

18 DECEMBRE 2023

PROJET FINAL
SEMANTIQUE COMPUTATIONNELLE

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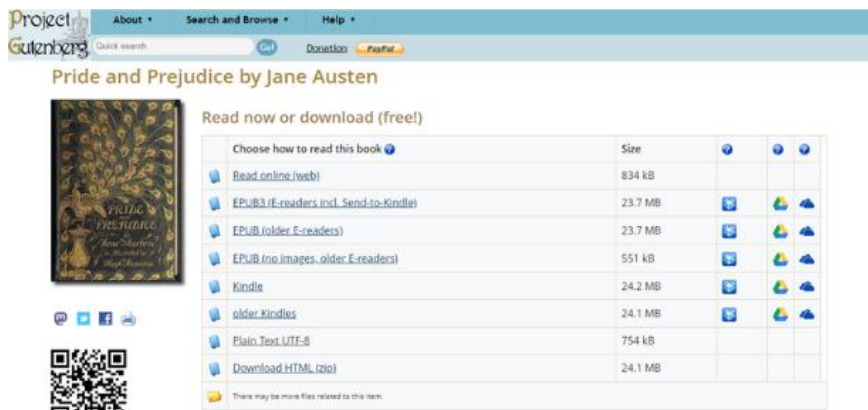
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I. Introduction

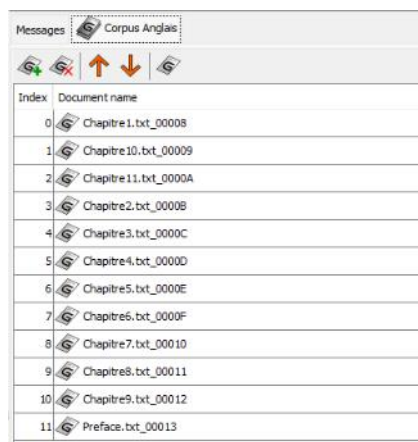
Pour ce projet, nous avons utilisé le logiciel GATE pour faire différents types d'annotations. Nous avons choisi le livre *Pride and Prejudice* de Jane Austen en anglais et nous avons sélectionné la préface ainsi que les onze premiers chapitres, ce qui fait plus de 15 000 mots. Nous avons décidé de prendre ce livre parce qu'il y a beaucoup de personnages, lieux et dialogues et donc une grande variété de verbes de discours et de mouvements.

Nous avons téléchargé notre livre sur la plateforme du *Projet Gutenberg* qui propose tous les livres libres de droits dans plusieurs langues dont l'anglais et le français. Pour notre projet, nous avons téléchargé le fichier en format Plain Text UTF-8 pour faciliter la division des chapitres. Nous avons mis chaque chapitre dans des fichiers .txt que nous avons mis dans un dossier nommé *Livres sélectionnés*, qui nous servira pour créer le corpus dans GATE.



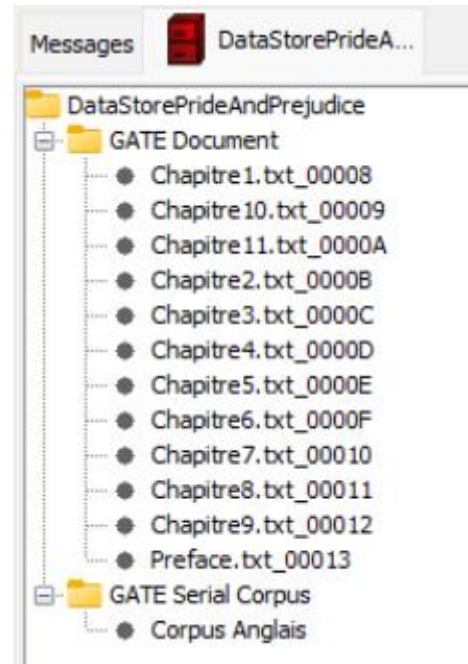
II. Création du corpus et du DataStore

Une fois le dossier conçu avec tous les chapitres, nous avons créé un corpus contenant notre livre dans GATE en faisant un clic droit sur *Language Resources* puis en cliquant sur *New* et finalement sur *GATE Corpus*, nous avons nommé le corpus *Corpus Anglais*. Il a ensuite fallu remplir ce corpus avec nos chapitres. Pour se faire, il faut faire un clic droit sur *Corpus Anglais* et sélectionner *Populate* pour choisir le dossier contenant notre livre.



Nous avons ensuite créé un Datastore pour ce corpus, cela permet de pouvoir enregistrer nos annotations et de les retrouver. Pour créer ce Datastore il faut tout d'abord créer un dossier nommé *DataStorePrideandPrejudice* puis sur GATE faire un clic droit sur *Datastores* et cliquer

sur *Create Datastore* et sur *SerialDataStore*, nous avons ensuite sélectionné le dossier créé précédemment et voici notre datastore créé.



III. Annotations manuelles

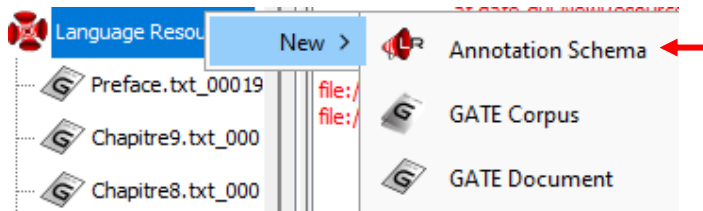
Dans un second temps, nous avons réalisé des annotations manuelles en utilisant les schémas d'annotations et les expressions régulières. Le première étape est de créer des schémas d'annotations pour annoter les titres et les dialogues. Pour cela, il faut dans un bloc note comme Notepad++ créer nos schémas d'annotations que nous avons enregistré au format .xml. Nous avons repris les schémas d'annotations fait en cours et nous les avons modifiés avec nos paramètres. Nous avons décidé d'annoter les titres (des livres et des chapitres), les noms propres (prénom, nom, famille, lieu, titre et jour), les dialogues (les monologues et dialogues) ainsi que les émotions (positives et négatives).

```
<?xml version="1.0"?>
<schema xmlns="http://www.w3.org/2000/10/XMLSchema">
  <!-- XSchema definition for Person -->
  <element name="Titre">
    <complexType>
      <attribute name="kind" use="required">
        <simpleType>
          <restriction base="string">
            <enumeration value="livre"/>
            <enumeration value="chapitre"/>
          </restriction>
        </simpleType>
      </attribute>
    </complexType>
  </element>
</schema>
```

