PRIMARY AND SECONDARY TERM CREATION AND THE PROCESS OF UNDERSTANDING

Application of Cognitive Terminology Theories in Terminology Management
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- Case study 1
- Case study 2

Introduction

Term creation is part and parcel of a process of more and better understanding.

It can be observed in several types of sociocognitive contexts.

We will use two case studies to illustrate
- primary and secondary term creation.
- multilingual primary term creation

What is primary term creation?

Primary term creation is part of a process of understanding within the confines of one language, in a specific domain (e.g. molecular biology) and a particular setting (e. g. Melissa Moore's research group on spliceosomal factors)

e.g. spliceosome (EN)

e.g. snRNP (EN) = "snurps"

What is a "spliceosome"

A spliceosome is a complex of specialized RNA and protein subunits that removes introns from a transcribed pre-mRNA (hnRNA) segment.
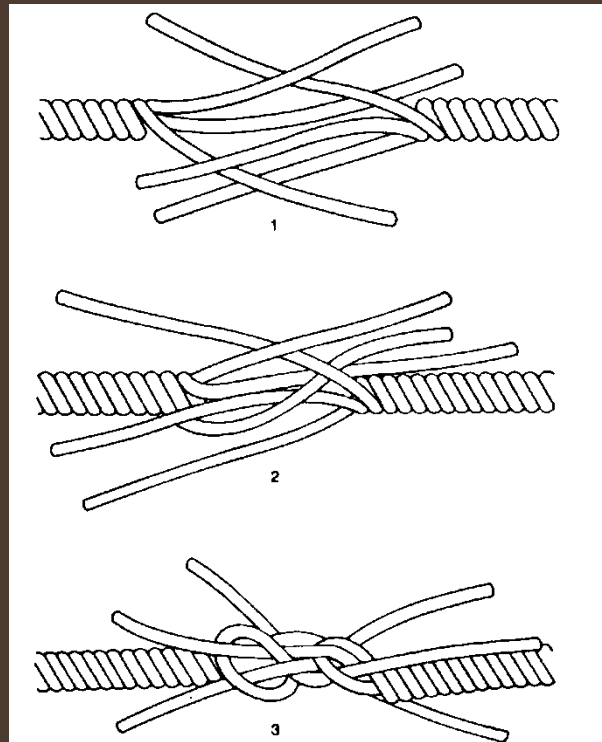
en.wikipedia.org/wiki/Spliceosome

