

Multilingual Image Search from a user's perspective



Julio Gonzalo, Paul Clough, Jussi Karlgren
QUAERO-Image CLEF workshop, 16/09/08



Finding is a matter of two

smart
slow

fast
stupid

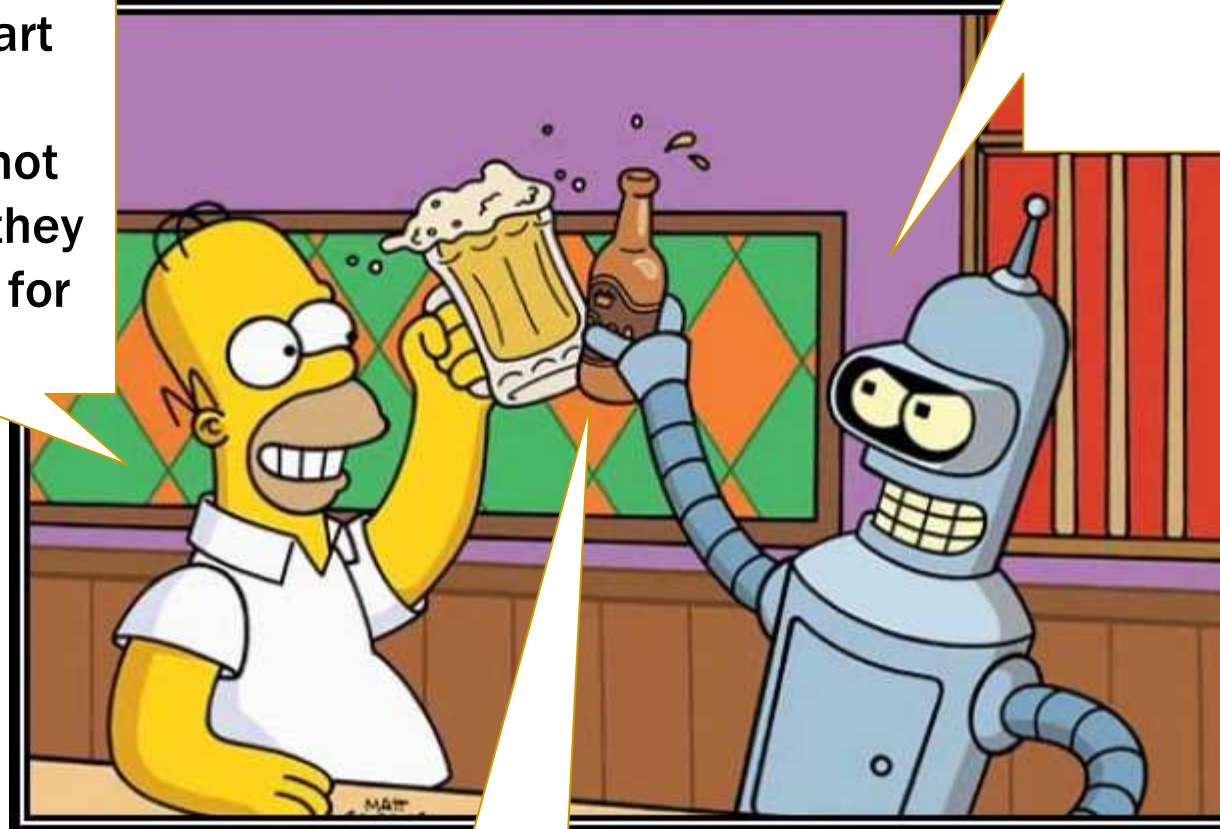


great potential
for interaction

Finding is a matter of two

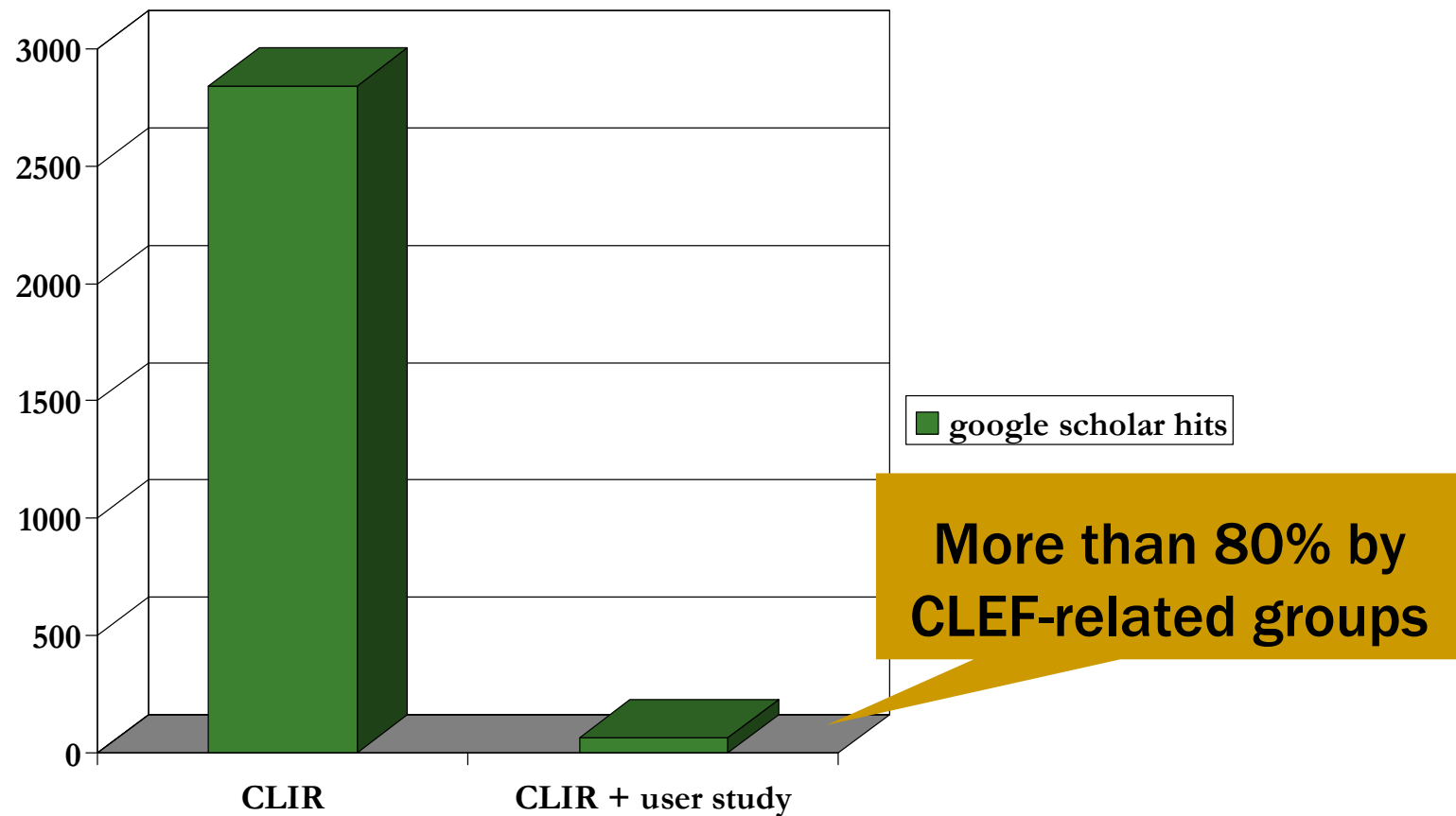
(often) smart
Slow
(often) do not
know what they
are looking for