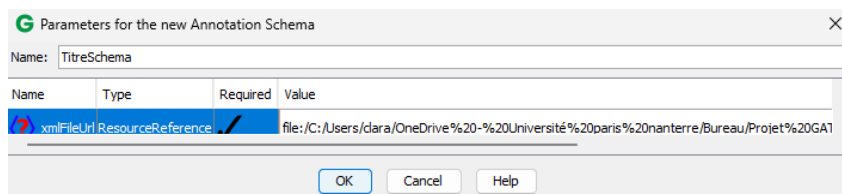
```
<?xml version="1.0"?>
<schema xmlns="http://www.w3.org/2000/10/XMLSchema">
  <!-- XSchema definition for Person -->
  <element name="Noms Propres">
    <complexType>
      <attribute name="kind" use="required">
        <simpleType>
          <restriction base="string">
            <enumeration value="Prénom"/>
            <enumeration value="Nom"/>
            <enumeration value="Famille"/>
            <enumeration value="Lieu"/>
            <enumeration value="Titre"/>
            <enumeration value="Jour"/>
          </restriction>
        </simpleType>
      </attribute>
    </complexType>
  </element>
</schema>
```

DialogueSchema.xml	✓	30/11/2023 21:25	Fichier XML
EmotionSchema.xml	✓	30/11/2023 21:26	Fichier XML
NomsPropres.xml	✓	01/12/2023 14:26	Fichier XML
TitreSchema.xml	✓	27/11/2023 09:40	Fichier XML

Une fois les schémas d'annotations créés, pour les ajouter dans GATE il faut aller dans *Language Resources*, cliquer sur *New*, puis *Annotation Schema* :



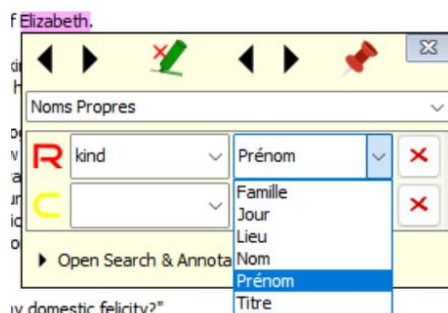
L'étape suivante est de sélectionner les schémas d'annotations créés précédemment :



Et ensuite sélectionner les mots/expressions que nous souhaitons annoter et de choisir comment l'annoter (Titre, Noms Propres, Emotion ou Dialogue) :

Type	Set	Start	End	Id	Features
Emotions	Annotations manuelles	10108	10117	132	{kind=EmPositive}
Emotions	Annotations manuelles	10122	10130	133	{kind=EmPositive}
Noms Propres	Annotations manuelles	10202	10207	134	{kind=Nom}
Noms Propres	Annotations manuelles	10379	10391	135	{kind=Nom}
Emotions	Annotations manuelles	10423	10430	136	{kind=EmNégative}
Emotions	Annotations manuelles	10447	10454	137	{kind=EmNégative}
Noms Propres	Annotations manuelles	10491	10495	138	{kind=Prénom}
Noms Propres	Annotations manuelles	10557	10566	139	{}

73 Annotations (1 selected) Select:



Pour faire des annotations manuelles avec des expressions régulières, il faut sélectionner dans le texte un mot que nous souhaitons annoter, dans la page qui s'ouvre cocher la case *Regex* et aller sur le point d'interrogation pour entrer l'expression régulière que nous avons choisis. Nous avons décidé d'annoter les mots longs et nous avons estimé qu'un mot long est un mot qui a plus de 8 lettres. Voici mon expression régulière : `\w{8,}`. Il faut ensuite cliquer sur *First* pour qu'il trouve la première occurrence puis sur *Next* et enfin sur *Ann. all next* pour qu'il annote tous les mots du texte de plus de 8 lettres. Nous avons mis ces annotations dans l'ensemble d'annotation *Annotations manuelles*.

GATE search expression builder

Current search expression:

Number
Person

Replace search expression

Any character
The beginning of a line
The end of a line
All letters
Letter uppercase
Letter lowercase
Letter titlecase
Letter modifier
Letter other
All Numbers

Insert at the caret position

Either the selection or X
Once or not at all
Zero or more times
One or more times
Capturing group
Non-capturing group

Modify the selection

OK Cancel

Navigation icons: back, forward, search, etc.

MotLong

☐ Case ☒ Regex ☐ Whole ☐ Highlights

?

First Prev. Next Annotate Ann. all next

CHAPTER X.

The day passed much as the day before had done. Mrs. Hurst and Miss Bingley had spent some hours of the morning with the invalid, who continued, though slowly, to mend; and in the evening Elizabeth joined their party in the drawing-room. The loo table, however, did not appear. Mr. Darcy was writing, and Miss Bingley, seated near him, was watching the progress of his letter, and repeatedly calling off his attention by messages to his sister. Mr. Hurst and Mr. Bingley were at piquet, and Mrs. Hurst was observing their game.

Elizabeth took up some needlework, and was sufficiently amused in attending to what passed between Darcy and his companion. The perpetual commendations of the lady either on his hand-writing, or on the evenness of his lines, or on the length of his letter, with the perfect unconcern with which her praises were received, formed a curious dialogue, and was exactly in unison with her opinion of each.

"How delighted Miss Darcy will be to receive such a letter!"

He made no answer.

"You write uncommonly fast."

"You are mistaken. I write rather slowly."

"How many letters you must have occasion to write in the course of the year! Letters of business too! How odious I should think them!"

"It is fortunate, then, that they fall to my lot instead of to yours."