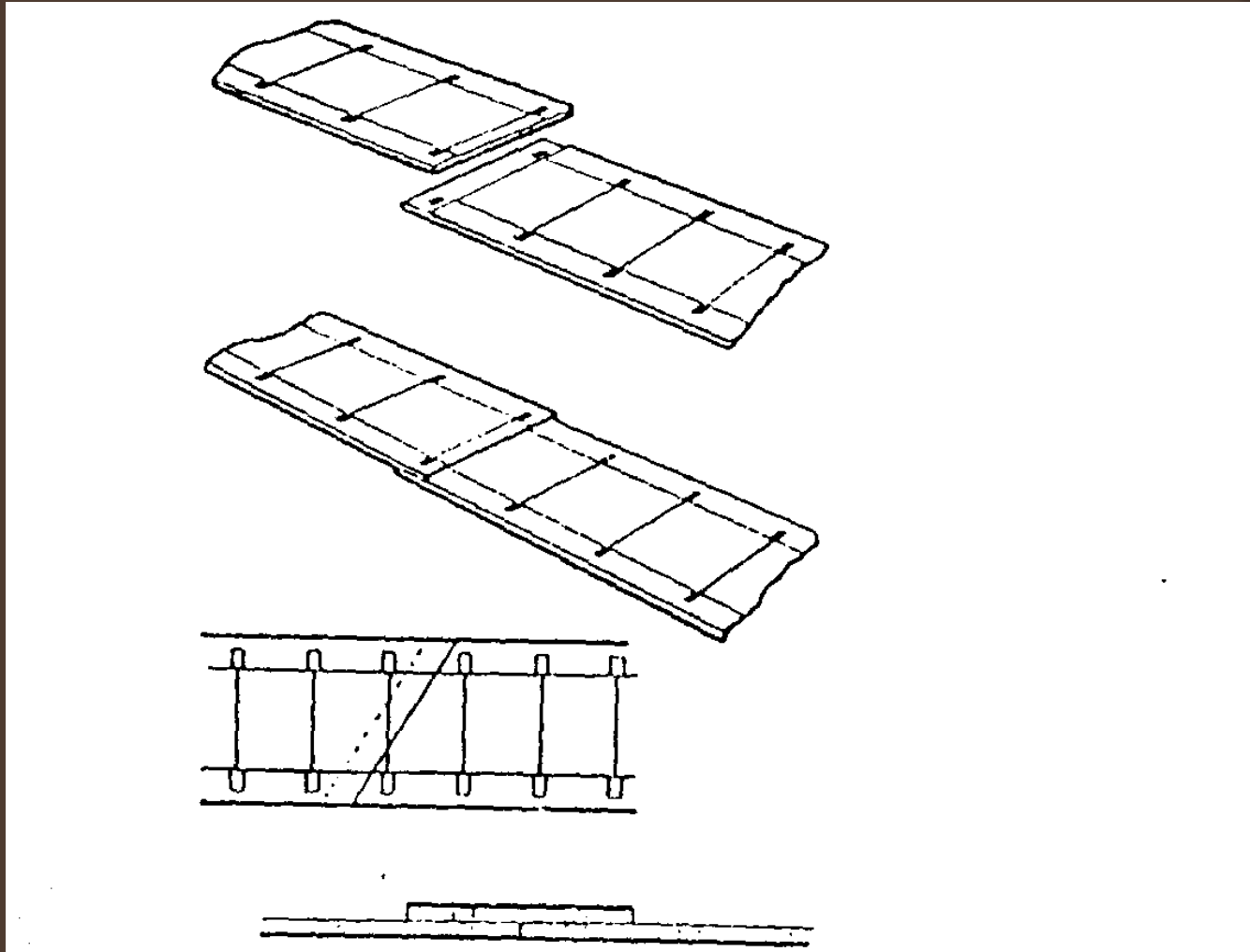The spliceosome "splices out" the introns from the mRNA

