



*Conference Using Corpora in Contrastive and Translation Studies
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Cross-Linguistic Register Analysis in Specialised Discourse. A corpus-based investigation of denominal adjectives in LSP: the examples of medicine and earth sciences

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Introduction

Conference Using **Corpora** in **Contrastive** and Translation Studies

EN & FR

Language use

Cross-Linguistic Register Analysis in Specialised Discourse. A **corpus-based investigation** of denominal adjectives in LSP: the examples of **medicine and earth sciences**

Noun phrase modification

2 LSPs

An exploratory analysis



Outline

1. State of the art

- Registers, specialised discourse and context
- Noun phrase modification in EN & FR

→ *Question: Does noun phrase modification characterise specialised discourse?*

2. Methodology

- 8 subcorpora
- Methodological steps

3. Results

4. Conclusive remarks

1. State of the Art & Questions

- Register, specialised discourse and context
 - Noun phrase modification in EN & FR

From a translational point of view...

Regulation **of cells**

Cell regulation

Cellular regulation



Noun phrase modification

→ régulation **cellulaire**

→ régulation **des cellules**

?

Chuquet & Paillard 1987

[complex noun phrases in translation → Kübler et al. 2018]

An example

Depending on the context:

Cancer mammaire

EXPERTS

><

Cancer du sein

NON-EXPERTS

Maniez 2009

An example

Depending on the context:

Cancer mammaire

EXPERTS

><

Cancer du sein

NON-EXPERTS

In EN?

In other specialised
domains?

In other registers?

Maniez 2009

Questions

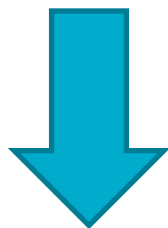
Are specialised discourses characterised by a specific type of noun phrase modification sequences:

- In specialised EN as well?
- In other contexts / registers (EN-FR)?
- In other specialised domains (EN-FR)?

based on Maniez 2009

Register, degrees of specialisation and context

The context and the message receivers



LSP (Language for Specific Purposes)

Bowker & Pearson 2002

< “contextual-functional varieties of the ordinary language”

Garzone 2006 in Pignataro 2006

Register, degrees of specialisation and context

Degrees of specialisation:

- LSP is influenced by the context of communication
- Within each LSP : “a wide scope for variation in terms of degree of specialization”

Garzone 2006 in Pignataro 2012

Register, degrees of specialisation and context

“Popularizations target (...) a **wide reading public** and deal with specialized topics in a language close to general discourse and to the layman’s everyday experience. The purpose here is chiefly **informative** and seeks to extend the reader’s knowledge rather than develop a secondary conceptual system.”

→ *Recontextualization*

Gotti 2014: 17

Register, degrees of specialisation and context

→ Degrees of specialisation are distinguished by their **context** of production and the **purpose / main function** of their texts

Gotti 2014

→ **Register** (< Functional Linguistics)

Lee 2001, Biber & Conrad 2009

Register, degrees of specialisation and context

Register variation

= “functional or diaphasic variation determined by the situational context”

Neumann 2014: 2

→ Language is used in a particular way to fulfil communicational functions

Biber & Conrad 2009

Register Variation

Register → Language use

→ Contextual approach to ESP,
with a *Register Pattern Analysis*
(configuration of lexico-grammatical
and semantic patterns)

Gledhill & Kübler 2016

→ The norm of language use

Neumann 2016

Which types of noun phrase modification?

In French:

With an adjective or a prepositional phrase
(*de/des*)

Ex.: régulation cellulaire
régulation de la cellule / des cellules

In English:

With an adjective, a prepositional phrase (*of*) or
a noun

Ex.: cellular regulation
regulation of the cell / cells
cell regulation

Biber et al. 2008

Denominal Adjectives

< *Relational adjectives*

➤ Morphology:

The majority of Den-Adj are derived from nouns
(>< *heart – cardiac*)

➤ Syntax:

Den-Adj cannot be used as predicates

➤ Semantics:

Both Den-Adj and the noun have the same meaning (~~*blood – bloody*~~)

Denominal Adjectives

➤ Discursive property:

- Den-Adj can be expressed with a P-P

Deléger & Cartoni 2009

- Do they characterise SPE, like they do in French?

