



Concordanciers : Thème et variations

Bénédicte Pincemin, Fabrice Issac, Marc Chanove, Michel Mathieu-Colas

► To cite this version:

Bénédicte Pincemin, Fabrice Issac, Marc Chanove, Michel Mathieu-Colas. Concordanciers : Thème et variations. Viprey, Jean-Marie, et al. 8es Journées internationales d'Analyse statistique des Données Textuelles (JADT 2006), Apr 2006, Besançon, France. Presses Universitaires de Franche-Comté, 2, pp.773-784, 2006. <halshs-00154100>

HAL Id: halshs-00154100

<https://halshs.archives-ouvertes.fr/halshs-00154100>

Submitted on 21 Apr 2009

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Concordancers: Theme & Variations

B. Pincemin, F. Issac,
M. Chanove, M. Mathieu-Colas

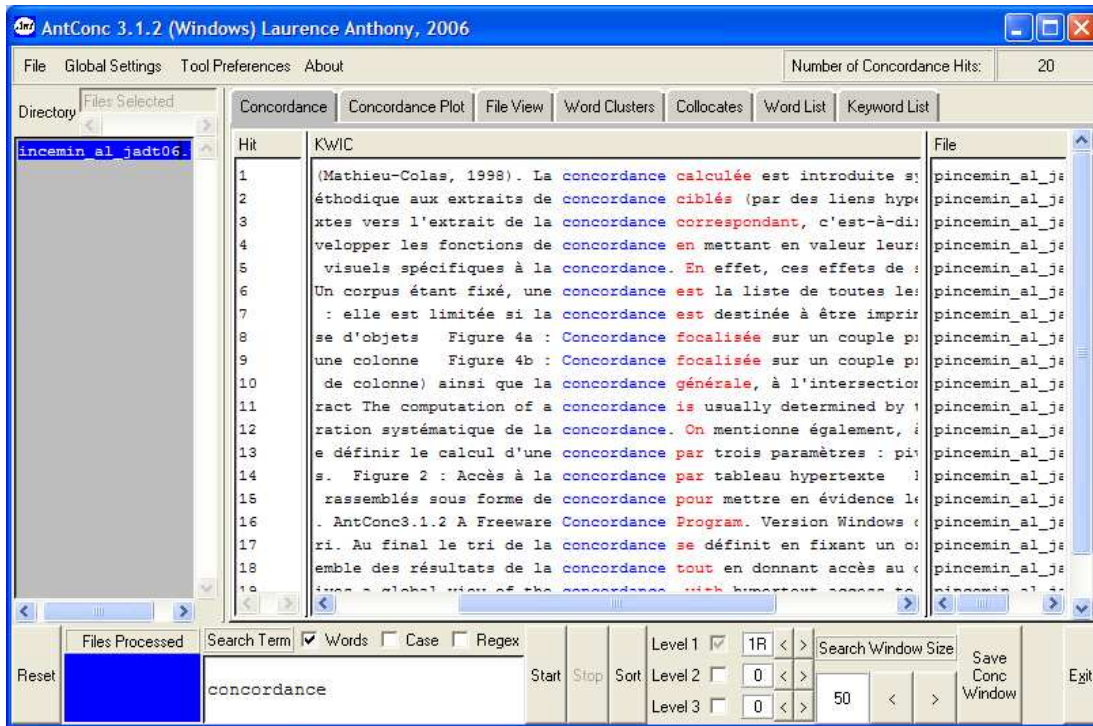
8èmes Journées internationales d'Analyse statistique des Données Textuelles

JADT 2006, Besançon, 19-21 avril 2006

What is a Concordancer ? Or what should it be ?

- 1) Generalization
 - Key features – summary from existing KWIC tools
- 2) Extension
 1. Emphasis on meaningful specificity of concordancers
- 3) Specialization
 1. Case of use in a distributional semantics approach
(*Classes d'objets* theory, Gaston Gross)

Example : AntConc



What is a (true) Concordancer ?