This is a motivated term in English

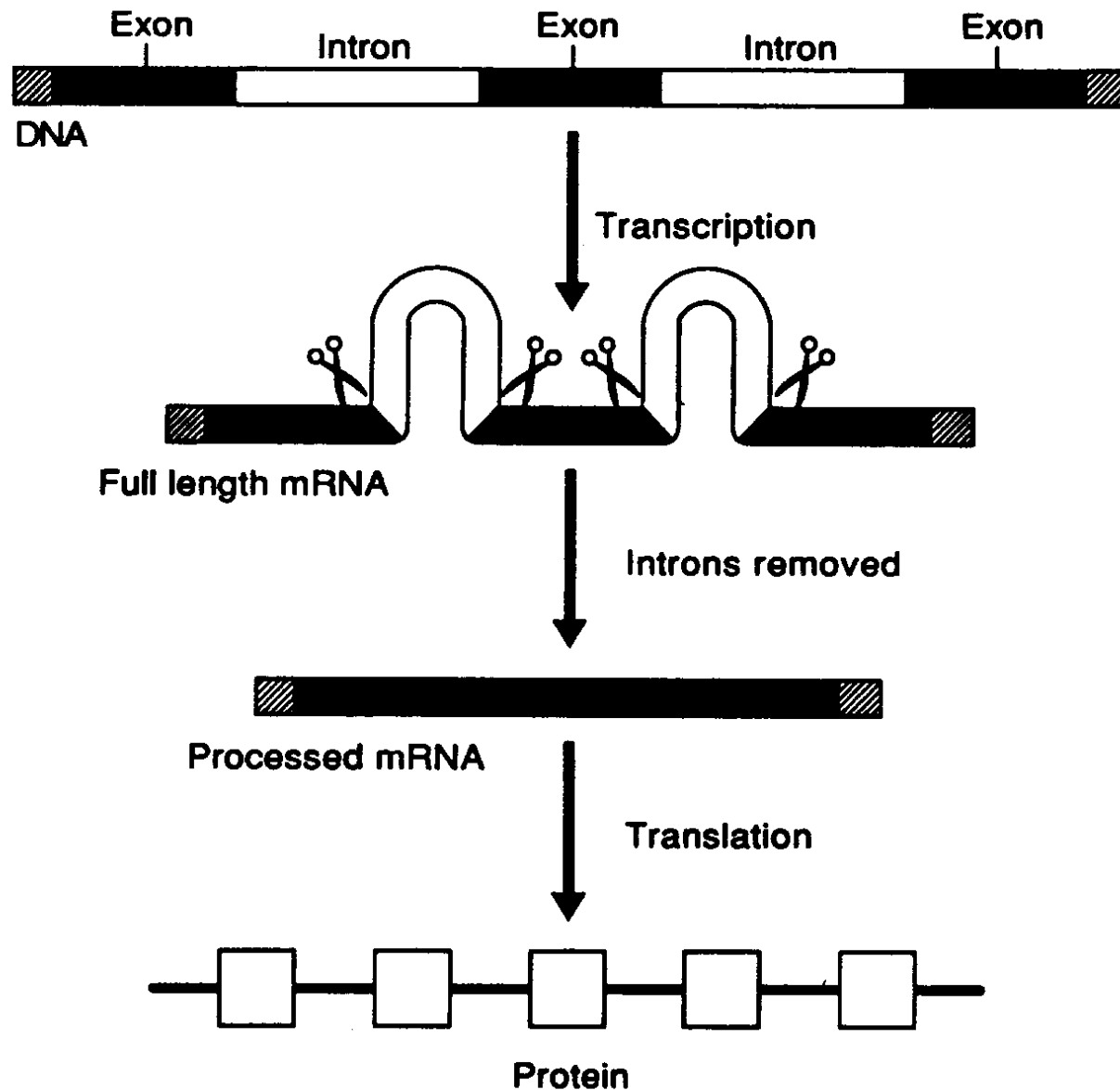In English the term "splicing" is highly polysemous

