FastKwic, an "intelligent" concordancer using FASTR

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1 Outline

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3 FastKwic

4 Implementation in the TermSciences website

5 Conclusion

Contexte

- TermSciences: more than 540,000 terms BUT no definitions.
- Large collection of bibliographical records at INIST.
- Previous work on term variation [Jacquemin 1994, Jacquemin and Royauté 1994, Jacquemin 1997, Royauté 1999].

$\Rightarrow$ Wish for a concordancer.

Elements for the specification

- No complex request language.
- Mono- and multi-word terms ...
- ... occuring in texts with several variations.

Term variations (Jacquemin, Royauté)

Example

- *gamma-linolenic acid / gamma linolenic acid / γ-Linolenic acid.*
- *stuctural gene / structural erm gene.*
- *structural gene / structural and regulatory genes.*
- *resistance mechanism / mechanism of claritomycin resistance.*

Major types

- typographical variations (ex. with or without -).
- morphological variations (ex. plural).
- syntactic variations (ex. insertion, coordination, permutation).

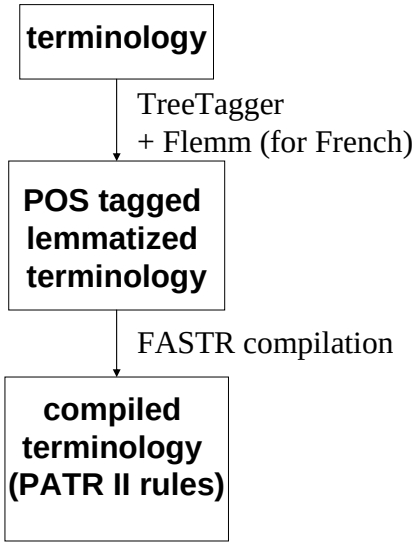
Package features

- Two UTF-8 compliant Perl modules.
- Depends on several external freely available tools/resources
  - FASTR [Jacquemin 1997, Jacquemin et al. 1997],
  - TreeTagger [Schmid 1997],
  - Flemm [Namer 2000]
- Freely available on `http://www.cnrtl.fr/outils/`.

Usage

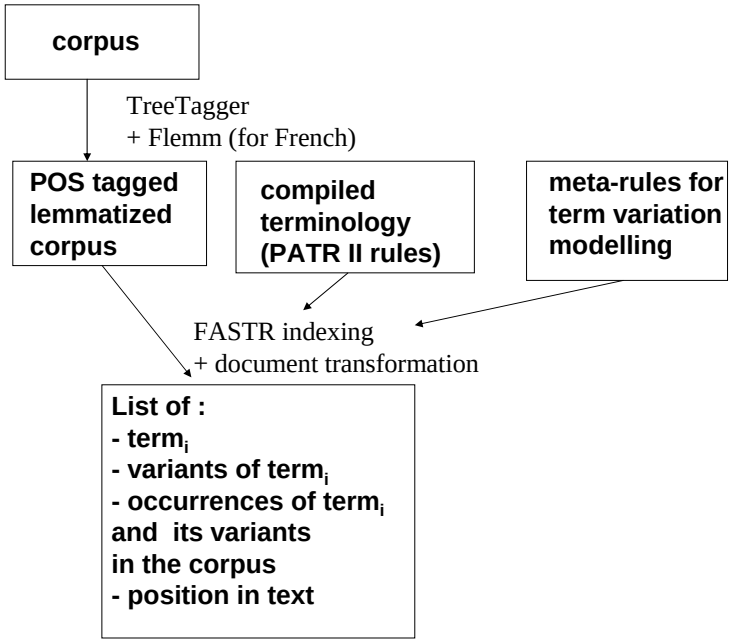
Usage

- Resource compilation.



Usage

- Resource compilation.
- Indexing.



Usage

- Resource compilation.
- Indexing.
- Production of a concordancer.

```
<?xml version='1.0' encoding='UTF-8'?>
<Concordancer>
  <Term>
    <TotalNumber>2</TotalNumber>
    <Preferential>
      <String>Gene amplification </String>
      <Number>2</Number>
      <Occurrences>
        <Occurrence>
          <Reference>000007</Reference>
          <Position>1:32</Position>
          <Transform>XX,25,Perm</Transform>
          <Context><b>Amplification of the MYC gene is</b> associated with
dmi</Context>
        </Occurrence>
        <Occurrence>
          <Reference>000008</Reference>
          <Position>1:38</Position>
          <Transform>XX,15,Ins</Transform>
          <Context><b>This gene facilitated amplification of</b> a 407-bp DNA
fragme</Context>
        </Occurrence>
      </Occurrences>
    </Preferential>
  </Term>
```