fast
stupid



Great potential
for interaction

Research in user-oriented CLIR



iCLEF methodology: hypothesis-driven

- Reference system + contrastive system
- Sample tasks (topics)
- set of users
- latin-square pairing between system/topic/user to detect system effects and avoid undesired correlations.
- Features:
 - Controlled (vs. ecological)
 - Hypothesis-based (vs. operational)
 - Deductive (vs. inductive)
 - Sound methodology from a scientific perspective

iCLEF 2001-2005: tasks

On newswire

- Cross-Language Document Selection
- Cross-Language query formulation and refinement
- Cross-Language Question Answering

On image archives

- Cross-Language Image search.

iCLEF 2001-2005: problems

- Unrealistic search scenario, user sample opportunistic
- Latin-square design not cost-effective
 - Only one aspect of CLIR at a time
 - High cost of recruiting, training, observing users.
- High cost of entry, Low participation


Goals for iCLEF 2006 - 2008

- Find **realistic scenarios** where multilingual search arises naturally
- Reduce the **cost of entry** for new participants.
- Explore **new experiment designs**.

Flickr

Abrete Sesamo

ADD TO FAVES BLOG THIS ALL SIZES



Uploaded on June 16, 2005
by [Lou Rouge](#)

Lou Rouge's photostream

236 photos
[View as slideshow](#)

< prev next >

This photo also belongs to:

Curiosidades (Set)

52 photos
[View as slideshow](#)

< prev next >

Verde (Set)

29 photos
[View as slideshow](#)

< prev next >

Comments

[ramond](#) says:
Muy buena Lou Rouge, a ver si, si me dejas tu camara que la mia no tiene tantos aumentos, tu sacas afotos buenas por tu camara, guapa, por eso
Posted 3 months ago. ([permalink](#))

[Amelie](#) pro says:
Bella foto
mi piace molto
what it opens?
Posted 3 months ago. ([permalink](#))

Spanish

Italian

English

Japanese

iCLEF 2006

Topics

- ❑ **Ad hoc:** find as many photographs of (different) european parliaments as possible.
- ❑ **Creative:** find five illustrations for this article about saffron in Italy.
- ❑ **Visual:** What is the name of the beach where this crab is lying on?

Methodology

- ❑ Participants must propose their own evaluation measures and experiment design.



Explored issues

■ **user's behaviour**

- ❑ How users deal with native/passive/unknown languages?
- ❑ Do they actually use CLIR facilities when available?

