### Dictionary Writing Systems and Corpus Query Systems

Session 1, part 1

#### Laurence Urdang

- Dictionaries No. 6 (1984)
- A Lexicographer's Adventures in Computing
  - "I clearly recall my first brush with computers: in 1959, I was working on a new dictionary for Random House, and it occurred to me that a comptuer would be ideal for the sorting and manipulation of the various kinds of data I was responsible for generating."

### 1966

- "As far as I know, the book we produced, The Random House Dictionary of the English Language – The Unabridged Edition, was the first to use computers extensively in its editorial preparation."
- "With all the data appropriately coded, programs enabled the computer to sort all of the bits and pieces into dictionary order."
- "In short, we created a powerful database, consisting of a dictionary with about 260,000 entries which we could access at will."

### Euralex bulletin 1990



**COMPULEXIS DICTIONARY SYSTEM** 

The only data-base system specially designed for lexicographers and dictionary publishers.

- Combines data-capture with editorial tools and typesetting.
- Developed by a team of lexicographers and computer specialists, and individually configured to suit the requirements of each dictionary project.
- Quick to learn and easy to use.
- Already successfully applied by Oxford University Press and other major European dictionary publishers.
- Runs on IBM AT or PS/2 or compatibles.

### Specialized dictionary software

#### With the COMPULEXIS dictionary system ...

- The editor is free to concentrate on the "real" work rather than checking punctuation, typography, alphabetical order, etc.
- Proofs which look like the final product can be produced at any time, without external cost.
- Selective check-lists with cross-references and other problem areas can be printed.
- Structural punctuation, frequently used text elements, and numbers and letters used for subdivision can be generated automatically.
- Consistency is dramatically improved.
- Data can be re-used in new editions and spin-off products.

#### **Oxford University Press**

What the users think ...

"... We soon realized what fanatastic help we got from the COMPULEXIS system.

... For the editors the COMPULEXIS system has opened the door to all sorts of possibilities.

... The most conservative department in the house has in less than a year completely changed its working methods.

... The more we have worked with the system, the more our enthusiasm has grown."

(Quotes from an unpublished report by the Dictionary Department of a major European publisher)

#### Gestorlex 1991

- Nov/Dec 1991 issue of Language Industry Monitor
  - official launching of GestorLEX at the October Buchmesse in Frankfurt
  - developed by Danish software house TEXTware
  - hybrid product, a strong database engine providing the platform for a structured editing environment <u>based on SGML</u>
  - it runs under OS/2

## SGML & floppy

- facilities to allow more than one person to work on a dictionary at a time
- can select and export a selection of entries on to a floppy disk for further editing on another machine
- selection is "locked" out in the main database although it can be viewed
- GESTORLEX costs DKR 15,000 (c.\$2000)

### Oxford-DZS 1994

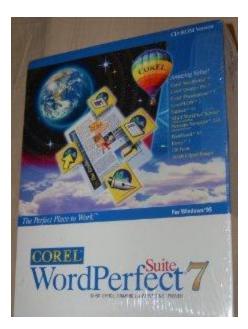
- Oxford-Hachette French Dictionary
  - Oxford University Press
  - 1994, First Edition

# Gestorlex / WP7-8 (1995-)

- Problems data:
  - database not in SGML
- Problems Gestorlex:
  - expensive
  - lexicographers without OS/2
  - OS/2 demanding on hardware
- Solution WordPerfect 7 (later 8, 11, X1)
  - worked on Windows (95)
  - affordable ( $\approx$ 60 people working at home LAN)
  - handled SGML format (!) with different layouts

### WordPerfect

- general-purpose word processor
   no management (!) workflow, distribution etc.
- at the end of the project (custom tools)
  - consistency check (closed sets etc.)
  - proof-reading
  - punctuation
- during project
  - valid SGML (semi-restrictive DTD)



– macros

#### Better solutions!

- Publishers home-grown systems: no
- Dedicated DWS candidates:
  - Digital Publishing System (DPS)
    - IDM (Ingénierie Diffusion Multimedia), Paris
  - iLex
    - Erlandsen Media Publishing AB, Malmö
  - TLex Suite (aka TshwaneLex)
    - TshwaneDJe Human Language Technology, Stellenbosch

### Summary – DPS

- "perfect system"
- relatively complex to manage
- expensive
- for big projects (many collaborators)
- for big producers (many projects)
- XML less prominent (for lexicographers)
- very powerful management system

#### Summary – iLex

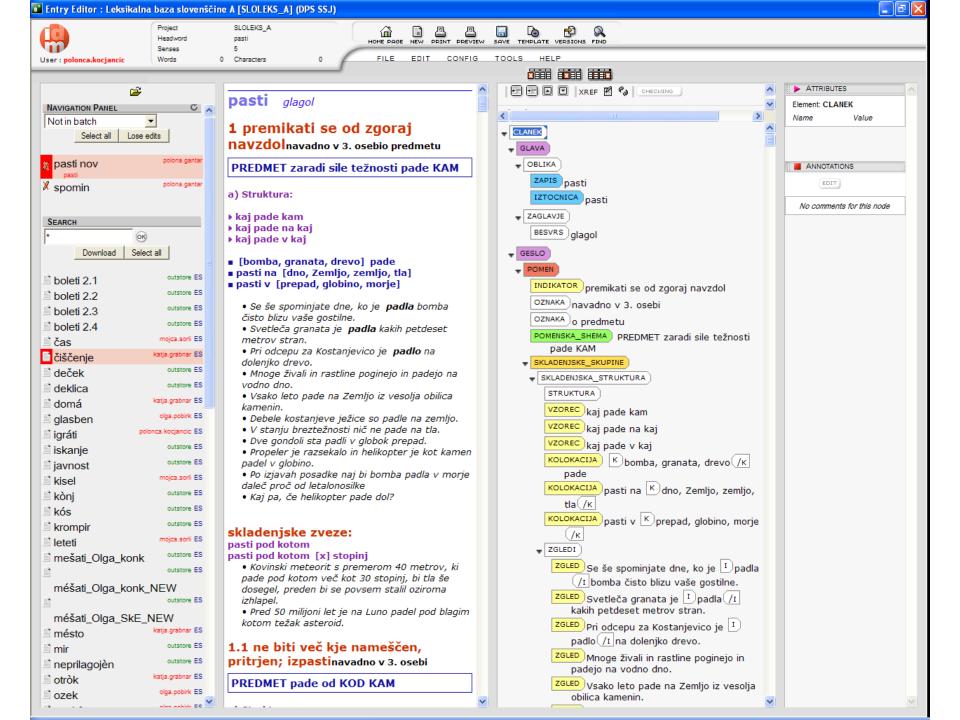
- "handy system"
- advanced computer literate manager
- not cheap but managable (start at ≈400 EUR)
- for collaborative projects
- also for solo projects
- "cafeteria style"
- explicitely XML-based and proud of it