- Annotations manuelles
- ☐ Dialogue
 - ☐ Emotions
 - ☒ MotLong
 - ☐ Noms Propres
 - ☐ Titre

IV. Annotations avec dictionnaire

Nous avons ensuite créé quatre dictionnaires pour annoter les personnages, les lieux, les événements et les références temporelles. Pour ce faire, nous avons dressé des listes avec les personnages du livres, les lieux, les événements et les références temporelles. Nous avons décidé de faire quatre listes pour les personnages : la famille Bennet, la famille Bingley, la famille Darcy et les personnages secondaires. Pour les lieux, nous avons aussi fait quatre listes : les noms des maisons des personnages, les villes, les régions et les pays. Pour les événements, nous avons décidé d'annoter les jours, les mois et les dates complètes/années. Et pour les références temporelles nous avons simplement dressé une listes de mots/expressions avec par exemple « this morning », « while », « later », etc. Nous avons ensuite créé les définitions de ces listes :

Exemple liste personnages :

John Willoughby
George Wickham
Wickham
Fitzwilliam
Edward Gardiner
Lady Lucas
Charlotte Lucas
George Knightley
Knightley
Frederick Wentworth
Wentworth
William Lucas
William
Colonel Forster
Mr. Philips
Captain Carter
Mrs. Hurst
Mr. Hurst

Définition personnages :

bennet.lst:Personnage:FamBennet:Eng:FamBennet
bingley.lst:Personnage:FamBingley:Eng:FamBingley
darcy.lst:Personnage:FamDarcy:Eng:FamDarcy
persosecondaire.lst:Personnage:PersoSecondaire:Eng:PersoSecondaire

Définition lieux :

ville.lst:Lieu:Ville::Ville
pays.lst:Lieu:Pays::Pays
region.lst:Lieu:Region::Region
maison.lst:Lieu:Maison::Maison

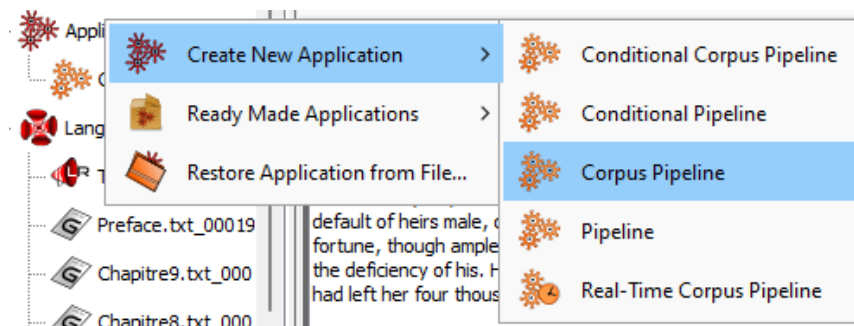
Définition évènements :

evenements.lst:Evenement::Eng:Date
jour.lst:Evenement::Eng:Jour
mois.lst:Evenement::Eng:Mois

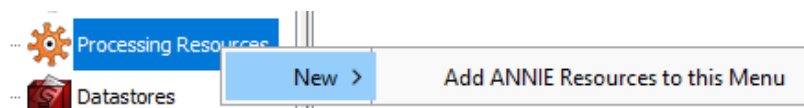
Définition références temporelles :

reftempeng.lst:RefTemporelle::Eng:RefTemporelle

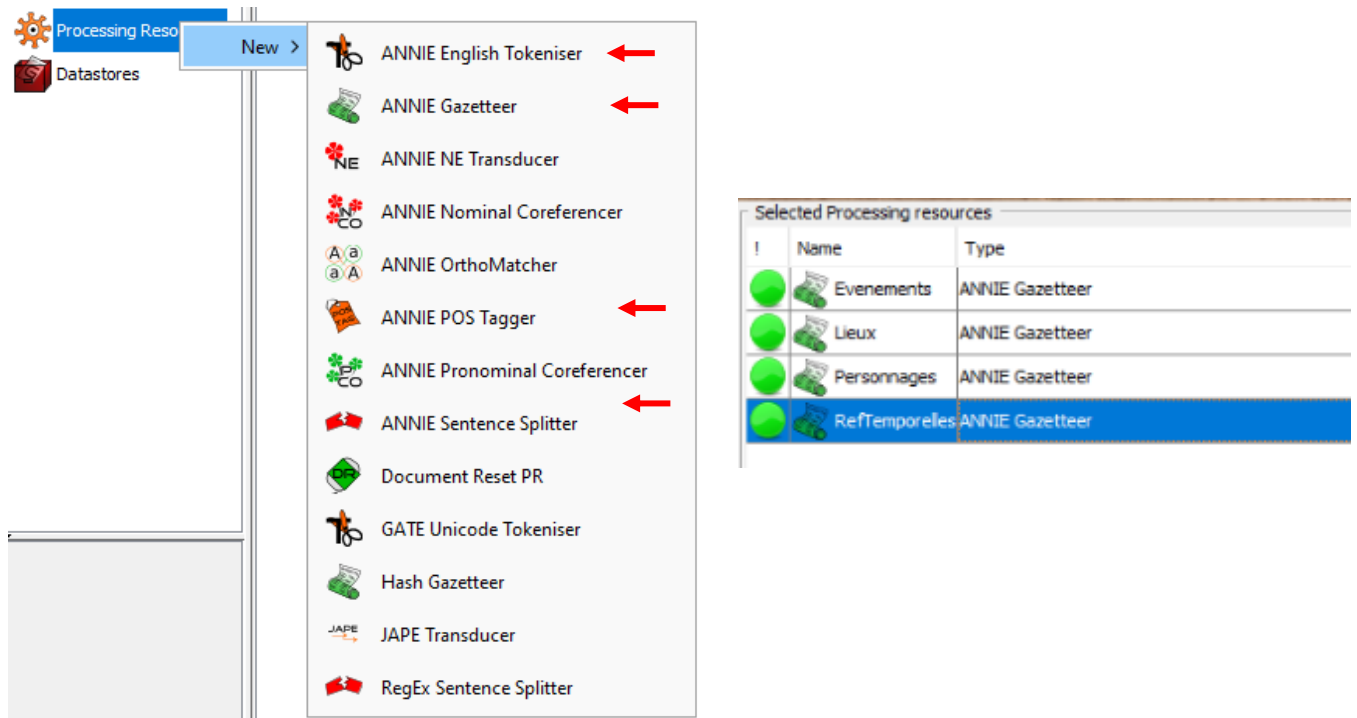
Pour faire les annotations dans GATE, il faut dans un premier temps créer un Corpus Pipeline en allant dans *Applications*, puis *Create New Application* et *Corpus Pipeline* :



Ensuite, il faut aller dans *Processing Resources* et ajouter *ANNIE Resources* au Menu :



Dans ce Menu, nous avons sélectionné *ANNIE English Tokeniser*, *ANNIE Sentence Splitter*, *ANNIE POS Tagger* et *ANNIE Gazetteer* dans lequel nous ajoutons nos définitions créées précédemment et nous avons mis tous ses éléments dans le *Corpus Pipeline*.



