

Methodology for a corpus based curricula

Needs analysis for **ESP.**

Speech acts

in scientific discourse

Abdou Elimam
(*Pr. emeritus*
Sorbonne & Rouen)

Methodology for a corpus based curricula

Let's formulate **our problem** :

1. How could we **help students** to **successfully** follow **technical and scientific courses** in English ?
2. What **facilities** can the **training engineering** methodology **offer** ?

Methodology for a corpus based curricula

1. We will **shed light** on
what we may call a
linguistic preparation
to **scientific discourse**

Methodology for a corpus based curricula

2. What does

the **engineering approach** offer to

Teaching Language for Scientific
Purpose

(TLSP)

Methodology for a corpus based curricula

3. We will

(i) pinpoint the actual linguistic needs ;

(ii) and design one's own

training frames of reference

4. We will discuss

the **exploitation** of one's own

training frames of reference

in an **ESP** training situation

Methodology for a corpus based curricula

1. What will the **linguistic preparation** to **scientific discourse** consist in ?

Methodology for a corpus based curricula

1.

the linguistic preparation

Let's distinguish between **language for general purpose** and **language for specific purpose**.

What specifies the latter are :

- The use of a **special terminology**;
- A **distinctive** (and simplified) **syntax**;
- A mixture of **semiotic codes** (boards, graphics, images, symbols, formulae , etc.).

Methodology for a corpus based curricula

1.

the linguistic preparation

Discourse analysis has shown that the scientific discourse syntax will change according to:

- the domain,
- the type of text (treatise, research article, article of vulgarisation, educational support etc.)

Methodology for a corpus based curricula

the linguistic preparation

Now let's make it clear :

The **overwhelming** weight of **terminology**
is a pure **myth...**

Therefore how **salient** can
terminology be in **scientific discourse** ?

Methodology for a corpus based curricula

the linguistic preparation

Average weight of terminology in scientific discourse :

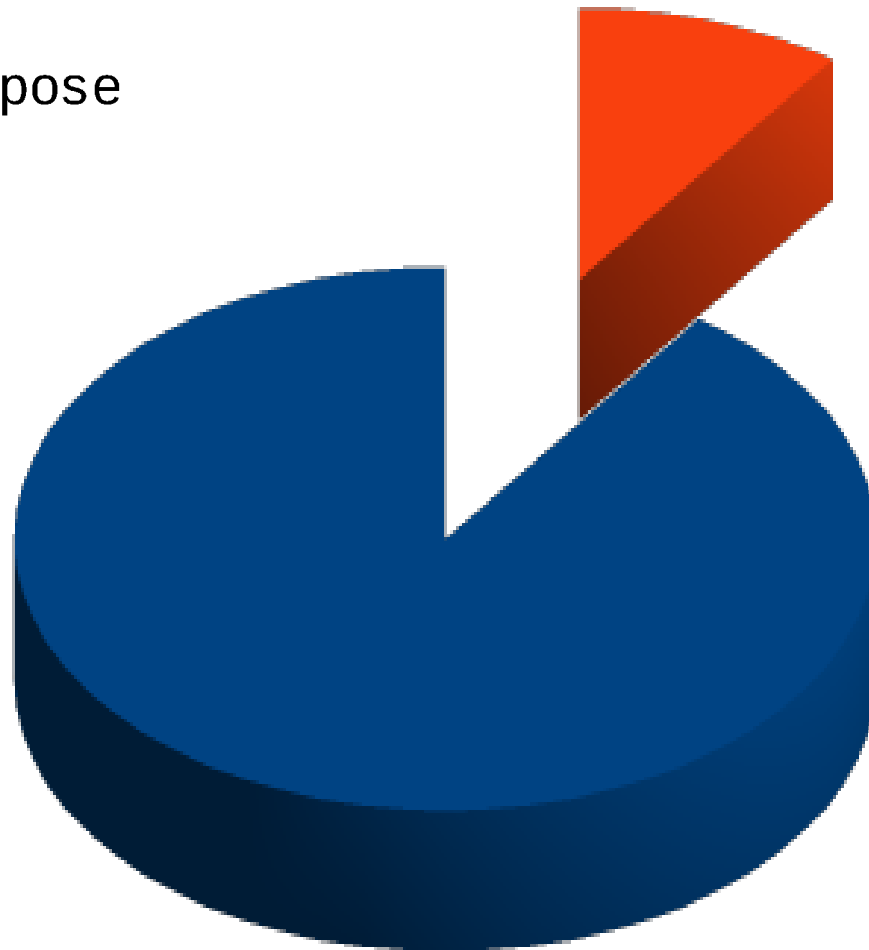
80 to 90 %	10 to 20 %
Language for General Purpose	Terminology
Vocabulary, syntax, style, etc.	« Technical » vocabulary.

