

Inteligentă Artificială

Cursurile 3-4

Proiectul nostru.

Să învățăm din proiecte trecute

Legarea entităților în texte și în afara lor
Agenți care înțeleg situațiile din viața de zi cu zi
a unui partener uman

Modelarea unor manifestări ale conștiinței

Proiectul nostru

- Un *socialbot* capabil să poate o conversație despre orice domeniu
- The Alexa Amazon competition
 - <https://developer.amazon.com/alexaprize/contest-rules>

IBM Watson

- [https://www.youtube.com/watch?
v=WFR3lOm_xhE](https://www.youtube.com/watch?v=WFR3lOm_xhE)
- [https://www.youtube.com/watch?
v=3G2H3DZ8rNc](https://www.youtube.com/watch?v=3G2H3DZ8rNc)

Asimov chatbot

- <https://www.chatbots.org/chatbot/asimov/>

Loebner competition

- [http://www.aisb.org.uk/media/files/
LoebnerPrize2016/Mitsuku.pdf](http://www.aisb.org.uk/media/files/LoebnerPrize2016/Mitsuku.pdf)

Proiectele cursului de IA

- 2003-2004: Simularea unui joc de fotbal
- 2004-2005: Sistem de traducere automată – modelul de transfer
- 2005-2007: PhiSociety – societăți primitive de agenți inteligenți în competiție
- 2007-2008: Casa inteligentă
- 2008-2009: Avatar uman vorbitor
- 2009-2010: Extragere de conținut semantic din texte
- 2010-2012: *Companion*
- 2012-2013: *Let's talk about books!*
- **2013-2014: *MappingBooks: Let's jump out of the book!***
 - **QuoVadis – Chasing entities and linking them (a project with the master students in Computational Linguistics)**
 - **2014-2015: *MyDailyLife***
 - **2015-2016: Modelarea conștiinței**

**MappingBooks:
Evade from the book in the real
world!**

**QuoVadis:
Linking entities in texts**

MappingBooks

- A project proposal (submitted in May 2013) in the national research projects contest (667.388 EUR); partners: UAIC-FII, University “Ştefan cel Mare” Suceava, Siveco – Bucharest: approved with the highest evaluation score
- A term project (Oct. 2013 – Jan. 2014) for 3rd year CS students in AI
- More conference papers

Linguistics Linked Open Data (LLOD)

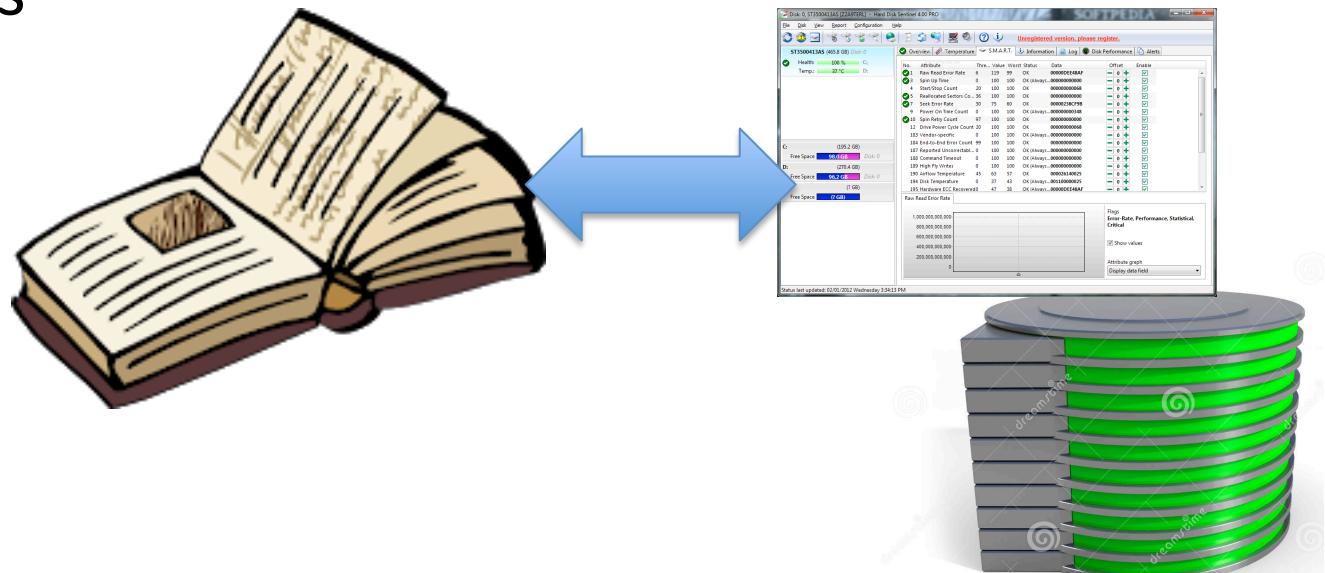
- Develop techniques able to **decipher the semantic context of texts**
 - summaries (general, partial, focused on characters),
 - narrative lines (e.g. evolution of sentiments between Vinicius and Ligia)
 - static connections between entities (e.g. genealogical trees),
 - statistics about entities (e.g. the dominant sentiments of Christians compared against those of Romans)

Linguistics Linked Open Data (LLOD)

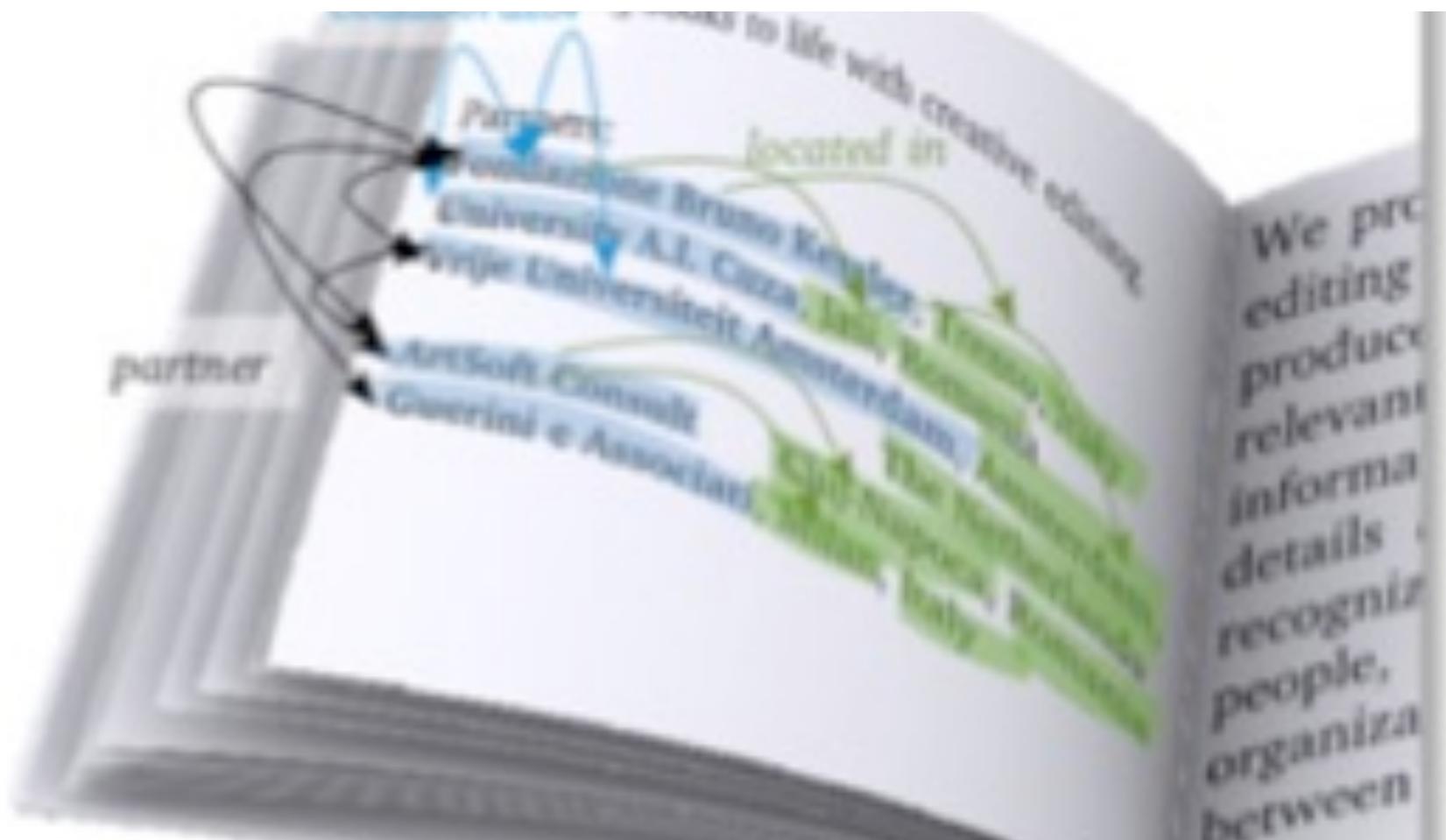
- Generation of ontologies from collections of scientific works
 - applications that “read” science books and formalise the concepts and its instances
- Intelligent documentary search
 - Personalized assistants of a research activity

Entity linking

- Challenges in entity linking:
 - name variations
 - ambiguities
 - absence
 - entity
 - link type



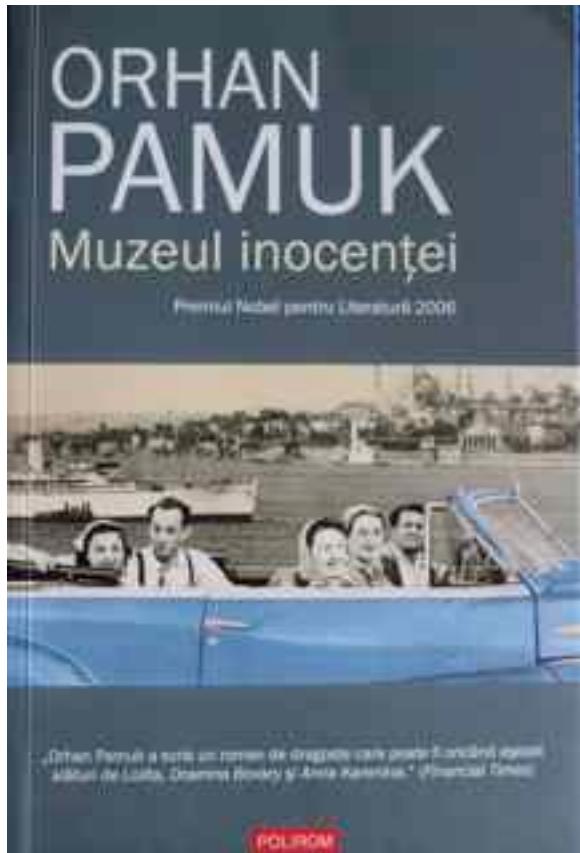
Linking entities internally



Linking entities externally



I like to read books and to travel...



determine pe vizitatori să simtă că se găsesc într-un templu care solicită umilință, respect și pioenii, asemenea moscheilor. Supraveghetorii Muzeului Inocenței trebuie să îmbrace costume de catifea de culoarea lemnului sumbru, pe potrivă atmosferei degajate de colecție, dar și a gustului lui Füsun, și poarte pe deședubl bluze ori cămași de culoare roz pal, să aibă cravate specifice muzeului – imprimate cu cercii lui Füsun – și, desigur, să-i lase în pace pe vizitatorii care măscă guină sau care se sărătu prin săli. Muzeul inocenței le va rămâne de-a pururi deschis îndrăgoștilor care n-au unde să se sărute la Istanbul.

Uneori mă plăcuseam de stilul autoritar pe care obișnuia să-l adopte Kemal Bey după două pahare de rachiu, stil care te ducea cu gândul la limbajul pretențios al scriitorilor angajați din anii 1970, așa încât renunțam să mai iau noțiune și nu-mi doream să-l revăd prea curând în zilele următoare. Dar meandrele povestiei lui Füsun și atmosfera aceea specială pe care o creau obiectele din muzeu mă atrăgeau, așa încât, după o vreme, jinduiam din nou să mă duc la mansardă și să ascult discursurile acelui bărbat secătuit, care, pe măsură ce și amintea de Füsun, se pornea pe băut, iar pe măsură ce bea își depășea povestea cu și mai multă exuberanță.

