defying complexity (lessons learned)

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October, 2016
1 Overview of the game

2 Motivating players

3 Behind the curtain

4 Obtained results [Guillaume et al., 2016]

5 Conclusion and future plans
1 Overview of the game
   - Dependency syntax annotation
   - ZombiLingo

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5 Conclusion and future plans
A complex annotation type

- annotation guidelines:
  - 29 relation types
  - approx. 50 pages

- counter-intuitive decisions

→ decompose the complexity of the task [Fort et al., 2012], not simplify it!
Overview of the game

ZombiLingo

Mes Ennemis

Challenge Mois Total

1. NicoZombi : 323 293
2. Chouchou : 307 339
3. Methossi : 290 255
4. Lyco : 143 137
5. Marliebo : 45 890
6. Firey : 18 932
7. LuLu66 : 16 700
8. Yeonwoo : 16 152
9. Bob : 14 930
10. Karen : 14 634
11. Newk : 14 406

Mes Duels

Duels gagnés : 4
Matchs nuls : 8
Duels perdus : 5

Mes News

Les Pokémon se cachent aussi chez les Zombis ! Depuis ce matin, nous v... lire la suite...

Mon Compte

Modifier mon mot de passe.
Envoi des emails.
Supprimer mon compte.

Parties gagnées : 171
Parties parfaites : 118
Nombre d'objets trouvés : 159
Overview of the game

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

10%

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

1. Overview of the game

2. Motivating players
   - Attracting players
   - Keeping players playing

3. Behind the curtain

4. Obtained results [Guillaume et al., 2016]

5. Conclusion and future plans
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?))

- 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
1 Overview of the game

2 Motivating players

3 Behind the curtain
   - Overview
   - Preprocessing
   - Ensuring quality

4 Obtained results [Guillaume et al., 2016]

5 Conclusion and future plans
Organizing quality assurance
Preprocessing data (freely available corpora)

Pre-annotation with two parsers:

1. A statistical parser: Talismane [Urieli, 2013]
2. A symbolic parser, based on graph rewriting: FrDep-Parse [Guillaume and Perrier, 2015]

→ play the items for which the two parsers give different annotations
Training, control and evaluation

Reference: 3,099 sentences of the Sequoia corpus [Candito and Seddah, 2012]

<table>
<thead>
<tr>
<th>REF(\text{Train&amp;Control})</th>
<th>REF(\text{Eval})</th>
<th>Unused</th>
</tr>
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<tbody>
<tr>
<td>50% 1,549 sentences</td>
<td>25% 776 sentences</td>
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- REF\(\text{Train\&Control}\) is used to train the players
- REF\(\text{Eval}\) is used like a raw corpus, to evaluate the produced annotations
Training the players
Compulsory for each dependency relation

- sentences are taken from the REF \textit{Train$\&$Control} corpus
- a feedback is given in case of error
Dealing with cognitive fatigue and long-term players

Control mechanism

Sentences from the \( \text{REF}_{\text{Train\&Control}} \) corpus are proposed regularly:

- if the player fails to find the right answer, a feedback with the solution is given
- after a given number of failures on the same relation, the player cannot play anymore and has to redo the corresponding training

\[ \quad \text{we deduce a level of confidence for the player on this relation} \]
1. Overview of the game

2. Motivating players

3. Behind the curtain

4. Obtained results [Guillaume et al., 2016]
   - Quantity
   - Quality
   - Density

5. Conclusion and future plans
Production: game corpus size
compared to other existing French dependency syntax corpora

As of July 10, 2016:
- 647 players
- who produced 107,719 annotations

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+ (ever)growing resource!
Evaluating quality on the REF_{Eval} corpus

NB: left part of the figure = density of annotation > 1
Annotation density

on the REF_{Eval} corpus

→ need **more** annotations on some relations
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Improving gamification

Give more to:

- explore and collect
- build a real story
- build a sense of community
Improving the exported resource

Test the influence of:

- the pre-annotation score
- the level of the player in the game
- the confidence we have in the player for the relation type at hand
Conclusion and future plans

Expand to new languages and new annotation types

New languages:
- English
- less-resourced languages

New annotation types:
- POS,
- corpus gathering, etc.

Alice Millour (PhD student)
Building a Community

GWAPs for research should form a network, to:

- attract more players,
- share them,
- share the burden of communication
Thanks!

Nicolas Lefèbvre (engineer)


Dependency Parsing with Graph Rewriting.


Robust French syntax analysis: reconciling statistical methods and linguistic knowledge in the Talismane toolkit.
PhD thesis, Université de Toulouse II le Mirail, France.