Methodology for a corpus based curricula

the linguistic preparation

Average weight of terminology in scientific discourse :

- Language for General Purpose
- Terminology



The engineering of scientific discourse

This approach got inspired by processes involved in **project management theories**.

- Three (main) **phases** are acknowledged:
 - 1 Needs & training frames of references;**
 - 2 Implementation and monitoring;**
 - 3 Evaluations.**

The engineering of scientific discourse

The **retrieving** then the **analysis** of **needs** will be a determinant step.

In fact our **frames of references** will be elaborated out of a relevant collection of the **needs**.

We will concentrate on this step for the next minutes.

The engineering of scientific discourse

Let's underline the fact that **all** of the **linguistic needs** must be retrieved within the **corpus** (supports, notices, catalogues, technical notices, etc.) and nowhere else !

To begin with we must distinguish between:

- **general purpose discourse**, and ;
- **specific discourse** or **terminology**.

The engineering of scientific discourse

TERMINOLOGY

- 1) In a scientific text, **terminology** occupies less than **20 %** of the **total number** of words.
- 2) **Terminology** maps on **conceptual networks** and an **epistemological filiation** familiar only to **specialists** (one must have been trained for it).
- 3) Therefore it is best handled by **specialists**.

The engineering of scientific discourse

The engineering of scientific discourse

- *Linguistic prerequisites* can be targeted at 100 % if they are retrieved out of the literature students have to be exposed to.

It is this (*linguistic prerequisites*) part of our job (the most technical, in fact) that will help us build a relevant linguistic frame of references.

- Such a frame of references is made of structures (syntactic schemes) associated with speech acts (significations).

The engineering of scientific discourse

Let's apply our method to a scientific piece of discourse

Solar minimum

“Solar minimum has returned, bringing extra cosmic rays, long-lasting holes in the sun's atmosphere, and strangely pink auroras.”. The sun follows cycles of roughly 11 years where it reaches a solar maximum and then a solar minimum. During a solar maximum, the sun gives off more heat and is littered with sunspots. Less heat in a solar minimum is due to a decrease in magnetic waves.

The sun was not expected to head into a solar minimum until around 2020, but it appears to be heading in early which could prove to be bad news. The last time there was a prolonged solar minimum, it led to a ‘mini ice-age’, scientifically known as the Maunder minimum - which lasted for 70 years.

The engineering of scientific discourse

The engineering of scientific discourse

Solar minimum

“Solar minimum has returned, bringing extra cosmic rays, long-lasting holes in the sun's atmosphere, and strangely pink auroras.”. The sun follows cycles of roughly 11 years where it reaches a solar maximum and then a solar minimum. During a solar maximum, the sun gives off more heat and is littered with sunspots. Less heat in a solar minimum is due to a decrease in magnetic waves. The sun was not expected to head into a solar minimum until around 2020, but it appears to be heading in early which could prove to be bad news. The last time there was a prolonged solar minimum, it led to a ‘mini ice-age’, scientifically known as the Maunder minimum - which lasted for 70 years.