— Aveți grija să nu uități, Orhan Bey, că noimă muzeului meu cere ca întreaga colecție, vitrinele, totul, în cele din urmă, să se poată vedea din orice punct al spațiului de expunere, spunea Kemal Bey. Cum toate obiectele – cu alte cuvinte, întreaga mea poveste – vor putea fi văzute simultan, din orice loc, vizitatorul muzeului va pierde sentimentul Timpului. Aceasta cea mai mare alinare a vieții. În muzeele poetice, bine alcătuite, întemeiate pe imbolduri venite din înimă, ne simțim consolați nu pentru că ne trezim față în față cu lucruri vechi, la care ținem, ci pentru că Timpul este abolit. Vă rog să consemnați în carteza dumneavoastră și acest lucru. Să nu tănuim nici felul în care v-am cerut să scrieți cartea, și nici felul în care ați așternut-o pe hârtie... Vă rugă să-mi dați, când totul va fi sfârșit, și bruiioanele românilui, precum și carnetele dumneavoastră, ca să le expunem și pe ele. Cât o să mai dureze? Cei care vor citi carteza vor dori, desigur, să vină aici – așa cum ați dorit și dumneavoastră –, pentru a putea vedea părul, hainele, tot ceea ce i-a apartinut lui Füsun. Vă rugă să așezăți la

sfârșitul romanului o hartă, așa încât curioșii să poată găsi singur drumul, colindând ulițele Istanbulului. Cei care ne cunosc povestea – a mea și a lui Füsun – își vor aminti, desigur, de el pe măsură ce vor păși pe străzi și vor contempla priveliștile Istanbulului, așa cum am făcut mereu și eu. Se cade ca cititorii cărții să beneficieze de o intrare gratuită la muzeu, iar pentru aceasta este preferabil să includem în carte și un bilet. Funcționarul de la intrare trebuie să stampileze biletul vizitatorului cu stampila specială a Muzeului Inocenței și să-l poartească înăuntru.

— Unde să punem biletul?

— Iată, aici!

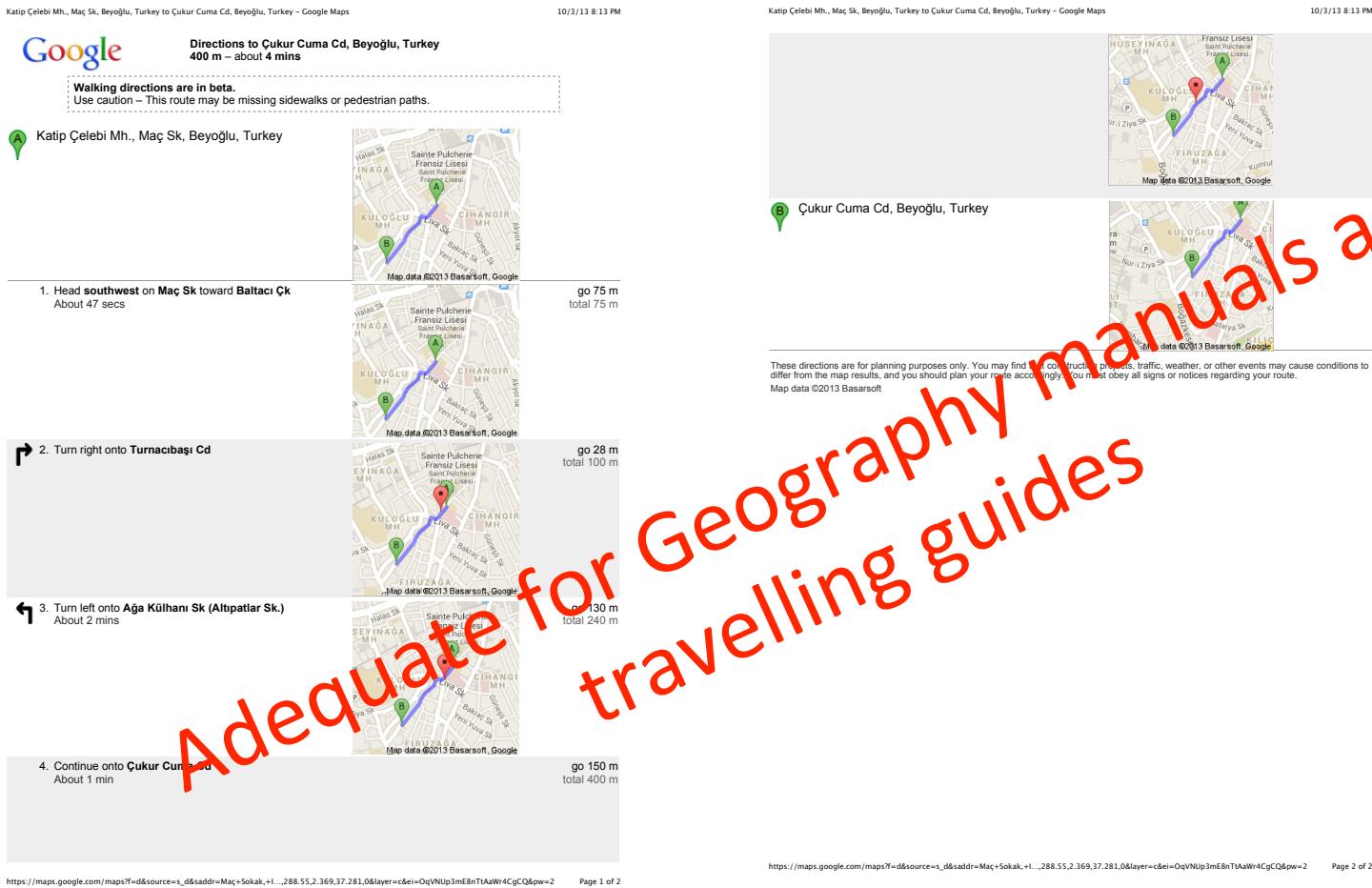


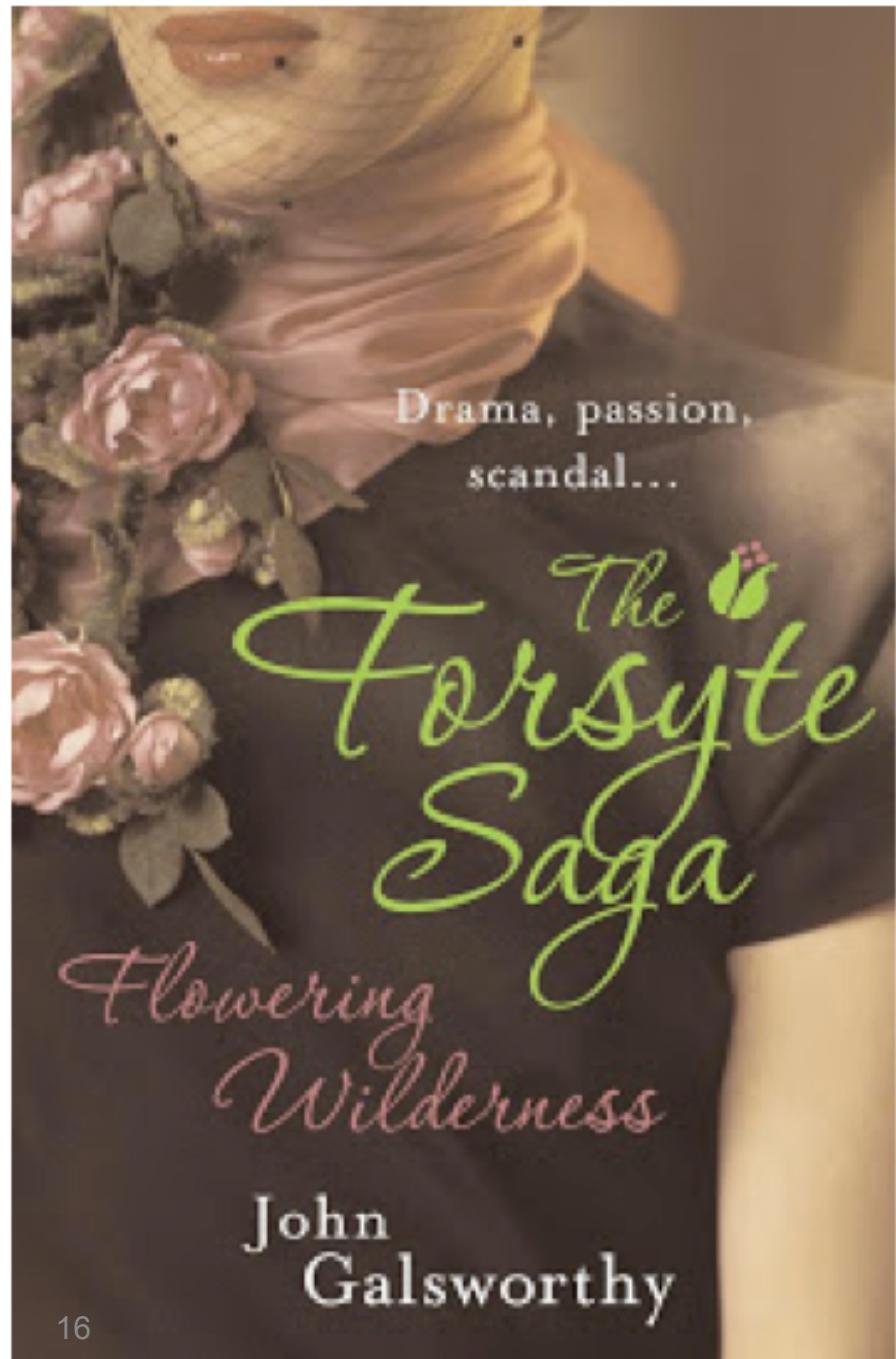
— Mulțumesc. Să mai adăugăm, în ultimele pagini, și un index, Orhan Bey. Mi-am adus aminte, grație dumneavoastră, căt de mulți sunt cei care ne cunosc peripețiile, căt de mulți oameni ne-au fost martori. Până și eu îmi amintesc cu grec numele lor.

De fapt, lui Kemal Bey nu-i plăcea să constate că-i căutam și aflam pe cei ale căror nume erau menționate în poveste, dar îmi aprecia abilitatea de romancier. Uneori era curios să știe ce spuseseră ori ce făcuseră în ziua aceea persoanele pe care le descoperisem, alteleori însă nici nu-i pasă de ele și nu pricpea de ce-mi stărnăreau interesul.

În fost imposibil să priceapă, de pildă, de ce i-am scris lui Abdulkerim Bey, fostul mandatar al Satsatului la Kayseri, și de ce m-am văzut cu el cu prilejul unuia dintre popasurile lui la Istanbul. Cât despre Abdulkerim Bey, care părăsise Satsatul și devenise mandatarul la Kayseri al companiei Tekyay, înființată de Osman și Turgay Bey, acesta mi-a vorbit despre povestea lui Kemal Bey ca despre o poveste de dragoste și scandal care a condus la falimentul Satsatului.

Going out of the book...





I need help to
remember all
kinship
relations
between
characters

Characters in Forsyte Saga

- **The old Forsytes**

Ann, the eldest of the family

Old Jolyon, the patriarch of the family, having made a fortune in tea

James, a solicitor, married to **Emily**, a most tranquil woman

Swithin, James's twin brother with aristocratic pretensions; a bachelor

Roger, "the original Forsyte"

Julia (Juley), a fluttery dowager; Mrs. Septimus Small

Hester, an old maid

Nicholas, the wealthiest in the family

Timothy, the most cautious man in England

Susan, the married sister

- **The young Forsytes**

Young Jolyon, Old Jolyon's artistic and free-thinking son, married three times

Soames, James and Emily's son, an intense, unimaginative and possessive solicitor, married to the unhappy **Irene**, who later marries Young Jolyon

Winifred, Soames's sister, one of the three daughters of James and Emily, married to the foppish and lethargic **Montague Dartie**

George, Roger's son, a dyed-in-the-wool mocker

Francie, George's sister and Roger's daughter, emancipated from God

- **Their children**

June, Young Jolyon's defiant daughter from his first marriage; engaged to an architect, **Philip Bosinney**, who becomes Irene's lover

Jolly, Young Jolyon's son from his second marriage; dies of enteric fever during the Boer Wars

Holly, Young Jolyon's daughter from his second marriage, to June's governess

Jon, Young Jolyon's son from his third marriage, to Irene, Soames's first wife

Fleur, Soames's daughter from his second marriage, to a French Soho shopgirl **Annette**; Jon's lover; later marries a baronet, **Michael Mont**

Val, Winifred and Montague's son; fights in the Boer Wars; marries his cousin Holly