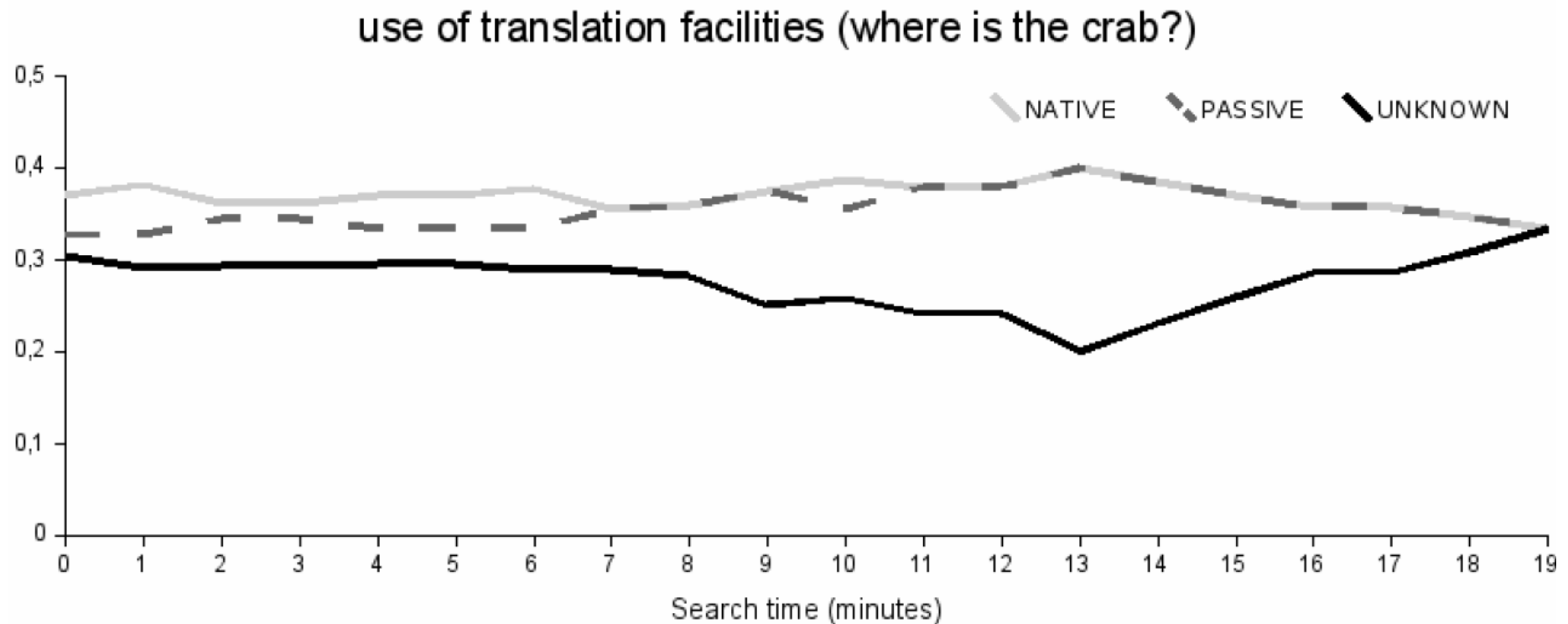
■ **user's perceptions**

- ❑ Satisfaction (all tasks)
- ❑ Completeness (creative, ad-hoc)
- ❑ Quality (creative)

■ **search effectiveness**

- ❑ How many facets were retrieved (creative, ad-hoc)
- ❑ Was the image found? (visual)

Example result: choice of target languages along time.



iCLEF 2008

- Cost of entry still high → move to a **search log analysis** task.
- We need more users → make the task an **online game** and engage some user community.

Flickling challenge

iCLEF 2008 task

- Log analysis task.
- Data: logs from an online game (known item retrieval in Flickr) which implies searching in six languages simultaneously.
- Known item retrieval: see this image? Find it!
- Game interface implements reasonable baseline facilities for MLIA.
- Registered users with language profiles (native, active, passive, unknown languages)

Simultaneous search in six languages

Flickling - An online game for searching Flickr across language boundaries - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#%7B%22start_index%22%3A0%2C%20%22num_results%22%3A20%2C%20%22page%22%3A1%2C%20%22results%22%3A%5B%5D%7D


sambusa new generati...

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Flickling

An online game for searching Flickr across language boundaries

Encuentra esta imagen

[Me rindo](#)

monolingüe multilingüe

[Buscar](#)

escribo en traduce mi consulta a

Español


DE EN ES FR IT NL

Traducciones


Español	violin	strauss estatua
Alemán	violine, geige, violinist	[añadir] standbild
Inglés	violin	[añadir][añadir]
Francés	violon, violoniste	[añadir] statue
Italiano	violino, violinista	[añadir] statua
Holandés	violist	[añadir] beeld

Resultados 1-16 de 16 para **violin strauss estatua** ([Mostrar consulta a Flickr](#))

Tal vez quieras intentar con: [music](#), [concert](#), [instrument](#), [strings](#), [musician](#), [fiddle](#), [guitar](#), [live](#), [bw](#), [street](#)... [\[mostrar todo\]](#)



Strauss
[vienna](#), [park](#), [parque](#), [music](#), [classic](#), [austria](#), [golden](#), [violin](#), [viena](#), [música](#)... [\[mostrar todo\]](#)



P4302599

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#

Boolean search with translations

Flickling - An online game for searching Flickr across language boundaries - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#%7B%22start_index%22%3A0%2C%20%22num_results%22%3A2C


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Idioma	Traducción	Acción
Inglés	violin	[añadir] [añadir]
Francés	violon, violoniste	[añadir] statue
Italiano	violino, violinista	[añadir] statua
Holandés	violist	[añadir] beeld

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Strauss
[vienna](#), [park](#), [parque](#), [music](#), [classic](#), [austria](#), [golden](#), [violin](#), [viena](#), [música](#)... [\[mostrar todo\]](#)



P4302599
[vienna](#), [wien](#), [2005](#), [park](#), [statue](#), [austria](#), [golden](#), [europe](#), [violin](#), [violinist](#)... [\[mostrar todo\]](#)

Consulta a Flickr

(violine OR geige OR violinist OR violin OR violon OR violoniste OR violino OR violinista OR violist) AND (strauss) AND (standbild OR estatua OR statue OR statua OR beeld)

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#

Relevance feedback

Flickling - An online game for searching Flickr across language boundaries - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#%7B%22start_index%22%3A0%2C%20%22num_results%22%3A2C%20%22current_index%22%3A0%2C%20%22total_results%22%3A16%7D

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Italiano	[añadir]	statua
Holandés violist	[añadir]	beeld

Resultados 1-16 de 16 para **violin strauss estatua** ([Mostrar consulta a Flickr](#))

Tal vez quieras intentar con: music, concert, instrument, strings, musician, fiddle, guitar, live, bw, street... [[mostrar todo](#)]

Strauss
vienna, park, parque, music, classic, austria, golden,
violin, viena

P4302599
vienna, wien, europe, **viol**

P4302607
vienna, wien, europe, **viol**

Buscar **park**
Añadir **park** a tu consulta y buscar
park significa ...
"parque" en Inglés
"parque" en Alemán
"parque" en Holandés

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#

Assisted query translation

Flickling - An online game for searching Flickr across language boundaries - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#%7B%22start_index%22%3A0%2C%20%22num_results%22%3A2C... Google

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Flickling

An online game for searching Flickr across language boundaries

Encuentra esta imagen

 Me rindo

monolingüe multilingüe
 Buscar
escribo en traduce mi consulta a
 Español DE EN ES FR IT NL

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Alemán	violine , geige , violinist	[añadir] standbild
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Resultados 1-16 de 16 para **violin strauss estatua** ([Mostrar consulta a Flickr](#))