### Summary – TLex

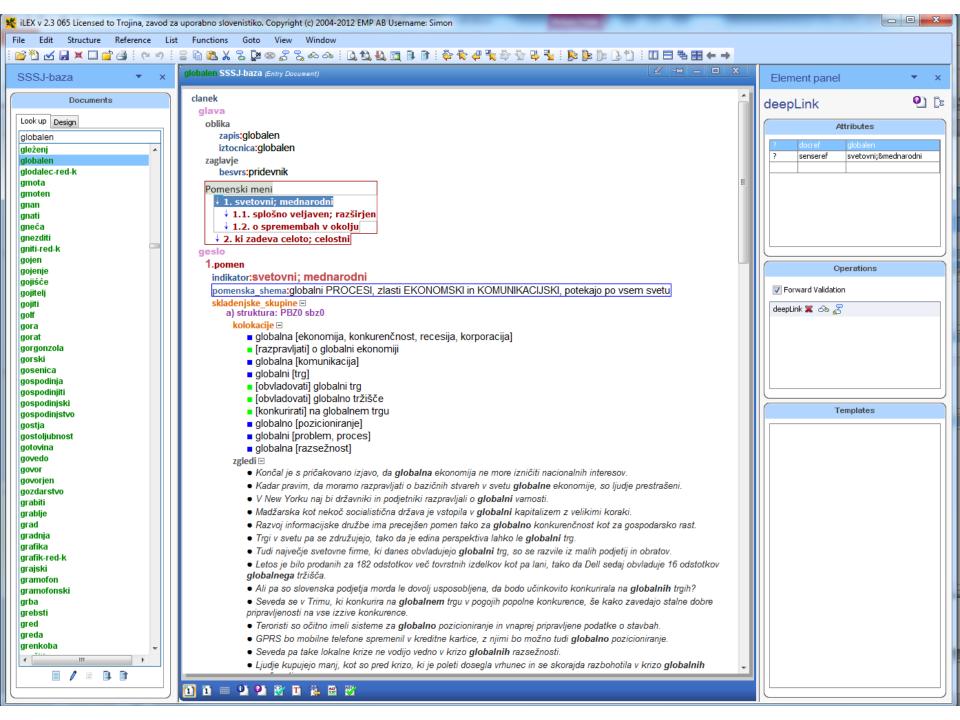
- "one-man band system"
- designed for computer literate <u>lexicographers</u>
- affordable (start at 150 EUR)
- mainly for solo projects
- less for collaboration (?)
- "suite style", "all-in one"
  - dictionary + corpora + terminology etc.
- database with XML output

## Other

- Andrea Abel in the coming: *Electronic Lexicography*. Oxford University Press
  - off-the-shelf
    - ABBYY Lingvo Content
  - home-grown
    - DicSy, Norstedts
    - Wissensnetz deutsche Sprache, Duden
    - EELex, Institute for Estonian Language
    - ANW, Institute for Dutch Lexicology
    - Onoma, Woordeboek van die Afrikaanse Taal
    - Dictionary Editor and Browser (DEB), Masaryk University
    - Termania, Amebis (Slovenia)



🖞 TshwaneLex - [C:\User:	s\SimonKrekNtb\Documents\squeeze_TshLex_01.tldict]	
File Edit View Lemn	na Dictionary Format Tools Window Help	
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New (Ins)  New (Ins)  Delete  squeeze	<ul> <li>clanek: squeeze LemmaSign=squeeze,Modified=2009-10-23 11:09:22,Created=2009-09-15 16:04:52</li> <li>glava</li> <li>oblika</li> <li>zapis: pc=squeeze</li> <li>iztocnica: pc=squeeze</li> <li>zaglavje</li> <li>besvrs: pc=verb</li> <li>geslo</li> <li>opomen: 1 SenseNumber=1</li> <li>indikator: pc=hold firmly</li> <li>skladenjske_skupine</li> <li>skladenjske_skupine</li> <li>skladenjske_skupine</li> <li>kolokacije</li> <li>kolokacije</li> <li>kolokaciji: pc=squeeze <k>gently, tightly, firmly</k></li> <li>kolokaciji: pc=l walk round behind his chair, place my hands on his shoulders, and squeeze ther</li> <li>zgledi</li> <li>zgled: pc=l took a firm grip and squeezed tightly, but nothing happened</li> </ul>	Squeeze verb         1 hold firmly         Structure: with adverb         • squeeze [gently, tightly, firmly]         • I walk round behind his chair, place my hands on his shoulders, and squeeze them gently.         • I took a firm grip and squeezed tightly, but nothing happened         A with your hand         a PERSON squeezes an OBJECT with his/her hand         Structure: intransitive         • sb squeezes         • She was walking past with her granny friend, and as she was passing, a hand cupped my left butt cheek and squeezed.         • I took a firm grip and squeezed tightly, but nothing happened.         Structure: intransitive         • She was walking past with her granny friend, and as she was passing, a hand cupped my left butt cheek and squeezed.         • I took a firm grip and squeezed tightly, but nothing happened.         Structure: transitive         • sb squeezes sth
	podpomen: A SubNum=1     indikator: pc=with your hand     im     Attributes (F1) Attributes (F2) Attributes (F3) Format (F4) Reference (F5)     Corpus (F6)     danek:     Incomplete	Structure: transitive
	Pronunciation Deriv Etymology Notes Frequency glava:	<ul> <li>sb squeezes sth/sb         <ul> <li>'I'll come with you,' he said. He put his arms round her thin little body and squeezed it.</li> <li>I just put my arms around her and squeezed her so tight I thought I 'd break her ribs, ' said Rosemary Lodge.</li> </ul> </li> <li>Structure: intransitive         <ul> <li>sb squeezes</li> <li>Michael Collins wrapped his arm around her shoulder and squeezed affectionately. "You 've worked wonders, as usual."</li> <li>She threw her arms around him and squeezed tightly.</li> </ul> </li> <li>C with your fingers</li> </ul>
< III >> squeeze	oblika: zapis: pc [PCDATA] squeeze iztocnica: pc [PCDATA] squeeze zaglavje: besvrs:	a PERSON squeezes an OBJECT with his/her fingers         Structure: transitive         > sb squeezes sth         • Hold the rolled up condom at the tip of his erect penis squeezing the teat as before.         D activate a device         a PERSON squeezes an activating PART OF DEVICE using his/her fingers         Structure: transitive         > sb squeezes sth
4 III >	pc [PCDATA] verb	to squeeze [ a trigger ]