Imogen, Winifred and Montague's daughter

- **Others**

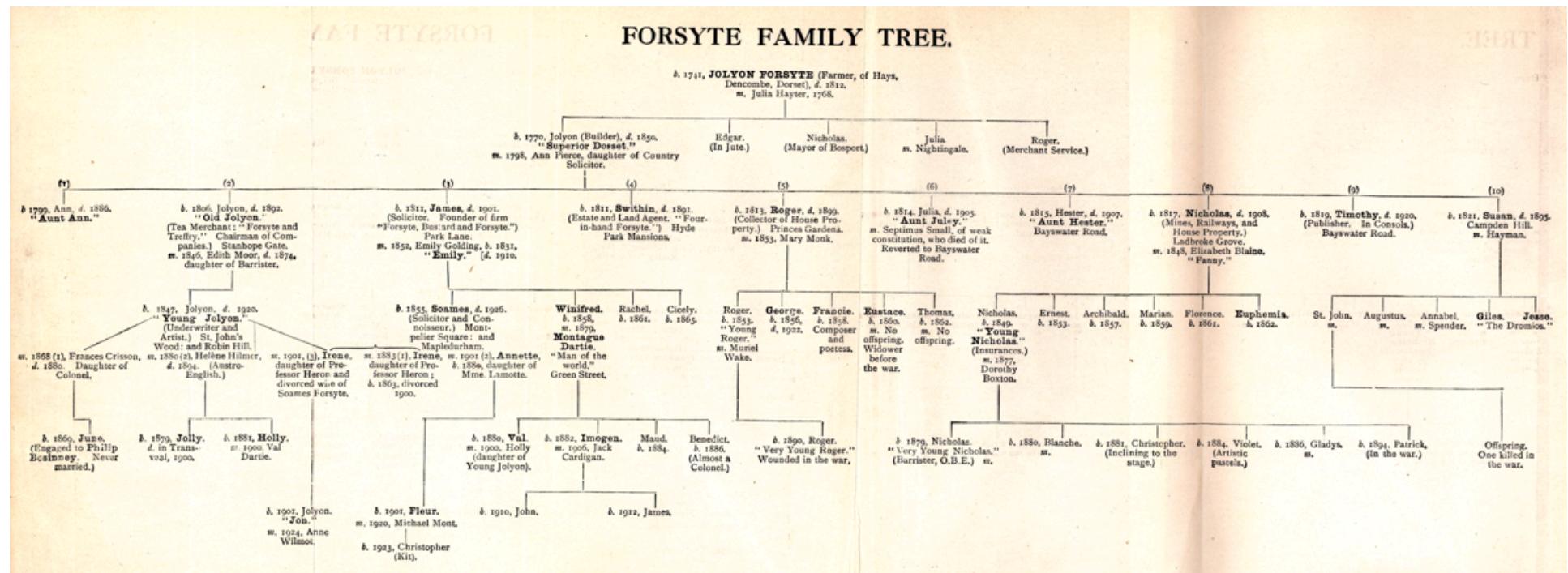
Parfitt, Old Jolyon's butler

Smither, Aunts Ann, Juley and Hester's housekeeper

Warmson, James and Emily's butler

Bilson, Soames's housemaid

Prosper Profond, Winifred's admirer and Annette's lover



MappingBooks

- A *MappedBook* is a book connected with locations/events in the virtual and real world and sensitive to the instantaneous location (as seized by the mobile/tablet) of a reader.
- The information made available could possibly be different depending on the moment and the place of the reader.

MappingBooks

- multi-dimensional mash-ups combining textual, geographical and temporal data
- adequate presentation to the reader
- links sensitive to:
 - the context of the mentions in the book,
 - the moment the user initiates an access
 - the current location of the user
- make heavy use of entity linking techniques
- spot the book mentions (persons and locations) in the real and virtual world

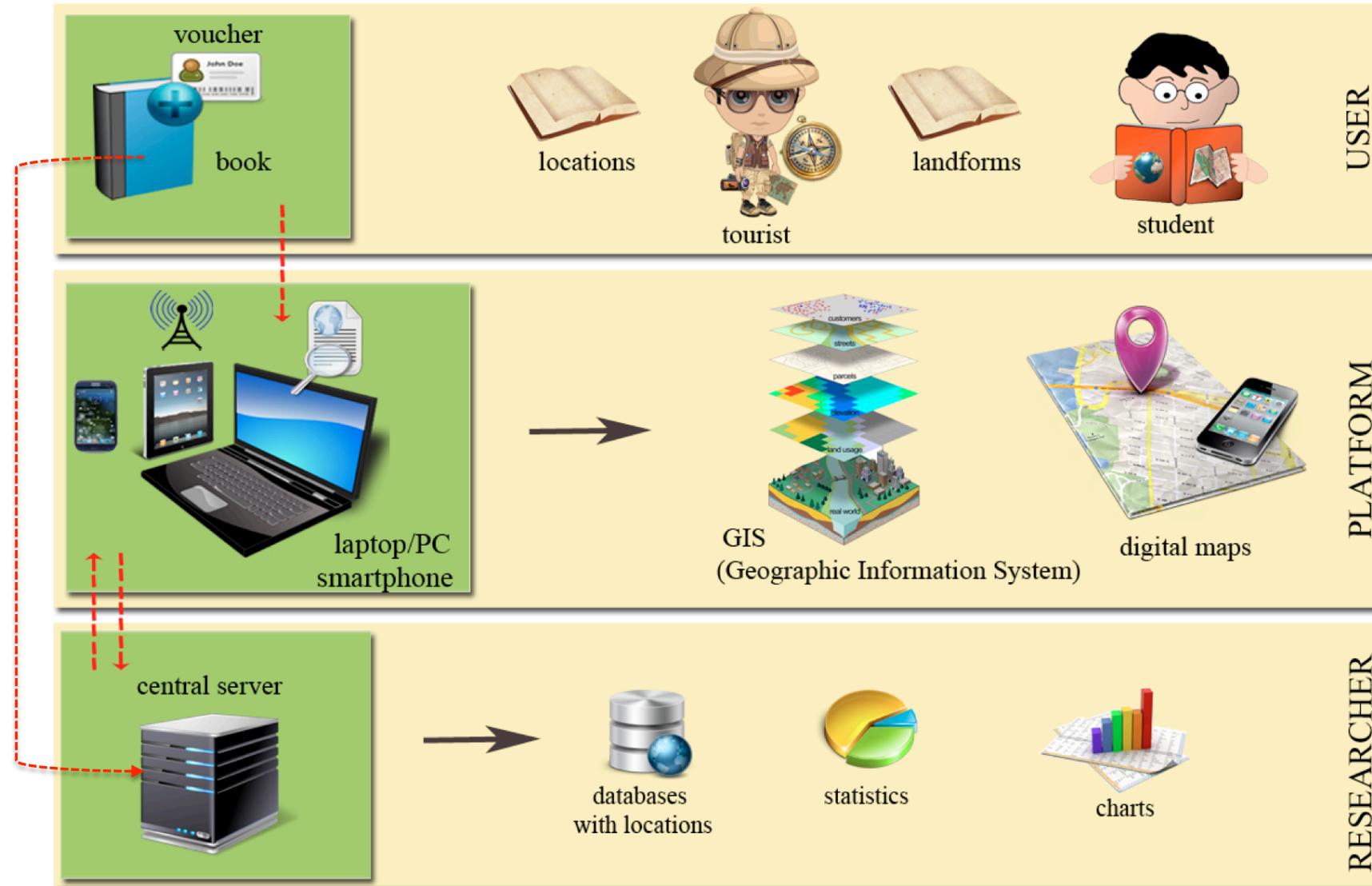
Aims

- 1) connect entities' mentions in the form of nominals (noun phrases) => one coreferential chain corresponds to each entity;
- 2) no preliminary records about linked entities => the knowledge base evolves from scratch;
- 3) look specially for coreferential (identity of entity mentions) and geographical relations (position, distance, point-of, near, intersects, etc.);
- 4) texts under investigation: Geography manuals and traveling guides

MappingBooks: what is it about?

- “Understand” parts of a text
- Recognise mentions of persons and locations
- Recognise and crawl for real world entities
- Know where I am
- Seize what real world entities are in my proximity
- Trace GoogleMaps paths, as described in the book
- Fetch, process and make use of geo-data
- Mix images with generated info
- Display an attractive user interface
- Client-server

MappingBooks – an architecture



Towards... live books

- Multidimensional artefacts that combine textual, geographical, temporal, etc. data
- Evidence mentions of persons, locations...
- Links sensible at:
 - the context of the mention in book
 - the location of the reader
 - the moment of the lecture
 - the personality and preferences of the reader

Usage examples

- I visit a city with the traveling guide in my hand...
 - places of interest, routes, are reordered depending on my instantaneous position

Usage examples

- I am a school boy, in the train going from Brașov to Sibiu...
 - if I open my tablet and head it towards the left side window of the train, I will see arrows showing the picks of the Făgăraș mountains, exactly as in the Geography manual

Usage examples

- I am in Paris for the 3rd time...
 - but only now my MB Lonely Planet guide signals me this temporary exhibition opened in the Pyramid

MappingBooks is addressed to...

- Youngsters, school people – could we bring back the book in their hands?...
- Teenagers, adventurers, travelers, lovers of excursions – socialize about places mentioned in guides
- Pensioners – socialize about common readings, cultural preferences
- Researchers in Language Technology & Computation Linguistics – access to annotated linguistic resources
- Owners of textual data (editing houses, media companies, tabloids) – sell better their products
- Local administration, tourist agencies – ad on places of local touristic interest

The application

- 1) Connects mentions of entities (nominal groups)
=> one entity = a chain of coreferential mentions
- 2) The knowledge base does not include any apriory records about entities => starts from scratch
- 3) Identifies geographical relations (distances, positions, proximitities, intersections, etc.)
- 4) Texts, for the time being: geography manuals

Stable user profiling

*Tell me what you read
to tell you who you are...*

- Data types for profiling
 - age, sex, education, profession, nationality, city and region address, traveling, music, readings and other cultural preferences, hobbies, etc.
 - Sources:
 - connected social networks (Facebook, Twitter, LinkedIn, Google+) where MB users are members
 - direct acquisition at sign up
- ⇒ Make up specific stable “signatures” of users as attribute-value vectors

Instantaneous contexts (volatile data collected during daily or sporadic use, quickly changing)

- information seized by sensors or inferred:
 - the place where you are now, recent travels, the history of past travels
- information accumulated on the server:
 - the book that you read now, recent readings, the history of your readings
- information inputted by the user:
 - intention to start a journey

Volatile profiling

- Contextual information
⇒ Make up specific volatile “signatures” of users as attribute-value vectors

Mixed profile

- Sum up the two types of data used in profiling

Accessibility of personal data

- In accord with the trendy typology of accessibility of data adopted by current social media networks:
 - public
 - restricted to classes of friends
 - for personal use only

Matching

- Apply scored vector matching techniques against other users' signatures
- Retain the best ranked matches

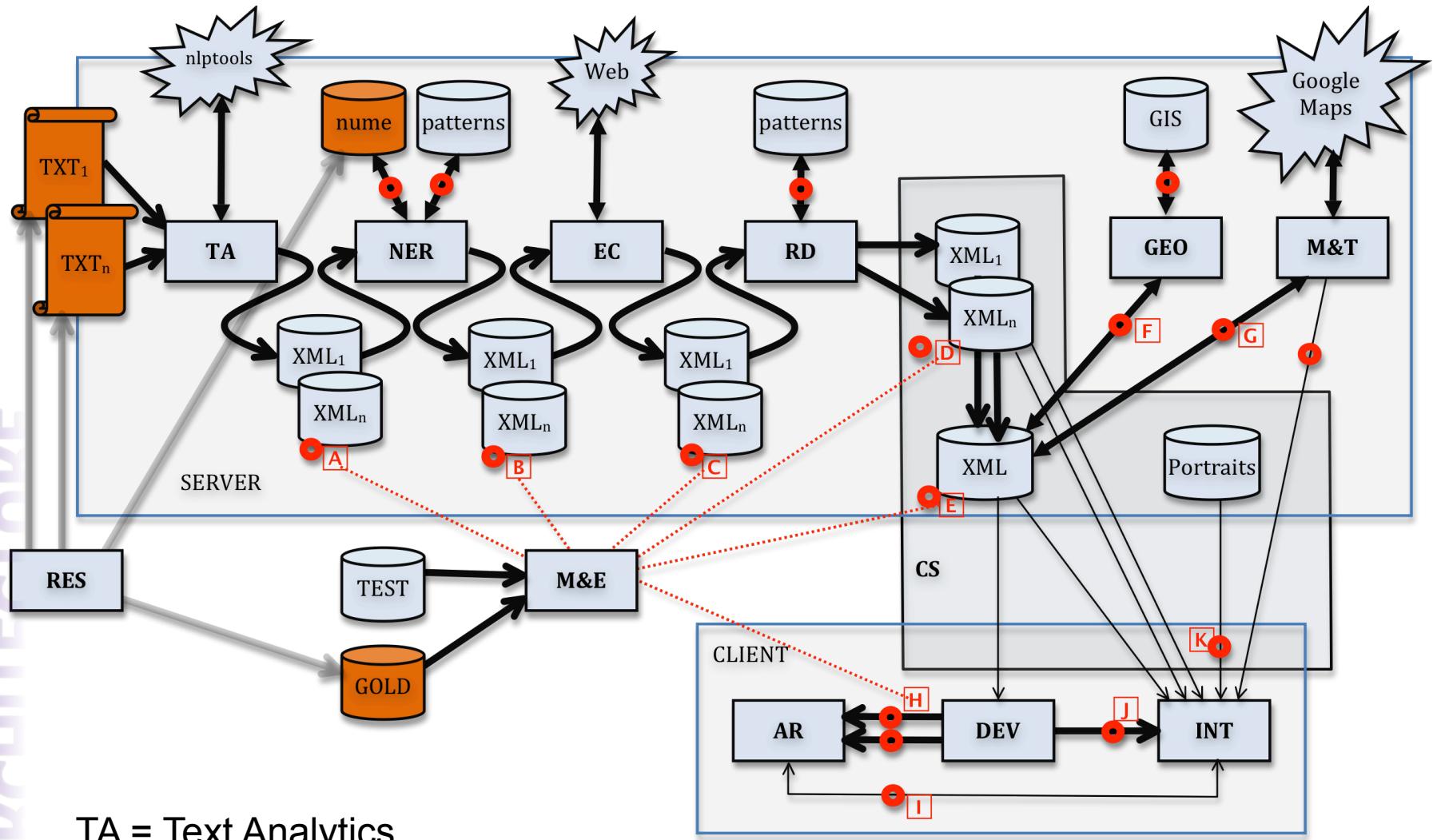
Networking Readers: enhance e-Books reading experience