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Strauss

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#

User profiles

Flickling - An online game for searching Flickr across language boundaries - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#%7B%22start_index%22%3A0%2C%20%22num_results%22%3A2C%20%22current_index%22%3A0%2C%20%22current_results%22%3A%5B%5D%7D

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Flickling

An online game for searching Flickr across language boundaries

Encuentra esta imagen

monolingüe multilingüe

violin strauss estatua


escribo en traduce mi consulta a


Español DE EN ES FR IT NL

Me rindo

Resultados 1-16 de 16 para **violin strauss estatua** ([Mostrar consulta a Flickr](#))

Tal vez quieras intentar con: [music](#), [concert](#), [instrument](#), [bw](#), [street](#)... [[mostrar todo](#)]

 **Strauss**
vienna, park, parque, music, class... [[mostrar todo](#)]

 **P4302599**
vienna, wien, 2005, park, **statue**, austria, golden, europe, **violin**, **violinist**... [[mostrar todo](#)]

Mi perfil

Nombre de usuario:	julio.gonzalo@gmail.com
Equipo:	testing
Lengua nativa:	Español
Lengua de la interfaz:	Español
Lenguas desconocidas:	Alemán, Holandés
Lenguas pasivas:	Francés, Italiano
Lenguas activas:	Inglés
Ranking:	191
Puntuación:	20
Precisión:	0.5
Tiempo medio:	65.62

[Mostrar puntuaciones](#) [Ayuda](#) [Continuar](#)

http://soporte1.lsi.uned.es/flickling/index.html?locale=es#

User rank (Hall of Fame)

The screenshot shows the Flickling website, which is an online game for searching Flickr across language boundaries. The browser is Mozilla Firefox. The website has a navigation bar with links like Archivo, Editar, Ver, Historial, Marcadores, Herramientas, and Ayuda. The main content area displays a search for "violin strauss estatua" with results for "Strauss" including "vienna, park, parque, n" and "música...". A "Ranking" window is open, showing a table of user rankings.

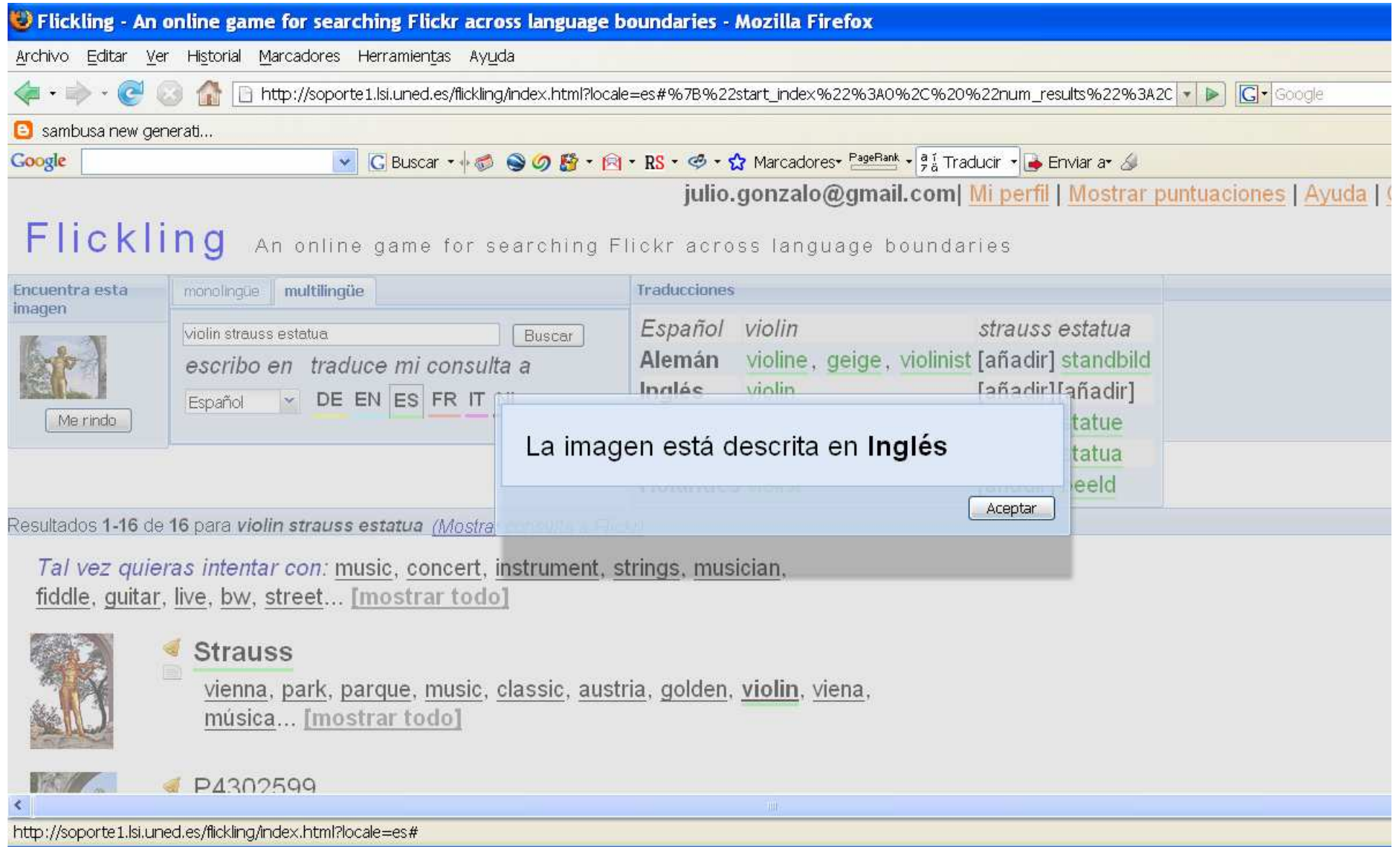
Usuario	Puntuación	Tiempo medio	Precisión	Equipo
andre_06pd	2110	10.67	0.93	U.Padua - 2 Linguistics
louis_andre1977	2065	17.82	0.96	LSIIT-CNRS / U.Louis Pasteur, Strasbo
ncardoso	1865	62.57	1.00	LASIGE / U.Lisbon
evgenia.vassilakaki	1690	24.93	1.00	Manchester Metropolitan University
silvia.massarenti	1495	3031.42	0.91	U.Padua - Linguistics
Aliz	1340	65.18	0.83	U.Padua - Linguistics
annacariolato	1305	187.14	0.86	U.Padua - Linguistics
dinunzio	1295	8.04	0.56	U.Padua - Linguistics
and_rhea06	1285	10.20	0.79	U.Padua - 2 Linguistics
sonfrancesco	1280	10.25	1.00	U.Padua - Linguistics
delapaz	1195	13159.43	0.98	UNED IA
mireia_20	1175	1392.32	1.00	dZoom
blucanna	1150	1508.04	0.80	U.Padua - Linguistics
and_khepera	1095	19.19	0.76	U.Padua - Linguistics
claudia.bauff	1095	964.50	0.72	U.Twente / Twente