Rope splicing

Film splicing

mRNA splicing

Melissa S. Jurica and Melissa J. Moore*

Pre-mRNA Splicing

What's in a **spliceosome**? More than we ever imagined, according to recent reports employing proteomics techniques to analyze this multi-megadalton machine.
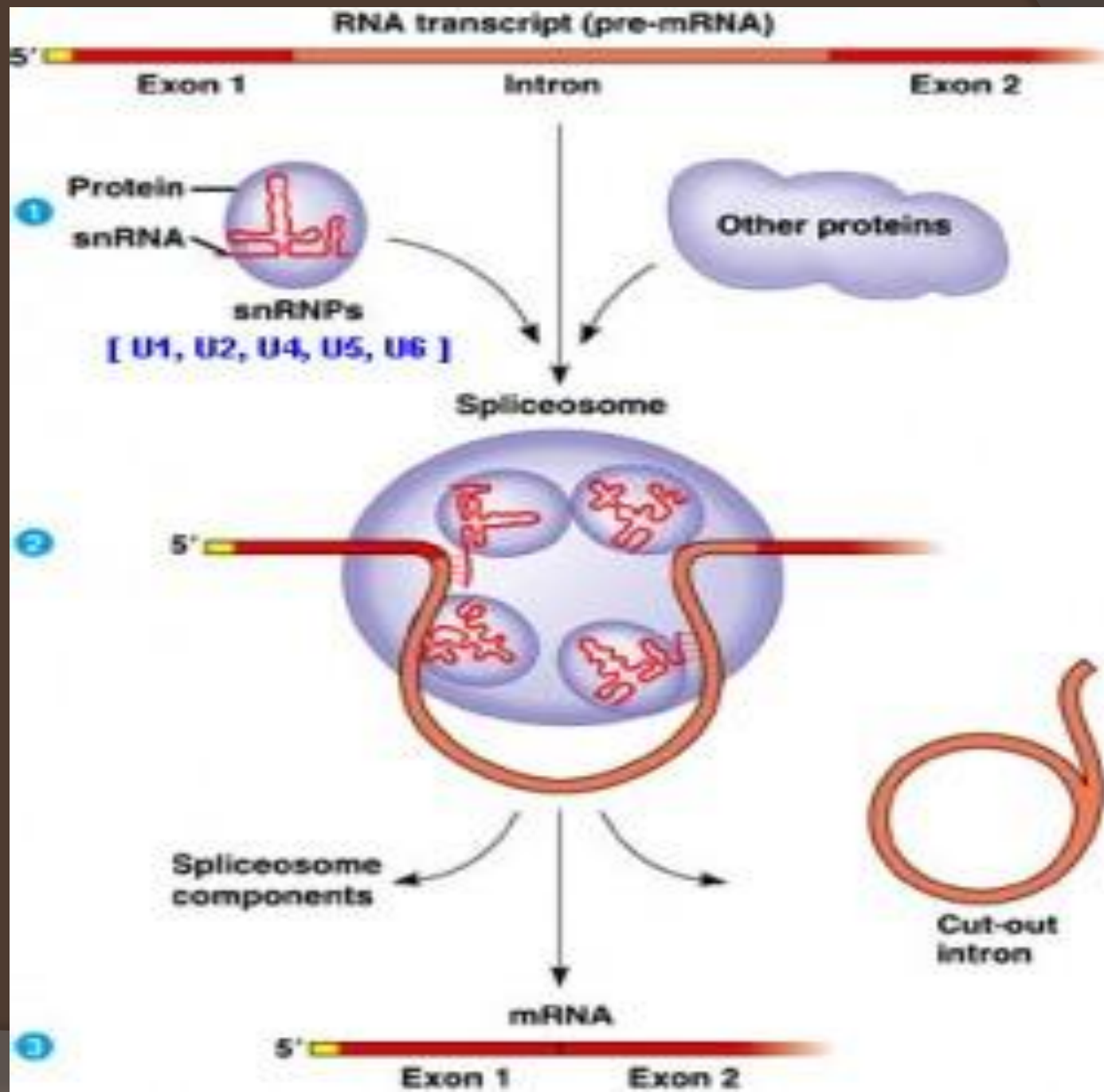
As of 1999, around 100 **splicing factors** were identified (Burge et al., 1999); however, that number has now nearly doubled due primarily to improved purification of **spliceosomes** coupled with advances in mass spectrometry analyses of complex mixtures. Gratifyingly, most of the previously identified **splicing factors** were found in the recent mass spec studies. Nonetheless, the number of new proteins emerging with no prior connection to **splicing** was surprising. Without functional validation, it would be premature to label these proteins as bona fide **splicing factors**. Yet many were identified multiple times in complexes purified under diverse conditions or from different organisms. Another recurring theme regards the dynamic nature of **spliceosomal complexes**, which may be even more intricate than previously thought.

RNA transcript (pre-mRNA)

5′
Exon 1 — Intron — Exon 2

① Protein — snRNA — snRNPs
[U1, U2, U4, U5, U6]

Other proteins

Spliceosome

② 5′

Spliceosome components

Cut-out intron

mRNA

③ 5′
Exon 1 — Exon 2

mRNA

mRNA~splicing snurp

exon snRNP

intron

spliceosome

New discoveries

Protein synthesis

Structure of DNA (1953)

mRNA splicing (1977)

snRNP (1980)

Spliceosome (1993)

The spliceosome comes assembled (2002): U2 spliceosomal RNA

What is secondary term creation?

In secondary term creation an equivalent is created in language B for a unit of understanding that was primarily part of a process of understanding in language A.