The engineering of scientific discourse

The engineering of scientific discourse

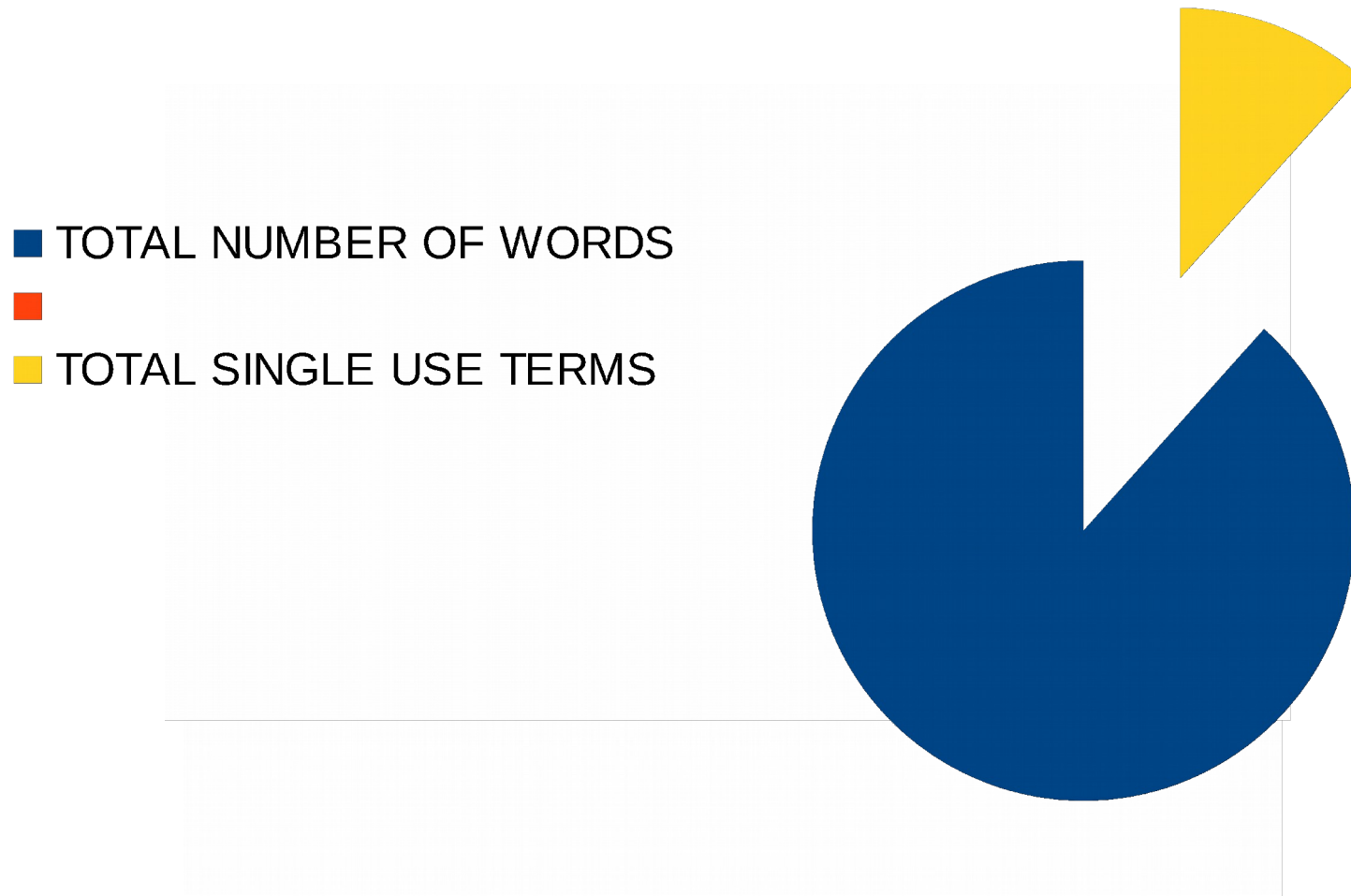
Solar minimum

Total of words	Total of single use terms
122	16

13 % of terms!

The engineering of scientific discourse

The engineering of scientific discourse



The engineering of scientific discourse

The engineering of scientific discourse

Now that we are off with 13%

(terminology) of the text, let's see what

we must do with the remaining 87% !

The engineering of scientific discourse

The engineering of scientific discourse

Let's start by finding out

THEMES and their **COMMENTS**.

Remember: *theme* is “what it is about” (usually the head NP);

comment is “what is said on *theme*” (usually the VP of the head NP).