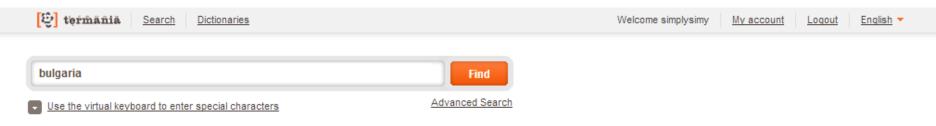


#### Issues

- management tool
  - control workflow, monitor progress, distribute batches, backups etc.
- publishing tool
  - reusability, direct transfer (online, DTP)
- data management tool
  - reversing (bilinguals), data extraction etc.
- future
  - integration with browsers
  - online editing (mobile, cloud computing)

#### Termania – quick demo

#### • <u>www.termania.net</u>



bulgaria - 17 results found (0.28 seconds).



#### **Corpus Query Systems**

Session 1, part 2

# Topics

- We will talk about:
  - CQS & lexicographers
    - personal experience from Sara to the Sketch Engine
  - CQS & language learning/teaching
    - Gigafida interface
- We won't talk about
  - corpus design & annotation
  - corpora & NLP

### Lexicographers

• Data collection:

– corpora and other forms of evidence

- Data analysis:
  - sifting the evidence to discover relevant facts
- Synthesis:
  - creating dictionary entries

### Data analysis in 2010s

- Lexicographer's changing role
  - from scanning data, to identify lexicographicallyrelevant facts
  - to validating (or rejecting) decisions made by computer
- New role
  - Identify/describe what can be automated & expand set of automatable processes
  - Identify weaknesses in support software

#### Data analysis (OED 1910s)

Cosmopolitan XX. 356/2 1896 Near Horbert Island I secured a goodly number of walruses - cows, calves, yearlings and two-year-olds (See culting walnut - cell )

#### Data analysis (COBUILD 1980s)

br 132 m br 25	ook and cranny in the vessel where even a stray seagull could be hiding and you can take my word er. "every wave on the atlantic was like a dead seagull drag- ing its driftwood artillery from h
	8 seal
br 127 r br 129 r br 140 m br 172 m br 14 a br 34 br 127 a br 82	e king's taster?' i looked at the unbroken lead seal. "not uness you think some- one has brought church until 1835. years later, galileo put his seal on copernicus's discovery, wvas hauled up b her lover to assuage her inner doubts, set the seal on her femininity, provide her with psychic brooding darkness is lifted? could the seventh seal or winter light have been conceived in anot that never cleaned anything away, heavy thermal seal over diesel fuel, mildew, garbage, excremen s foot in it. lynn tried to be gracious but the seal was set on her dislike of him. and somethin plant aboard." "i've checked." smithy broke the seal. "we talked last night. at least, i did. yo ce she discovered that, lynn thought, the final seal would be set on jane's hatred and rebellion
	10 sealed
r br 133 r br 129 a br 151 a br 138 a br 135 br 86 a br 132 br 80 r br 84 r br 199	ingenue. both their fates were, to some extent, sealed. after "bunty" closed he went sady back t place strips of the paper in a thin rubber tube sealed at one end and connected to suction at th d as superior and knowledgeable. a partnership. sealed by why? so many exquisite little symmetri g was led.' the europea party swept to dover in sealed cars through back streets. "you were a lo ss asked "thank you. i am not fond of salad.' a sealed envelope passed to the prime minister wit c forms and filled them out. i put those in one sealed envelope, the signed affidavit - i just ottage he would flee to when all was signed and sealed. he hadn't had a proper night's sleep for ed. "on a night like this? no fear. the gash is sealed in polythene bags, then they're punctured lions of years but his doom, paradoxically, was sealed in the very fact that he became too perfe ote out the telegram, put it into its envelope, sealed it and handed it over to dolly. the four 2 sealing
m br 48 r br 21	gon stream thinning and trickling out: frontier sealing, cencus grievance, black operations (pre m each other. our once one-flesh divided again, sealing me into me, him into him. he is now a te 3 seals
m br 3 m br 35 r br 1©1	saw a row of old houses, huddled together like seals on a rock. then there was a long field tha ang we'd get stone together and keep the lurps, seals, recondos, green-beret bushmasters redunda omen serves only their own artificial needs and seals them off in their folie a deux from the re

### Hanks on COBUILD

- "For the first time ever, lexicographers had evidence that enabled them to begin to see how words actually fitted together."
- "Opening a fresh concordance for all uses of a given word in a 7.3 million word corpus was like opening a window on a landscape of fresh snow on a sunny winter's morning."
- "Very often, a simple right-sort of concordances revealed patterns of usage that were at the same time unexpected and yet obvious (once seen)."