Group rank

The screenshot shows the Flickling website interface. At the top, there's a navigation bar with links like 'Archivo', 'Editar', 'Ver', 'Historial', 'Marcadores', 'Herramientas', and 'Ayuda'. Below this is a search bar with the Google logo and a search button. The main content area features the 'Flickling' logo and a search results section for 'violin strauss estatua'. A modal window titled 'Ranking' is open, displaying a table with columns: 'Equipo', 'Puntuación', 'Tiempo medio', 'Precisión', and 'Número de u'. The table lists various teams and their performance metrics. The 'testing' team is highlighted in red. The modal also includes a 'Cerrar' button at the bottom right.

Equipo	Puntuación	Tiempo medio	Precisión	Número de u
U.Padua - Linguistics	21825.00	3313.77	0.62	61
dZoom	8340.00	6846.30	0.60	43
Other	6030.00	379.36	0.34	110
U.Padua - 2 Linguistics	5335.00	7986.77	0.58	12
UNED IA	2310.00	6512.22	0.67	7
Manchester Metropolitan Univ	2250.00	44.26	0.68	7
UNED LSI	2125.00	6746.68	0.61	13
LSIT-CNRS / U.Louis Pasteu	2065.00	17.82	0.96	1
LASIGE / U.Lisbon	1865.00	62.57	1.00	1
PLN / U. of Alicante	1835.00	67.81	0.74	10
U.Twente / Twente	1095.00	964.50	0.72	1
testing	1075.00	187.94	0.29	11
Yahoo / MultiMedia Group - E	1060.00	5492.73	0.84	2
UNED SCC	945.00	5.17	0.31	3

Hint mechanism

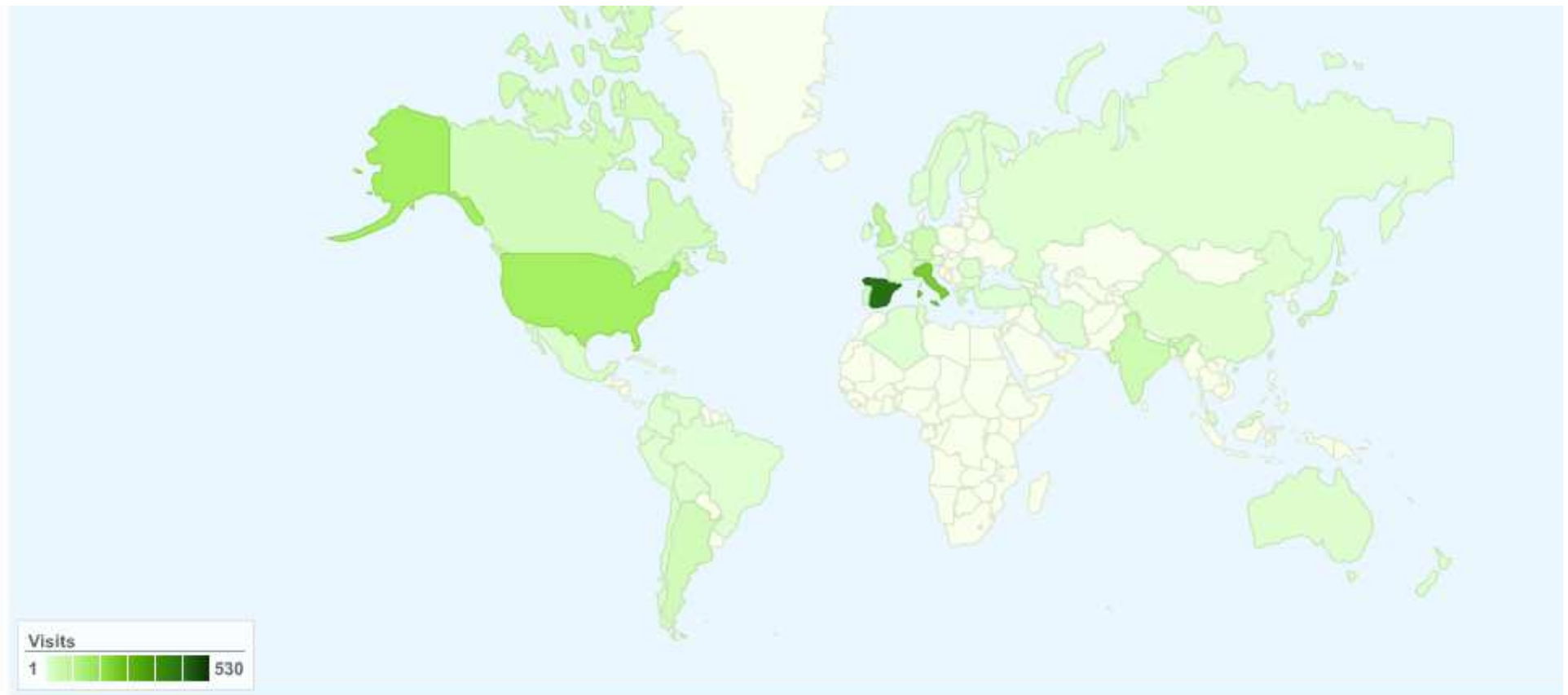


Harvested logs

- 312 users / 41 teams
- 5101 complete search sessions
- Linguistics students, photography fans, IR researchers from industry and academia, monitored groups, other.