FR: splicéosome

The choice for this equivalent of EN spliceosome is motivated too

découvertes

Synthèse des proteines

Structure de l' ADN (1953)

Épissage des ARNm (1977)

pRNPn (1980)

Splicéosome (1993)

Le splicéosome est assemblé à l' avance (2002) ARN splicéosomal U2

What is multilingual primary term formation?

In an international context of equally authentic legal documents (European Union, WHO, IOM)in several official languages a multilingual primary term is created.

e.g. In Eurospeak and "flexicurity" and "transposition " are

MULTILINGUAL PRIMARY TERMS

IMPORTANT

Primary term creation AND

Secondary term creation AND

Multilingual primary term creation

1. RESULT IN MOTIVATED TERMS
2. PLAY A ROLE IN THE ADVANCEMENT OF UNDERSTANDING
3. ARE EMBEDDED IN SITUATED COMMUNICATION (in a societal context)

THE PROCESS OF UNDERSTANDING

The process of understanding

Humans have managed to create understanding and knowledge in the past and continue doing so in what appears to be a never-ending process.

PROBLEM

How does understanding come about?

Is knowledge the result of a continuous dynamics of understanding and misunderstanding ?

HOW TO STUDY THESE QUESTIONS?

by studying the cognitive potential and the development of natural language(s) and more particularly of lexical items, i.e. terminology, in specialized domains.

UNDERSTANDING IN CONTEXT

The interrelatedness of understanding and terminology creation (and occasional terminology loss) can be demonstrated and has been described in all types of context,

- ◉ situational context,
- ◉ communicative context,
- ◉ historical context,
- ◉ cultural context,
- ◉ metaphorical context,
- ◉ (multi)lingual context, etc.

RESEARCH ROOTED IN LINGUISTICS

Cognitive linguistics has been studying language's creative potential by demonstrating the role of diversity, variation, polysemy, vagueness and indeterminacy in human understanding (e.g. Geeraerts 1993, 2010; Evans and Levinson 2009)

IMPACT ON TERMINOLOGY STUDIES

The importance of diversity, variation, polysemy, vagueness and indeterminacy in human understanding is reflected in new trends of flexible data and knowledge management and is beginning to show its impact on terminology studies (see for instance Tercedor Sánchez and López Rodríguez 2008; Buitelaar et al. 2009; Faber et al. 2009; Reimerink et al. 2010, Robertson 2011).

interest in both the dynamics of cognition and the creative potential of language has shifted the perspectives of terminology studies to

- the creation of neologisms in special languages,
- the monosemy versus polysemy debate,
- the study of variation (Cabré , Freixa, Kerremans)
- research concerning ambiguity, synonymy, metaphor, phraseology

How about standardisation?

Recent approaches in terminology theory have brought the functionality and usefulness of standardization to its real proportion.

The effort to eliminate polysemy and synonymy in terminology, in order to achieve univocity and unambiguous communication, has been shown to interfere with the way natural languages function and develop.

OF COURSE:

Both the standardization of terminology (top down) by an authoritative body and the democratic negotiation process of harmonization (bottom up) have been shown to be relevant in a globalising world, e.g.

- for the transmission of scientific or technical knowledge in a particular linguistic community (Diki-Kidiri 2007)

- for the development of an international or global overarching legal order (Tsakona 2007).

BUT:

Understanding and knowledge development can be considered a dynamic and negotiable process in sociocognitive and pragmatic settings

THUS:

The creative potential of many (by extension all?) languages plays an important role, even though at this point in history the English language dominates in domain specific knowledge development.

Culture-bound understanding?

The dynamics of culture-bound terminology in monolingual and multilingual communication. An interdisciplinary perspective.

(Editors) Rita Temmerman and Marc Van Campenhoudt (forthcoming)

14 contributors to this volume

agree that understanding goes with terminology creation and that terminology creation is part of a dynamic process in time.

They all contribute their ideas on the culture-boundness of understanding and of terminology creation.