Maniez 2009

2. Methodology

- 8 subcorpora
- Methodological steps

Methodology

Corpus linguistics

= a methodological approach to study **language use**

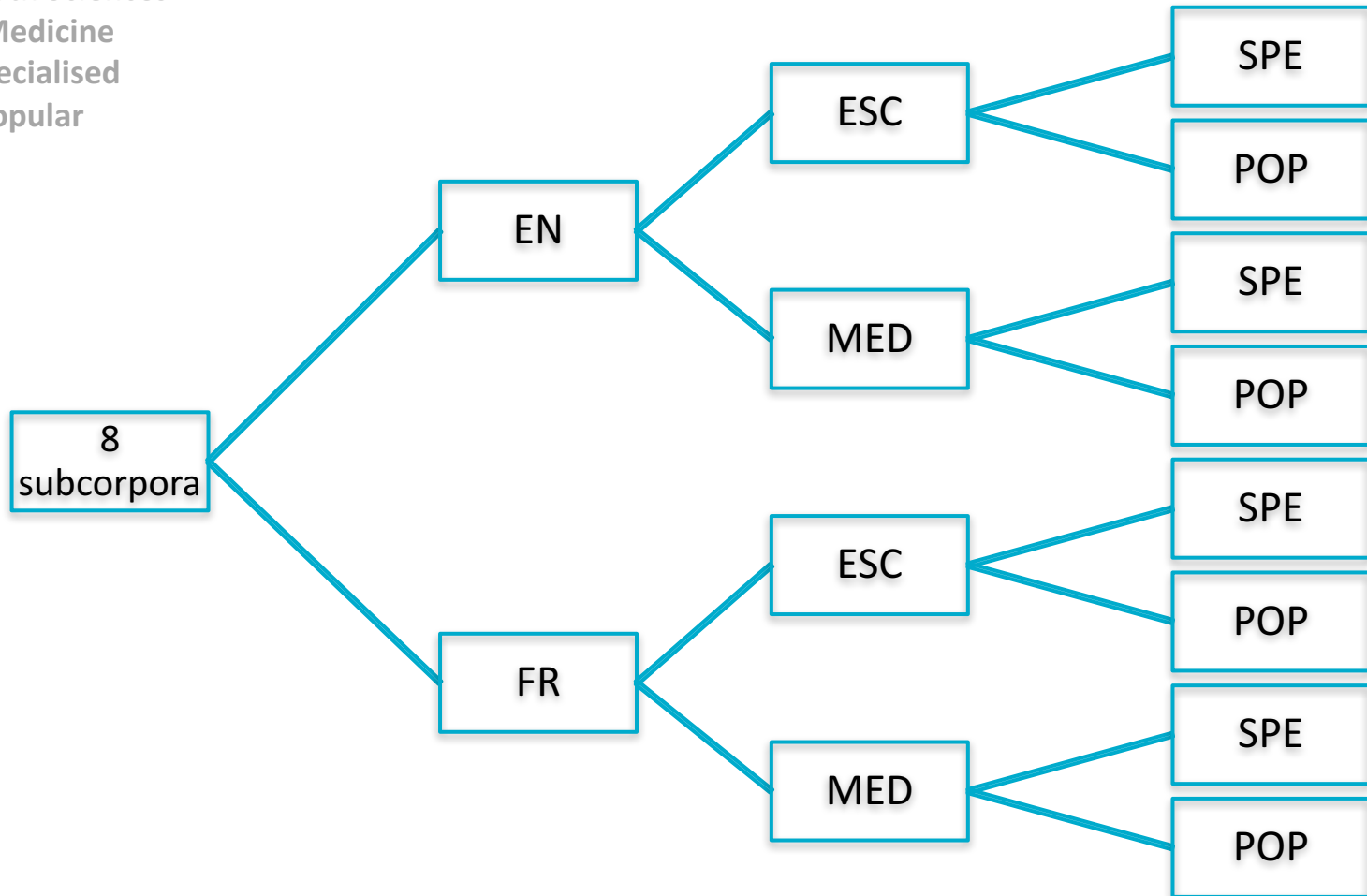
Bowker & Pearson 2002

- To study language as a social phenomenon, based on actual data (R. de Beaugrande)
- **Functionalist** approach (J.R. Firth, M.A.K. Halliday, J. Sinclair)