Geographic distribution of users

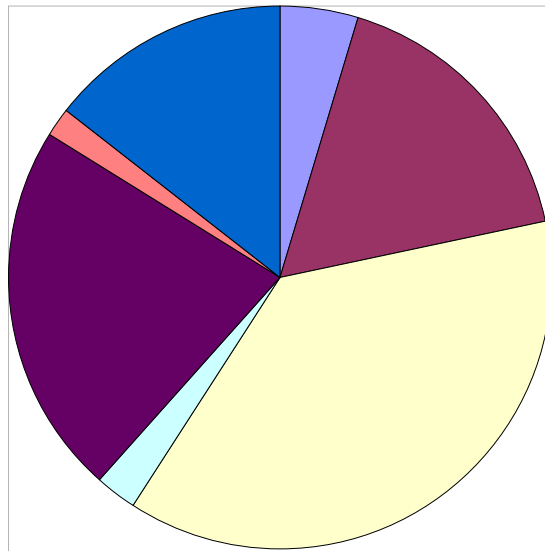
- 312 users, 41 teams, 43 countries



1,428 visits came from 43 countries/territories

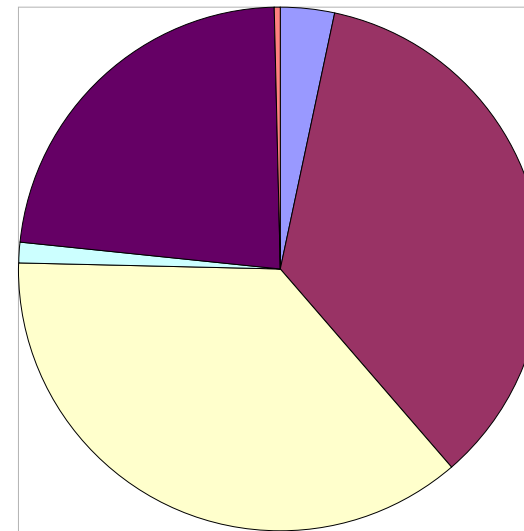
Language skills

Native Languages



Interface Languages

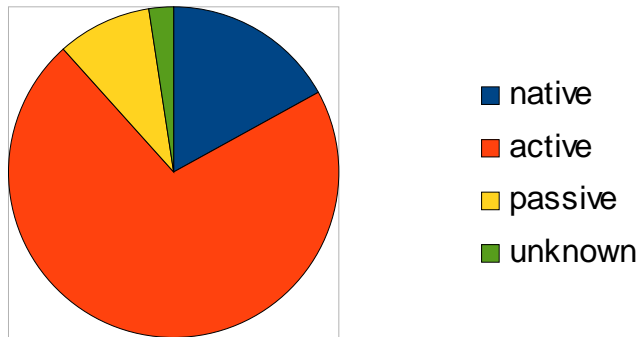
DE
EN
ES
FR
IT
NL
Other



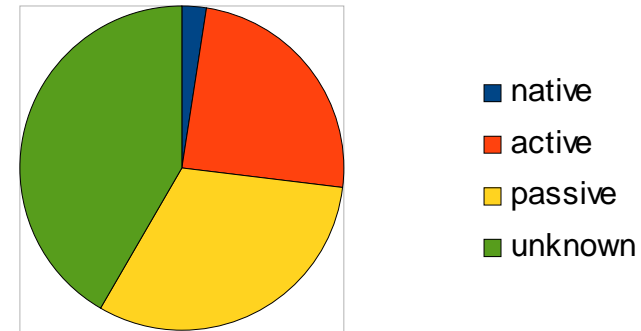
DE
EN
ES
FR
IT
NL

Language skills

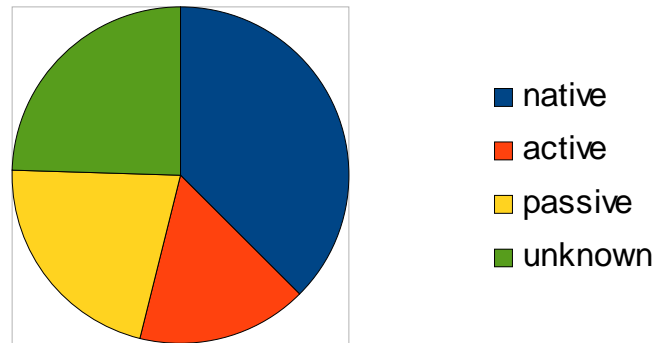
Language Skills: English



Language Skills: French



Language Skills: Spanish



Language Skills: Dutch

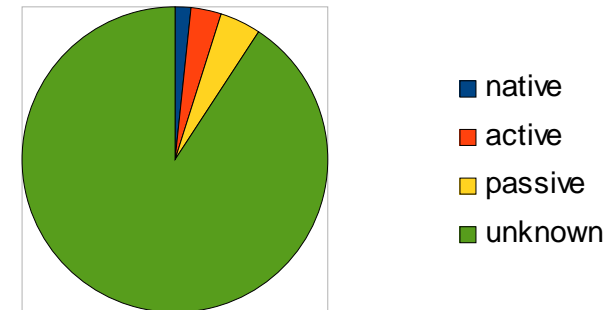
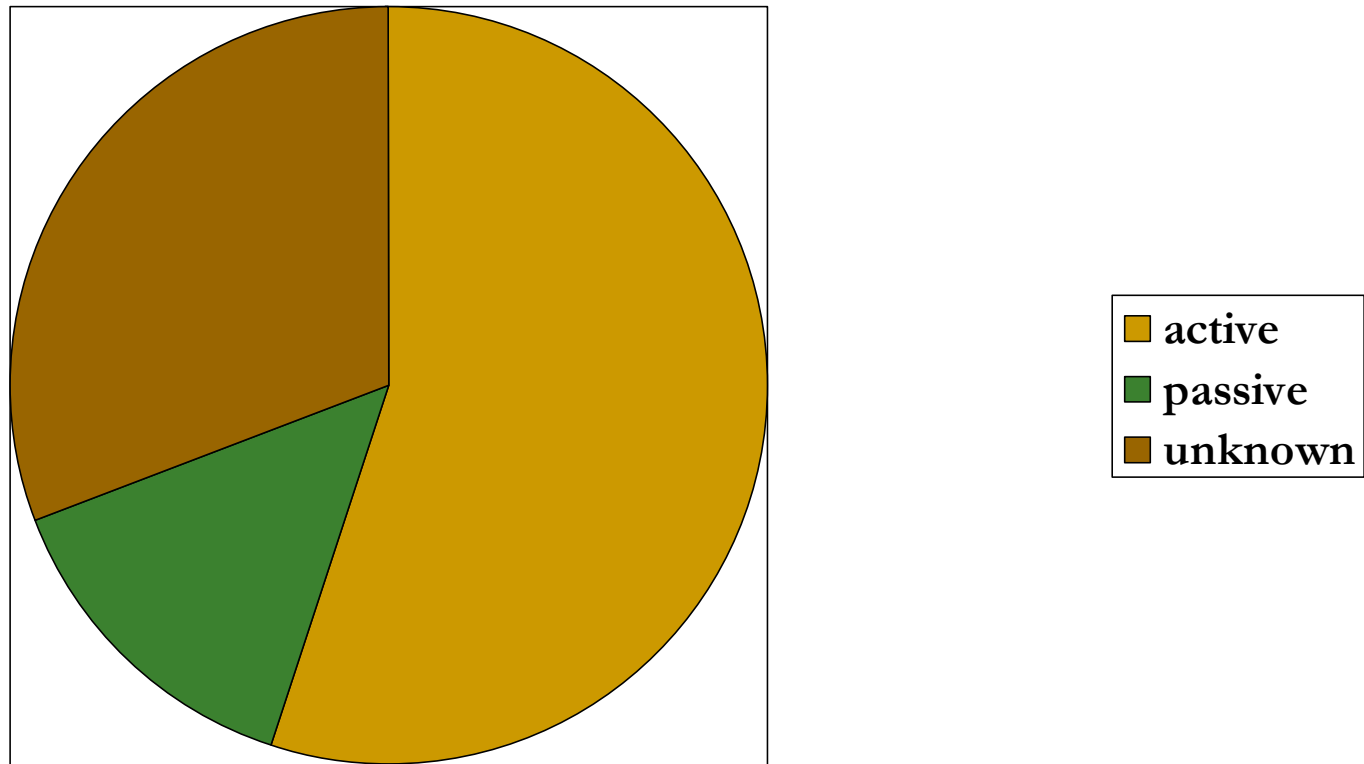


Image was annotated in a language that for the user was:



Participation

- 15 registered groups, 6 submissions
- Plus more than 30 CLEF groups collaborated as users

User's behaviour according to language skills

competence	success	# hints	# queries		refinements		ranking exploration	
			mono	multi	mono	multi	mono	multi
active	82%	2.13	3.96	3.8	3.91	3.76	2.58	2.69
passive	81%	2.18	4.32	4.05	4.27	4.01	3.4	3.14
unknown	72%	2.15	4.5	4.38	4.41	4.28	2.93	3.06

Table 1: User's behaviour according to language skills

Success: ACTIVE \approx PASSIVE \succ UNKNOWN

Effort: ACTIVE \prec PASSIVE \approx UNKNOWN

Use of cross-language refinements

competence	Flickr related terms				usage of	
	new query		query refinement		personal dictionary	
	mono	multi	mono	multi	manipulations	adding new terms
active	1%	1%	2%	2%	4%	7%
passive	1%	1%	3%	1%	6%	9%
unknown	2%	1%	4%	5%	9%	11%

Table 2: Usage of Specific Cross-Lingual Refinement Facilities

Do users learn to use CL facilities?