## BNC – BoE (1995-)

- SARA (SGML-Aware Retrieval Application)
- Bank of English (HarperCollins)
  - 50 million (http://titania.cobuild.collins.co.uk/form.html)

sing	<b>9</b> א נ	ookup	Download Lemmata
		attern	A lemmatisation scheme determines how individual words
Word	TAG	Frequency 🔺	are grouped under headwords.
sing	SUBST	28	Select from the options below.
sing	UNC	1	lancaster  Apply
sing	VERB	6005	
sing-	ADJ	1	The Lancaster scheme was
sing-a-long	ADJ	13	developed at the University of
sing-a-long	VERB	1 💌	Lancaster.
<u> • [</u>			
Form	POS	Frequency 🔺	Example Go
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sing	VVB	678	doing VDG 🔻
sing	VVI	1302	1
sing	VVB-NN1	47 💌	Headword do=VERB
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		I▲ Controis	
Save	Query	🔽 Forms	

<w TO0>to <w VBI>be <w VVN>sung<c PUN>, <w AV0>thereby < AV0>then <w AV0>half <w VVN>sung <w PNP>it<c PUN>:cpoem> T0>the <w NN2>ladies <w VVN>sung <w NN1-NP0>Erse <w NN2> w AV0>only <w VBI>be <w VVN>sung <w CJC>but <w AV0>also < (X0>not <w AV0>often <w VVN>sung<c PUN>, <c PUQ>&bquo;<w AJ0>novel <w CJC>and <w VVN>sung <w PRP>by <w AJ0>Junior < <w NN1>solo<c PUN>, <w VVN>sung <w PRP>by <w AJ0>Junior < >vocal <w NN1>music <w VVN>sung <w PRP>by <w AT0>the <w girlie <w CJT-DT0>that <w VVN>sung <w PNP>them <c PUN>, </u>

## FIDA corpus (1997-2000)

- online (dial-up, 56 kbit/s modems)
- 100 million words
- POS-tagged (rule-based tagger)
- (complex) metadata
- consortium: publisher, LT company, university, technical institute
  - free for partners, restricted access
- purpose: lexicography, education, LT





Enovrstično iskanje Razširjeno iskanje Rezultati iskanj Spiski (datoteke) Pomoč Nastavitve Novice Servisna stran

ODJAVA

Kontaktni naslov: **Korpus FIDA** DZS, Založništvo literature Mestni trg 26 1538 Ljubljana 6da@dza ci

#### Kratek opis točk

Enovrstično iskanje: Enostaven ali zahteven pogoj se napiše v eni vrstici. Uporabljajo se lahko logični in besedni operatorji. Postavijo se lahko tudi najbolj zapleteni pogoji, seveda pa morate biti vešči uporabe raznovrstnih operatorjev.

Razširjeno iskanje: Dodatni iskalni pogoji.

Rezultati iskanj: Shranjeno je do 10 prejšnjih iskanj.

Spiski (datoteke): Delo s spiski konkordanc in statistike (pregled, brisanje), ki smo jih shranili v besedilne datoteke.

Nastavitve: Uporabniške nastavitve.

Novice: Novice o uporabniškem vmesniku.

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#### Enovrstično iskanje:

#1 zlikovec



- kode MSD
- zapis posebnih znakov pri iskanju

Vrsta iskanja	Primer	Opis primera
enostavno iskanje besede	mize	poišče vse pojavitve besede "mize"
iskanje z nadomestnimi znaki (? nadomesti eno črko, * nadomesti poljubno zaporedje črk)	miz* miz?	poišče vse pojavitve besed, ki se začnejo z nizom "miz" poišče vse pojavitve štiričrkovnih besed, ki se začnejo z nizom "miz"
iskanje po kanalih (#1 lemma, #2 msd, #3 lemmas, #4 msds)	#1miza #2pkomein	poišče vse pojavitve besed z osnovno obliko "miza" poišče vse pojavitve pridevnikov (kakovostnih, nestopnjevanih)
iskanje po frazah	#1okrogel_#1miza ki_*_je	poišče vse pojavitve, kjer sta zapored besedi z lemama "okrogel" in "miza" poišče vse pojavitve, kjer je med besedama "ki" in "je" še natanko ena beseda
iskanje po bližini (// za privzeto bližino ali /0 do /9 za število vmesnih besed)	#3stol//#3miza se/0je	poišče vse pojavitve, kjer sta lemi "stol" in "miza" blizu skupaj poišče vse pojavitve, kjer med "se" in "je" ni vmesnih besed (se_je ali je_se)
notranji in	#3voda <mark>&amp;</mark> #3vod	poišče vse pojavitve besed, pri katerih je možna tako lema "voda" kot "vod"
notranji ne	#3vod&~#1vod	poišče vse pojavitve besed z možno lemo "vod", kjer je ta možnost pri analizi odpadla
in	se je	poišče vse pojavitve besed "se" in "je" v odstavkih, v katerih nastopata obe besedi
-0	1	poliččo uco polovituo bocod "co" in "io" u odetovkih, kior



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#### Razširjeno iskanje:

#### Pogoj:

#### - kode MSD

- zapis posebnih znakov pri iskanju

#### Od leta: Do leta:

#### Prenosnik:

#### vsa besedila

Ft.P prenosnik Ft.P.G govorni Ft.P.E elektronski Ft.P.P pisni Ft.P.P.O objavljeno Ft.P.P.O.K knjižno Ft.P.P.O.P periodično Ft.P.P.O.P.C časopisno Ft.P.P.O.P.C.D dnevno Ft.P.P.O.P.C.V večkrat tedensko Ft.P.P.O.P.C.T tedensko Ft.P.P.O.P.R revialno Ft.P.P.O.P.R.T tedensko Ft.P.P.O.P.R.S štirinajstdnevno Ft.P.P.O.P.R.M mesečno Ft.P.P.O.P.R.D redkeje kot na mesec Ft.P.P.O.P.R.O občasno

#### Zvrst: vsa besedila Ft.Z zvrst Ft.Z.U umetnostna Ft.Z.U.P pesniška Ft.Z.U.P prozna Ft.Z.U.D dramska Ft.Z.N.D dramska Ft.Z.N.S strokovna Ft.Z.N.S strokovna Ft.Z.N.S.H humanistična in družboslovna Ft.Z.N.S.N naravoslovna in tehnična Ft.Z.N.N nestrokovna

