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# Multilingual Image Search from a user's perspective



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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

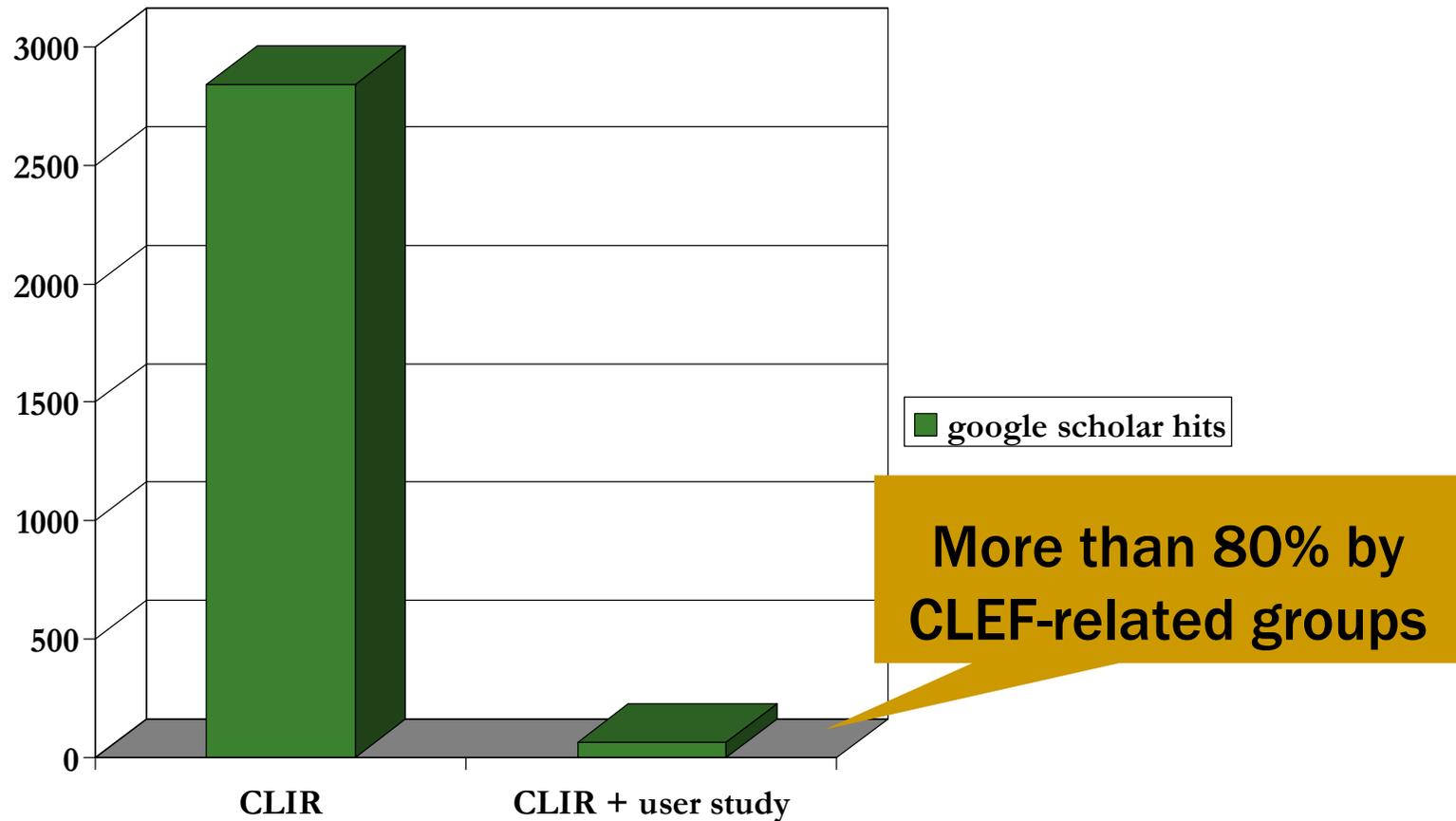
(often) smart  
Slow  
(often) do not  
know what they  
are looking for



fast  
stupid

Great potential  
for interaction

# Research in user-oriented CLIR



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# 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

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# 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.