Zanettin 2012

8 Subcorpora

ESC = Earth Sciences
MED = Medicine
SPE = specialised
POP = popular



Criteria of corpus compilation

SPE subcorpora	POP subcorpora
Introduction of research articles (EN) or PhD theses (FR)	Informative websites of specialised departments
Originals	Originals
Written by specialists	Written by specialists
30,000 words / subcorpus (120,000 words)	15,000 words / subcorpus (60,000 words)



Based on Bowker & Pearson 2002

ESC → *ocean + warming*

MED → *diabetes + gene*

Subcorpora

In order to be analysed, the corpora were:

- tagged with the tagger TagAnt© 
- downloaded in the concordancer AntConc© 
(*wild cards*)

by Laurence Anthony

AntConc 3.4.4m (Macintosh OS X) 2014

AntConc File Settings Help

Concordance Concordance Plot File View Clusters/N-Grams Collocates Word List Keyword List

Corpus Files

- Al-Rubeaan_tagged.txt
- Allan_tagged.txt
- Asano_tagged.txt
- Banchuin_tagged.txt
- Barna_tagged.txt
- Bhat_tagged.txt
- Buraczynska_tagged.txt
- Caixia_tagged.txt
- Chengli_tagged.txt
- Chidambaram_tagged.1
- Chun_tagged.txt
- Coll_tagged.txt
- Goulielmos_tagged.txt
- Grau-Perez_tagged.txt
- Herrera-Lopez_tagged
- Hornum_tagged.txt
- Hui_tagged.txt
- Huimel_tagged.txt
- Husain_tagged.txt
- Ide_tagged.txt
- lorio_tagged.txt
- Jainanandising_tagged.
- Jie_tagged.txt
- Johansson_tagged.txt
- Kankova_tagged.txt
- Kawabata_tagged.txt
- Kindt_tagged.txt
- Klein_tagged.txt
- Klötting_tagged.txt
- Kumar_tagged.txt
- Kyung-Won_tagged.txt
- Lie_tagged.txt
- Männik_tagged.txt
- Mezghanl_tagged.txt
- Middleton_tagged.txt
- Mir_tagged.txt
- Ndiaye_tagged.txt
- Ochl_tagged.txt
- Pablo_Lopez_tagged.txt
- Page_tagged.txt
- Palmer_tagged.txt
- Park_tagged.txt
- Pérez-Luque_tagged.txt
- Prabhanjan_tagged.txt
- Qian_tagged.txt
- Rahman_tagged.txt
- Rajput_tagged.txt
- Reynier_tagged.txt
- Riobello_tagged.txt
- Rivero-Gutierrez_tagge
- Saredi_tagged.txt
- Schäfer_tagged.txt
- Seong-Su_tagged.txt
- Shaocing_tagged.txt
- Soleimanpour_tagged.t
- Stephens_tagged.txt