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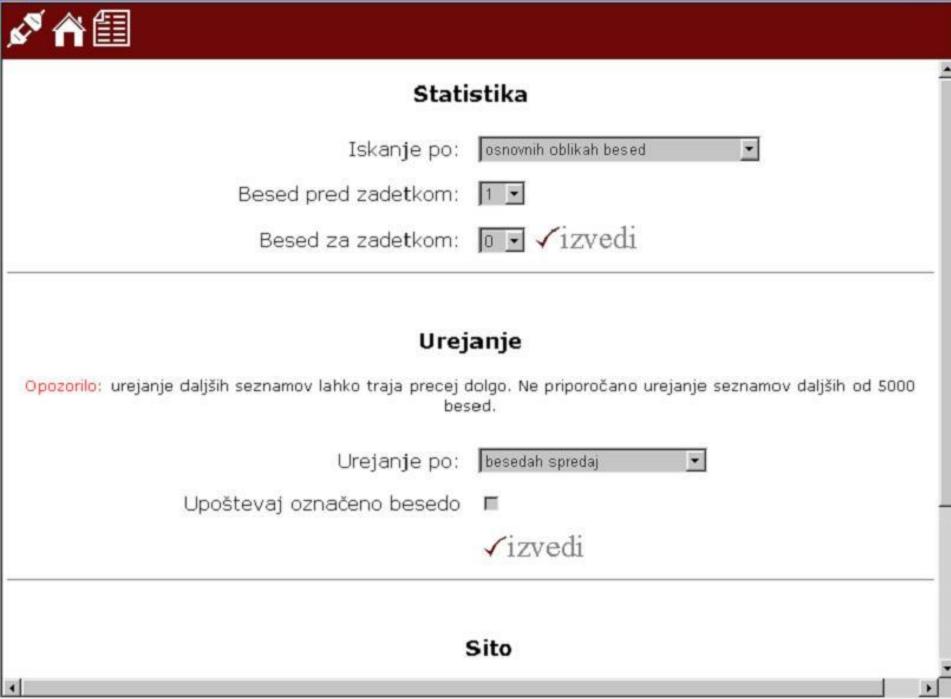
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🚰 Izpiši seznam - okvir - Microsoft Internet Explorer provided by Nova Ljubljanska banka d.d.

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No.	¥∕∕€		
IZVOR	ODSTAVEK	KONKORDANCA	-
0021271	.0000004	toda če kje obstaja kdo, ki je zares pokvarjen <mark>zlikovec</mark> , nevaren človek, izdajalec (	đ
0021404	1.0000053	Postojna - Neznani zlikovec je v Postojni vlomil v osebn	i
0021404	1.0000055	oškodoval za približno 8000 tolarjev. Nedaleč stran pa je <mark>zlikovec</mark> pred neko stanovanjsko hiš	c
0021450	.0000893	da si ga bodo za vedno zapomnili tako kolegi kot <mark>zlikovci</mark> . Ima dar, da se med akcijar	r
0021450	.0000895	Nekega dne dva <mark>zlikovca</mark> oropata neko bergamsko b	a
0021486	6.0000037	Ilirskobistriški policisti paiščejo zlikovca, ki je med zadnjim vikendo	r
0021608	3.0000237	smrti ne gre nihče v pekel. V Duhu so <mark>zlikovce</mark> kakopak čakale hude, peko	>
0021766	6.0000003	lastnino, odkrivajo mamila, vlečejo nam sani, preganjajo <mark>zlikovce</mark> , lovcem prinašajo divjad, v	ĸ
0021830	0.0000034	o dogodku, ko je z železniške postaje Štore neznani <mark>zlikovec</mark> v lokomotivo potniškega vla	a
0021865	5.0000577	Meek je še en mojster borilnih veščin, ki muzlikovci ubijejo starše. Oh, ko bi pre	j j
0013788	8.0000008	na prvo hišo? Naj si mislijo, da je <mark>zlikovec</mark> pač nekje na tem območju,	:
0013788	3.0000042	-ja in ga bomo v zgodbi o policijskem iskanju <mark>zlikovca</mark>	
0014192	2.0000084	Lopati, last A. L. iz Kočevja. Zlikovec je tudi odlomil pipo na večj	i
0014352	2.0000287	Nekakšen zlikovec z melono in psom mi je izma	a
0011028	3.0000002	Sezona zlikovcev je tu	
0011028	3.0000004	polnem razmahu, temu primerno pa so se organizirali tudi zlikovci . 'Ordinirajo' po plažah, vlan	n
0011028	3.0000005	bilo škode za 30 tisočakov. V začetku tedna je <mark>zlikovec</mark> iz kioska na plaži v Portoroj	ž
0011319	0000013	Po dveh letih in pol je neznanega zlikovca spet zapekla vest: šel je por	1.
0011319	0000016	Nekulturno dejanje neznanega zlikovca je prijavljeno policiji v Šiški	,
0011324	1.0001691	pisuje zaradi humane razneženosti zaslepljeno tretmansko oko. Gre za <mark>zlikovce</mark> , hudodelce, žeparje, tatove	:
0011410	0.0000072	ima F. K. iz Novega mesta barako. <mark>Zlikovec</mark> je razbil vse mize in klopi p	r
0011662	2.0000262	ekscesni negativci, na smrt obsojene zverine, morilski krvoločni zlikovci najhujše sorte, padejo v nem	a
0011662	2.0000262	negativcev, še hujših zverin, ja, morilskih krvoločnih <mark>zlikovcev</mark> še hujše sorte, okej, neke	v _ 1
111000	0000000	1 1 T 1 ' 1 Y 1 Y 1 Y 1 Y 1 Y 1 Y 1 Y 1 Y 1 Y	ŕ





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100 % od: 1 dio: 31 najd.: 61