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# 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

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# 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**

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

**Lou Rouge's photostream**  
236 photos  
View as slideshow

This photo also belongs to:

- Curiosidades (Set)**  
52 photos  
View as slideshow
- Verde (Set)**  
29 photos

**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. ( [permlink](#) )

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

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.



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# Explored issues

- **user's behaviour**

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

- **user's perceptions**

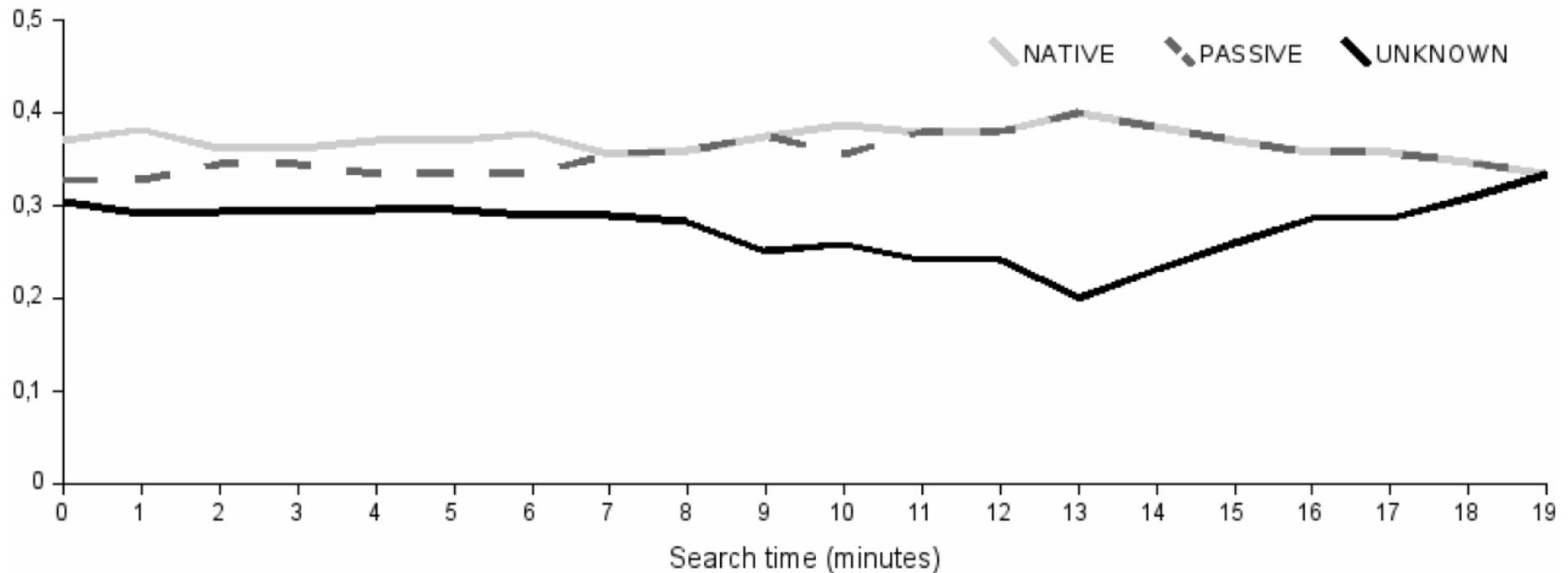
- Satisfaction (all tasks)
- Completeness (creative, ad-hoc)
- Quality (creative)

- **search effectiveness**

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

# Example result: choice of target languages along time.

use of translation facilities (where is the crab?)



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# 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

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# 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%7D%22

sambusa new generati...

Google  Buscar Traducir Enviar a

[julio.gonzalo@gmail.com](#) | [Mi perfil](#) | [Mostrar puntuaciones](#) | [Ayuda](#) | [...](#)

## Flickling

An online game for searching Flickr across language boundaries

Encuentra esta imagen



Me rindo

monolingüe **multilingüe**

violin strauss estatua

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#











# Group rank

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

sambusa new generati...