- **Definition** (and *parameters*)
 - For a given **corpus**
 - A list of **all occurrences** of a word (or *linguistic item*)
 - Vertically aligned (column), « **stacked** »
 - Surrounded by their left and right **contexts** (of a given *size*)
 - And *sorted* by a relevant criteria

Parameter #1 : Search object

- Word
- Phrase
- List of items (topic,..)
- Stem
- Annotations (lemma, part-of-speech,...)
- Mixed (as a complex regular expression)
 - Example : CQP (Christ, 1994)

Parameter #2 : Context's size

- A line
 - Visual stack effect : the contexts are vertically aligned and immediately superposed
- Different focus
 - shorter => lexical phrases, syntactic constructs
 - longer => for some semantic considerations
- Centered or not

Parameter #3 : Sorting order

- Not incidental, but really mandatory feature
 - Visual stack effect :
 - Convergences (and their extent : massive convergences)
 - Divergences
- Classical sorting keys
 - Textual linearity (chronologic order)
 - The search expression (if varying)
 - L1, L2... and R1, R2... (words around the search object, on the left and/or on the right)
- Multiple sort
 - In practical, Contextual key = last key

The best of the concordance : visual effects

- Why ? Heuristic guiding for efficient reading
 - convergences and divergences
 - extent (singularity or repetition)
- How ? Stack effect
 - Vertical alignement
 - Sort that groups similar items together

Consequences on the classical definition - towards a new (but tradition grounded) definition

- Parameter #2 (Context's size) is undesirable
 - Illusory power
 - Fixed (default) and adjusted to
 - page / window size (corresponding itself to a good look span)
 - reasonable size of characters for a comfortable reading
 - Possibility of a horizontal cursor (for screen output)
- New ways to enhance and refine grouping and contrasting visual effects : the zones

Zones : definition

- The search object is detailed into adjacent zones
- Each zone is qualified by :
 - 1) A stack column (or not)
 - 2) A possibly typographical emphasis (bold characters, choice of a colour)
 - 3) An eventual sort (and which one : alphabetical, textual, canonical...)

Zones : example of query

<i>Left context</i>	shall	- MOT{0,3}	- be .+ed	+ <i>Right context</i>	
1	No column	No column	column	column	No column
2	Normal	Normal	<i>Red + Italic</i>	Green + Bold	Normal
3	No sort	No sort	2, Alphabetical	1, Frequency	3, Alphabetical

Zones : example of output

... Such declarations shall		be deposited	by the St...
... equally authentic , shall		be deposited	in the ar...
...
... Such gratis personnel shall		be employed	in accorda..
... under 18 years of age shall	<i>not</i>	be employed	in night w..
subject to compulsory education shall	<i>not</i>	be employed	in such wo.
...
... nor life imprisonment [...] shall		be imposed	for offence.
... was committed . Nor shall	<i>a heavier penalty</i>	be imposed	than the on
... was committed . Nor shall	<i>a heavier penalty</i>	be imposed	than the on
... Sentence of death shall	<i>not</i>	be imposed	for crimes

Benefits from Zones

- Zones are especially efficient to (visually) group and sort tokens selected by a pattern with contextual conditions and (very) variable realizations
- Compared to the state-of-art :
 - As powerful as every kind of sort in existing KWIC concordancers
 - Allows sorting on distant words, with better control (not only the number of words)
- Multiplied and characterized visual stack effects

A concordancer for distributional semantics

- Context : *Classes d'objets* theory
- Goal : efficient use of corpora in order to build, complete or correct the linguistic description
- Concordancers are already used (and useful) for these tasks, but :
 - Massive outputs
 - Difficulty to focus on contextual dependancies (variability)

Classes d'objets Theory (1/3) :