NEW EMPHASIS in terminology studies: Action research

Most of these research projects can be categorized under applied research and since methodologies are tailor-made in order to find answers to real life problems, these projects might be categorized as action research that is sometimes of a qualitative and sometimes of a quantitative nature or sometimes both.

FIRST CASE STUDY: PROTEIN SYNTHESIS IN EUKARYOTIC CELLS

Our first case study shows how primary term creation in English adds to more and better understanding in molecular biology.

Scientific writers or translators who have to express this new understanding in French will have to engage in secondary term creation.

Understanding in cognitive context

- Eukaryotes: cells have a nucleus
- DNA (genetic code) is in the nucleus
- Cells synthesize proteins
- RNA plays a role in protein synthesis by the cell
- Protein synthesis is a process:
- DNA $\longrightarrow$ mRNA $\longrightarrow$ protein
- In mRNA the intron are removed (splicing)
- Scientists are discovering the machinery of protein synthesis

As we now understand the cognitive contexts and the history of the understanding of some aspects of protein synthesis   …

we could translate the following text fragments into a language different from English? Into e.g. French? Into Croatian?

Understanding in linguistic context

Most eukaryotic genes are composed of numerous short coding sequences called **exons**, interspersed between long stretches of noncoding sequences called **introns**. The initial messenger RNA molecule copied from a gene includes introns as well as exons. Before this RNA molecule can be used to make a protein the introns must be removed by a process called **RNA splicing**.

Understanding in linguistic context

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mRNA

mRNA~splicing snurp

exon snRNP

intron

spliceosome

The **spliceosome** is composed of several small molecules called **snRNPs** or **"snurps"**. **Snurps** are made up of protein and small RNA molecules. Formation of the **spliceosome** begins when one kind of **snurp** binds to the 5' end of an intron and a different kind binds to the 3' end of an intron.

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mRNA
mRNA~splicing snurp
exon snRNP
intron
spliceosome

Additional **snurps** then interact with the complex, bringing the two ends of the intron together and causing the intron to form a loop. This also gathers all of the **snurps** together as the completed **spliceosome**. The intron is then cut out and the exons are joined or "spliced" together. The **spliceosome** then falls apart as the **snurps** are released.

mRNA

mRNA~splicing snurp

exon snRNP

intron

spliceosome

snurps pRNPn
ARNm
splicéosome
intron exon
épissage

Cognitive context

Molecular biology

Historical context

New discoveries

Linguistic context

Neologisms in English and French

Secondary term formation: French

- splicing/épissage
- spliceosome/splicéosome; particule d'épissage
- snRNP; snurp/RNPpn; "snurp"
- foldase-holdase/ ??????

SECOND CASE STUDY
Units of understanding in multilingual Europe
24 official languages

Dynamic and static aspects of the EU terminology

- Static aspects of terminology
  - term = **unit of knowledge** (prescriptive, standardisation)
  - term = a decontextualised item
  - cf. traditional view in terminology

- Dynamic aspects of terminology
  - term as **unit of communication**
  - term = part of specialised discourse and can not be decontextualised
  - cf. descriptive approaches in terminology (e.g. Cabré 1999; Diki-Kidiri 1998; Gambier; 1991; Temmerman 2000)

MULTILINGUAL UNDERSTANDING

We will discuss multilingual understanding and terminology creation in the European Union context.

MULTILINGUAL UNDERSTANDING

Given the European principle of equal authenticity for all official language versions of legal documents, multilingual primary term formation has become an issue.

MULTILINGUAL UNDERSTANDING

It is noteworthy that courts have integrated the possibility of understanding European legal terminology better by comparing several language versions.

Secondary term formation

Sager states that "secondary term formation occurs when a new term is created for a known concept [...] as a result of knowledge transfer to another linguistic community" (Sager 1990: 80)

Márta Fischer (2010)

multilingual primary term-creation is not about translation, but a simultaneous, multilingual activity aiming at the designation of one concept in several languages.

e.g. '**flexicurity**':

This means a welfare state model with a pro-active labour market policy. The model is a combination of easy hiring and firing (flexibility for employers) and high benefits for the unemployed (security for the employees). It was first implemented in Denmark in the 1990's.