- Use semantic and geographical links to form communities
 - if books “subscribed for” declared visible =>
 - **current co-readers of B**
 - **co-readers of B**
 - if “instantaneous or past location” declared visible =>
 - **current co-proximity of L**
 - **co-proximity of L**
 - **current co-track of T**
 - **co-track of T**
 - any combinations

Networking Readers: enhance e-Books reading experience

- Easy to imagine other ways to form communities rooted in lectures
 - intersect **common readings** and **attended places** with **levels of friendship** reported by other social media, like **Facebook or Twitter**
 - **real-world events** and **entities mentioned** in a book associated with **real-world locations** and particular **moments of the year/day**

ARCHITECTURE



TA = Text Analytics

NER = Name Entity Recognition

EC = Entity Crowling

RD = Relations Detection

GEO = Geography

M&T = Maps and Trajectories

AR = Augmented Reality

DEV = Device Info

INT = Interfaces

RES = Resources

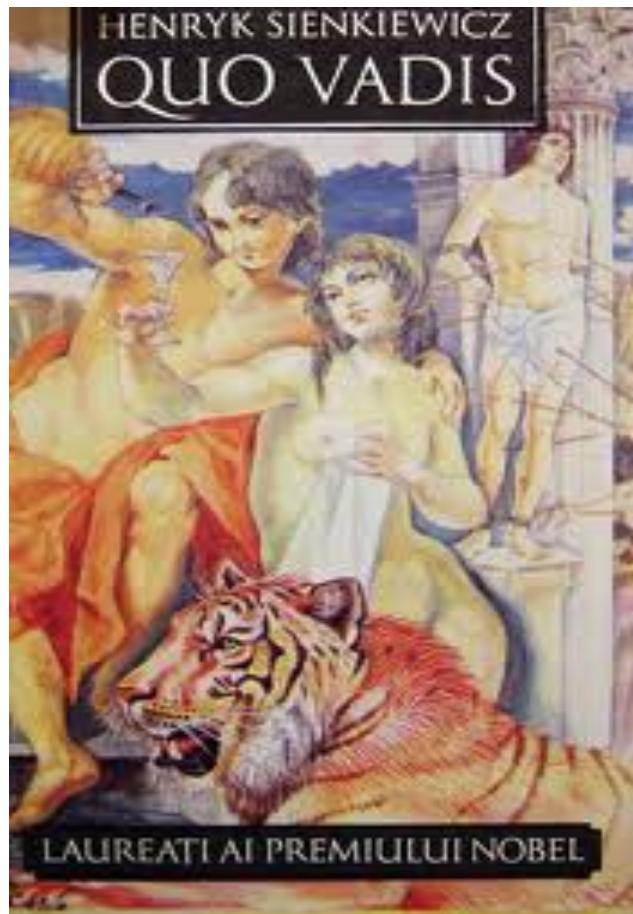
M&E = Management and Evaluation

MappingBooks: acknowledgements

- Undergraduate students from the Faculty of Computer Science in Iași, who in the first term of the university year 2013-2014 have build the MB prototype as a term project in the AI course.
- Romanian Ministry of Education and Research for the grant PN-II-PT-PCCA-2013-4-1878 Partnership PCCA 2013 “MappingBooks - Intră în carte!”, July 2014 – December 2017
- Mihai Nicușor (Fac. Geography) in UAIC – for rendering the maps in MB
- Vivi Năstase for relevant ideas and realisation of two figures
- The other two partner institutions: SIVECO – Bucharest and “Ştefan cel Mare” University of Suceava

QuoVadis: Chasing entities and links in books

The ‘Quo Vadis’ corpus



Chapter I

PETRONIUS woke only about midday, and as usual greatly wearied. The evening before he had been at one of Nero's feasts, which was prolonged till late at night. For some time his health had been failing. He said himself that he woke up benumbed, as it were, and without power of collecting his thoughts. But the morning bath and careful kneading of the

0.00% | Chapter I

03:41

A corpus semantic entities and relations

- Type of entities:
 - persons
 - gods
 - groups of persons and gods
 - body parts
- Remantic relations among entities of these types



Entities

- individuals (*Marcus Vinicius*, *Lygia*), groups (*the Christians*, *the soldiers*) and classes (*the emperor*);
- syntactic realisation: NPs (determiners – *a soldier*, adjectives – *young patrician*, complement PPs included – *the son of one consul*; but no relative clauses;
- included entities for Romanian language:
[*te*]₁ [*iubesc*; REALISATION=INCLUDED]₂, *Marcus.* vs.
[*I*]₂ *love* [*thee*]₁, *Marcus.*
- recursive referential expressions:
[*the adherents [of Christ]*₂]₁ *are praying...*



Relations

- **Anaphoric** relations: **co-referential**;
- **Non-anaphoric** relations:
 - *kinship*;
 - *affective*;
 - *social*.



Anaphoric relations

- *coref*
- *coref-interpret*
- *member-of, has-as-member* (inverse)
- *isa, class-of* (inverse)
- *part-of, has-as-part* (inverse)
- *subgroup-of, has-as-subgroup* (inverse)
- *has-name, name-of* (inverse)

Example:

[*Lygia*]₁ was unable to answer, for weeping seized [her]₂ anew. Acte gathered [*the maiden*]₃ to her bosom, and strove to calm [her]₄ excitement.

[2] coref [1]; [3] coref-interpret [2]; [4] coref [3]



Kinship relations

- *parent-of*
- *child-of* (inverse of *parent-of*)
- *grandparent-of* and *grandchild-of* (inverse)
- *sibling* (symmetrical)
- *ant-uncle-of*, *nephew-of* (inverse relation)
- *cousin-of* (symmetrical)
- *spouse-of* (symmetrical)
- *unknown*

Example:

"Pardon me, Lygia. For me thou art [<the daughter> [of a king]₂]₁ and [<the adopted child> [of Plautius]₄]₃.“

[1] child-of [2]; [3] child-of [4]



Social relations

- *superior-of*
- *inferior-of*
- *in cooperation-with*
- *colleague-of*
- *in competition-with*
- *opposite-to*

Example:

[*Petronius*]₁...but to [*his*]₂ misfortune [*he*]₃ <surpassed in conversation>
[*Cæsar himself*]₄, hence [*he*]₅ roused [*his*]₆ jealousy.

- [3] in competition-with [4];
- [3] coref [2]; [5] coref [4]; [6] coref [4]



Affective relations

- *love*
- *loved-by*
- *hate*
- *hated by*
- *upset*
- *friendship*
- *worship*

Example:

Vinicio entered Lygia's dungeon and remained there till daylight...Both changed by degrees into sad souls <in love> with [each]₁ [other]₂.

[1] rec-love [2]



A complex example

... cui i-ar fi putut trece prin minte că [un patrician]₁, [nepot și [fiu de [consuli]₄]₃]₂, ar putea să se găsească printre gropari .

Besides, into whose head could it enter that [a patrician]₁, [the grandson [of one consul]₅]₂, [the son [of another]₇]₆, could be found among servants, corpse-bearers.

RO: [2] coref [1], [2] kinship:*grandchild-of*[4]; [3] kinship:*child-of*[4];

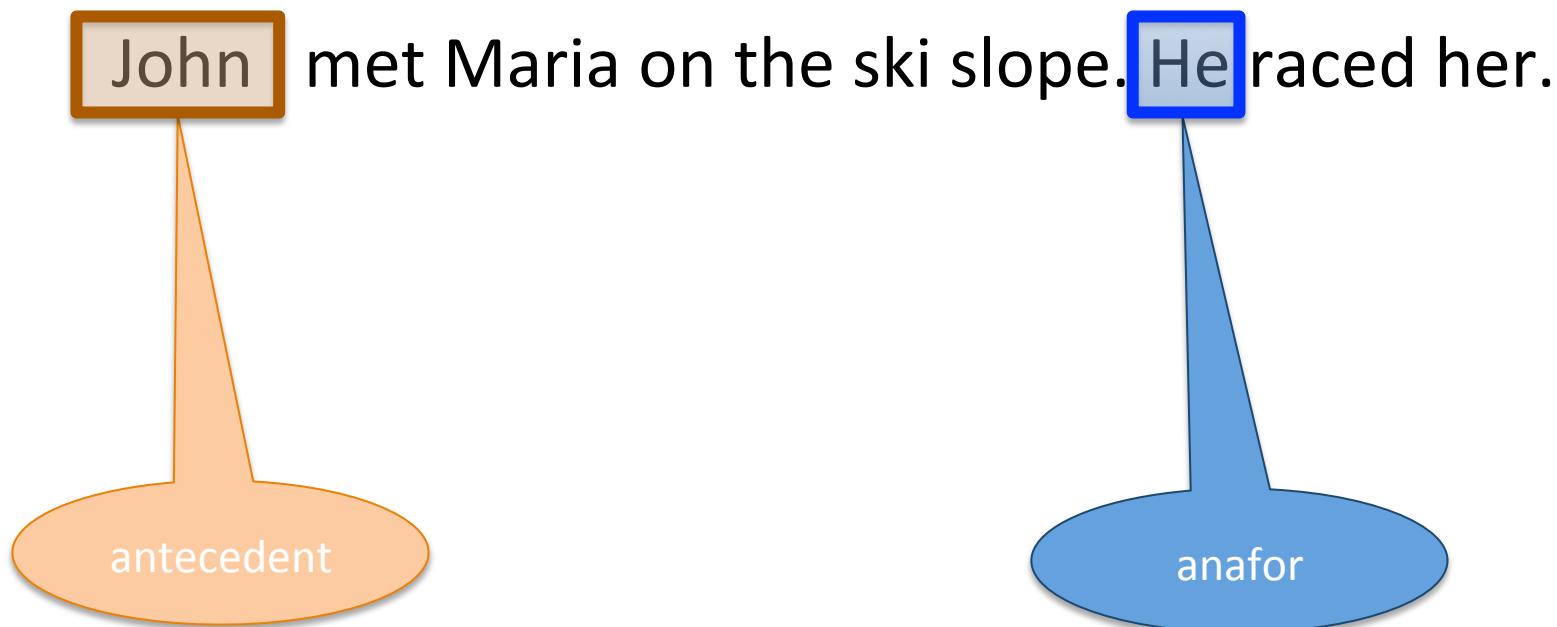
EN: [2] coref [1], [6] coref [1], [2] kinship:*grandchild-of*[5],

[6] kinship:*child-of*[7].