#### KONKORDANCA

pa vem le to, da nič ne vem Bojim se Boga kot hudiča. Ali v vas lahko zaupam? , je po papeževi želji leto Očeta. Pa tudi hudiča se ni treba bati , ker ga ima Bog v oblasti in nam ne od antidepresivov začneš rediti. Vse od takrat se jih bojim kot hudič križa.) Tako slovenstvo nekoč in danes kot vsak človek sta stalen boj med Bogom in hudičem. prastari so tudi ljudje, ki se trave še vedno bojijo kot hudič križa. izstopiti iz koalicije s SDS (tega se Alojz Peterle boji kot hudič križa, zato je že napovedal možnost, da se . Razlog? Izjemno visoke kazni, katerih se vsi bojijo kot hudič križa. emnoge pustolovščine: junaška druščina se na svojih vandranjih ni bala ne boga ne hudiča , možje so trepetali samo pred meglo, iz roke za sedeče kinoušesno-drugogodbeno občinstvo, ki se boji dratar jev in tehnologov kot hudič križa? noben ni upal iti čez, ker so se vsi bali hudiča. prodajalci, na primer tile iz ALG, se javnosti bojijo kot hudič križa. Najprej, globoko v osemdesetih, je bila Le kako sem zašel v ta pekel "Hudič mu je začel v predsmrtni boj prišepetavati besede, ki jih ji bi zame poiskali knjige o vedeževanju. Tarota sem se bala kot hudiča. Na začetku sem vedeževala iz običajnih kart. reprezentance BiH, velemojster, ki se za šahovnico ne boji niti hudiča, igralec, ki že od mladostnih nog ne spoštuje vrsto industrijske politike, ki se je sicer ameriška ideologija boji kot hudič križa. Ne glede na motiv če je država , ki se, če smo malce ironični, kot hudič križa boji javne diskusije o človekovi prvinskosti. Strip je in je z njo naravnost obseden. Jaše ga "hudič, nečista žival", boji se glasu krvi. Cim bolj ta glas duši, Rim - Italijani se kothudič križa bojijo množičnega prihoda beguncev s Kosova. Za v tekstom, a tudi v takih primerih se avtorji kakor hudič križa bojijo pridodati denimo glagole, s katerimi je često v -reprezentanco ali mlade, predvsem Primoža pa so se bali "kot hudič križa". Njegova velika kristalna globusa sta bila n To je krik sprevržene vere, vere hudičev in brezbožnežev. Boga se bojijo . v dveh tekmah. Morebitnega tretjega srečanja v Ljubljani se boji kot hudič križa, tudi zato, ker bo sodil Litvanec Brazauskas

Bolnišnice in dohtarjev se bojim kot hudič križa, takrat sem se jih veselil v čudni vznesenos

# FidaPLUS (2003-2006)

- online (slowly to broadband)
- 620 million words
- POS-tagged (rule-based tagger, upgraded)
- metadata still complex (same taxonomy)
- consortium: publisher, LT company, university, technical institute

- freely available online, authentication

• purpose: lexicography, education, LT

## Aims

- From lexicographers to students
  - analysis, survey
  - booklet
  - simple query window
  - avoid flood of intimidating information
- BUT!
  - limited by the existing technology
  - DEMO

# First glimpse of WS – 2002

- Adam Kilgarriff and Michael Rundell
- Lexical Profiling Software and its Lexicographic Applications – a Case Study
- Euralex 2002, Copenhagen

- Just for English
- Just a combination of collocation patterns

🚈 Word Sketch for conversation (n) - Microsoft Internet Explorer												
∫ <u>F</u> ile <u>E</u> dit <u>V</u> ie	ew F <u>a</u> vorites	<u>T</u> ools <u>H</u> elp										
Back F		op Refresh	Home	Q Search I	avorites	Image: Second secon	∰ <b>•</b> Size	Drint E	dit Discuss	iFinger Messenger		
Address 🛃 H:\PAPERS\rundell-euralex\conversation_n.html												
PP_about: ratio = 12.07 : 1, counts = 86												
PP_with 665 PP_betwe		een 135	5 PP_at 61		object_of 1637		before_prepn 2651					
18.65 :1		13.2 :1		1.74 :1		1.69 :1		1.33 :1				
friend	19	princess	8	<u>table</u>	4	<u>overhear</u>	33	topic	93			
stranger	5	Charles	4	<u>dinner</u>	3	steer	25	<u>snatch</u>	16			
passenger	5	woman	6	<u>time</u>	7	record	46	<u>lull</u>	14			
people	22	<u>people</u>	8	<u>party</u>	4	<u>tape</u>	11	<u>deep</u>	34			
man	17	officer	3	momer	<u>ut</u> 3	<u>tap</u>	16	listen	57			
artist	5	<u>child</u>	4	<u>school</u>	3	resume	14	eavesdrop	9			
<u>pupil</u>	5					hold	63	engage	30			
<u>girl</u>	7					<u>interrupt</u>	14	<u>hum</u>	11			
woman	11					<u>continue</u>	42	<u>buzz</u>	10			
mother	7					prolong	8	<u>babble</u>	7			
visitor	4					make	120	transcript	11			
<u>colleague</u>	4					hear	38	<u>deep</u>	26			
speaker	4					<u>conduct</u>	13	gist	б			
lady	4					<u>finish</u>	19	recording	17			
wife	5					end	20	<u>murmur</u>	7			
minister	6					<u>start</u>	34	<u>participant</u>	13			
husband	4					remember	27	<u>fragment</u>	11			
queen	3					recall	12	indulge	7			
<u>adult</u>	3					<u>dominate</u>	10	extract	8			
doctor	4					<u>keep</u>	34	<u>course</u>	31			

#### The real deal – 2004

- Adam Kilgarriff, Pavel Rychly, Pavel Smrz, David Tugwell
- The Sketch Engine
- Euralex 2004, Lorient

- Sketch Grammar (cross-lingual)
- Sketch Difference, Thesaurus

# Slovene Word Sketches (2006)

- Simon Krek and Kilgarriff
- Slovene Word Sketches
- Proceedings of the 5th Slovenian/First Intnational Lanugage Technology Conference, Ljubljana, Slovenia

• First version in 2005

čas		glava								
coord	<u>7334</u> 0.5	<u>is obj4 of</u>	<u>2506</u> 3.9		<u>a modifier</u>	<u>19068</u> 1.4		prec po	<u>1090</u>	5
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datum	<u>144</u> 37.89	beliti	<u>83</u> 49.81		obrit	<u>66</u> 47.7		udariti	<u>142</u>	5
trud	<u>75</u> 35.92	dvigniti	<u>218</u> 49.15		kronan	<u>35</u> 39.2		motati	<u>49</u>	5
craj	<u>247</u> 34.76	razbijati	<u>71</u> 44.74			<u>62</u> 36.1		popraskati	<u>24</u>	4
Vera	<u>33</u> 31.35	odsekati	<u>60</u> 43.2		dvignjen			treščiti	38	3
energija	<u>155</u> 30.85	pomoliti	<u>45</u> 42.62		zeljnat	<u>23</u> 35.7		poditi	32	
denar	<u>206</u> 27.91	nagniti	<u>59</u> 40.97		odsekan	<u>33</u> 35		- tolči	34	
se	<u>192</u> 26.5	tiščati	<mark>46</mark> 40.92		Hermanov	<u>34</u> 35.1	1	lopniti	12	
bit	<u>35</u> 25.96	stakniti	<u>39</u> 39.75		razgret	<u>40</u> 34.6	3	tepsti	20	
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potrpljenje	<u>21</u> 24.85	odrezati	<u>44</u> 33.54		trezen	<u>41</u> 30.6	5	bloditi	12	
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on	<u>131</u> 21.66							trepljati na Xlaa dameti		
svoj	<u>26</u> 20.95				video	<u>106</u> 29.0		poškodovati Xolovi		
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kraja	<u>24</u> 18.02				bister	<u>35</u> 27.2	6			
njegov	<u>35</u> 17.97									