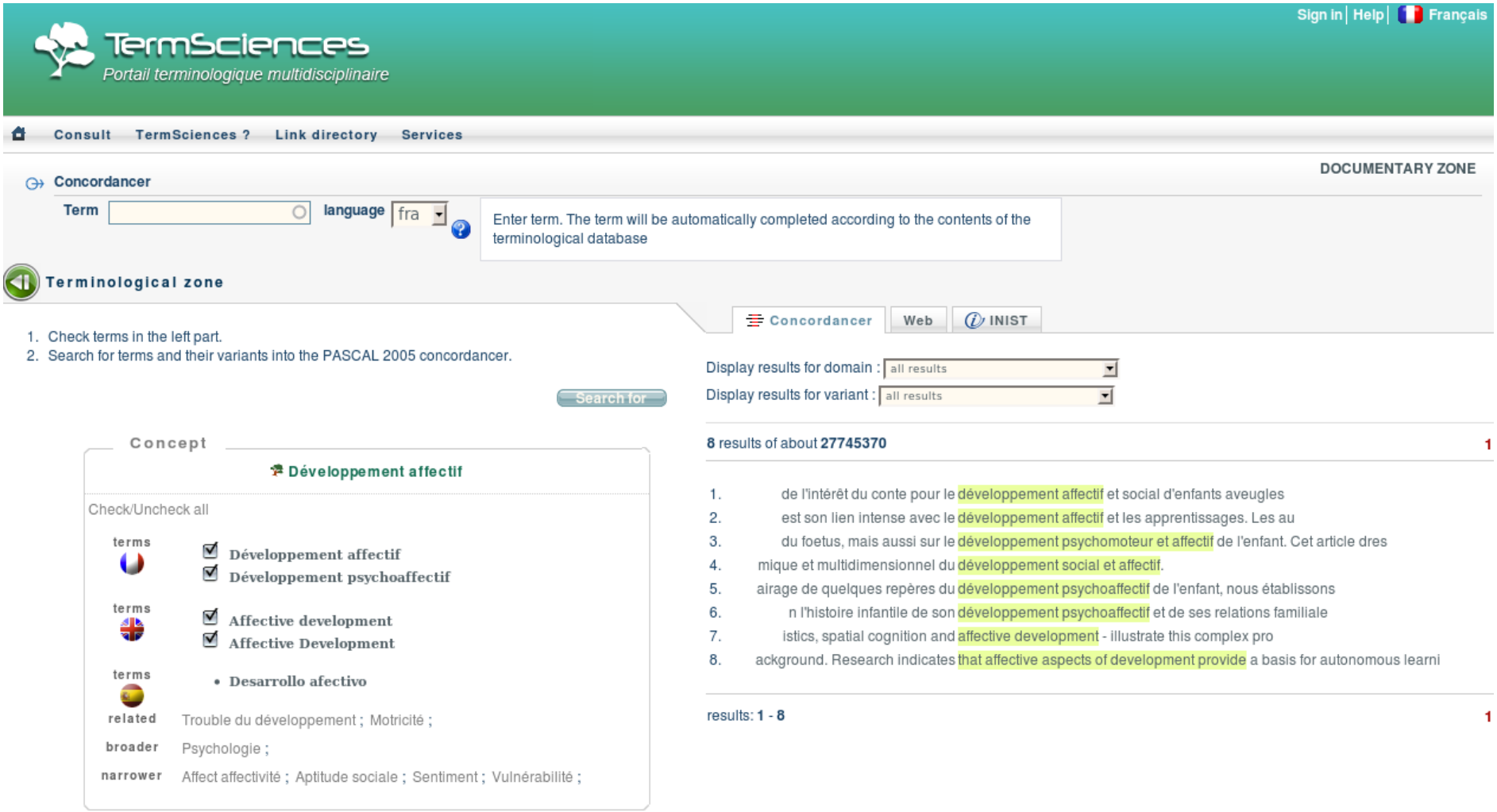
Limitations

- Use of TreeTagger with limited context $\Rightarrow$ errors in the POS tagging.
- Particular linguistic entities (*1,3,4-thiadiazole(2-amino)*) and their variants not taken into account.

Resources, corpus

- Terminological resource = more than 540,000 terms $\Rightarrow$
  - FASTR: only for terms with standard linguistic patterns.
  - IRC3(Royauté): for geographical names, drug names, chemical compounds, etc.
- Corpus = 30,744 records for French, 398,952 for English.
- Result of indexing put in MySQL database and accessed from `http://www.termsciences.fr/-/Index/Search/Concordancer/`

Result example



Achievements and perpectives

- FastKwic freely available for the community `http://www.cnrtl.fr/outils/`.
- Possible improvements :
  - integration of new languages
  - linking FastKwic to a terminology extraction tool (ex. ACABIT)

001. and you, my lady, are the living image of him!" "THANK YOU, my lady." "The duke will never be dead
002. if you want. I'm not doing anything important." "THANK YOU," said Karen. "You're very kind. I've go
003. sign at the outskirts of the village that said, "THANK YOU." "What are you grinning at?" Mary asked
004. time, sir. That's about half an hour from now." "THANK YOU." Carl changed the time on his watch. "A
005. "Dunno about tea; fuckin good at makin a noise." "THANK YOU for sharing that with us, Gav. I shall r
006. , get out. I'm a busy man." "Goodbye," said Kee. "THANK YOU for talking to me. But don't forget, Mr
007. and a strong wind was blowing. She turned round. "THANK YOU, gentlemen. I will have to talk to them.
008. d, "Shall I put this straight into your basket?" "THANK YOU so much!" She would never be able to exp
009. d: "What shall I say? Nobody could foresee this. "THANK YOU for this wonderful night, an emotional W
010. ed you would call on us." Joan hid her surprise. "THANK YOU for the letter, Your Grace -- 'twas kind
011. en me so much happiness. I buy her jewels to say "THANK YOU"." In May 1972 the Duke became ill. Whe

THANK YOU FOR YOUR ATTENTION

012. Here you are." Harald gave the man his passport. "THANK YOU. And his?" "He has no passport. I am a p
013. ince could in the fullness of time marry… "THANK YOU for telling me, my lady," Joan said. "I
014. ing was exquisitely ornamented with tiny pearls. "THANK YOU, my lord," she said, her eyes shining wi
015. ive us this day our daily bread", and seldom say "THANK YOU" for the ways that we see answers to the
016. ker laughed again and moved on to the next seat. "THANK YOU, Harald," Carl whispered, when the man
w
017. ld me that two of those men had come back to say "THANK YOU and take Deputy Superintendent Dr Lloy
d
018. little longer. It was very nice to talk to you." "THANK YOU for talking to me, too. I've learnt a lo