



Games with a Purpose (GWAPs)

Karën Fort

karen.fort@sorbonne-universite.fr

Feb. 11th, 2021



Games with a purpose I participated in creating



ZOMBILINGO

RIGORMORTIS

BISAME

KRIK!

AYO!



Language games portal and recurring workshop:



Games4NLP

GWAPs types

ZombiLingo

Motivating players

JeuxDeMots: playing associating ideas. . .

. . . to create a lexical network [Lafourcade and Joubert, 2008]

More than **360 million relations** (created by approx. 6,000 players),
constantly updated

- ▶ play by pairs
- ▶ more and more complex, then typed relations
- ▶ challenges
- ▶ trials
- ▶ etc



...to annotate coreference [Chamberlain et al., 2008]

- ▶ pre-annotated corpus
- ▶ detailed instructions
- ▶ training
- ▶ 2 modes:

- ▶ annotation
- ▶ validation (correcting annotations)

5 / 20

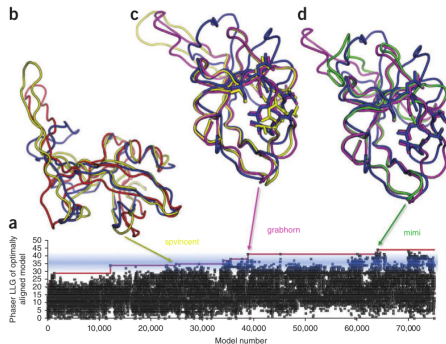
FoldIt: playing proteins folding. . .

. . . to solve crystal structure issues [Khatib et al., 2011]

”Decipher the crystal structure of a retroviral protease from [...] a monkey virus which causes HIV/AIDS-like symptoms” (Wikipedia)

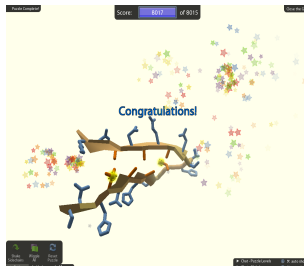
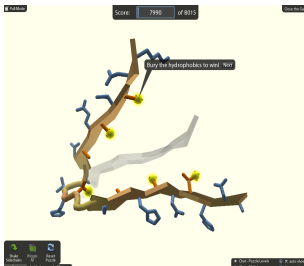
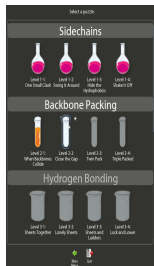
Solution to a scientific problem
that had been unsolved for 15
years

- found in a few weeks
- by a team of players



FoldIt : playing proteins folding...

...with no prior knowledge in biochemistry [Cooper et al., 2010]



Training by steps

- ▶ tutorial by concepts
- ▶ puzzles for each concept
- ▶ access to the next puzzles is allowed only if the player's level is good enough

GWAPs types

ZombiLingo

Motivating players

A complex task



- ▶ annotation guidelines
 - ▶ 29 types of relations
 - ▶ approx. 50 pages
- ▶ counter-intuitive decisions (**not** school grammar, linguistics):

$aobj = au$

[...] avoir recours au type de mesures [...]

i.e. the head of the relation is a preposition

→ **decomposing** the complexity of the task [Fort et al., 2012],
not simplifying it!

ZOMBI LINGO

BIENVENUE à TOI, JEUNE ZOMBIE !

LE MONDE EST
CONDAMNÉ, TA
TRANSFORMATION EN
ZOMBIE A COMMENCE.

POUR SURVIVRE,
SUIS MES RÈGLES,
IDENTIFIE LES TÊTES
ET MANGE-LES.

ATTENTION AUX
PIÈGES, ILS SONT
NOMBREUX !



SIGNE

Prof. Frankensperre.

Jouer

*Pas de limite
pour toi !
Tu accèdes à
toutes les
options, bonus
cachés !*

Karen

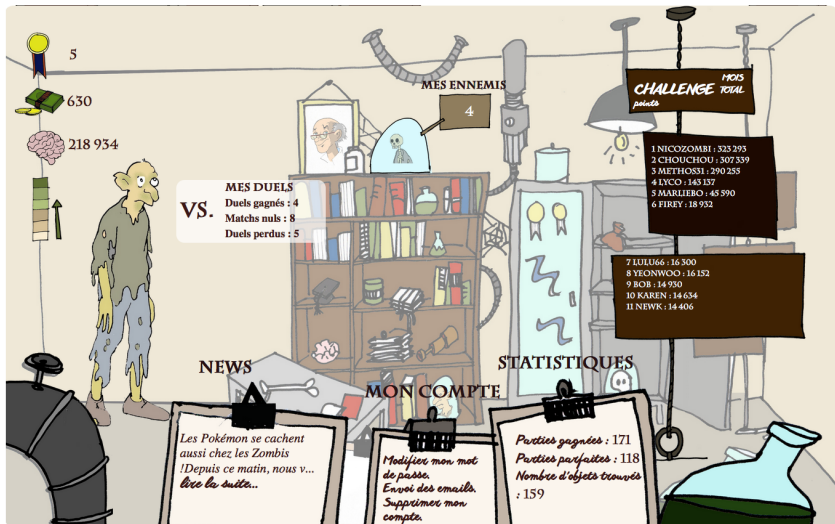
*Retrouve ici tes
statistiques, et
compare ton
score avec
celui de tes
amis !*

SEMAINE

MOIS
TOTAL

1 nouveau : 38 993
2 nicolef : 16 170

3 bruno : 11 546
4 testKF : 7 327
5 Karen : 7 012





Jouer

Boutique

Forum

Joueurs



Niveau

maximum!