#### Sketch Difference

cona = zone območje = area

green = cona red = območje

ekonomski $411$ 1954.55.2carinski $271$ $214$ $53.4$ $33.9$ industrijski $284$ 76 $52.2$ $19.4$ prost $317$ 79 $50.1$ $16.7$ prostocarinski $61$ $21$ $47.3$ $21.8$ obmejen7 $313$ $11.5$ $46.7$ moder $139$ $20$ $41.4$ $8.2$ okupacijski $35$ $10$ $38.6$ $14.6$ nekdanji $41$ $710$ $16.6$ $37.3$ tamponski $17$ $12$ $35.8$ $23.1$ demilitariziran $9$ $30$ $25.3$ $33.8$ zaprt $5$ $162$ $7.6$ $32.4$ brezcarinski $26$ $17$ $30.3$ $16.5$ konvergenčen $12$ $6$ $29.7$ $15.0$ operativen $34$ $47$ $28.5$ $21.8$ bivši $15$ $199$ $11.9$ $27.4$ posamezen $9$ $338$ $5.1$ $26.8$ svoboden $42$ $43$ $25.5$ $14.9$ turističen $16$ $183$ $11.0$ $23.6$	a_modifier	4941	36173	2.6	1.9
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prostocarinski       61       21       47.3       21.8         obmejen       7       313       11.5       46.7         moder       139       20       41.4       8.2         okupacijski       35       10       38.6       14.6         nekdanji       41       710       16.6       37.3         tamponski       17       12       35.8       23.1         demilitariziran       9       30       25.3       33.8         zaprt       5       162       7.6       32.4         brezcarinski       26       17       30.3       16.5         konvergenčen       12       6       29.7       15.0         operativen       34       47       28.5       21.8         bivši       15       199       11.9       27.4         posamezen       9       338       5.1       26.8         svoboden       42       43       25.5       14.9         turističen       16       183       11.0       23.6         visok       8       353       3.1       23.5         koprski       12       110       11.8       23.2 </td <td>industrijski</td> <td><u>284</u></td> <td><u>76</u></td> <td>52.2</td> <td>19.4</td>	industrijski	<u>284</u>	<u>76</u>	52.2	19.4
obmejen731311.546.7moder1392041.48.2okupacijski351038.614.6nekdanji4171016.637.3tamponski171235.823.1demilitariziran93025.333.8zaprt51627.632.4brezcarinski261730.316.5konvergenčen12629.715.0operativen344728.521.8bivši1519911.927.4posamezen93385.126.8svoboden424325.514.9turističen1618311.023.6visok83533.123.5koprski1211011.823.2mesten111907.221.7	prost	<u>317</u>	<u>79</u>	50.1	16.7
moder1392041.48.2okupacijski351038.614.6nekdanji4171016.637.3tamponski171235.823.1demilitariziran93025.333.8zaprt51627.632.4brezcarinski261730.316.5konvergenčen12629.715.0operativen344728.521.8bivši1519911.927.4posamezen93385.126.8svoboden424325.514.9turističen1618311.023.6visok83533.123.5koprski1211011.823.2mesten111907.221.7	prostocarinski	<u>61</u>	<u>21</u>	47.3	21.8
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nekdanji       41       710       16.6       37.3         tamponski       17       12       35.8       23.1         demilitariziran       9       30       25.3       33.8         zaprt       5       162       7.6       32.4         brezcarinski       26       17       30.3       16.5         konvergenčen       12       6       29.7       15.0         operativen       34       47       28.5       21.8         bivši       15       199       11.9       27.4         posamezen       9       338       5.1       26.8         svoboden       42       43       25.5       14.9         turističen       16       183       11.0       23.6         visok       8       353       3.1       23.5         koprski       12       110       11.8       23.2         mesten       11       190       7.2       21.7	moder	<u>139</u>	<u>20</u>	41.4	8.2
tamponski       17       12       35.8       23.1         demilitariziran       9       30       25.3       33.8         zaprt       5       162       7.6       32.4         brezcarinski       26       17       30.3       16.5         konvergenčen       12       6       29.7       15.0         operativen       34       47       28.5       21.8         bivši       15       199       11.9       27.4         posamezen       9       338       5.1       26.8         svoboden       42       43       25.5       14.9         turističen       16       183       11.0       23.6         visok       8       353       3.1       23.5         koprski       12       110       11.8       23.2         mesten       11       190       7.2       21.7	okupacijski	<u>35</u>	<u>10</u>	38.6	14.6
demilitariziran       9       30       25.3       33.8         zaprt       5       162       7.6       32.4         brezcarinski       26       17       30.3       16.5         konvergenčen       12       6       29.7       15.0         operativen       34       47       28.5       21.8         bivši       15       199       11.9       27.4         posamezen       9       338       5.1       26.8         svoboden       42       43       25.5       14.9         turističen       16       183       11.0       23.6         visok       8       353       3.1       23.5         koprski       12       110       11.8       23.2         mesten       11       190       7.2       21.7	nekdanji	<u>41</u>	<u>710</u>	16.6	37.3
zaprt         5         162         7.6         32.4           brezcarinski         26         17         30.3         16.5           konvergenčen         12         6         29.7         15.0           operativen         34         47         28.5         21.8           bivši         15         199         11.9         27.4           posamezen         9         338         5.1         26.8           svoboden         42         43         25.5         14.9           turističen         16         183         11.0         23.6           visok         8         353         3.1         23.5           koprski         12         110         11.8         23.2           mesten         11         190         7.2         21.7	tamponski	<u>17</u>	<u>12</u>	35.8	23.1
Image: symbol       Image: symbol       Image: symbol         brezcarinski       26       17       30.3       16.5         konvergenčen       12       6       29.7       15.0         operativen       34       47       28.5       21.8         bivši       15       199       11.9       27.4         posamezen       9       338       5.1       26.8         svoboden       42       43       25.5       14.9         turističen       16       183       11.0       23.6         visok       8       353       3.1       23.5         koprski       12       110       11.8       23.2         mesten       11       190       7.2       21.7	demilitariziran	2	<u>30</u>	25.3	33.8
konvergenčen         12         6         29.7         15.0           operativen         34         47         28.5         21.8           bivši         15         199         11.9         27.4           posamezen         9         338         5.1         26.8           svoboden         42         43         25.5         14.9           turističen         16         183         11.0         23.6           visok         8         353         3.1         23.5           koprski         12         110         11.8         23.2           mesten         11         190         7.2         21.7	zaprt	<u>5</u>	<u>162</u>	7.6	32.4
operativen         34         47         28.5         21.8           bivši         15         199         11.9         27.4           posamezen         9         338         5.1         26.8           svoboden         42         43         25.5         14.9           turističen         16         183         11.0         23.6           visok         8         353         3.1         23.5           koprski         12         110         11.8         23.2           mesten         11         190         7.2         21.7	brezcarinski	<u>26</u>	<u>17</u>	30.3	16.5
bivši         15         199         11.9         27.4           posamezen         2         338         5.1         26.8           svoboden         42         43         25.5         14.9           turističen         16         183         11.0         23.6           visok         8         353         3.1         23.5           koprski         12         110         11.8         23.2           mesten         11         190         7.2         21.7	konvergenčen	<u>12</u>	<u>6</u>	29.7	15.0
posamezen         9         338         5.1         26.8           svoboden         42         43         25.5         14.9           turističen         16         183         11.0         23.6           visok         8         353         3.1         23.5           koprski         12         110         11.8         23.2           mesten         11         190         7.2         21.7	operativen	<u>34</u>	<u>47</u>	28.5	21.8
svoboden         42         43         25.5         14.9           turističen         16         183         11.0         23.6           visok         8         353         3.1         23.5           koprski         12         110         11.8         23.2           mesten         11         190         7.2         21.7	bivši	<u>15</u>	<u>199</u>	11.9	27.4
turističen <u>16 183</u> 11.0 23.6 visok <u>8 353</u> 3.1 23.5 koprski <u>12 110</u> 11.8 23.2 mesten <u>11 190</u> 7.2 21.7	posamezen	<u>9</u>	<u>338</u>	5.1	26.8
visok <u>8</u> <u>353</u> 3.1 23.5 koprski <u>12</u> <u>110</u> 11.8 23.2 mesten <u>11</u> <u>190</u> 7.2 21.7	svoboden	<u>42</u>	<u>43</u>	25.5	14.9
koprski <u>12 110</u> 11.8 23.2 mesten <u>11 190</u> 7.2 21.7	turističen	<u>16</u>	<u>183</u>	11.0	23.6
mesten <u>11 190</u> 7.2 21.7	visok	8	353	3.1	23.5
	koprski	<u>12</u>	<u>110</u>	11.8	23.2
siv <u>23 14</u> 20.9 8.1	mesten	<u>11</u>	<u>190</u>	7.2	21.7
	siv	<u>23</u>	<u>14</u>	20.9	8.1