Google Buscar

Ranking

Ranking de usuarios Ranking de equipos

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
LSIIT-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
<b>testing</b>	<b>1075.00</b>	<b>187.94</b>	<b>0.29</b>	<b>11</b>
Yahoo / MultiMedia Group - E	1060.00	5492.73	0.84	2
UNED SCC	945.00	5.17	0.31	3

Page 1 of 3

Mostrando equipos 1 - 15 de 44

Cerrar

Encuentra esta imagen

monolingüe multilingüe

violin strauss estatua

escribo en traduce

Español DE EN

Me rindo

Resultados 1-16 de 16 para violin strauss esta

Tal vez quieras intentar con: music fiddle, guitar, live, bw, street... [mo

Strauss

vienna, park, parque música... [mostra

P4302599

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



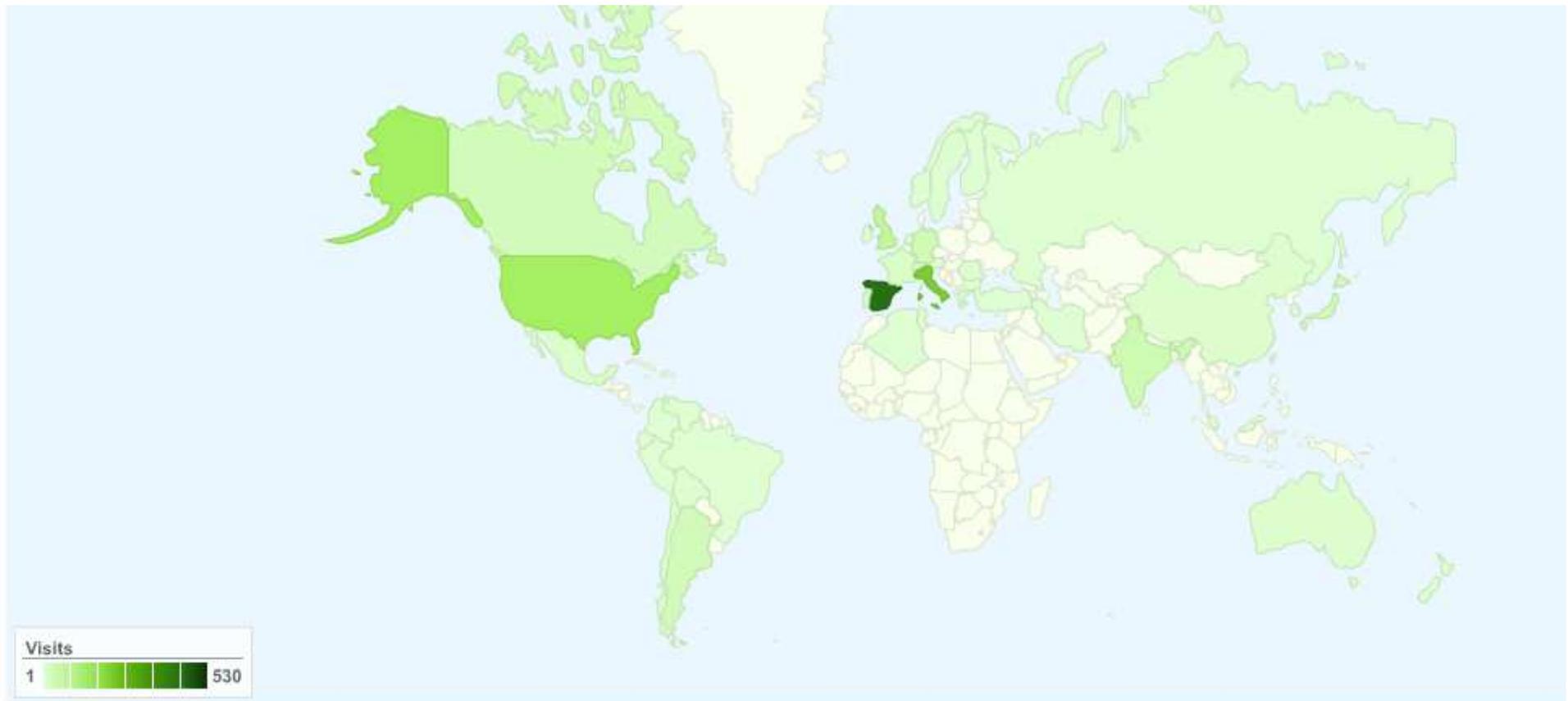
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# Harvested logs