!	Name	Type
	Evenements	ANNIE Gazetteer
	Lieux	ANNIE Gazetteer
	Personnages	ANNIE Gazetteer
	RefTemporelles	ANNIE Gazetteer

Voici quelques résultats de nos annotations avec les dictionnaires :

Annotations avec dictionnaire

- ☒ FamBennet
- ☒ FamBingley
- ☒ FamDarcy
- ☒ Maison
- ☒ PersoSecondaire
- ☒ RefTemporelle
- ☒ Ville

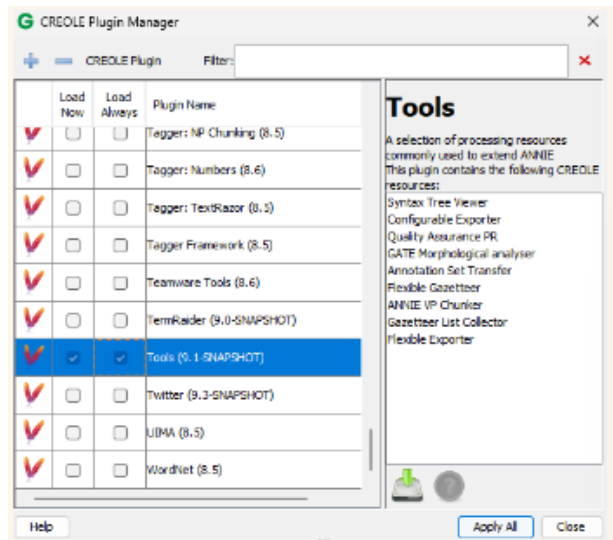
CHAPTER VII.

Mr. Bennet's property consisted almost entirely in an estate of two thousand a year, which, unfortunately for his daughters, was entailed in default of heirs male, on a distant relation; and their mother's fortune, though ample for her situation in life, could but ill supply the deficiency of his. Her father had been an attorney in Meryton, and had left her four thousand pounds.

She had a sister married to a Mr. Philips, who had been a clerk to their father, and succeeded him in the business, and a brother settled in London in a respectable line of trade.

The village of Longbourn was only one mile from Meryton; a most convenient distance for the young ladies, who were usually tempted thither three or four times a week, to pay their duty to their aunt and to a milliner's shop just over the way. The two youngest of the family, Catherine and Lydia, were particularly frequent in these attentions; their minds were more vacant than their sisters', and when nothing better offered, a walk to Meryton was necessary to amuse their morning

Après cette étape, nous avons choisis d'annoter les verbes de mouvements et de discours du corpus à l'aide de dictionnaires flexibles. Pour cela, il faut utiliser un Hash Gazetteer, un Flexible Gazetteer et un Morphological Analyser que nous avons activé dans *Creole Plugin* avec *Tools* :



Nous avons ensuite dressé des listes pour les verbes de mouvements et de discours à l'infinitif et nous avons créé leurs définitions :

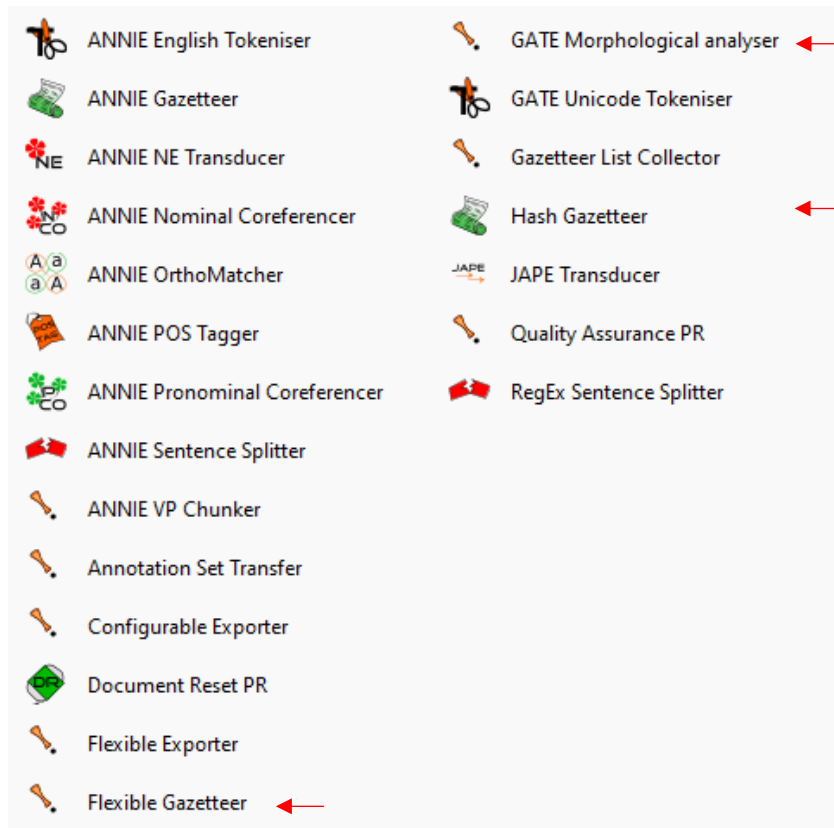
```

1 Address
2 Admit
3 Advise
4 Agree
5 Analyse
6 Announce
7 Answer
8 Appeal
9 Argue
10 Articulate
11 Ask
12 Assure
13 Babble
14 Bark
15 Bawl
16 Beg
17 Bellow
18 Bemoan
19 Blabber
20 Blather
21 Bleat
22 Blubber
23 Bluff
24 Blurt
25 Bluster
26 Boast
27 Brag
28 Breathe
29 Cackle
30 Call
31 Chant
32 Chatter
33 Check
34 Cheer

```

```
1 vbdiscours.lst:VbDiscours
```

Dans GATE, il faut mettre les définitions dans des *Hash Gazetteer* et les exécuter dans un premier temps avec un *Morphological analyser* pour annoter les verbes à l'infinitif :



Selected Processing resources		
!	Name	Type
	ANNIE English Tokeniser 00025	ANNIE English Tokeniser
	ANNIE Sentence Splitter 00029	ANNIE Sentence Splitter
	ANNIE POS Tagger 00028	ANNIE POS Tagger
	GATE Morphological analyser 00020	GATE Morphological analyser
	Mouvement	Hash Gazetteer

Une fois l'application exécutée, nous avons vérifié que les verbes étaient bien annotés puis nous avons enlevé les *Hash Gazetteer* du *Corpus Pipeline* pour les remplacer par le *Flexible Gazetteer* pour qu'il annote toutes les flexions des verbes.