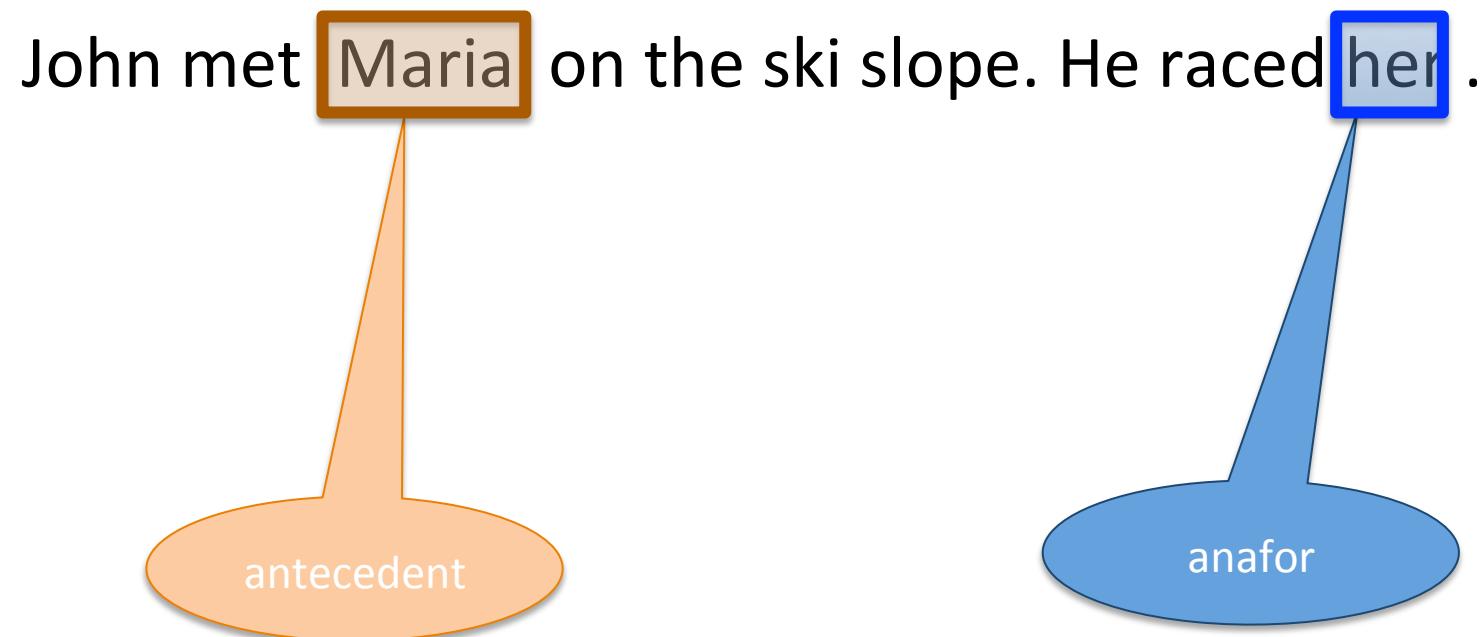
Relations

- Anaphoric: coref



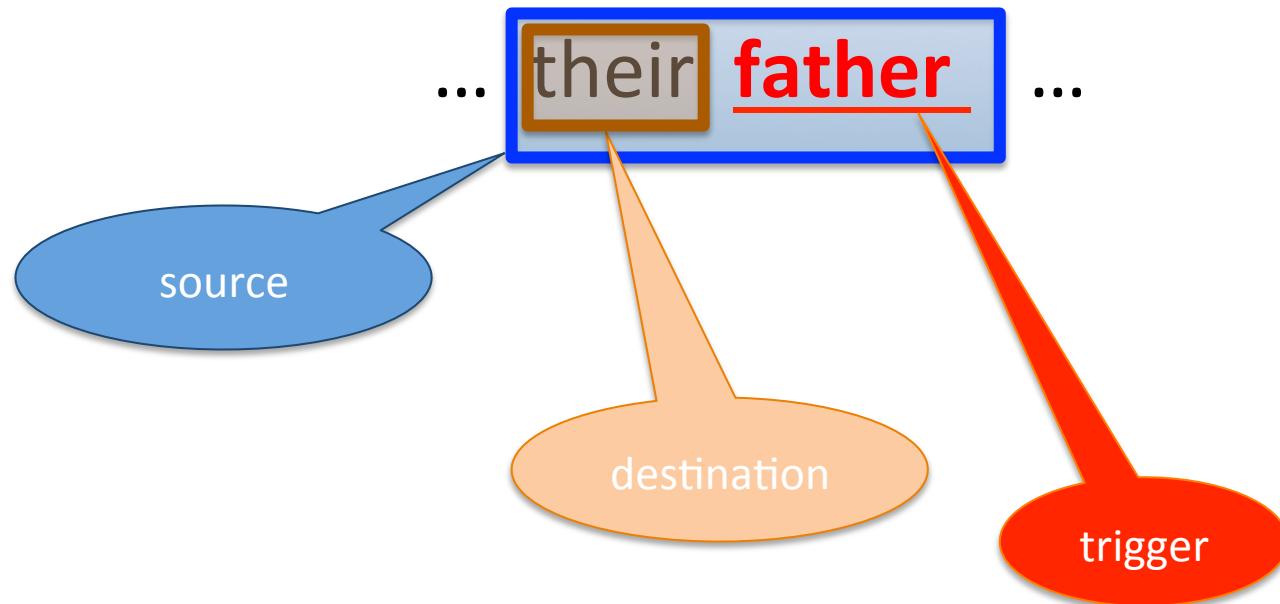
Relations

- Anaphoric: coref



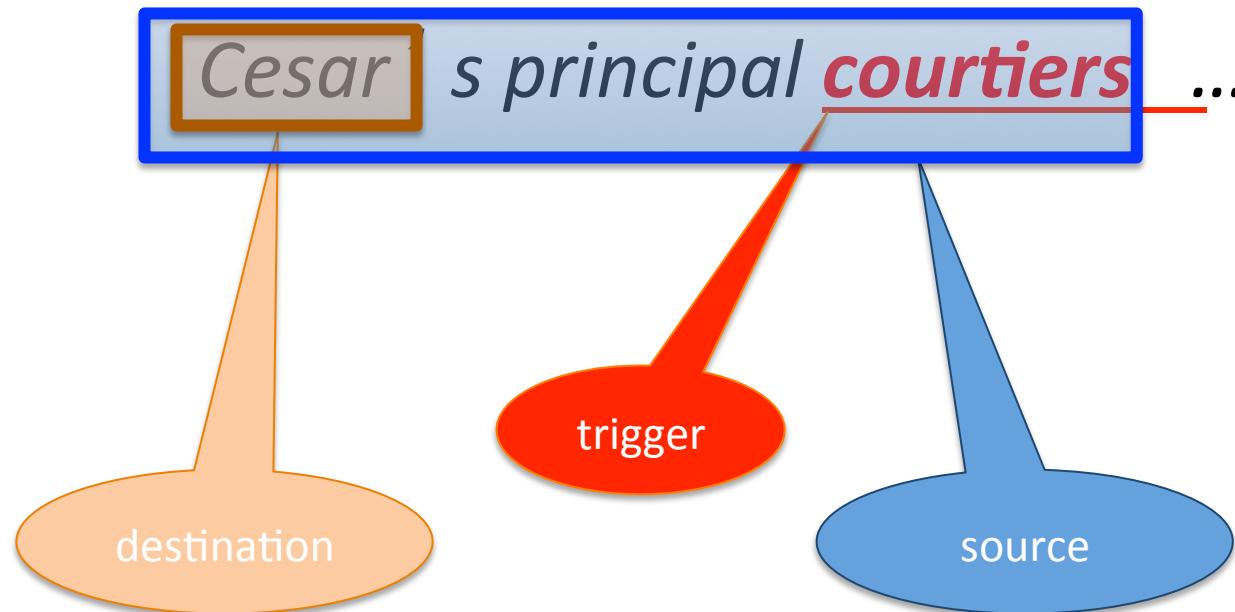
Arguments and triggers in relations

- Kinship: parent-of



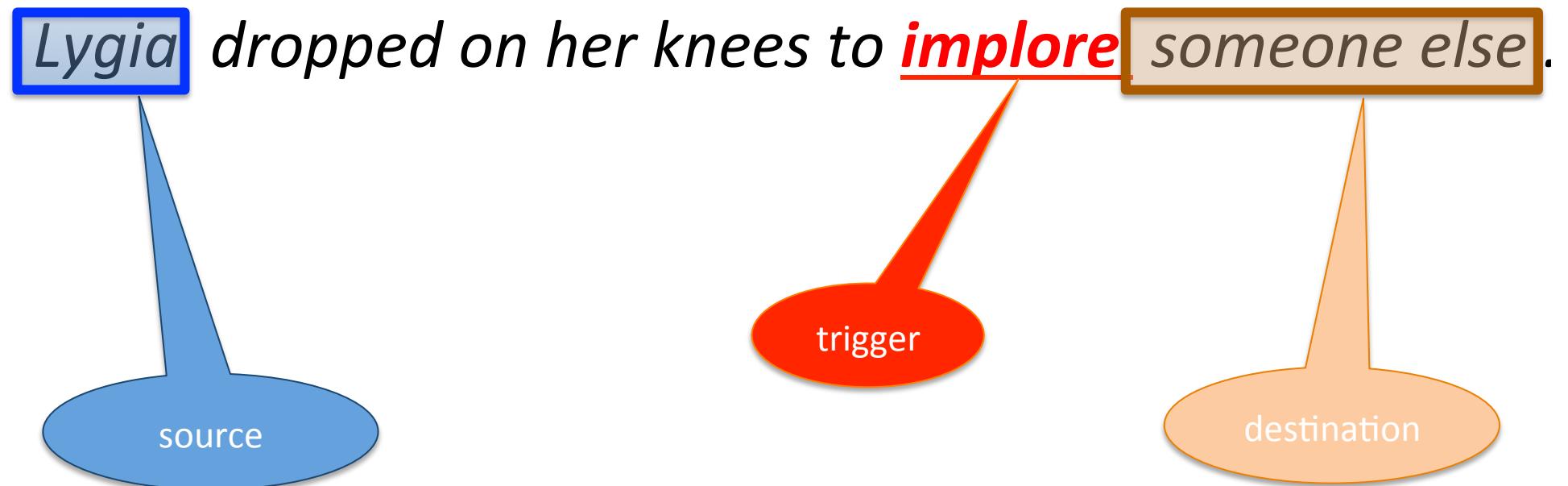
Arguments and triggers in relations

- Social: inferior-of



Arguments and triggers in relations

- Affective: worship



Entities

Petroniu...

Vinicio was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .

Anaphoric relations: coref

Petronius...

Vinicio was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .

Anaphoric relations: coref

Petroniu...

Vinicius

was

the son of his oldest sister ,

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Anaphoric relations: coref

Petroniu...

Vinicio... was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .



Anaphoric relations: class-of

Petroniu...

Vinicio was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .

Kinship relations: sibling

Petroniu...

Vinicio... was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .

Kinship relations: child-of

Petroniu...

Vinicio... was

the **son** of **his** oldest sister ,

who years before had married **his** father ,

a man of consular dignity from the time of **Tiberius** .

Kinship relations: parent-of

Petroniu...

Vinicio was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .

Kinship relations: spouse-of

Petroniu...

Vinicio was

the son of his oldest sister ,

who years before had married his father ,

a man of consular dignity from the time of Tiberius .

Social relations: inferior-of

Petroniu...

Vinicio... was

the son of his oldest sister ,

who years before had married his father ,

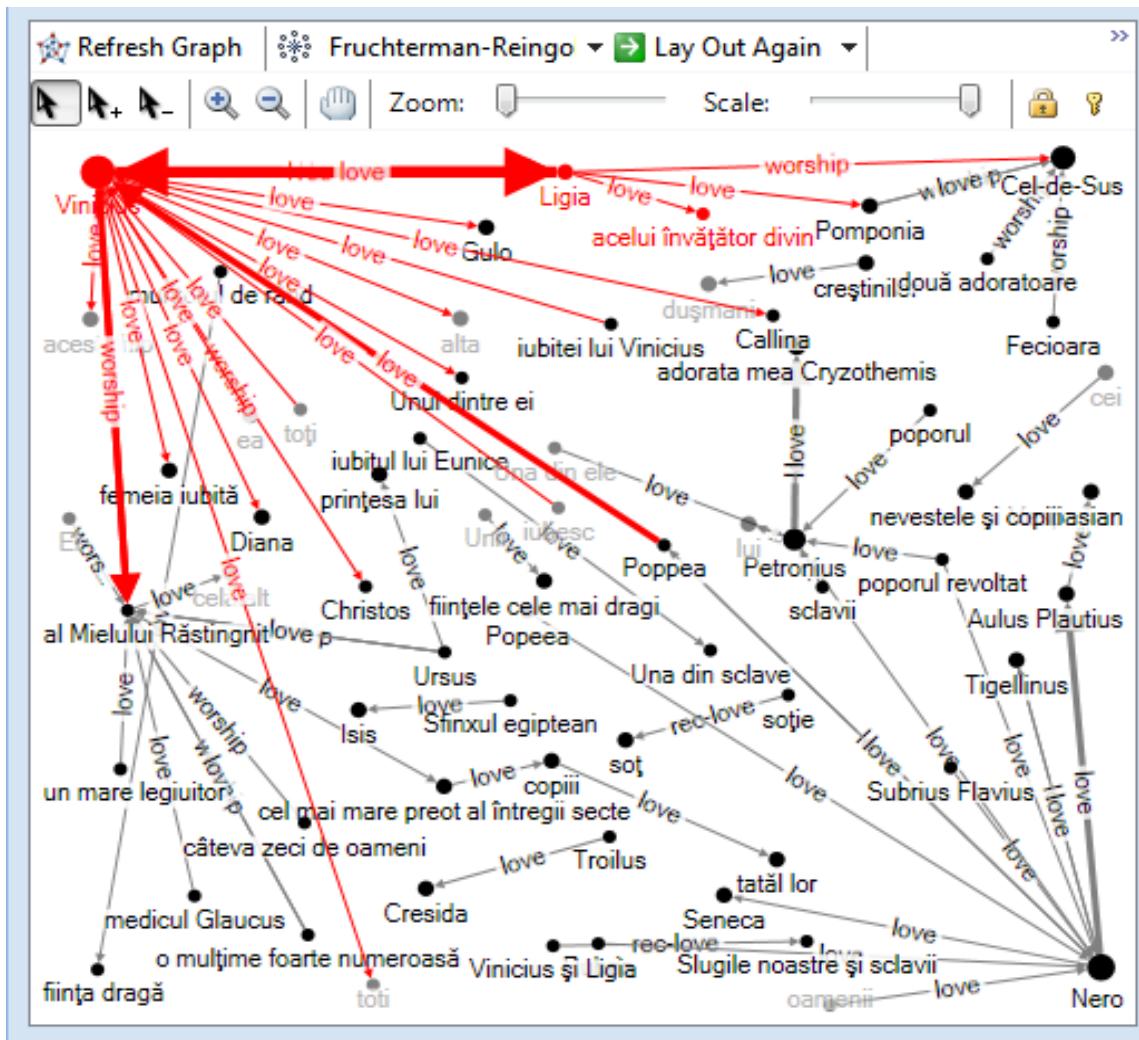
a man of **consular** dignity from the time of Tiberius .