- 19 spor 0.273 spopad 0.267 vojna 0.266 <u>nasilje</u> 0.202 <u>boj</u> 0.17
- 03 <u>težava</u> 0.288 <u>razmera</u> 0.279 <u>situacija</u> 0.264 <u>dogajanje</u> 0.228 <u>dogođe</u> problematika 0.18 potreba 0.172 <u>stvar</u> 0.172
- 25 <u>katastrofa</u> 0.243 <u>padec</u> 0.198 <u>zlom</u> 0.185 <u>razpad</u> 0.179 <u>izbruh</u> 0.171
- 24 posledica 0.21 pomanjkanje 0.209 nevarnost 0.188 pritisk 0.182 vp
- 29 <u>politika</u> 0.196 <u>proces</u> 0.189 <u>razvoj</u> 0.184 <u>sila</u> 0.182 <u>gibanje</u> 0.182 <u>o</u>
- 23 recesija 0.211 revščina 0.178

21

- 07 nesreča 0.196 bolečina 0.169
- 05 <u>reforma</u> 0.203 <u>napad</u> 0.196 <u>volitve</u> 0.178 <u>poseg</u> 0.176 <u>akcija</u> 0.171
- 93 <u>napetost</u> 0.19
- 87
- 82 <u>poraz</u> 0.175

#### Thesaurus

kriza = crisis

# Gigafida (2012)

- online (broadband)
- 1,2 billion words
- POS-tagged (statistical tagger, better!)
- metadata simplified
- consortium: publisher, LT company, university, technical institute, language institute

- freely available online, authentication

purpose: education, lexicography / LT

# The split

- Communication in Slovene project
  - 2008-2013
- Gigafida corpus
  - Slovene Lexical Database (dictionary)
    - Sketch Engine
    - for lexicographers
  - online concordancer(s)
    - for education and general public

#### Web concordancers

- Log analysis of FidaPLUS concordancer
- FidaPLUS web survey
- Analysis of existing corpus tools
- Analysis of popular web tools (Google etc.)

# Survey – findings

- Simple search regularly used by 72% users
- Advanced search rarely used (only 8% use it regularly)
- Lack of intuitiveness
- the manual is almost key to learning how to use a corpus tool
  - "...if you are not using the interface for a while, you forget what the search commands are, and you don't (want to) bother with looking into the manual"
  - "...the interface should have a modern design, it should be more userfriendly, and its use should be clear and transparent"

# Main design principles

- similarity to the well-known non-linguistic tools (e.g. Google)
- No registration
- Minimum navigation
- No redundant functions (less is more)
- Simplicity of searches
- Help and tips in pop-up windows
- Simple descriptions of functionality (no terminology)

## Concordancers

- For lexicographers
  - NoSketchEngine
    - http://nl.ijs.si/noske/index-en.html
  - Sketch Engine
    - http://ske.amebis.si/
- For education / general use
  - Gigafida
    - <u>http://www.gigafida.net/</u>
  - Kres
    - http://www.korpus-kres.net/
- DEMO