(http://europa.eu/abc/eurojargon/index_en.htm)

But in fact:

the creation of EU terminology can be described as a two-step process:

(1) *multilingual primary term-creation* for the dominant languages followed by

(2) (2) a secondary activity, an *intra-*conceptual *term-transfer* for most other languages.

Creativity of translators/terminologists

Whilst, for primary terms, the process of conceptual thinking and designation is carried out by politicians, experts and civil servants (depending on the stage of decision-making), **secondary terms are created by the translators/terminologists in the EU institutions**.

flexicurity

PreLex

Monitoring of the EU decision making process between institutions

http://ec.europa.eu/prelex

• follows stages of decision-making
• monitors work of institutions
• follow-up of EC proposals

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[pic] | COMMISSION OF THE EUROPEAN COMMUNITIES |	[pic] | COMMISSION DES COMMUNAUTÉS EUROPÉENNES |
Brussels, 27.6.2007	Bruxelles, le 27.6.2007
COM(2007) 359 final	COM(2007) 359 final
COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS	COMMUNICATION DE LA COMMISSION AU PARLEMENT EUROPÉEN, AU CONSEIL, AU COMITÉ ÉCONOMIQUE ET SOCIAL EUROPÉEN ET AU COMITÉ DES RÉGIONS
Towards Common Principles of **Flexicurity**: More and better jobs through flexibility and security	Vers des principes communs de **flexicurité**: Des emplois plus nombreux et de meilleure qualité en combinant flexibilité et sécurité

COM(2011) 153 final 2011/0069
Proposal for a COUNCIL DECISION

- Promote "flexicurity" principles and ensure the employability of job seekers.
- Förderung eines Gleichgewichts zwischen Flexibilität und Beschäftigungssicherheit („Flexicurity") und Gewährleistung der Beschäftigungsfähigkeit von Arbeitssuchenden.
- promouvoir les principes de flexicurité et assurer l'employabilité des demandeurs d'emploi;
- Bevordering van de beginselen van flexizekerheid en de inzetbaarheid van werkzoekenden.
- Promover os princípios da «flexissegurança» e assegurar a possibilidade de emprego aos candidatos.(pt)

Floating signifier *transposition*

51 entries on transposition in IATE

- Information technology and data processing [COM] **Full entry EN**
- transposition method
- **DE**
- Versetzungsverfahren
- Umstellungsmethode
- Permutationsmethode
- **FR**
- méthode de transposition
- **NL**
- permutatiemethode

- Information technology and data processing [COM] **Full entry EN**
- transposition cipher
- transposition cypher
- **DE**
- Umstellungschiffre
- Versetzungschiffre
- Permutationschiffre
- **FR**
- chiffre de transposition

The way out of indeterminacy

- Harmonization?
- Standardization?

- The case of « transposition » in European ADMINISTRATIVE LAW

Transposition (IATE)

Def: process by which the European Union's member states give force to a directive by passing appropriate implementation measures

Note: Transposition is typically done by either primary or secondary legislation. The European Commission closely monitors that transposition is timely, correctly done and implemented, so as to attain the results intended. The Commission may bring a case in the European Court of Justice against states which have not transposed directives adequately.

Transposition (IATE)

Context: Much of European law takes the form of directives setting out broad principles and objectives but leaving Member States the choice of methods. For instance, Member States may invite the private sector to set up voluntary schemes to reach the objectives. Yet often this involves the transposition of the directive into national or regional legislation. Member States have to reach the objectives within a given time period. The Commission monitors that the transposition is timely and correctly done, so as to attain the results intended by the EU policy.