Concordance Hits 229

Hit	KWIC	File	
1	only_RB limited_VVN to_TO linkage_NN analysis_NN and_CC candidate_NN	gene_NN studies_NNS .SENT Later_RBR on_RB ,, GWAS_NP was_VBD used_VVN	Al-Rubeaan_t
2	2D_NNS in_IN order_NN to_TO develop_VV Arab_NP Diabetes_NP	Gene_NP Centric_NP Array_NP ((ADGCA_NP)) for_IN T2D_NN .SENT The_	Al-Rubeaan_t
3	glucose_NN metabolism_NN and_CC mutations_NNS of_IN the_DT glucokinase_NN	gene_NN ((GCK_NP)) have_VHP been_VBN associated_VVN with_IN impaired_JJ	Allan_taggec
4	_DT i_NP -cell-specific_JJ promoter_NN of_IN the_DT glucokinase_NN	gene_NN has_VHZ been_VBN associated_VVN with_IN impaired_JJ glucose_NN tole	Allan_taggec
5	nt_NN mutation_NN in_IN the_DT tRNALeu_NN ((UUR_NP)) mitochondrial_JJ	gene_NN at_IN nucleotide_NN 3243_CD has_VHZ been_VBN associated_VVN with_IN	Allan_taggec
6	IN chromosome_NN 3_CD The_DT interval_NN contains_VVZ IL21_NP ,, the_DT	gene_NN for_IN murine_JJ IL-21_NP ,, making_VVG IL21_NP a_DT positional_	Asano_taggec
7	a_DT positional_JJ as_RB well_RB as_IN functional_JJ candidate_NN	gene_NN for_IN type_NN 1_CD diabetes_NN .SENT In_IN this_DT study_	Asano_taggec
8	subjects_NNS to_TO identify_VV sequence_NN variants_NNS of_IN the_DT	gene_NN .SENT We_PP also_RB searched_VVD for_IN informative_JJ variants_NN	Asano_taggec
9	also_RB searched_VVD for_IN informative_JJ variants_NNS of_IN the_DT	gene_NN for_IN the_DT receptor_NN for_IN IL-21_NP ,, IL21R_NP .	Asano_taggec
10	_NNS belong_VVP to_TO type_VV 1_CD of_IN the_DT reg_NN	gene_NN family_NN ,, which_WDT is_VBZ a_DT multigene_JJ family_NN and_	Banchuin_tag
11	[_SYM 1_CD -_NN 3_CD]_SYM .SENT The_DT reg_NN ((regenerating_VVG))	gene_NN was_VBD originally_RB isolated_VVN from_IN the_DT rat_NN regenerati	Banchuin_tag
12	contained_VVD a_DT homologue_NN of_IN the_DT rat_NN reg_NN	gene_NN ,, encoding_VVG a_DT 166_CD amino-acid_JJ protein_NN ,, which_WDT	Banchuin_tag
13	complete_JJ nucleotide_NN sequence_NN determination_NN of_IN human_JJ reg_NN	gene_NN has_VHZ shown_VVN that_IN/that it_PP spans_VVZ approximately_RB 3.6	Banchuin_tag
14	band_NN 2p12_JJ]_SYM 5_CD]_SYM .SENT This_DT human_JJ reg_NN	gene_NN was_VBD renamed_VVN reg1h_NN when_WRB a_DT novel_JJ	Banchuin_tag
15	_VBD renamed_VVN reg1h_NN when_WRB a_DT novel_JJ human_JJ	gene_NN was_VBD isolated_VVN [_SYM 3_CD]_SYM .SENT The_DT novel_JJ human_	Banchuin_tag
16	was_VBD isolated_VVN [_SYM 3_CD]_SYM .SENT The_DT novel_JJ human_JJ	gene_NN ,, reg1i_NP ,, also_RB composed_VVN of_IN 6_CD exons_NNS ,, enc	Banchuin_tag
17	the_DT kidney_NN [_SYM 3_CD ,, 4_CD]_SYM .SENT Human_JJ reg1h_NN	gene_NN was_VBD found_VVN to_TO encode_VV several_JJ molecular_JJ forms_	Banchuin_tag
18	4_CD ,, 6_CD]_SYM .SENT The_DT role_NN of_IN the_DT reg_NN	gene_NN and_CC the_DT reg_NN protein_NN have_VHP been_VBN associated_	Banchuin_tag
19	lithostathine_NN ,, a_DT protein_NN derived_VVN from_IN the_DT reg_NN	gene_NN ,, could_MD possibly_RB be_VB involved_VVN in_IN pancreatic_JJ lit	Banchuin_tag
20	, ,, 2011_CD ; : Zhou_NP et_NP al_NP .SENT ,, 2012_CD)) .SENT The_DT	gene-gene_NN interaction_NN which_WDT is_VBZ called_VVN epistasis_NN might_	Barna_taggec
21	2011_CD ; : Zhou_NP et_NP al_NP .SENT ,, 2012_CD)) .SENT The_DT	gene_NN interaction_NN which_WDT is_VBZ called_VVN epistasis_NN might_MD ex	Barna_taggec
22	may_MD be_VB dependent_JJ on_IN other_JJ genetic_JJ variations_NNS ((gene-gene_NN interactions_NNS)) and_CC environmental_JJ factors_NNS ((Barna_taggec
23	_MD be_VB dependent_JJ on_IN other_JJ genetic_JJ variations_NNS ((gene_NN interactions_NNS)) and_CC environmental_JJ factors_NNS ((gene-	Barna_taggec
24	gene-gene_NN interactions_NNS)) and_CC environmental_JJ factors_NNS ((gene-gene_NN interactions_NNS)) .SENT To_TO address_VV this_DT is	Barna_taggec
25	he_DT development_NN of_IN statistical_JJ methods_NNS for_IN analyzing_VVG	gene-gene_NN and_CC gene-environment_NN interactions_NNS such_JJ as_IN logi	Barna_taggec
26	development_NN of_IN statistical_JJ methods_NNS for_IN analyzing_VVG	gene_NN and_CC gene-environment_NN interactions_NNS such_JJ as_IN logistic	Barna_taggec
27	_IN statistical_JJ methods_NNS for_IN analyzing_VVG gene-gene_NN and_CC	gene-environment_NN interactions_NNS such_JJ as_IN logistic_JJ regression_M	Barna_taggec
28	method_NN detects_VVZ and_CC characterizes_VVZ a_DT high_JJ order_NN	gene-gene_NN and_CC gene-environment_NN interaction_NN in_IN case-control_M	Barna_taggec
29	_NN detects_VVZ and_CC characterizes_VVZ a_DT high_JJ order_NN	gene_NN and_CC gene-environment_NN interaction_NN in_IN case-control_NN stu	Barna_taggec