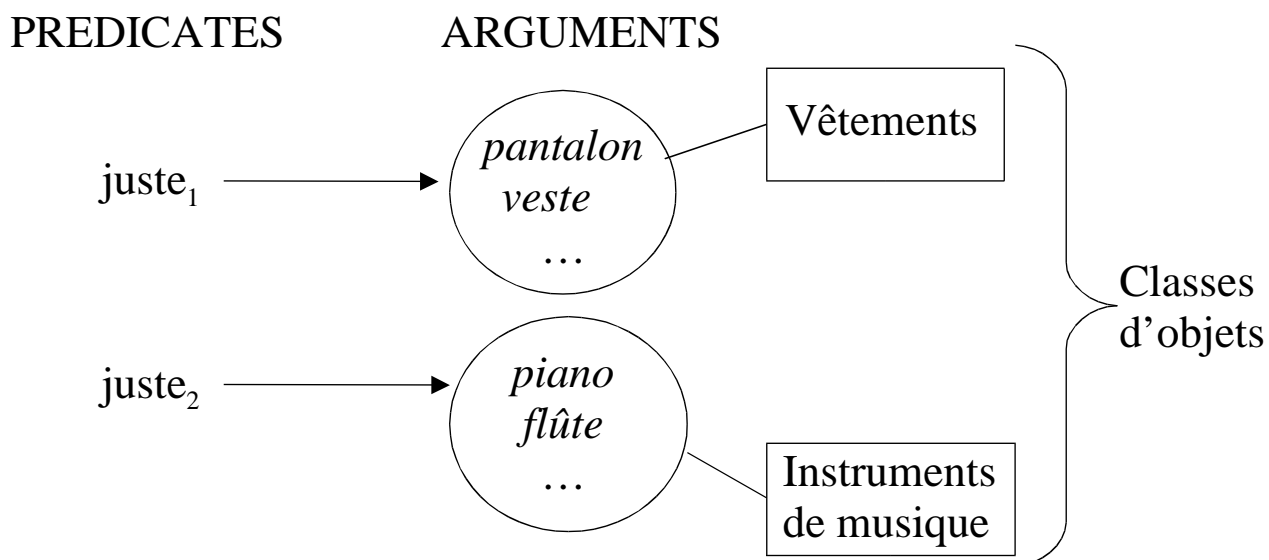
arguments => predicate

- Language (and especially semantics) is described through the predicate – argument dependancies
- Predicates are defined by their argumental pattern, syntactically **and semantically** :
 - Conduire₁ (hum, hum, loc) : *Pat conduit son petit frère à l'école*
 - Conduire₂ (hum, transport) : *Pat conduit une décapotable*
 - Conduire₃ (voie, locatif) : *Ce sentier conduit à la mer*
- Linguistical vs ontological approach of semantic

Classes d'objets Theory (2/3) :

arguments are structured in classes

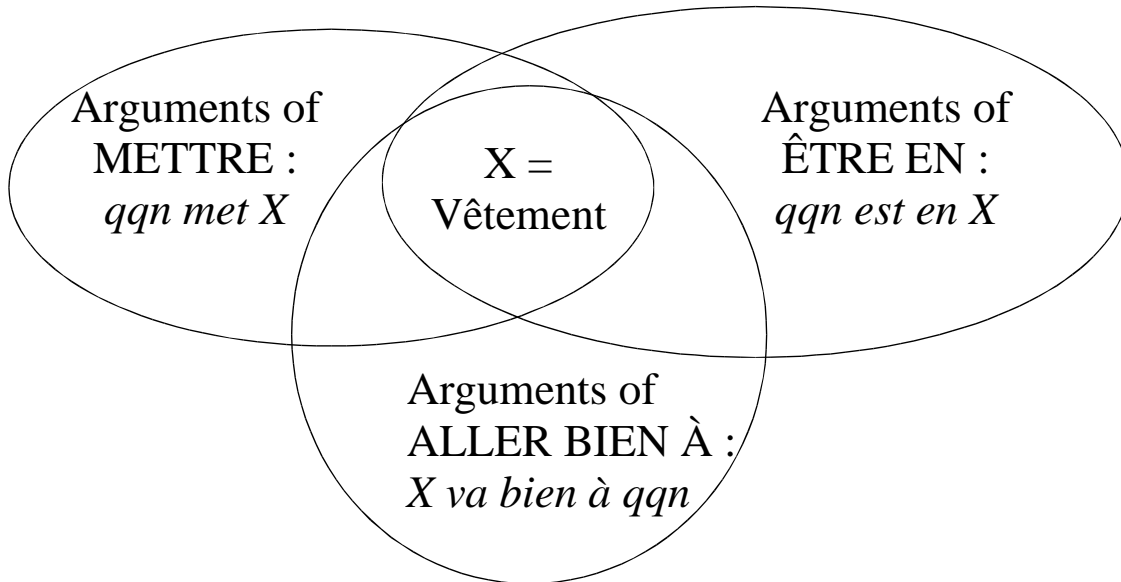
An argument's value is taken from a set called *Classe d'objets*



Classes d'objets Theory (3/3) :