Selected Processing resources		
!	Name	Type
	ANNIE English Tokeniser 00018	ANNIE English Tokeniser
	ANNIE Sentence Splitter 0001C	ANNIE Sentence Splitter
	ANNIE POS Tagger 0001B	ANNIE POS Tagger
	GATE Morphological analyser 00020	GATE Morphological analyser
	Flexible Gazetteer 0001F	Flexible Gazetteer

CHAPTER IV.

When Jane and Elizabeth were alone, the former, who had been cautious in her praise of Mr. Bingley before, **expressed** to her sister how very much she admired him.

"He is just what a young man ought to be," **said** she, "sensible, good humoured, lively; and I never saw such happy manners! --so much ease, with such perfect good breeding!"

"He is also handsome," **replied** Elizabeth, "which a young man ought likewise to be, if he possibly can. His character is thereby complete."

"I was very much flattered by his **asking** me to **dance** a second time. I did not expect such a compliment."

"Did not you? **I** did for you. But that is one great difference between us. Compliments always take **you** by surprise, and **me** never. What could be more natural than his **asking** you again? He could not help seeing that you were about five times as pretty as every other woman in the room. No thanks to his gallantry for that. Well, he certainly is very agreeable, and I give you leave to like him. You have liked many a

Type	Set	Start	End	Id	Features
Lookup	Annotations avec dictionnaire	125	134	17442	{majorType=VbDiscours}
Lookup	Annotations avec dictionnaire	227	231	17443	{majorType=VbDiscours}
Lookup	Annotations avec dictionnaire	384	391	17444	{majorType=VbDiscours}
Lookup	Annotations avec dictionnaire	538	544	17445	{majorType=VbDiscours}
Lookup	Annotations avec dictionnaire	551	556	20320	{majorType=VbMouvement}
Lookup	Annotations avec dictionnaire	551	556	11687	{majorType=VbMouvement}
Lookup	Annotations avec dictionnaire	786	792	17446	{majorType=VbDiscours}

☐ Lookup
 ☐ Sentence
 ☐ SpaceToken
 ☐ Split
 ☐ Token

Annotations avec dictionnaire
☐ FamBennet
 ☐ FamBingley
 ☐ FamDarcy
 ☒ Lookup
 ☐ Maison
 ☐ Pays
 ☐ PersoSecondaire
 ☐ RefTemporelle
 ☐ Ville

Annotations manuelles
☐ Dialogue
 ☐ Emotions
 ☐ Noms Propres
 ☐ Titre

Original markups

V. Annotations automatiques

Pour les annotations automatiques avec Jape, nous avons décidé d'annoter les moments importants du livre, c'est-à-dire quand une phrase commence par « when », « after », « but », etc. Dans ces moments importants, nous avons annoté les personnages, les verbes et le contexte/moment. Pour cela, nous avons créé des grammaires Jape. Pour la grammaire des moments importants, nous avons mis les adverbes, les pronoms et les prépositions, etc., puis nous avons fait en sorte que l'annotation se finisse par un point. Pour les personnages, nous avons dressé une liste des personnage dans un fichier .lst et nous avons créé sa définition puis dans la grammaire Jape, nous avons appelé la liste des personnages :

```
Phase: Personnage
Input: Token SpaceToken Phrase
Options: control = appelt

Rule: ReglePersonnage
Priority: 40
(
  {Phrase contains {Token.category == Personnage}}
):personnage
-->
:personnage.Personnage = {}
```

Dans la grammaire des verbes, nous avons mis tous les verbes (VB, VBD, VBN, VBG VBP). Et enfin, pour la grammaire des contextes/moments nous avons décidé d'annoter à partir des adverbes, pronoms et prépositions jusqu'à une virgules.

Pour annoter dans GATE, il faut ajouter nos grammaires Jape dans des *Jape Transducer* et les exécuter dans le *Corpus Pipeline* avec le *ANNIE Gazetteer* des Personnage. Nous avons

CHAPTER IV.

When Jane and Elizabeth were alone, the former, who had been cautious in her praise of Mr. Bingley before, expressed to her sister how very much she admired him.

"He is just what a young man ought to be," said she, "sensible, good humoured, lively; and I never saw such happy manners!--so much ease, with such perfect good breeding!"

"He is also handsome," replied Elizabeth, "which a young man ought likewise to be, if he possibly can. His character is thereby complete."

"I was very much flattered by his asking me to dance a second time. I did not expect such a compliment."

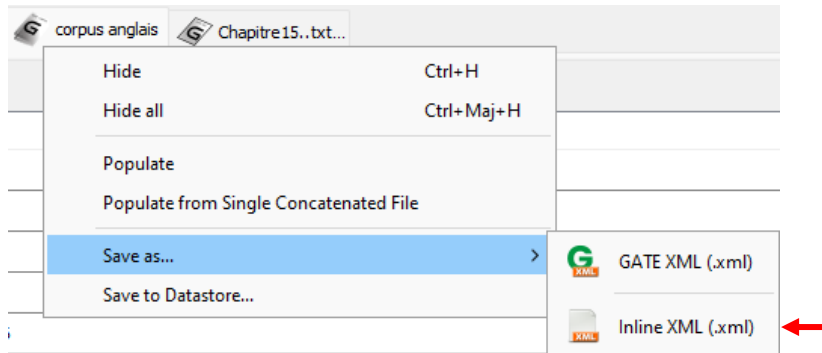
"Did not you? I did for you. But that is one great difference between us. Compliments always take you by surprise, and me never. What could be more natural than his asking you again? He could not help seeing that you were about five times as pretty as every other woman in the room. No thanks to his gallantry for that. Well, he certainly is very agreeable, and I give you leave to like him. You have liked many a stupider person."