Search Term Words Case Regex

Search Window Size

Kwic Sort

Level 1 1R Level 2 2R Level 3 3R

Total No. 66

Files Processed

Clone Results

AntConc 3.4.4m (Macintosh OS X) 2014

Concordance Hits 54

Hit	KWIC	File
1	_NNS belong_VVP to_TO type_VV 1_CD of_IN the_DT reg_NN	Banchuin_tag
2	2011_CD ;_: Zhou_NP et_NP al_NP ._SENT ,_, 2012_CD)_) ._SENT The_DT gene-	Barna_tagged
3	_JJ site_NN of_IN action_NN for_IN the_DT TCF7L2_NP	Buraczynska_
4	2001_CD)_) ._SENT Inherited_JJ defects_NNS in_IN the_DT human_JJ MUTYH_NP	Huimei_tagge
5	_NN factor_NN for_IN T2DM_NP by_IN decreasing_VVG the_DT	Huimei_tagge
6	_NN ,_, we_PP hypothesized_VVD that_IN/that the_DT novel_JJ MUTYH_NP	Huimei_tagge
7	most_RBS likely_JJ to_TO be_VB informative_JJ for_IN susceptibility_NN	Husain_tagge
8	and_CC coworkers_NNS reported_VVD the_DT role_NN of_IN IL-18_NP	Ide_tagged.t
9	study_NN to_TO clarify_VV the_DT association_NN of_IN IL-18_NP	Ide_tagged.t
10	ase-stimulated_JJ insulin_NN secretion_NN ,_, reduced_VVN preproinsulin_NN	Jainandunsir
11	autoimmune_JJ diseases_NNS ,_, less_CC is_VBZ known_VVN about_IN the_DT	Johansson_tc
12	the_DT gene_NN region_NN immediately_RB centromeric_JJ of_IN this_DT	Johansson_tc
13	_IN type_NN 1_CD diabetes_NN might_MD be_VB determined_VVN by_IN	Kawabata_tag
14	, and_CC may_MD yield_VV potential_JJ targets_NNS for_IN manipulating_VVG	Kindt_tagged
15	_NN mediated_VVN by_IN apoE_NN ._SENT Studies_NNS involving_VVG both_DT	Klein_tagged
16	_TO chromosome_NN 11_CD ,_, where_WRB it_PP exists_VVZ in_IN a_DT	Klein_tagged
17	loss_NN of_IN insulin-mediated_JJ down-regulation_NN of_IN apoCIII_NN	Klein_tagged
18	in_IN HepG2_JJ cells_NNS transfected_VVN with_IN an_DT apoCIII_NP	Klein_tagged
19	_VVN with_IN an_DT apoCIII_NP gene_NN promoter_NN -_NN reporter_NN	Klein_tagged
20	construct_NN would_MD predict_VV that_DT impaired_JJ suppression_NN of_IN	Klein_tagged
21	assessed_VVD the_DT relationship_NN between_IN apoCIII_NN levels_NNS and_CC	Klein_tagged
22	the_DT chance_NN of_IN identification_NN of_IN the_DT appropriate_JJ	Klötting_tagg
23	transport_NN and_CC metabolism_NN ,_, protein_NN synthesis_NN ,_, and_CC	Kyung-Won_tc
24	receptor_NN [_SYM LAIRP_NP]_SYM)_) [_SYM 6_CD]_SYM ._SENT The_DT KIR_NP	Middleton_tc
25	Here_RB ,_, we_PP use_VVP cDNA_NN microarrays_NNS to_TO analyze_VV	Mir_tagged.t
26	_JJ phenomenon_NN but_CC that_IN/that early_JJ changes_NNS in_IN	Page_tagged.
27	assumed_VVN these_DT SNPs_NP cause_NN changes_NNS in_IN CDKAL1_JJ	Palmer_tagge
28	smaller_JJR effect_NN was_VBD identified_VVN in_IN the_DT insulin_NN	Park_tagged.
29	element_NN (_C VDRE_NP)_) found_VVD in_IN the_DT human_JJ insulin_NN	Rahman_tagge
--		