General statistics over the corpus

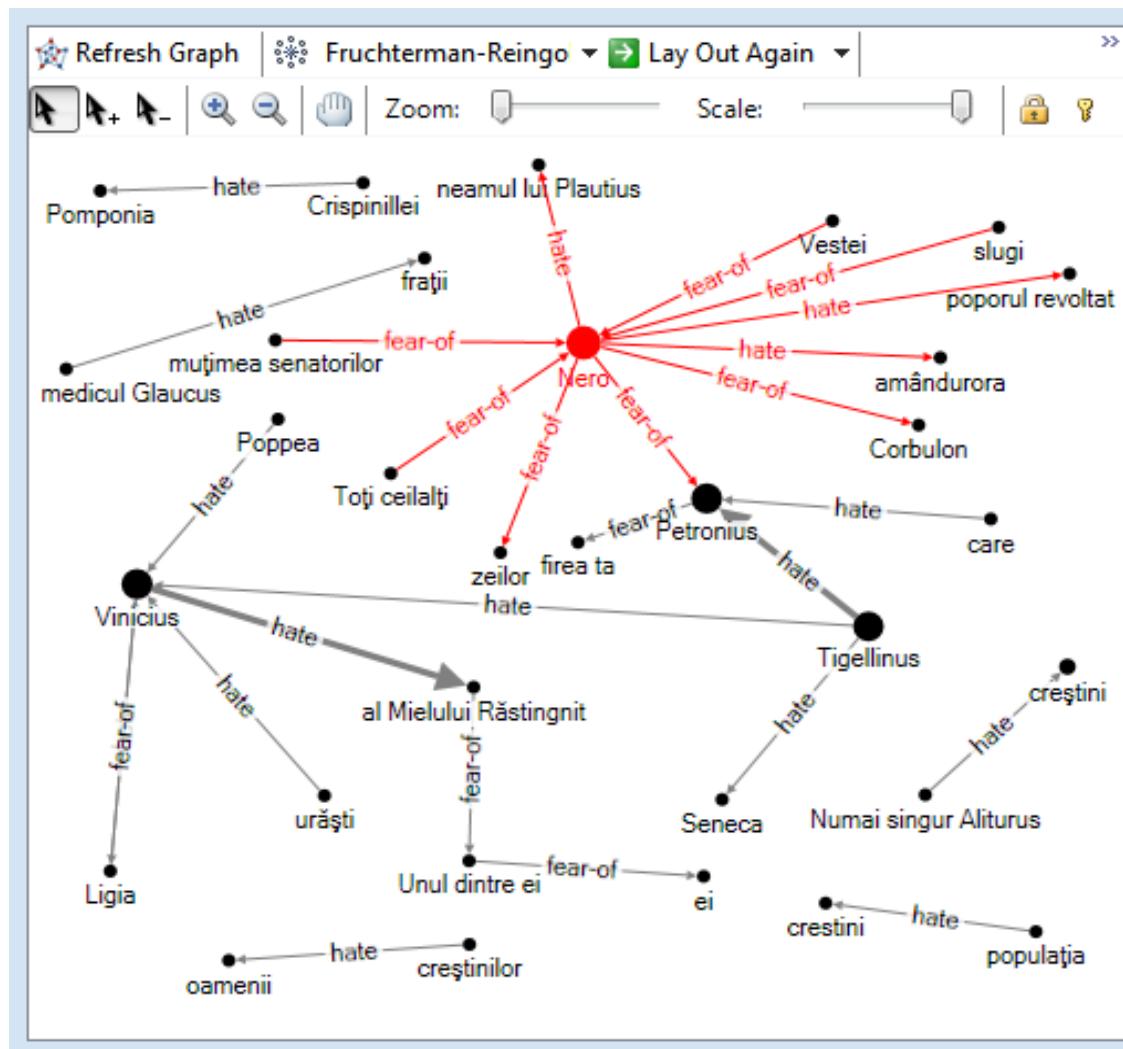
- 7,281 sentences
- 146,822 tokens, punctuation included
- 171,029 tokens summed up under all relations
- 24,636 entity mentions
- 22,301 referential relations
- 755 AKS relations (**Affective + Kinship + Social**)
- 752 triggers



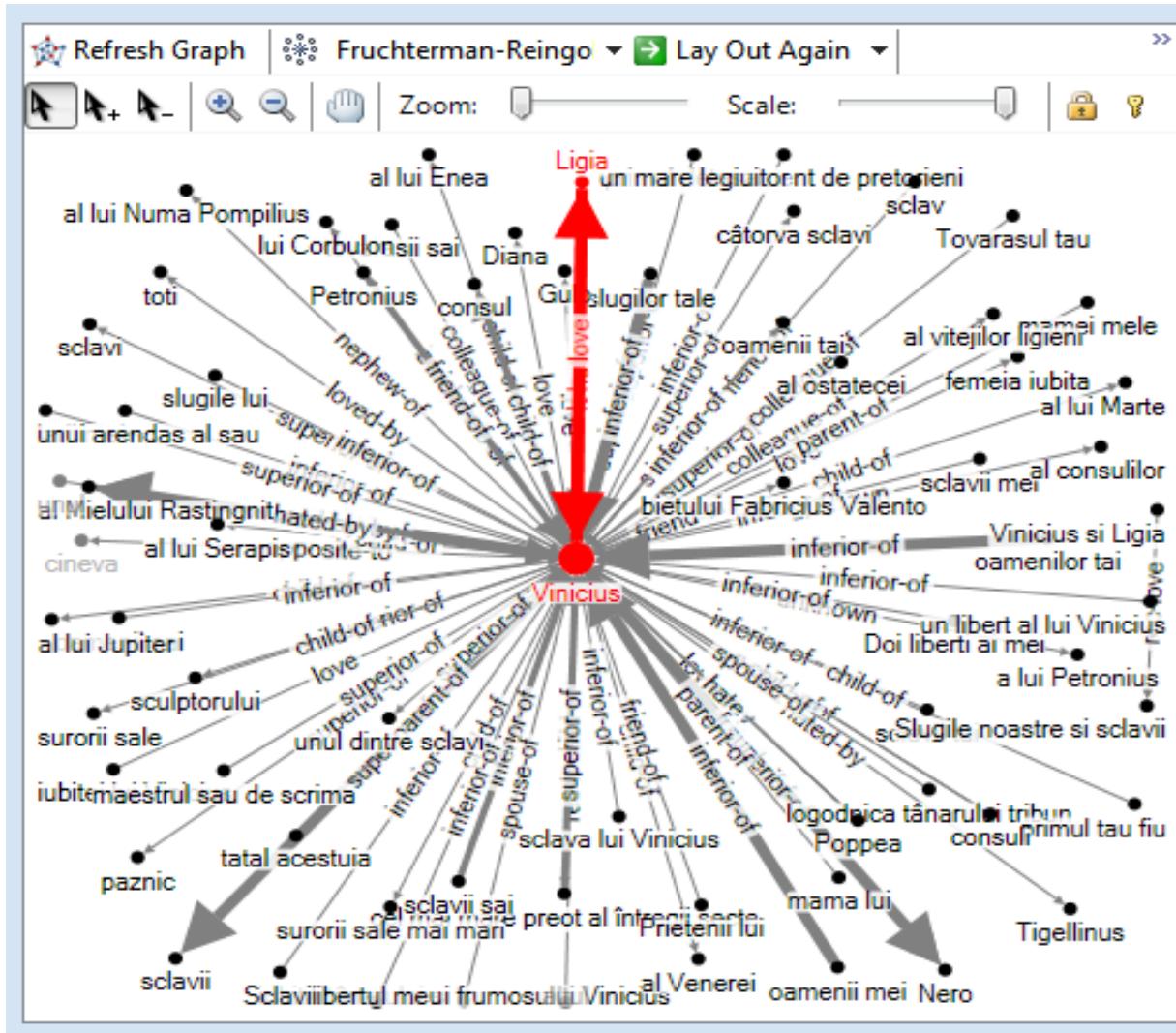
Example: affective relations *love* and *worship*



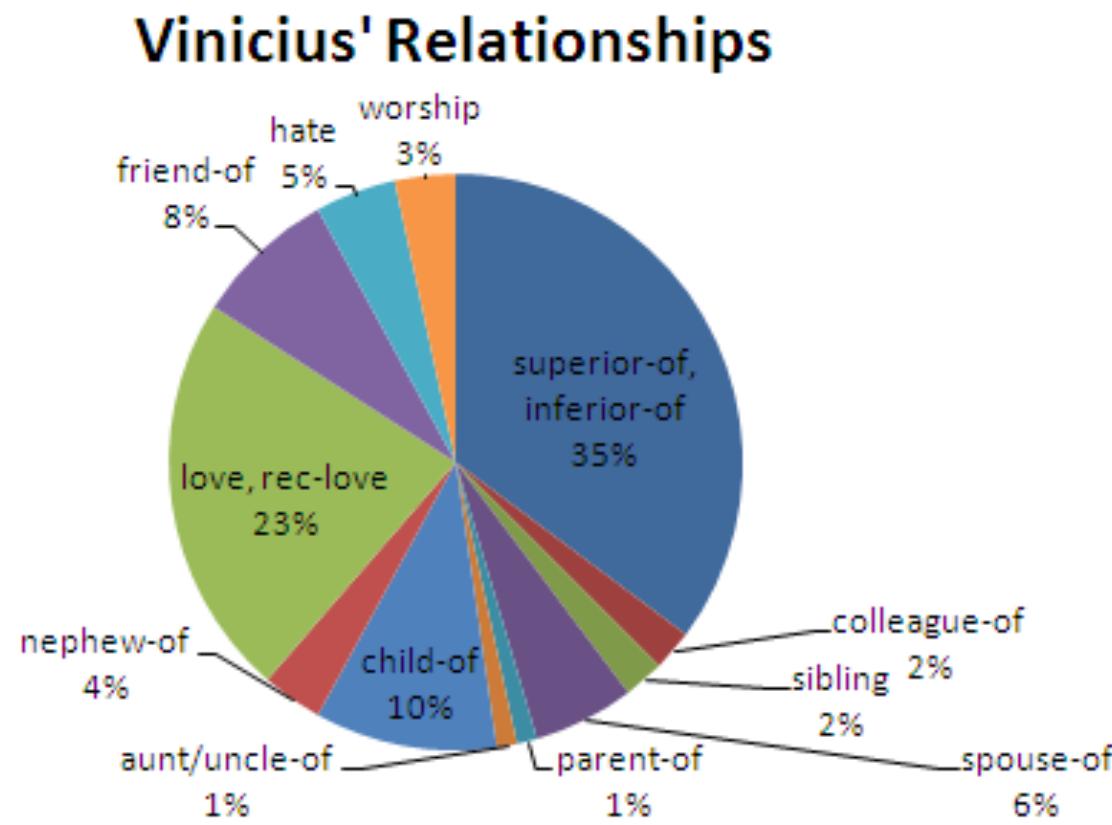
Example: affective relations *fear-of* and *hate*



Vinicius' links with other characters



Semantic relations involving Vinicius



Annotation

```
<ENTITY ID="E8" TYPE="PERSON">
<W id="28" LEMMA="Marcus">Marcus</W>
<W id="29" LEMMA="Vinicius">Vinicius</W>
</ENTITY>
<W id="30" LEMMA="fi">era</W>
<KINSHIP ID="KIN57" FROM="E12" TO="E11" TRIGGER="31"
    TYPE="child-of">
<ENTITY ID="E12" TYPE="PERSON">
<W id="31" LEMMA="fiu">fiul</W>
<KINSHIP ID="KIN53" FROM="E11" TO="E10" TRIGGER="32"
    TYPE="sibling-of">
<ENTITY ID="E11" TYPE="PERSON">
<W id="32" LEMMA="soră">surorii</W>
<ENTITY ID="E10" TYPE="PERSON">
<W id="33" LEMMA="său">sale</W>
</ENTITY>
<W id="34" LEMMA="mai">mai</W>
<W id="35" LEMMA="mare">mari</W>
</ENTITY>
</KINSHIP>
</ENTITY>
</KINSHIP>
<W id="36" LEMMA=",">,</W>
<KINSHIP ID="KIN59" FROM="E13" TO="E15" TRIGGER="44"
    TYPE="spouse-of">
<ENTITY ID="E13" TYPE="PERSON">
<W id="37" LEMMA="care">care</W>
</ENTITY>
<W id="38" LEMMA=",">,</W>
<W id="39" LEMMA="cu">cu</W>
<W id="40" LEMMA="an">ani</W>
<W id="41" LEMMA="în_urmă">în urmă</W>
<W id="42" LEMMA=",">,</W>
<W id="43" LEMMA="sine">se</W>
<W id="44" LEMMA="căsători">căsătorise</W>
<W id="45" LEMMA="cu">cu</W>
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    TYPE="parent-of">
<ENTITY ID="E15" TYPE="PERSON">
<W id="46" LEMMA="tată">tatăl</W>
<ENTITY ID="E14" TYPE="PERSON">
<W id="47" LEMMA="acesta">acestuia</W>
</ENTITY>
</ENTITY>
</KINSHIP>
</KINSHIP>
<SOCIAL ID="SOC9" FROM="E17" TO="E16" TRIGGER="49"
    TYPE="inferior-of">
<ENTITY ID="E17" TYPE="PERSON">
<W id="49" LEMMA="consul">consul</W>
<W id="50" LEMMA="pe">pe</W>
<W id="51" LEMMA="vreme">vremea</W>
<W id="52" LEMMA="el">lui</W>
<ENTITY ID="E16" TYPE="PERSON">
<W id="53" LEMMA="Tiberiu">Tiberiu</W>
</ENTITY>
</ENTITY>
</SOCIAL>
<W id="54" LEMMA=".">.</W>
<REFERENTIAL ID="REF37" FROM="E12" TO="E8" TYPE="coref" /
    REFERENTIAL>
<REFERENTIAL ID="REF38" FROM="E13" TO="E11" TYPE="coref" /
    REFERENTIAL>
<REFERENTIAL ID="REF39" FROM="E14" TO="E8" TYPE="coref" /
    REFERENTIAL>
<REFERENTIAL ID="REF40" FROM="E17" TO="E15" TYPE="class-
    of" /REFERENTIAL>
```

