or between general words and terms, there should be no fixed boundaries between theoretical and methodological directions within LSP or between practitioners of general and special language planning.

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