- ☐ Sentence
- ☐ SpaceToken
- ☐ Split
- ☐ Token
- ▼ **Annotations automatiques**
 - ☒ Moment
 - ☒ Personnage
 - ☒ Phrase
 - ☒ Verbe
- **Original markups**

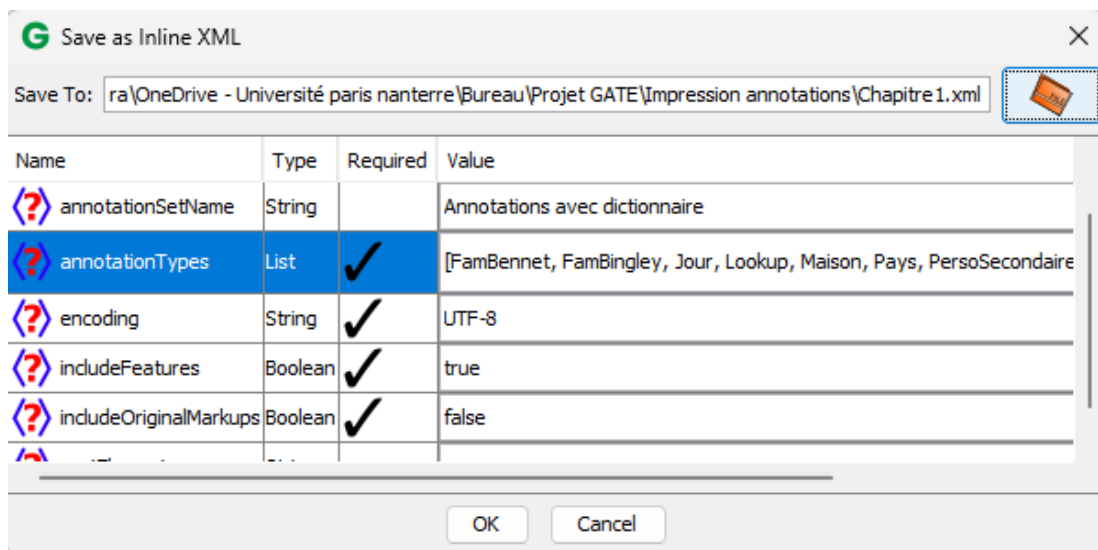
Nous pouvons voir que nos grammaires Jape ne sont pas assez optimisées parce qu'elles annotent aussi les verbes, personnages et contextes en dehors des moments importants.

VI. Impressions des annotations en html

Pour l'impressions des annotations en HTML, il faut dans un premier temps enregistrer le corpus en XML :



Puis dire où enregistrer le fichier XML et donner l'ensemble d'annotations que nous voulons imprimer (*annotationSetName*) et les annotations (*annotationTypes*) :



Il faut ensuite ouvrir le fichier XML dans Notepad++ et ajouter en haut du fichier les balises HTML et mettre le corps du texte dans une balise <body> :

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <link rel="stylesheet" href="" corpus.css">
```

```
  </head>
```

```
  <body> .....</body>
```

Il faut maintenant créer une feuille CSS. Pour cela, il faut dans notre fichier créé précédemment ajouter dans <head> les couleurs CSS. Nous avons choisi d'annoter les phrases en jaune, les personnages en rouge, les verbes en bleu (mais cela peut changer en fonction des annotations que nous voulons imprimer, comme sur la deuxième photo pour le chapitre 2). Pour cela, il faut utiliser « background-color: ». Une fois cela fait, nous avons enregistré le fichier en .html.

```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<link rel="stylesheet" href="exemple.css">
<style>
  Verbe {
    background-color: blue;
  }
  Phrase {
    background-color: pink;
  }
  Moment {
    background-color: yellow;
  }
  Personnage {
    background-color: green;
  }
</style>
</head>
<body>
  CHAPTER IV.

  <Moment gate:gateId="3283">When <Personnage gate:gateId="3203" majorType="Personnage" language="" minorType="">Jane</Personnage> and <Personnage gate:gateId="3205" majorType="
  her praise of <Personnage gate:gateId="3207" majorType="Personnage" language="" minorType="">Mr. <Personnage gate:gateId="3209" majorType="Personnage" language="" minorType="
  she <Verbe gate:gateId="3362">admired</Verbe> him.</Phrase>

  <Verbe gate:gateId="3363">be</Verbe>,</Moment><Verbe gate:gateId="3364">said</Verbe> <Moment gate
  humoured, lively; and I never <Verbe gate:gateId="3365">saw</Verbe> such happy manners!--so much ease,
  with such perfect good breeding!</Verbe>

  <Verbe gate:gateId="3366">replied</Verbe> <Personnage gate:gateId="3211" majorType="Personnage" language=
  likewise to <Verbe gate:gateId="3367">bec</Verbe>, if <Phrase gate:gateId="3319">he possibly can.</Phrase> His character is thereby complete.</Verbe>

  <Verbe gate:gateId="3368">was</Verbe> very much flattered by his <Verbe gate:gateId="3369">asking</Verbe> me to <Verbe gate:gateId="3370">c