QuoVadis: thanks

- Students in Master of Computational Linguistics, series 2012-2014 – annotation
- Anca Bibiri, Cătălina Mărănduc, Daniela Gîfu – coordination, validation
- Paul Diac, Andrei Scutelnicu, Mihaela Colhon – programming

Proiectul IA al seriei 2014-2015

MyDailyLife

- Un agent capabil să “înțeleagă” situațiile în care se află Masterul său, să le transpună în text și să conduce un dialog relativ la ele

Proiectul II

- Un agent capabil să "înteleagă" situațiile în care se află Masterul său, să le transpună în text și să conducă un dialog relativ la ele

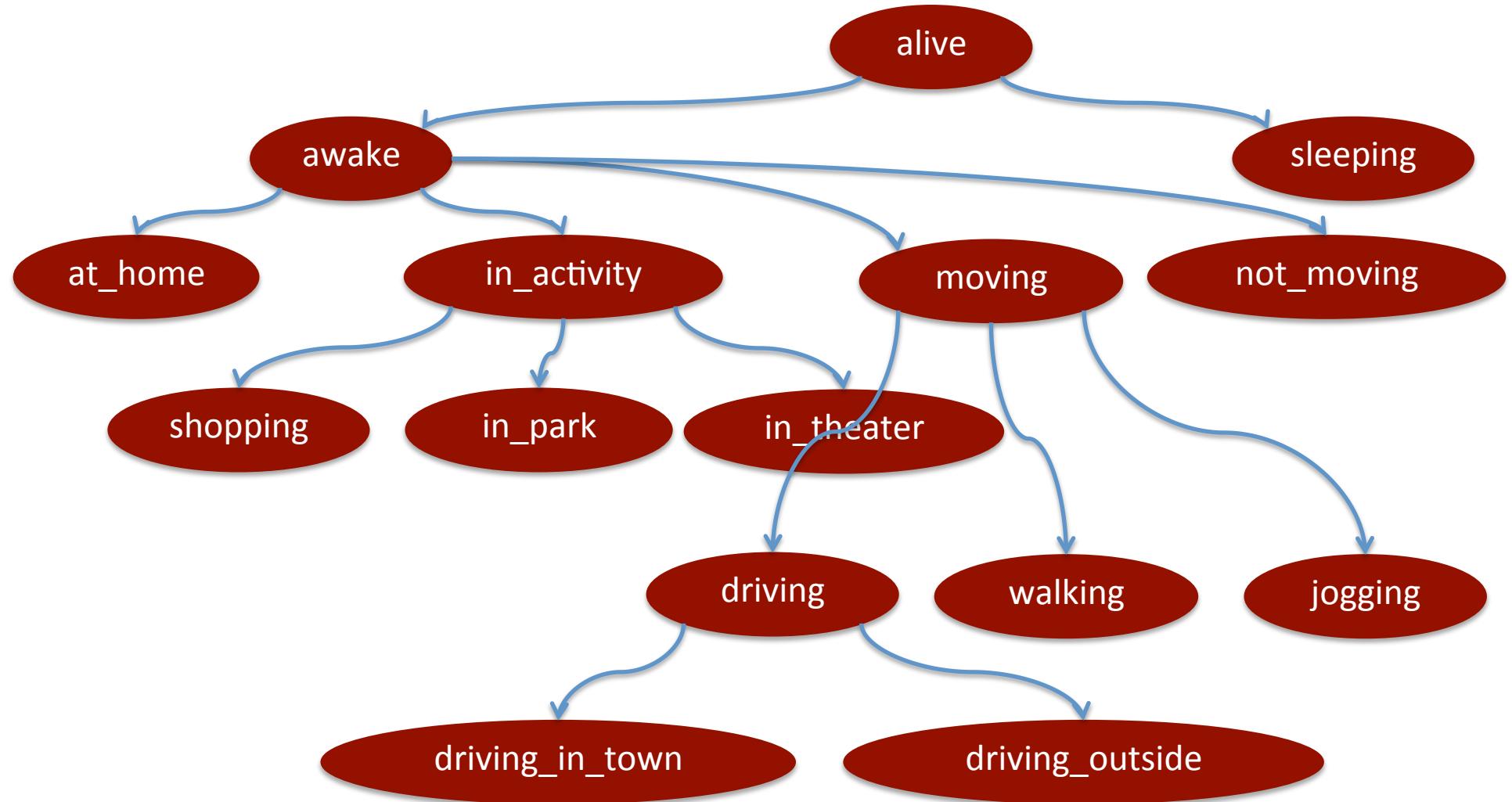
Ce trebuie să facă sistemul?

- Să “știe”, în cât mai multe momente ale zilei:
 - ce fac
 - unde mă aflu
 - cu cine mă întâlnesc
 - despre ce vorbesc
 - de ce fac anumite lucruri
- Să fie capabil să formeze fraze care exprimă ce am făcut
- Să fie capabil să poarte un dialog
 - despre ziua de azi, cea de ieri
 - cea de mâine (?)

Cui se adresează?

Persoanelor în pericol de boli degenerative ale creierului (Alzheimer etc.).

Un graf al situațiilor – ierarhie de clase



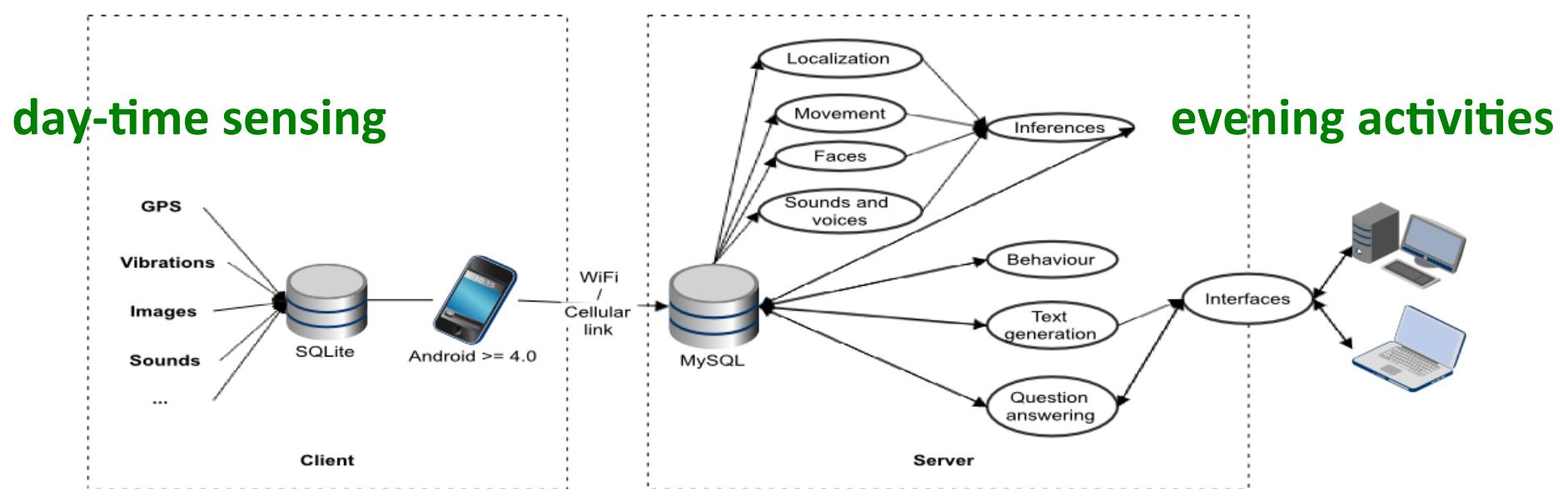
Module

1. LOCALISATION
2. MOVEMENT
3. FACES
4. SOUNDS&VOICES

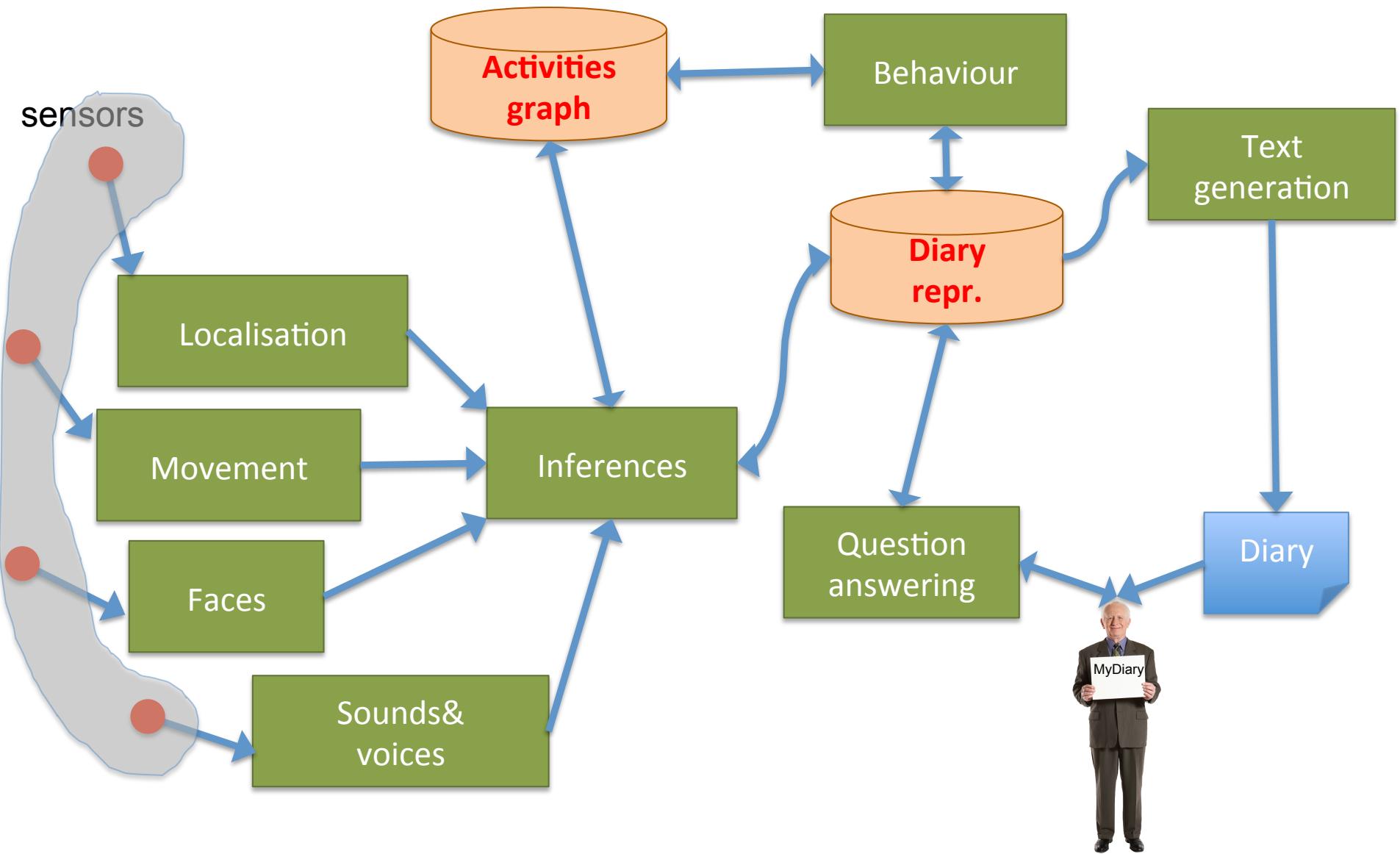
5. INFERENCES
6. BEHAVIOUR
7. TEXT GENERATION
8. QUESTION-ANSWERING
9. INTERFACES
10. CLIENT-SERVER
11. STANDARDS AND EVALUATION