(appropriate) predicates => arguments' classes

A few appropriate predicates (*faisceau de prédicats appropriés*) can select all the elements of a class, and only them



Four ways of exploring a corpus

Looking for →	Syntactic characterization	Class composition
Building classes of ↓		
arguments	Given = <i>classe d'objets</i> Looking for = appropriate predicates	Given = appropriate predicates Looking for = elements of the <i>classe d'objets</i>
predicates	Given = class of predicates Looking for = <i>classes d'objets</i> as defining arguments	<i>Given = argumental pattern (with classes d'objets)</i> <i>Looking for = class of predicates</i>

The KWAC-LLI prototype

- Corpus = Newspaper (Le Monde), morphosyntactically tagged (Cordial)
- Classe d'objets = communication routes (voies de communication, Mathieu-Colas, 1998)
- Goal = to find new appropriate predicates

affichage ConcLLI - Mozilla (Build ID: 2002091116-SuSE)

File Edit View Go Bookmarks Tools Window Help

http://...~fa Search

Home Bookmarks The Mozilla Or... SuSE - The Lin...

Requete (indiquer avec le mot clef " ARG" l'emplacement des arguments) :
<m l="PRED" c="Vm"[>]>[<]<.m>##MOT{1,2}##<m l="ARG"[>]>[<]<.m>

Position des arguments dans la requete : 3

Position des predicats dans la requete : 1

Arguments (separs par le caractere "|") : rue|route|autoroute|avenue|impasse|allée|chemin|s

Predicats (separs par le caractere "|") : être|avoir|faire|devoir|pouvoir|falloir|vouloir
effacer les predicats :
oui non

Seuil de regroupement : 3

Submit Query

	rue	route	autoroute	avenue	impasse	allée	chemin	sentier			
Freq totale	2209	3004	405	231	905	193	3455	357			
Freq tab 1	2105	2905	372	213	884	184	3360	336			
Nb Total	487	455	160	115	108	93	397	116			
Nb tab 1	394	373	131	97	90	84	313	96			
Freq corpus	7179	6691	1513	1032	1395	464	6112	879			
prendre	888	8	5833	34	310	21	4	2	1	509	7
emprunter	346	8	1867	25	92	25	8	1	4	161	30
ouvrir	263	8	4424	33	103	5	5	1	5	108	3
trouver	89	8	1283	5	18	2	2	6	1	54	1
circuler	83	8	731	26	35	10	3	1	6	1	1
éviter	32	8	1282	3	5	1	2	15	1	4	1
aménager	13	8	405	1	4	1	1	1	2	2	1
sortir	696	7	2433	51	10	8		501	2	6	118
suivre	430	7	3418	16	91	2	2		1	294	24
parcourir	228	7	1519	97	31	5	6		12	71	6
aller	195	7	6474	34	33	4	1	6		115	2
traverser	176	7	1766	96	44	12	13		5	5	1

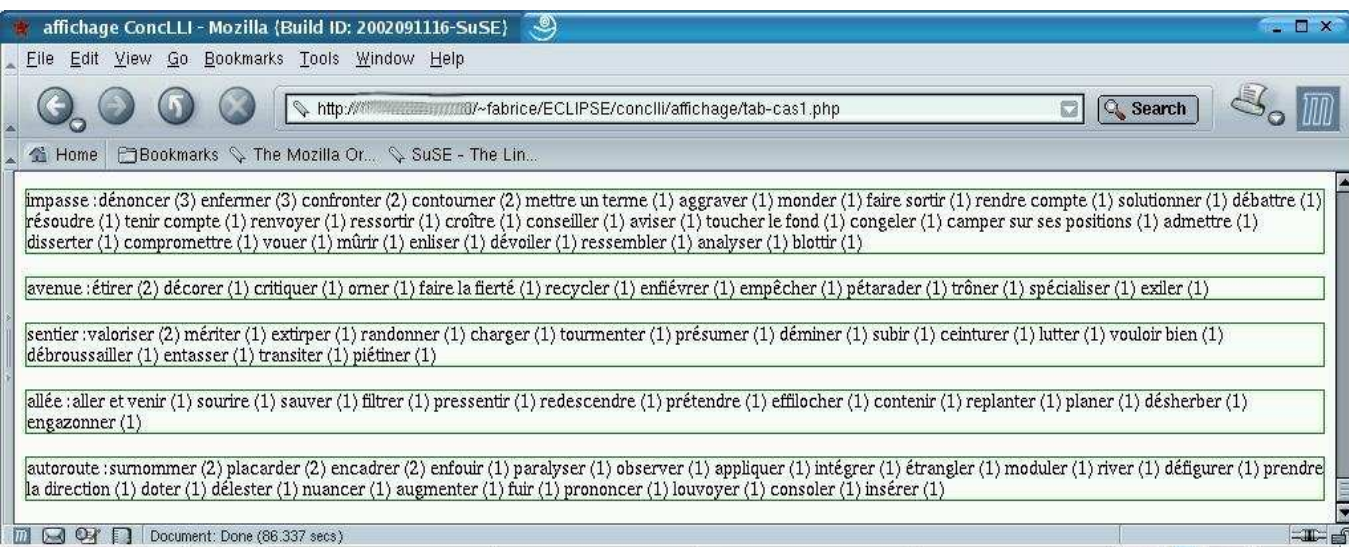
Document: Done (86.337 secs)