</body>
</html>
```

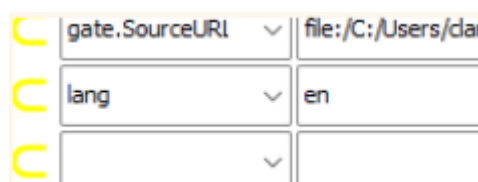
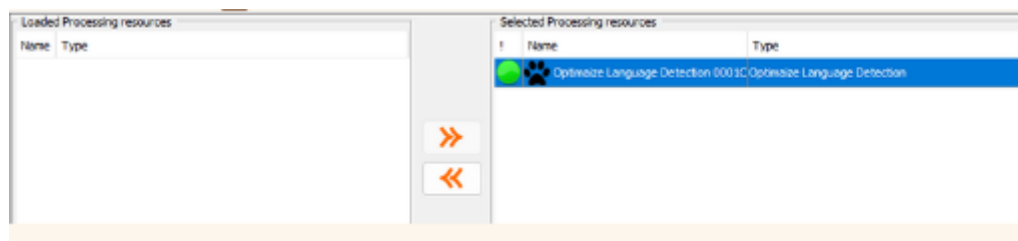
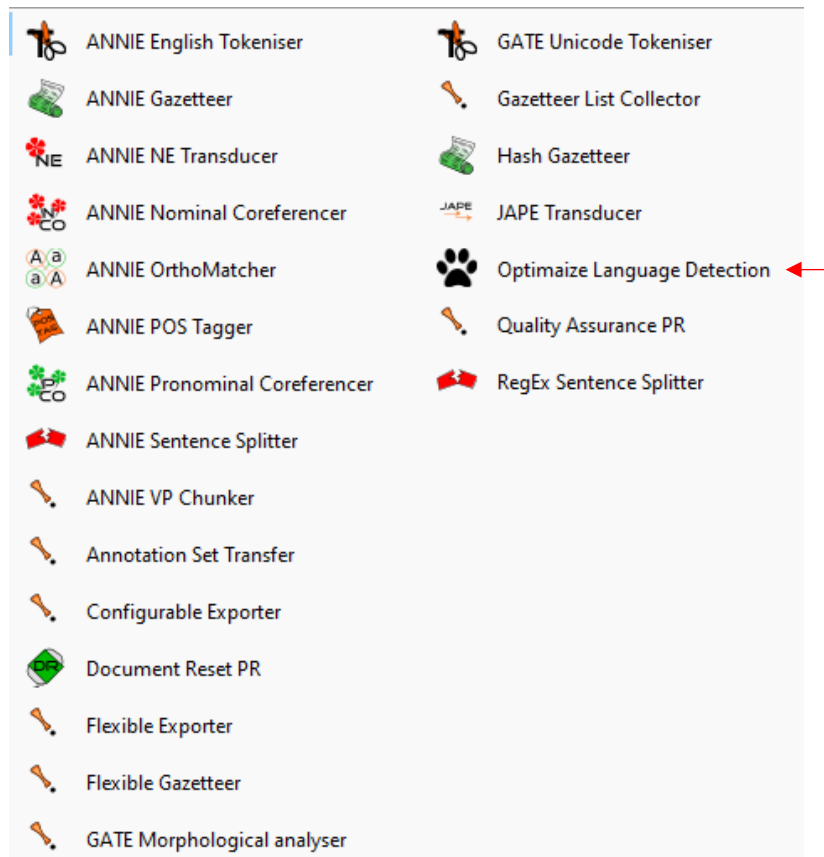
```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<link rel="stylesheet" href="exemple.css">
<style>
  FamBennet {
    background-color: blue;
  }
  FamBingley {
    background-color: pink;
  }
  Jour {
    background-color: grey;
  }
  Lookup {
    background-color: red;
  }
  Maison {
    background-color: yellow;
  }
  Pays {
    background-color: green;
  }
  PersoSecondaire {
    background-color: purple;
  }
  RefTemporelle {
    background-color: orange;
  }
</style>
</head>
<body>
  CHAPTER II.
```

CHAPTER II. **Mr. Bennet** was among the earliest of those who waited on **Mr. Bingley**. He had always intended to visit him, though to the last always **assuring** his wife that he should not **do**; and till the evening after the visit was paid, she had no knowledge of it. It was **then** disclosed in the **following** manner. **Observing** his second daughter employed in trimming a hat, he **suddenly addressed** her with, "I hope **Mr. Bingley** will like it Lizzy." "We are not in a way to know **what** **Mr. Bingley** likes," **said** her mother resentfully, "**since** we are not to visit." "But you forget, mama," **said Elizabeth**, "that we shall meet him at the assemblies, and that Mrs. Long has promised to introduce him." "I do not believe Mrs. Long will do any such thing. She has two nieces of her own. She is a selfish, hypocritical woman, and I have no opinion of her." "No more have I," **said Mr. Bennet**, "and I am glad to find that you do not depend on her serving you." **Mr. Bennet** **deigned** not to make any **reply**, but unable to contain herself, began **lauding** one of her daughters. "Don't keep **lauding** so, **John**, for heaven's sake! Have a little compassion on my nerves. You tear them to pieces." **John** has no discretion in her **lauding**, **said** her father; "she times them ill." "I do not **scorn** for my own amusement," **replied John** fretfully. "When is your next ball to be, Lizzy?" "To-morrow fortnight." "Aye, so it is," cried her mother, "and Mrs. Long does not come **back** till the day before, so, it will be impossible for her to introduce him, for she will not know him herself." "Then, my dear, you may have the advantage of your friend, and introduce **Mr. Bingley** to **her**." "Impossible, **Mr. Bennet**, **when** I am not acquainted with him myself, how can you be so teasing?" "I honour your circumspection. A fortnight's acquaintance is certainly very little. One cannot know what a man really is by the end of a fortnight. But if **we**, do not venture, somebody else will; and after all, Mrs. Long and her nieces must stand their chance; and therefore, as she will think it an act of kindness, if you decline the office, I will take it on myself." The girls stared at their father. **Mrs. Bennet** **said** only, "Nonsense, nonsense!" "What can be the meaning of that emphatic exclamation?" cried he. "Do you consider the forms of introduction, and the stress that is laid on them, as nonsense? I cannot quite **agree** with you **there**." What **said** you, **Mary**? for you are a young lady of deep reflection I know, and read great books, and make extracts." **Mary** wished to **say** something very sensible, but knew not how. "While **Mary** is adjusting her ideas," he continued, "let us **return** to **Mr. Bingley**." "I am sick of **Mr. Bingley**," cried his wife. "I am sorry to hear **that**; but why did not you **tell** me so **before**? If I had known as much **this morning**, I certainly would not have **called** on him. It is very unlucky; but as I have actually paid the visit, we cannot **escape** the acquaintance **now**." The astonishment of the ladies was just what he wished; that of **Mrs. Bennet** perhaps surpassing the rest; though **when** the **first** tumult of joy was over, she began to **declare** that it was what she had expected all the **while**. "How good it was in you, my dear **Mr. Bennet**! But I knew I should **persuade** you at last. I was sure you loved your girls too well to neglect such an acquaintance. Well, how pleased I am! and it is such a good joke, too, that you should have **gone** **this morning**, and **never** **said** a word about it till **now**." "Now, **John**, you may **speak** as much as you chuse," **said Mr. Bennet**; and, as he **spoke**, he left the room, fatigued with the raptures of his wife. "What an excellent father you have, girls," **said** she, **when** the door was shut. "I do not know how you will ever make him amends for his kindness; or me either, for that matter. At our time of life, it is not so pleasant I can **say** you, to be making new acquaintance **every day**, but for your sakes, we would do any thing. **John**, my love, though you **are** the youngest, I dare **say** **Mr. Bingley** will **dance** with you at the next ball." "Oh! **say** **John** stoutly, "I am not afraid; for though I **am** the youngest, I'm the tallest." The rest of the evening was spent in conjecturing how **soon** he would **return** **Mr. Bennet**'s visit, and determining **when** they should **say** him to dinner.

CHAPTER IV. When **Mr. and Mrs. Bingley** were alone, the former, who **was** **very** cautious in her praise of **Mr. Bingley** before, **expressed** to her sister how very much she **admired** him. "He is just what a young man ought to **be**," **said** she, "sensible, good humoured, lively; and I never **saw** such happy manners!—so much ease, with such perfect good breeding!" "He is also handsome," **replied** **Mrs. Bingley**, "which a young man ought likewise to **be**, if he possibly can. His character is thereby complete." "I **am** **very** much flattered by his **saying** so to **me**," **said** **Mr. Bingley** a second time. "I **do** not **deserve** such a compliment." "Do not you? I **do** for you. But that is one great difference between us. Compliments always **do** you," **said** she, by surprise, and **me**, never. What could **be** more natural than his **saying** you again? He could not **help** **saying** that you **were** about five times as pretty as every other woman in the room. No thanks to his gallantry for that. Well, **he** **certainly** is **very** agreeable, and I **do** not **know** you **have** to **like** him. You **are** **not** **like** him, a stupider person."