System description

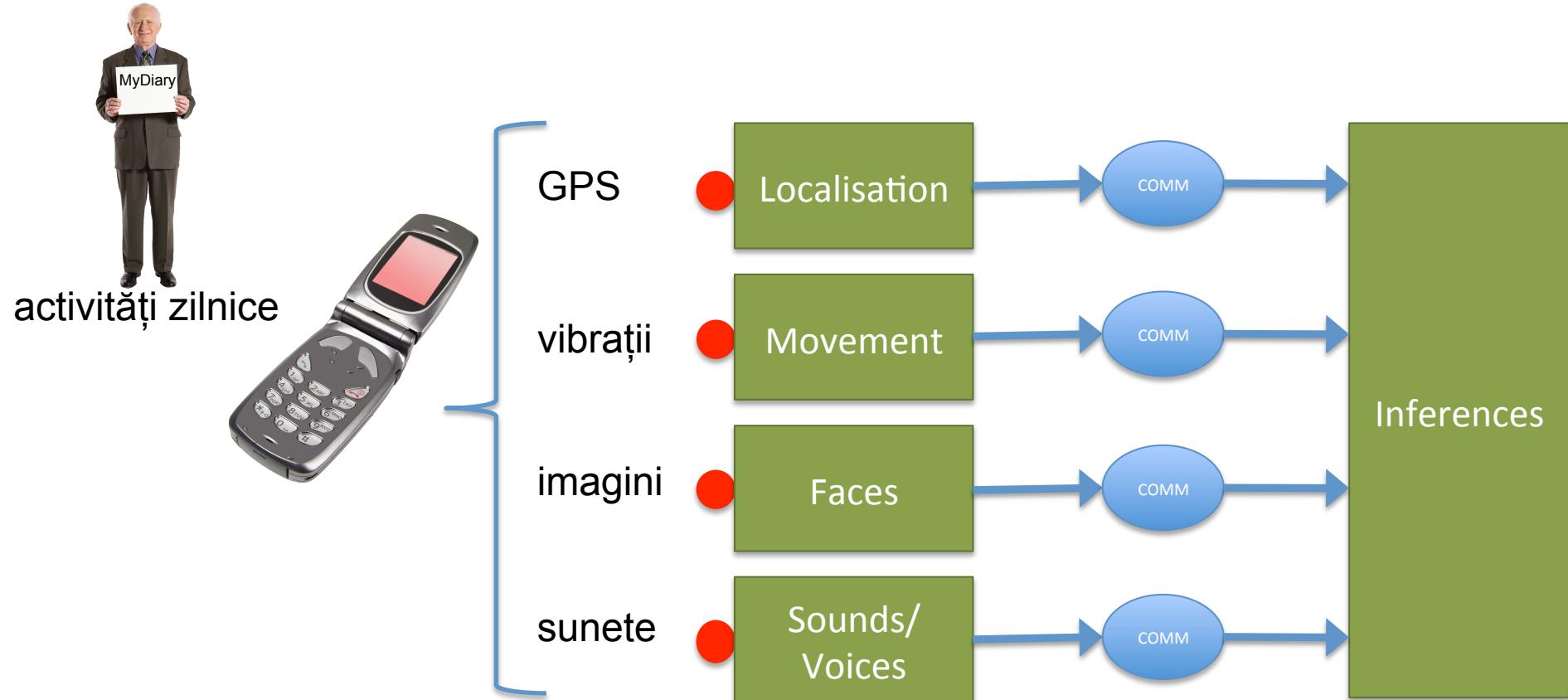
- A client-server architecture
- 3 types of modules:
 - interpreting primary data from my mobile
 - doing inferences and learning my behaviour
 - generating text and engaging dialogs



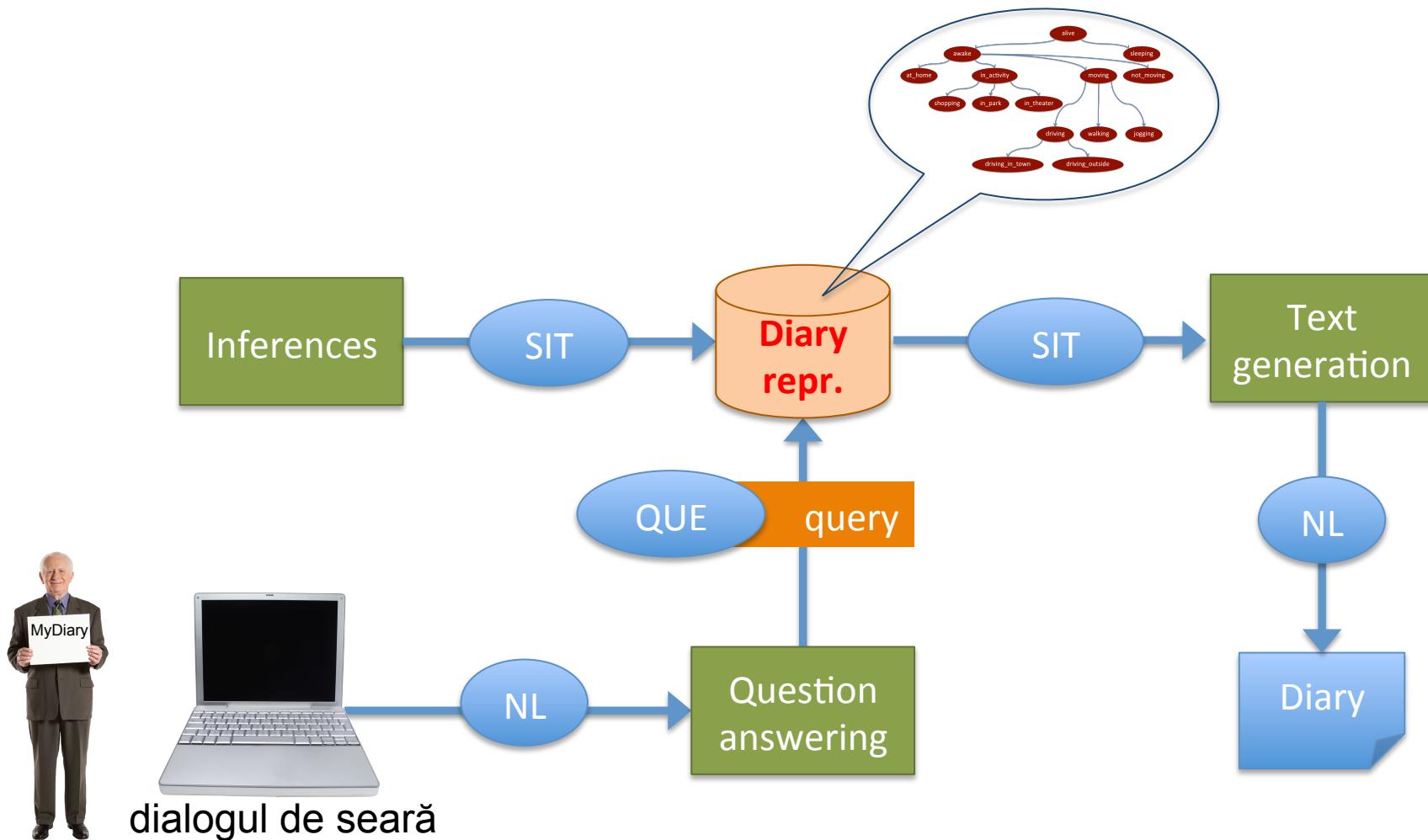
MyDailyLife – schema generală



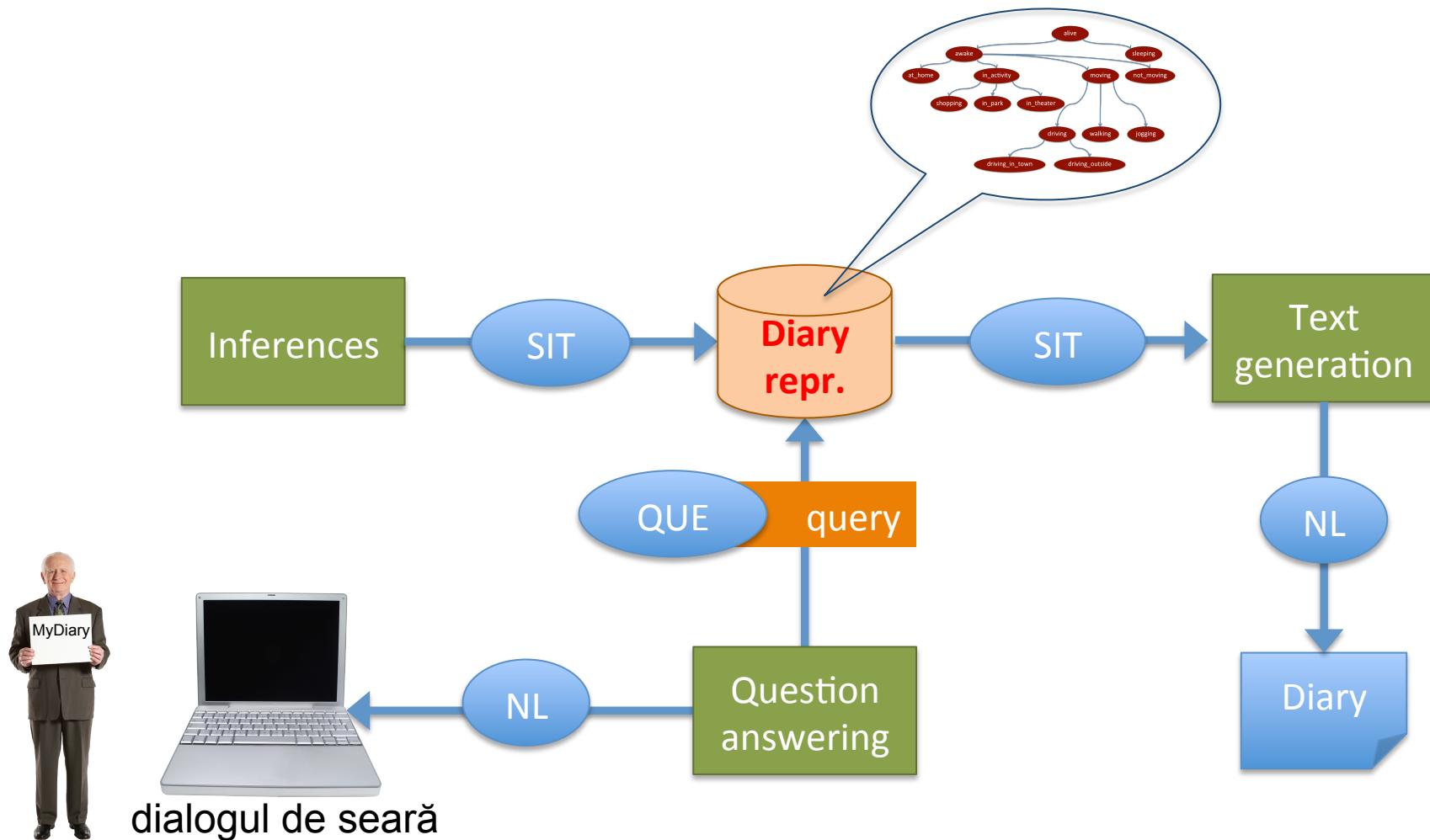
Interfețe și comunicății



Interfețe și comunicății



Interfețe și comunicății



Exemplu

- TIME=7:30, PROXIMITY = bedroom, CLOCK = awake_time, SOUND = awake_ringing, GG:LIGHT = intensity_raise, WiFi_WAVE = movement, ACCELERATION = zero, GPS = null, GEO_POSITION = home(remember_last_position)
- MyDailyLife output: Astă dimineată am fost trezit de alarmă la ora 7:30 în dormitorul meu.

2015-2016: Modelarea unor manifestări ale conștiinței

- **Intrări – 3 tipuri de canale:**
 - textual (un text)
 - acustic (inregistrări vocale)
 - vizuale (imagini)
- **Ieșire: reacții (emoții) similar celor umane**

Producerea materialelor de învățare

- **Prin explicitarea, pe eșantioanele alese, a:**
 - emoțiilor
 - dorințelor
 - gândurilor

pe care le manifestați voi însivă la citirea/ascultarea/vederea intrărilor.

- Veți căuta apoi seturi de intrări similare (care vă produc reacții similare) formând astfel seturi de antrenament.
- Notați manifestările voastre emotive pe intrările alese într-un standard (XML), pe care trebuie să-l propuneți.

Atitudinea față de personaje

- Ați citit deja romanul “Quo Vadis”...
- Ați notat pe manșeta foilor de hârtie (ecranului) sentimentele pe care le încercați față de diverse personaje în diferite momente din derularea acțiunii
- Inventați un standard (XML) de notare a atitudinii voastre față de personaje în funcție de evoluția evenimentelor: atitudinile lor, acțiunile lor, gândurile lor

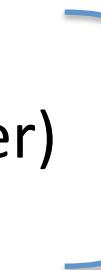
Adnotări aplicate textului

- Module care crează marcaje:

- tokenizator
- lematizator
- POS-tagger
- sentence splitter
- sintactic-parser (FDG)
- NP-chunker
- NER (name entity recogniser)
- anaphora resolver
- event-detector (se bazează pe adnotările obținute în toate nivelurile anterioare)



La apelul FDG-parserului



Adnotări existente în corpusul QV



Acest modul trebuie creat de voi