Specificities of the concordancer

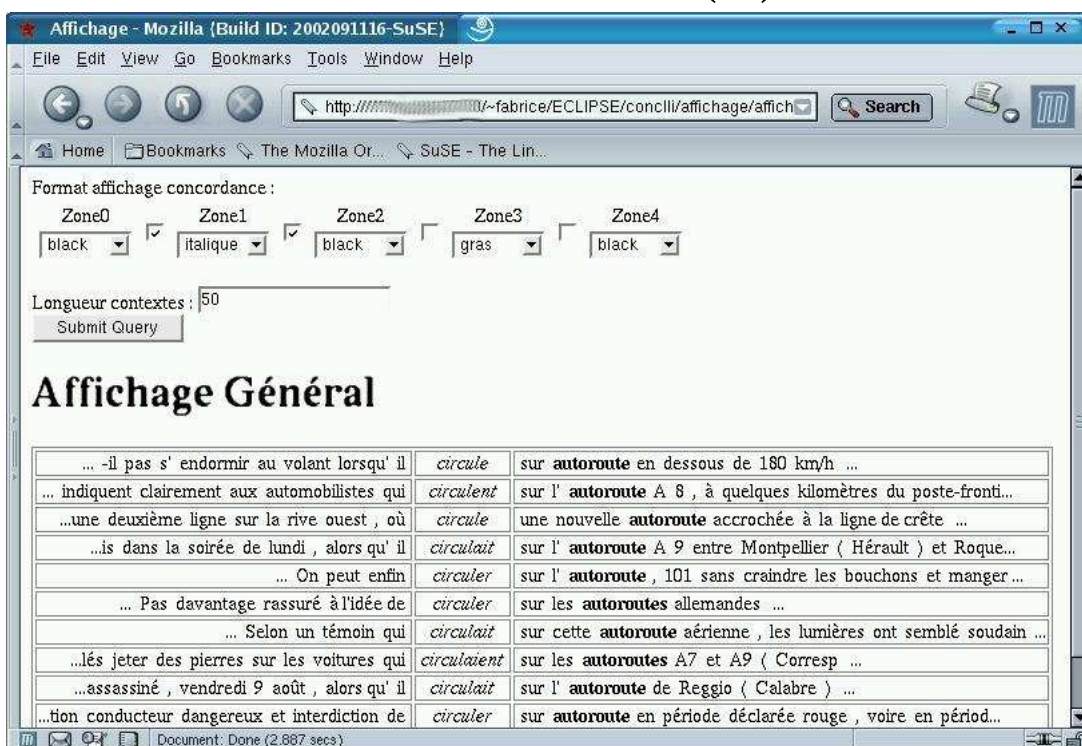
- Synthetic table
 - Plus some results as lists, when more suited
 - Avoids the output overflow : mediates and organizes the results
- Results are ordered according to the linguistic principle (in the *classes d'objets* theory) :
 - A relevant predicate can be used with all the elements of the *classe d'objets*
- Visual stack effect