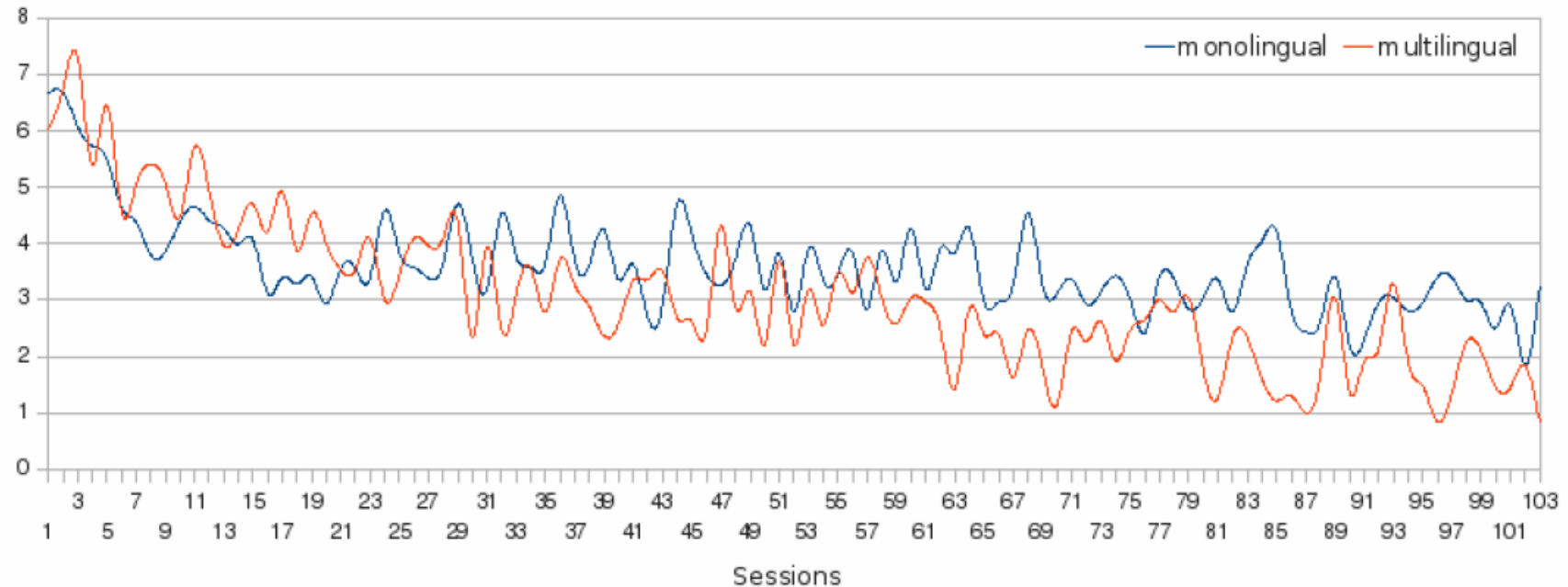
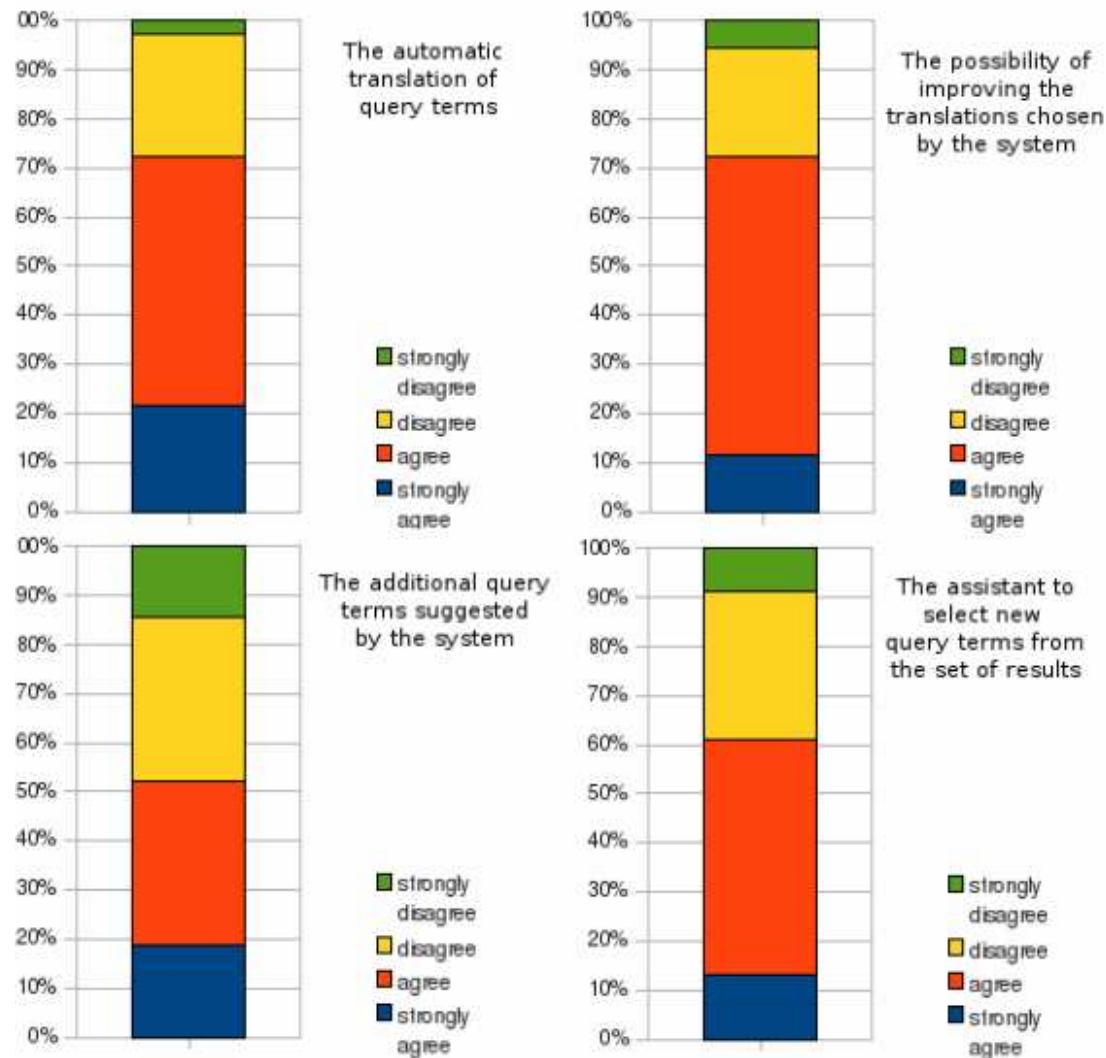


Figure 3: Average direct refinements per sessions performed.

Success rate & #hints keep constant, interactions go down

Usefulness of interface facilities



- Perceived usefulness much higher than actual use!
- Conclusion: occasional use may have a strong impact on user perception

Figure 8: Which interface facilities did you find most useful?

Conclusions

- Flickr is an excellent playground for multilingual image search experiments... And it would be better if we had the data!
- In order to harvest large search logs, (online) game-like tasks work.
- Interface facilities are perceived as very useful in multilingual image search. But logs do not provide perceptions!
- No matter how much we lower the cost of entry, we'll never get participants ;)