Contextref. EUROPA > European Commission > Better regulation. transposition. http://ec.europa.eu/governan...#_T [11.2.2011]

Legal understanding
Michael Kaeding

Kaeding, M. 2007 *Better regulation in the European Union: Lost in Translation or Full Steam Ahead? The <u>transposition</u> of EU transport directives across member states*

- Leiden/Leiden University Press, 2007
- ISBN 978 90 8728 026 0

Transposition and application and implementation

The first step, transposition, is defined as the process whereby European directives are incorporated into national law in order to make their objectives, requirements, and deadlines applicable in the member states.

Application is defined as the process whereby full compliance with EU law is monitored and secured, and the effect posterior evaluated; in this step, non-compliance is systematically evaluated by national and supranational courts..

Equal authenticity

Cultural embeddedness
(Kocbek 2008)

- Kocbek explains the principle of cultural embeddedness of terminology in every language and intercultural transfer in translating from a source language into a target language.

- The **creation process of the EU is the setting up of a supranational legal system that serves as an encompassing communication framework**.

- Translatability of legal texts depends on the relatedness of legal systems

- **Kocbek, A 2008. "The Cultural Embeddedness of Legal Texts"** *Journal of Language & Translation* **9-2 September 2008, 49-70**

Principle of equal authenticity
(Schilling 2010)

- It is quite common that equally authentic language versions of a Community law have different meanings if taken on their own.

- The citizen's legitimate expectations in the equal authenticity of that version requires protection as it is akin to the non-discrimination principle.

Schilling, T., 2010, "Beyond Multilingualism: On Different Approaches to the Handling of Diverging Language Versions of a Community Law". *European Law Journal*, Vol. 16, No. 1, pp. 47–66.

Conceptual divergence
(Prechal & Van Roermond 2008)

- **Divergence is instrumental** in multilingual settings because it helps to clarify the EU legal order.

- National concepts serve as "transmitters" of EU Law

- Conceptual divergence **does not jeopardize the quest for unity** but it is a precondition to a form of unity that is bound to remain virtual
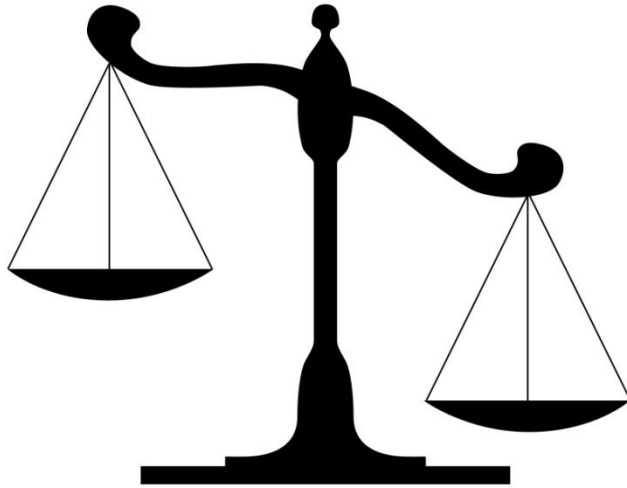
Prechal, S & B van Roermund (eds.) 2008 *The Coherence of EU Law The Search for Unity in Divergent Concepts* Oxford Studies in European Law

Multilingualism in the EU

- "EU's multilingual drafting system is *not based on co-drafting*" (Somssich et al. 2010: 88)

- Impact of the drafting languages on the terminology in the other official languages

Somssich et al. (2010) *Study on Lawmaking in the EU Multilingual Environment.* **Directorat General of European Commission**

Multilingualism in the EU

- ◉ Situation in 2008:

  - **72% (English)**
  - 12% (French)
  - 3% (German)

(Source: http://www.euractiv.com/en/culture/eu-translation-policy- stay/article-70516)

Emerging Euro-language having 24 variants: Euro-English, Euro-Italian, Euro-Dutch, Euro-Maltese, Euro-French, Euro-Croatian, etc.

EUROLANGUAGE REMINDS ME OF

Walter Benjamins "pure language" in *The Task of the Translator* (1923)

'the intention underlying all languages as a whole ...an intention which no single language can attain by itself, realized only by the totality of their intentions supplementary to each other: pure language'