- 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

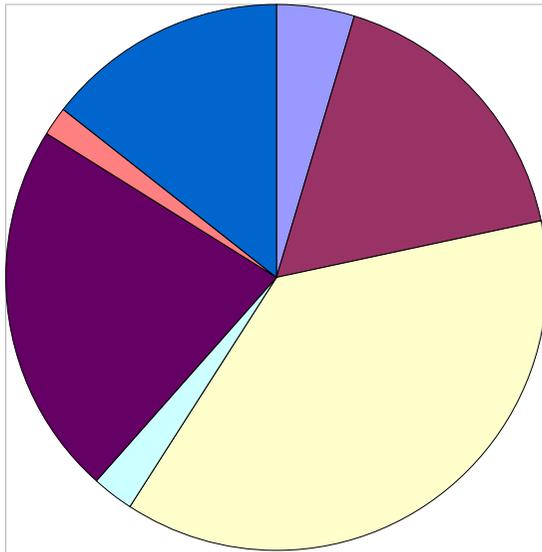
- 312 users, 41 teams, 43 countries



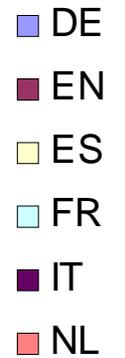
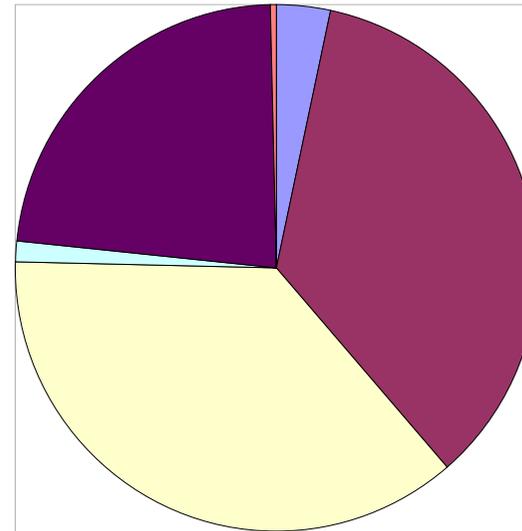
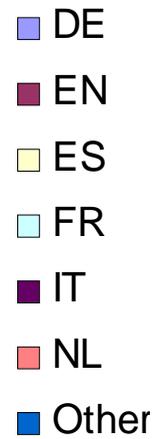
**1,428 visits came from 43 countries/territories**