Search Term Words Case Regex

Search Window Size 75

gene_NN #NN

Start Stop Sort

Kwic Sort

Level 1 1R Level 2 2R Level 3 3R

Clone Results

Steps of analysis

1. Listing the 10 most frequent nouns and the 10 most frequent adjectives

Ex.: *heart(s)* ; *coastal*

2. Matching the corresponding adjective or noun (< dictionaries)

Ex.: *heart(s)* → *cardiac* ; *coastal* → *coast(s)*

3. Analysing their use in the 3 possible types of sequences (< frequencies)

Ex.: x *heart(s)* and y *cardiac* in z type(s) ; x *coastal* and y *coast(s)* in z type(s)

4. Comparing their use

Steps of analysis

- Terms which are not “fixed”

Ex.: *Pacific Ocean*



- Words in second position in the sequence

Ex.: *ocean circulation*

- Terms without prefixes; no compounds

Ex.: *~~deep-sea~~ plastic*

- Use of “of” – “de / des”

3. Results

Results

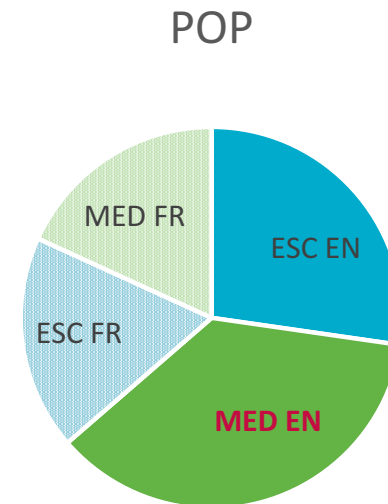
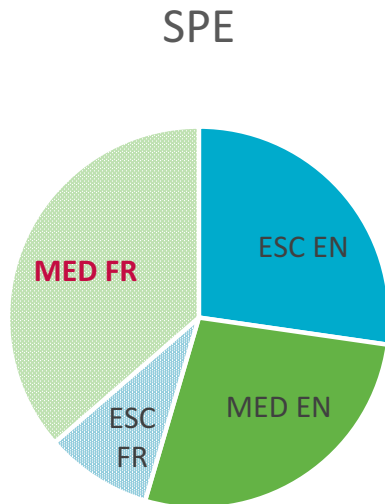
List of analysed nouns*:

- ❖ **ESC:** *ocean, climate, sea, region, water, larva, heat, fish, atmosphere, environment, tropics, coast, physiology, season, east, oxygen, reef, coral, ice, industry, solar, chemistry, volcano, biology*
- ❖ **MED:** *diabetes, gene, allele, cell, chromosome, risk, region, mouse, protein, genome, pancreas, mitochondrion, kidney, vessel, centromere, heart, therapy, indigene, molecule, Europe, statistics, science*
- ❖ **ESC:** *mer, eau, océan, aérosol, glace, zone, atmosphère, région, climat, sédiment, sable, chaleur, continent, géologie, écosystème, gaz, planète, période, science, tropique, homme, monde, pôle, terre*
- ❖ **MED:** *diabète, insuline, vie, cellule, risque, souris, glycémie, gène, origine, pancréas, aliment, muscle, environnement, monde, hormone, sang, risque, poids, thérapie, vaisseau, biologie*

* Corresponding adjectives are implied for each noun.

Results

- Den-Adj are used in SPE and POP in EN and FR



Results

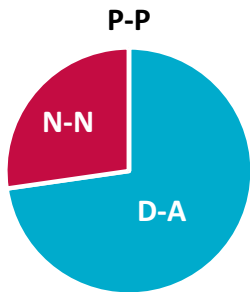
- When both Den-Adj and Nouns are in a subcorpus (< preferences)

ESC SPE	EN	Adj. > Noun
	FR	Adj. = Noun
ESC POP	EN	Adj. > Noun
	FR	Noun > Adj
MED SPE	EN	Adj. = Noun
	FR	Noun > Adj.
MED POP	EN	Adj. > Noun
	FR	Noun > Adj.

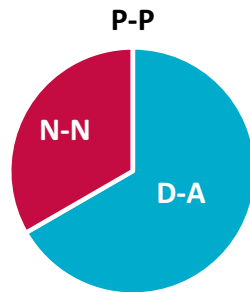
Results

- When both Den-Adj and Nouns are in a subcorpus (< preferences)

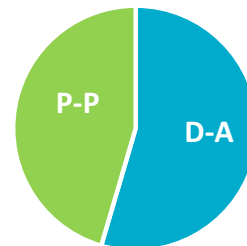
ESC SPE EN



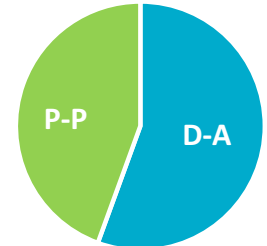
ESC POP EN



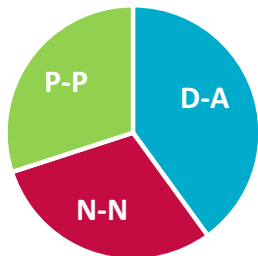
ESC SPE FR



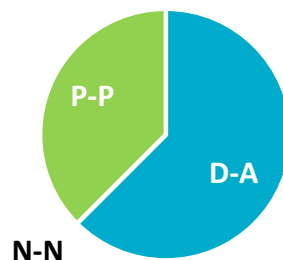
ESC POP FR



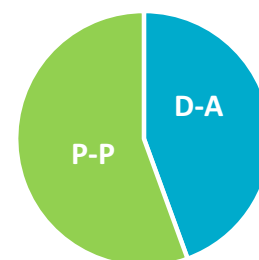
MED SPE EN



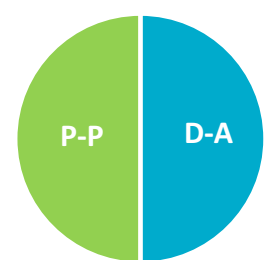
MED POP EN



MED SPE FR



MED POP FR



4. Conclusive remarks

Conclusions

An exploratory analysis with those conclusive remarks:

- Den-Adj. are used in each subcorpus
- Analysis (< frequencies):
 - In EN: **D-A** > N-N, P-P (except in MED SPE)
 - In FR: **P-P** > D-A (except in ESC SPE)
- When both are in subcorpora (< preferences):
 - In EN: **D-A** > N-N + P-P (except in MED SPE)
 - In FR: **P-P** > D-A (except in ESC SPE)

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Thank you for your attention