				<u>rue</u>	<u>route</u>	<u>autoroute</u>	<u>avenue</u>	<u>impasse</u>	<u>allée</u>	<u>chemin</u>	<u>sentier</u>
Freq totale				2209	3004	405	231	905	193	3455	357
Freq tab 1				2105	2905	372	213	884	184	3360	336
Nb Total				487	455	160	115	108	93	397	116
Nb tab 1				394	373	131	97	90	84	313	96
Freq corpus				7179	6691	1513	1032	1395	464	6112	879
<u>prendre</u>	888	8	5833	34	310	21	4	2	1	509	7
<u>emprunter</u>	346	8	1867	25	92	25	8	1	4	161	30
<u>ouvrir</u>	263	8	4424	33	103	5	5	1	5	108	3
<u>trouver</u>	89	8	1283	5	18	2	2	6	1	54	1
<u>circuler</u>	83	8	731	26	35	10	3	1	6	1	1
<u>éviter</u>	32	8	1282	3	5	1	2	15	1	4	1
<u>aménager</u>	13	8	405	1	4	1	1	1	2	2	1
<u>sortir</u>	696	7	2433	51	10	8		501	2	6	118
<u>suivre</u>	430	7	3418	16	91	2	2		1	294	24
<u>parcourir</u>	228	7	1519	97	31	5	6		12	71	6
<u>aller</u>	195	7	6474	34	33	4	1	6		115	2
<u>traverser</u>	176	7	1766	96	44	12	13		5	5	1

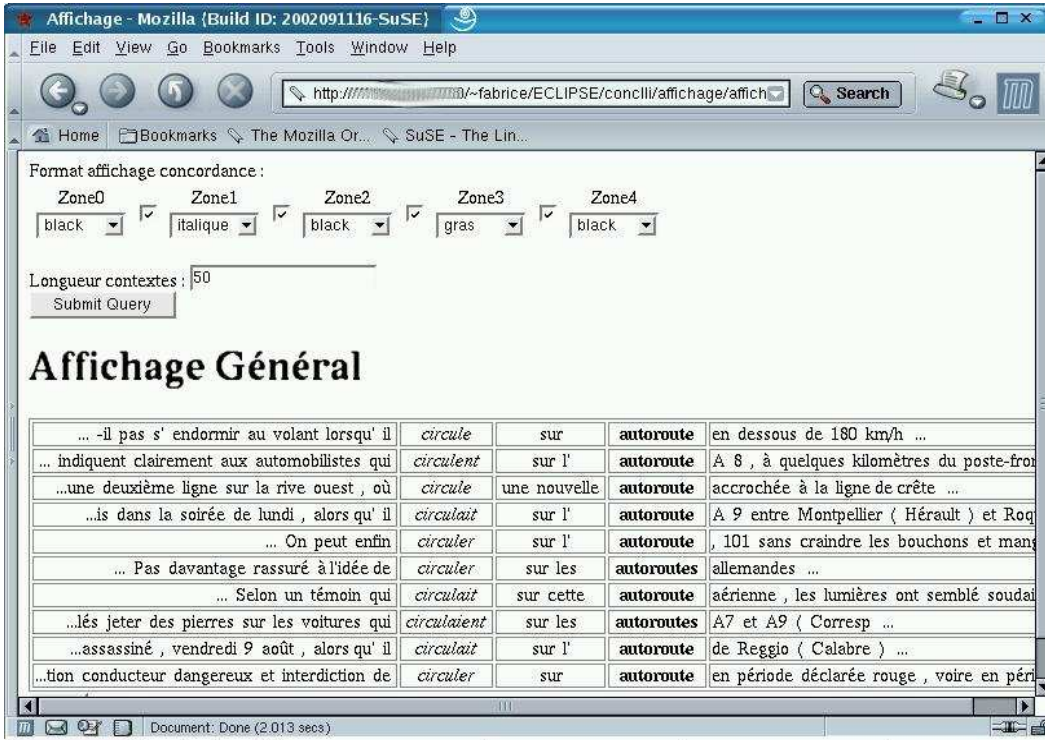
Lists (out of table) : predicates found with only one argument



KWAC-LLI : concordance lines with zones (1)



KWAC-LLI : concordance lines with zones (2)



Main ideas

- A concordance is more than a set of contexts, because of its heuristic **visual effects** : vertical alignment and sort order
- **Zones** to develop and refine querying possibilities
- KWAC-LLI for distributional semantics, with a synthetic table