# Language skills

## Native Languages

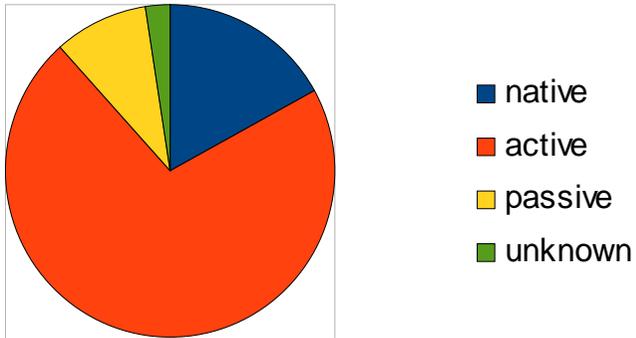


## Interface Languages

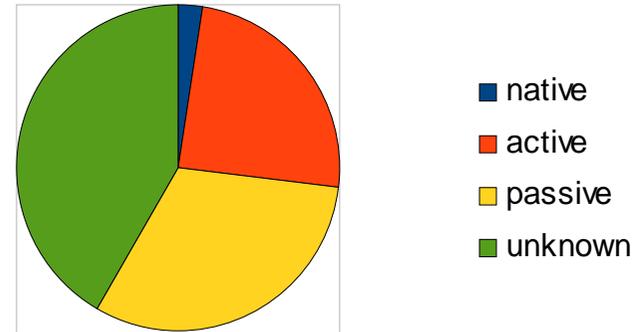


# Language skills

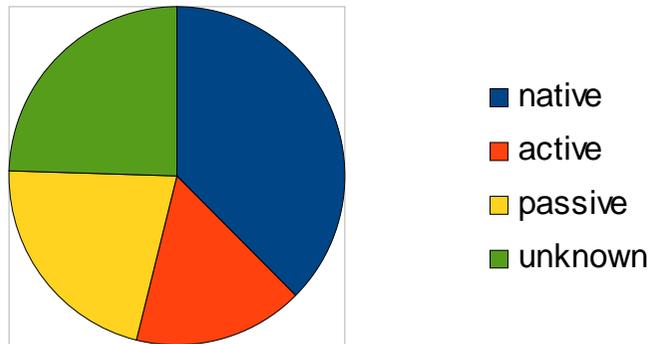
## Language Skills: English



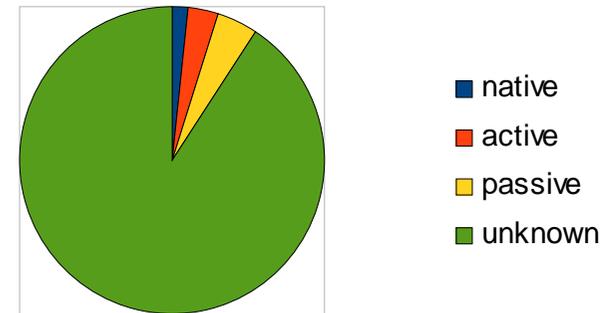
## Language Skills: French



## Language Skills: Spanish

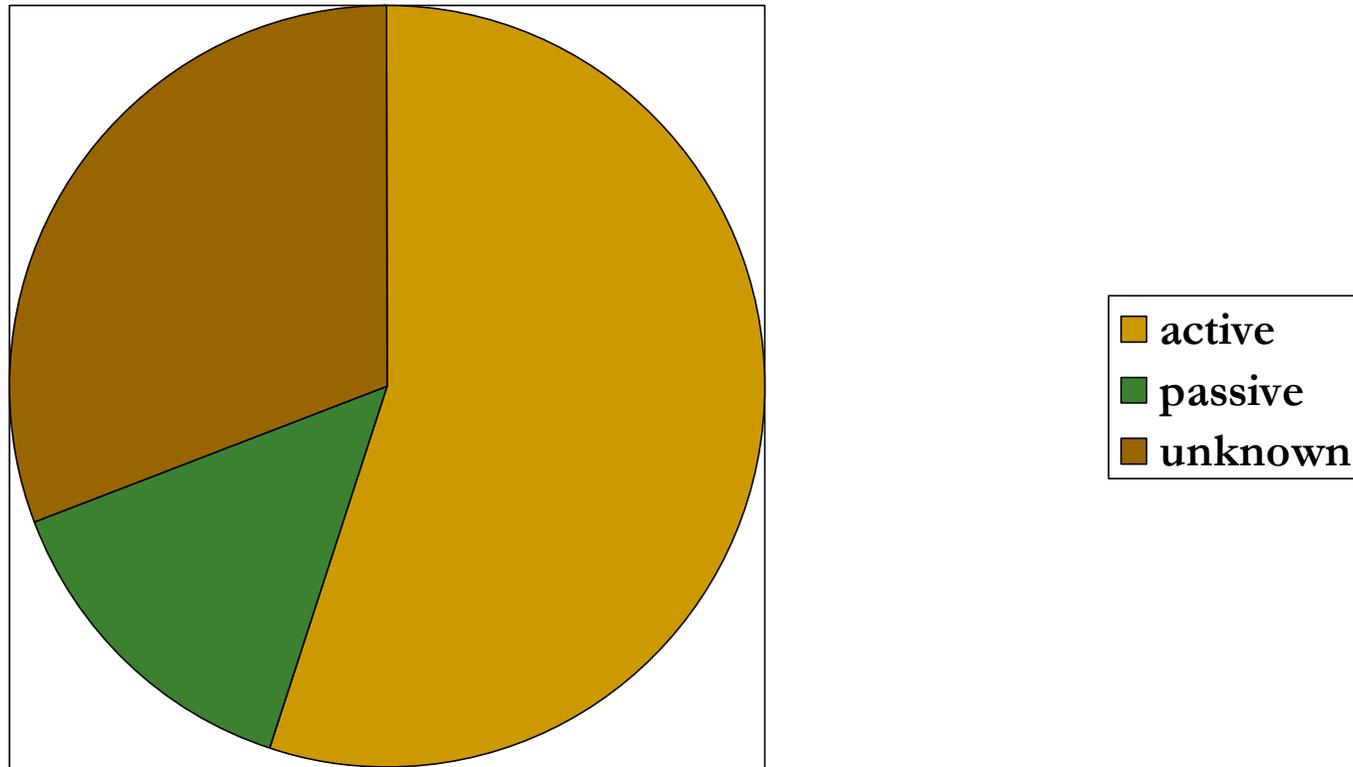


## Language Skills: Dutch



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



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# 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 personal dictionary	
	new query		query refinement		manipulations	adding new terms
	mono	multi	mono	multi		
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?