The engineering of scientific discourse

The engineering of scientific discourse

Solar minimum

“Solar minimum [has returned], [∅ bringing (extra cosmic rays), (long-lasting holes in (the sun's atmosphere)), and (strangely pink auroras.)”]

The sun [follows cycles of (roughly 11 years)] where it [reaches (a solar maximum) and then (a solar minimum)].

During a solar maximum, the sun [gives off (more heat)] and [is littered (with sunspots)] . Less heat in a solar minimum [is due to (a decrease (in magnetic waves))].

The sun [was not expected to head (into a solar minimum) until (around 2020)], but it [appears to be heading in early] which [could prove to be (bad news)].

[The last time there was a prolonged solar minimum], it [led (to a ‘mini ice-age’), [scientifically known (as the Maunder minimum)] - which [lasted for (70 years)].

The engineering of scientific discourse

The engineering of scientific discourse

The **COMMENTS** of the **THEMES**

enable us to determine the **types** of

speech acts we are dealing with.

The engineering of scientific discourse

The engineering of scientific discourse

Let's apply our method to a scientific piece of discourse

Solar minimum

“Solar minimum [has returned], [∅ bringing (extra cosmic rays), (long-lasting holes in (the sun's atmosphere)), and (strangely pink auroras.)”]

{DESCRIPTION}

The sun [follows cycles of (roughly 11 years)] where it [reaches (a solar maximum) and then (a solar minimum)]. **{PROCESS-LIKE DEFINITION}**

During a solar maximum, the sun [gives off (more heat)] and [is littered (with sunspots)]. Less heat in a solar minimum [is due to (a decrease (in magnetic waves))]. **{PROCESS-LIKE DEFINITION}**

The sun [was not expected to head (into a solar minimum) until (around 2020)], but it [appears to be heading in early] which [could prove to be (bad news)].

{DESCRIPTIVE COMPARISON}

[The last time there was a prolonged solar minimum], it [led (to a ‘mini ice-age’), [scientifically known (as the Maunder minimum)] - which [lasted for (70 years)].

{DEFINITIONAL COMMENT }

The engineering of scientific discourse

The engineering of scientific discourse

We are ready, now, to **extract** our own
linguistic terms of reference

The engineering of scientific discourse

{DESCRIPTION}

- X HAS RETURNED BRINGING (A), (B), AND (C).

{DESCRIPTIVE COMPARISON}

- X WAS NOT EXPECTED TO HEAD INTO(LOC) until (around (Q-time/DATE)), but X APPEARS TO BE HEADING IN (Q-time/DATE) which COULD PROVE TO BE (A)

{DEFINITIONAL PROCESS}

- X FOLLOWS CYCLES of (Q-time/DATE) where X REACHES (LOC1) and then (LOC2)
- During (SIT), X GIVES OFF (more A)] and IS LITTERED (with B)]. Y IS DUE TO (a decrease (in C))].

{DEFINITIONAL COMMENT }

- The last time THERE WAS X, X LED (to (A)), SCIENTIFICALLY KNOWN (as (B))] - which LASTED FOR (Q-time/DATE)

The engineering of scientific discourse

The **linguistic terms of reference** we have just extracted will inform our (most relevant) **syllabus**.

We have (02) two main **speech acts** to teach:

DESCRIPTION and **DEFINITION**

And three sub-speech acts:

- 1) **DESCRIPTIVE COMPARISON**
- 2) **DEFINITIONAL PROCESS**
- 3) **DEFINITIONAL COMMENT**

The engineering of scientific discourse

The engineering of scientific discourse

- Each **speech act** is mapped to one or two **structural schemes**.
- Each **structural scheme** will be decomposed into **easy to handle syntagms** and recomposed for pedagogical sake.

The engineering of scientific discourse

The engineering of scientific discourse

Instead of a “*copy and paste*” reflex,

we have produced

a 100 % relevant syllabus.

Methodology for a corpus based curricula

In a few words :

Being an ESP TEACHER
MEANS : TECHNICALITY AND
Highly specialised skills !

Methodology for a corpus based curricula

Thank you
for having been
so patient.

Abdou Elimam
University Oran 2
11/13/2018