165

Trouve le complément (objet indirect introduit par "à") du verbe
indiqué !

10%

Besoin
d'aide?



Très jeune, il a fait preuve d'initiative et de courage pour
PARTICIPER à un sauvetage lors d'inondations.



57

150

Acheter

1

15

Acheter



3

300

Acheter

74



0

15

Acheter

43

GWAPs types

ZombiLingo

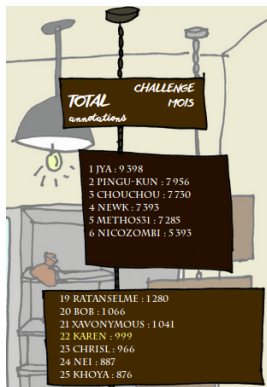
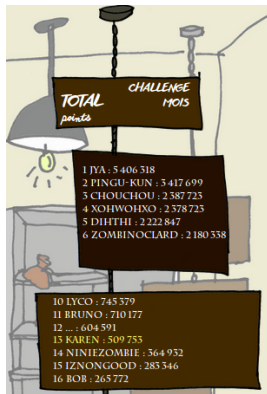
Motivating players

General features

Bring the fun through:

- ▶ zombie design
- ▶ use of (crazy) objects
- ▶ regular challenges (specific corpus and design) on a trendy topic:
 - ▶ Star Wars (when the movie was playing)
 - ▶ soccer (during the Euro)
 - ▶ Pokemon (well...)

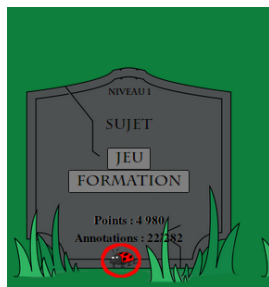
LeaderboardS (for achievers)



Criteria:

- ▶ number of annotations or points
- ▶ in total, during the month, during the challenge

Hidden features (for explorers)



- ▶ appearing randomly
- ▶ with different effects: objects, other game, etc.

Duels (for socializers (and killers?))

JOUER BOUTIQUE DUELS FORUM ADMIN JOUEURS

Duels [Nouveau duel](#)

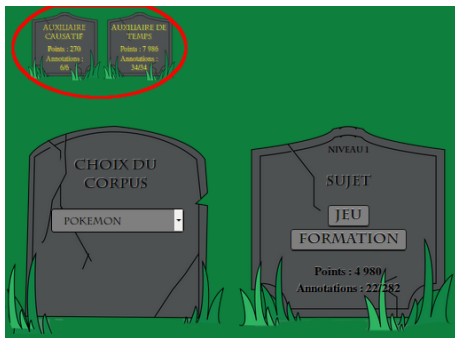
Duels gagnés : 1
Duels perdus : 1
Matches nuls : 1

DUELS LIBRES ¹ MES DUELS EN COURS ² MES DUELS TERMINÉS ³

	Karen vs. JYA 1420 1558	JYA gagne 5956 points	Complément en « de » duel en 20 en tours
	Karen vs. bruno 660 660	Karen gagne 660 points bruno gagne 660 points	Auxiliaire causatif duel en 20 en tours
	Karen vs. JYA 1754 1670	Karen gagne 3424 points	Complément en « de » duel en 20 en tours

- ▶ select an enemy
- ▶ challenge them on a specific type of relation

Badges (?) (for collectors)



- ▶ play all the sentences for a relation type, for a corpus
- ▶ play all the sentences from a corpus

THANK  YOU



<https://github.com/zombilingo>



<http://zombilingo.org/export>



Chamberlain, J., Poesio, M., and Kruschwitz, U. (2008).
Phrase Detectives: a web-based collaborative annotation
game.

In Proceedings of the International Conference on Semantic
Systems (I-Semantics'08), Graz, Austria.



Cooper, S., Treuille, A., Barbero, J., Leaver-Fay, A., Tuite, K.,
Khatib, F., Snyder, A. C., Beenen, M., Salesin, D., Baker, D.,
and Popović, Z. (2010).

The challenge of designing scientific discovery games.

In Proceedings of the Fifth International Conference on the
Foundations of Digital Games, FDG '10, pages 40–47, New
York, NY, USA. ACM.



Fort, K., Nazarenko, A., and Rosset, S. (2012).

Modeling the complexity of manual annotation tasks: a grid of
analysis.

In International Conference on Computational Linguistics
(COLING), pages 895–910, Mumbai, India.



Khatib, F., DiMaio, F., Cooper, S., Kazmierczyk, M., Gilski, M., Krzywda, S., Zabranska, H., Pichova, I., Thompson, J., Popović, Z., et al. (2011).

Crystal structure of a monomeric retroviral protease solved by protein folding game players.

Nature structural & molecular biology, 18(10):1175–1177.



Lafourcade, M. and Joubert, A. (2008).

JeuxDeMots : un prototype ludique pour l'émergence de relations entre termes.

In Proceedings of the Journées internationales d'Analyse statistique des Données Textuelles (JADT), Lyon, France.