"Dear **Mrs. Bingley**!" "Oh! you **are** a great deal too apt you **know**, to **be** people in general. You never **see** a fault in any body. All the world **is** good and agreeable in your eyes. I never **heard** you **speak** ill of a human being in my life." "I would **not** **be** so hasty in **condemning** any one, but I always **speak** what I **think**." "I **know** you **do**, and it is **that**, which makes the wonder. With **your** good sense, to **be** so honestly blind to the follies and nonsense of others! Affectation of candour is common enough;—one meets it every where. But to **be** candid without ostentation or design—to take the good of every body's character and **make** it still better, and **say** nothing of the bad—belongs to you alone. And so, you **are** **much** **more** **than** **your** **sister** too, **are** you? Their manners **are** not equal to his." "Certainly not, at first. But they **are** **very** **improved** women when you converse with them. **Mr. Bingley** is to **live** with her brother and **her** **house**, and I **do** much **wonder** if we shall not **be** a very charming neighbour in her." "I **do** not **know**," **said** **Mrs. Bingley**, "in silence, but **not** **without** **considering** their behaviour at the assembly **was** **not** **very** **improved** in general; and with more quickness of observation and less pliancy of temper than her sister, and with a judgment too unassailed by any attention to herself, she **was** **very** little **likely** to **improve** them. They **were** in fact very fine ladies; not deficient in good humour when they **were** pleased, nor in the power of **being** agreeable where they **were** not, but proud and conceited. They **were** **rather** handsome, **and** **very** **amiable**, in one of the first private seminaries in town, **was** a fortune of twenty thousand pounds, **and** in the habit of **being** more than they ought, and of **being** **surrounded** with people of rank; and **therefore** in every respect **equal** to **themselves**, and meanly of others. They **were** of a respectable family in the north of England; a circumstance more deeply **impressed** on their memories than that their brother's fortune and their own **had** **been** **acquired** by trade. **Mr. Bingley** **inherited** property to the amount of nearly an hundred thousand pounds from his father, who **had** **intended** to **purchase** an estate, but **did** not live to **do** it.—**Mr. Bingley** **intended** it likewise, and sometimes **made** choice of his county; but as he **was** **now** **provided** with a good house and the liberty of a manor, it **was** **doubtful** to many of those who best **know** the easiness of his temper, whether he might not **spend** the remainder of his days at Netherfield, and **leave** the next generation to **purchase**. His sisters **were** very anxious for his **having** an estate of his own; but though he **was** **now** **established** only as a tenant, **Mrs. Bingley** **was** by no means unwilling to preside at his table, nor **was** **Mrs. Hurst**, who **was** **married** a man of more fashion than fortune, less disposed to **leave** her house as her home when it **stood** **near** her. **Mr. Bingley** **was** not **less** of age two years, when he **was** **tempted** by an accidental recommendation to **look** at Netherfield House. He **did** not **go** at it and into it for half an hour, **but** **pleased** with the situation and the principal rooms, **inquired** with what the owner **was** in its praise, and **soon** it immediately. Between him and **these** **there** **was** a very steady friendship, in spite of a great opposition of character.—**Mrs. Bingley** **endeared** to **them** by the easiness, openness, ductility of his temper, though no disposition could offer a greater contrast to his own, and though with his own he never **appeared** dissatisfied. On the strength of **these** **regard** **for** the firmest reliance, and of his judgment the highest opinion. In understanding **these** **was** the superior. **Mr. Bingley** **was** by no means deficient, but **was** **not** **very** **clever**. He **was** **at** **the** **same** **time** **haughty**, **reserved**, and fastidious, and his manners, though well **known** **not** **improved**. In that respect his friend **was** greatly the advantage. **Mr. Bingley** **was** sure of **being** **well** **received** wherever he **appeared**, **and** **his** **manners**, though well **known** **not** **improved**. 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Dans *Processing Resources*, il faut choisir *Language Detection (Optimaize)* et aller dans le *Corpus Pipeline* pour appliquer l'application :



Nous pouvons voir que l'application a bien détecté que la langue du corpus est l'anglais.

VIII. Conclusion

Pour conclure, nous avons vu différentes manières d'annoter des documents sur GATE. Selon nous, ces méthodes présentent des avantages comme des inconvénients. Avec des annotations manuelles les annotations sont plus précises mais demandent plus de temps que les annotations avec dictionnaire ou les annotations automatiques. Les annotations avec dictionnaires sont moins précises dans certains cas comme par exemple pour le mois de mai qui va être annoter « May » pour les mois mais aussi « may » pour le verbe si on enlève la sensibilité à la casse.

Les annotations automatiques avec Jape sont elles aussi moins précises que les annotations manuelles parce que si elles ne sont pas bien faites, elles vont annoter des éléments que nous ne désirons pas annoter. L'avantage des annotations avec dictionnaire et automatiques est que c'est beaucoup plus rapide. Le choix dépend donc des besoins spécifiques du projet.