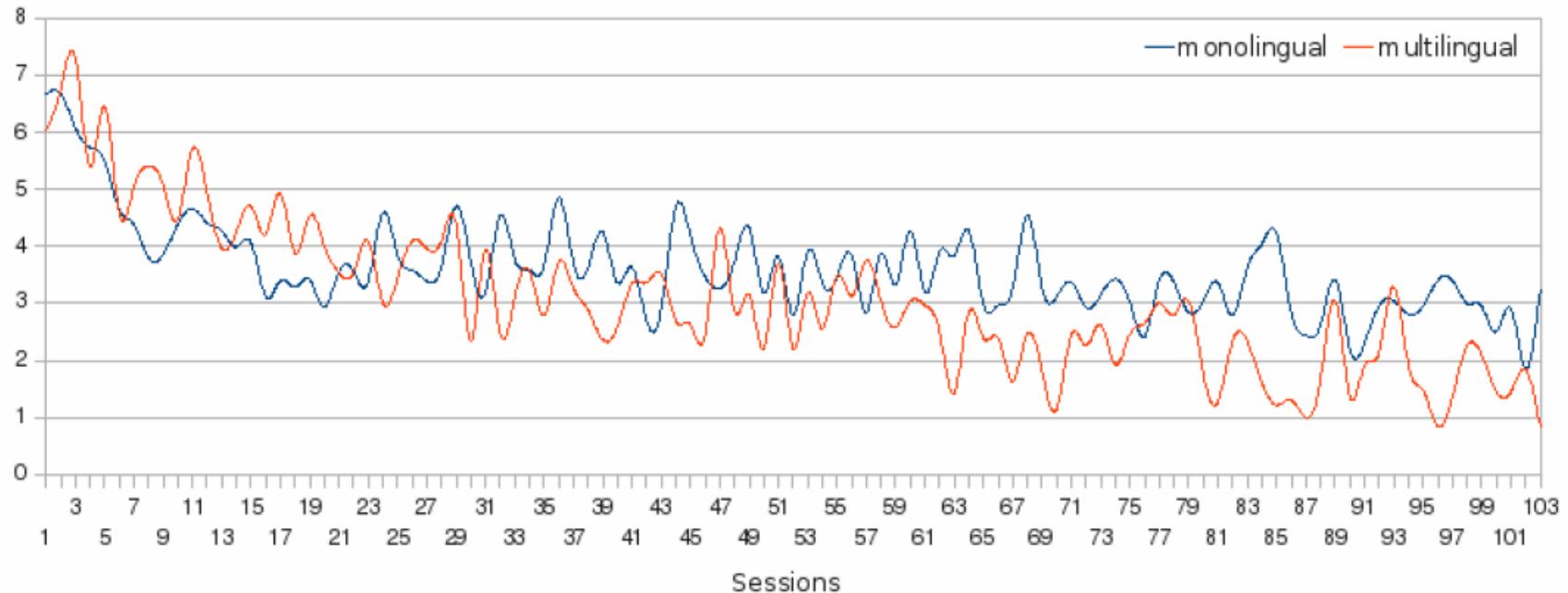
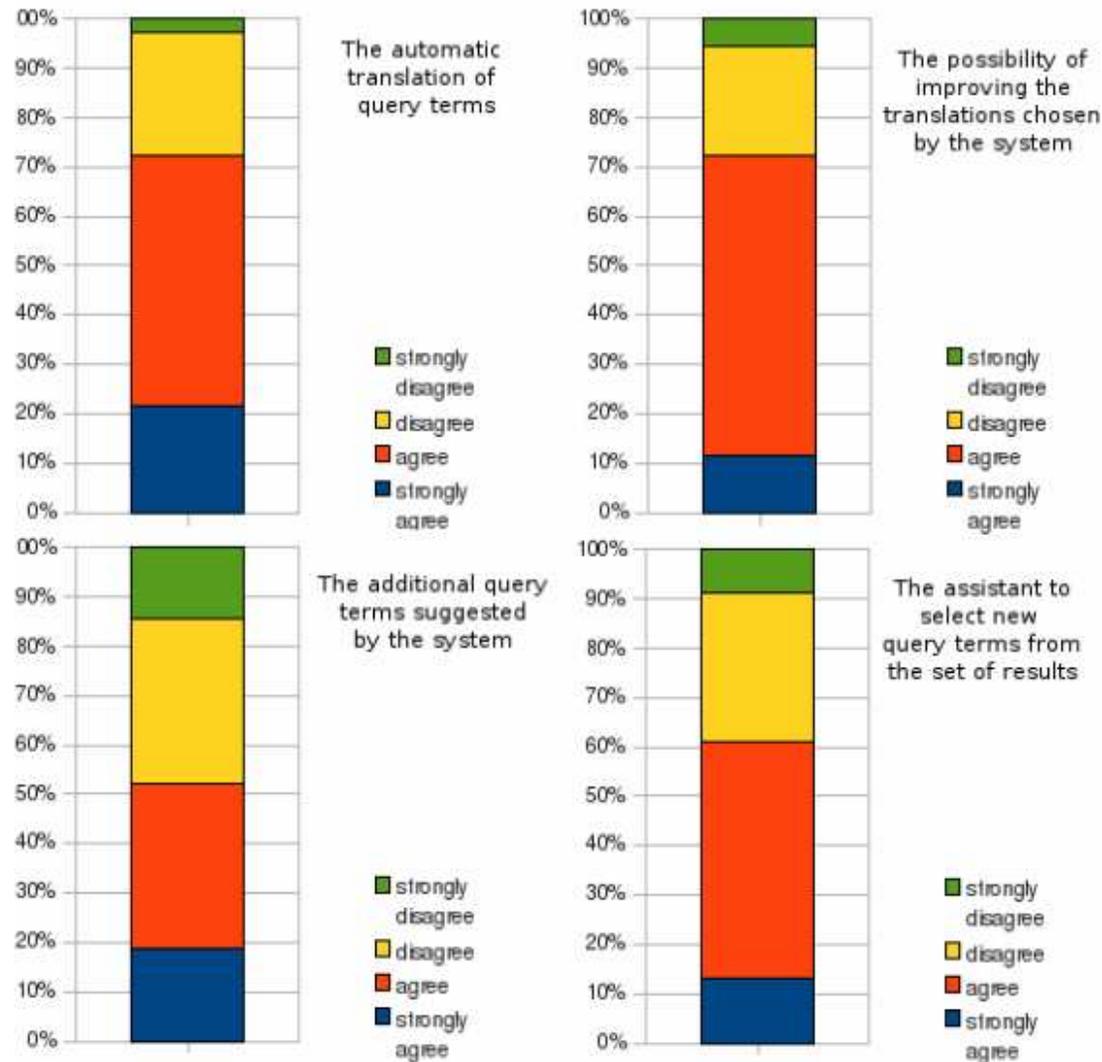


Figure 3: Average direct refinements per sessions performed.

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?

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# 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 ;)