Prêt-à-LLOD

Transforming Language Resources

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HORIZON 2020

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Transforming Language Resources

1. Heterogeneity of Language Resources
2. The Fintan platform
3. Design a conversion pipeline
4. Deploy as a service
5. Contribute

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Heterogeneity of Language Resources

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Varieties of Language Resources

- **Corpora**:
  TSV/CoNLL, Sketch Engine, Toolbox, TIGER-XML, ...
  RDF: NIF, Open Annotation, …

- **Lexical Data**:
  TEI, proprietary XML formats, CSV/TSV, …
  RDF: OntoLex, …

- **Terminological Data**:
  Thesauri and Ontologies: SKOS, OWL, …
  Annotation schemes: GOLD, ISOCat, OLiA, UD, UniMorph, …

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Flexible INtegrated Transformation and Annotation eNgineering

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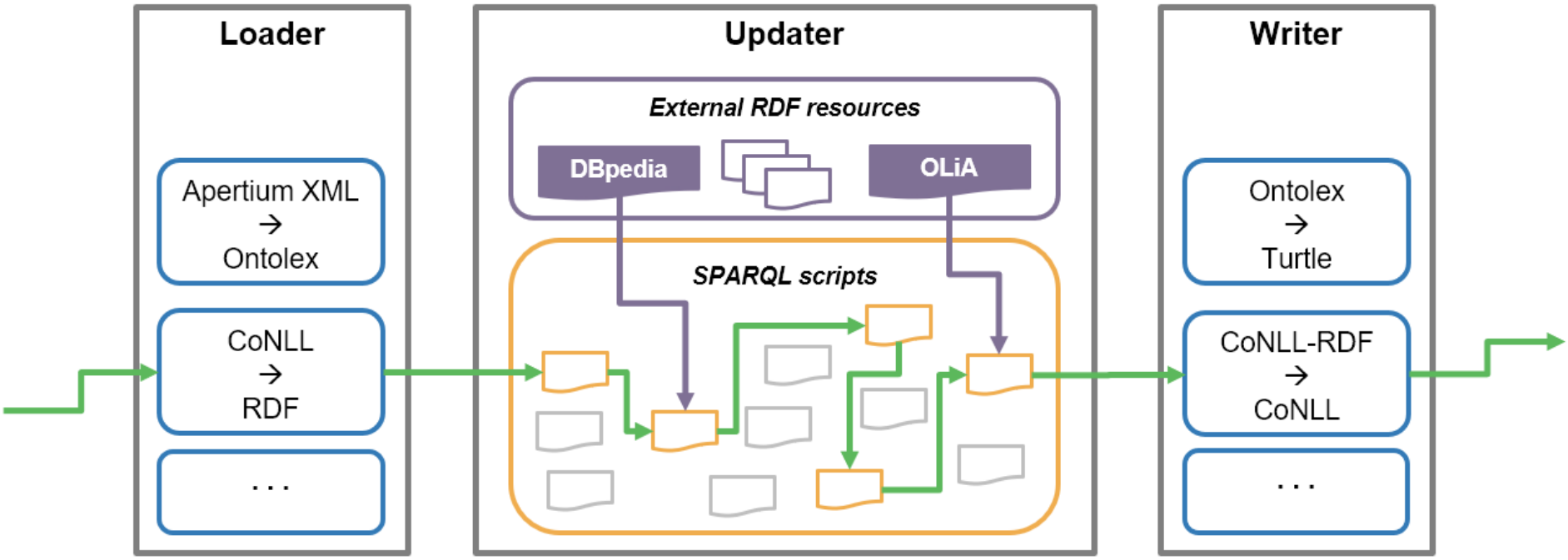
The Concept



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Core API

Fintan Core API

Loader	Splitter	Updater	Writer

• Transform data to RDF
  ◦ XML
  ◦ TSV / CSV
  ◦ CoNLL
  ◦ …
• Stream RDF data
	• Split large RDF datasets into digestible segments
	• Stream RDF segments
		• Load other resources
		• Execute SPARQL updates
		• Parallel processing of RDF segments
			• Serialize RDF
			  ◦ RDF/XML
			  ◦ Turtle
			  ◦ Json-LD
			  ◦ …
			• Other output formats
			  ◦ TSV / CSV
			  ◦ CoNLL
			  ◦ …

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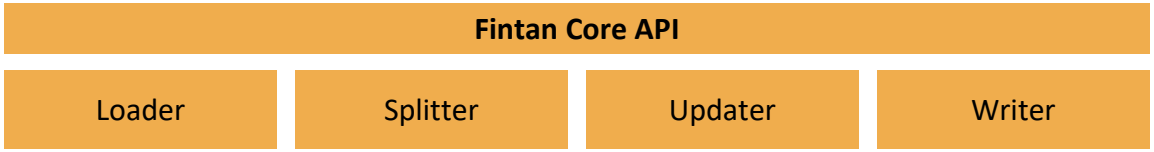
Architecture

- Core Java API with interoperable interfaces



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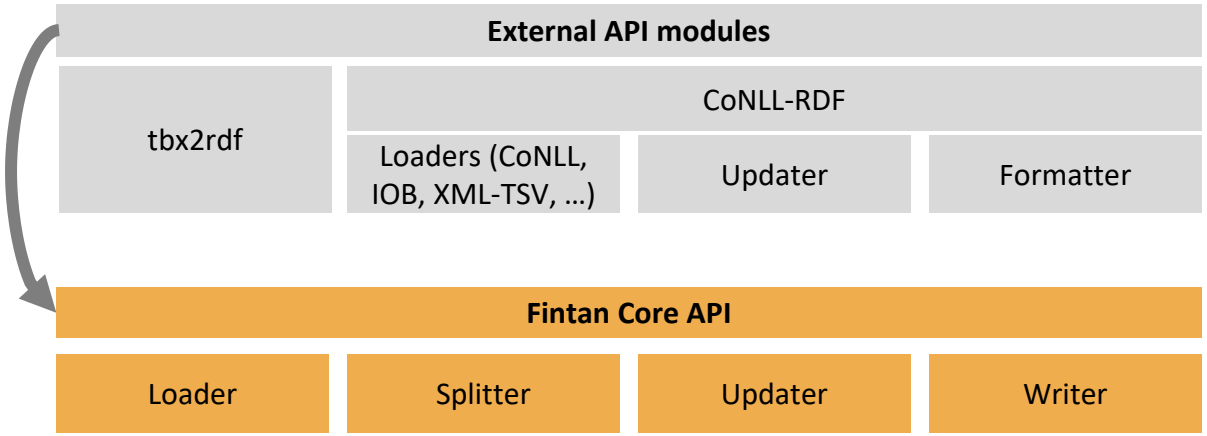
Architecture

- External modules implement the Core API (Maven dependency)
- Core Java API with interoperable interfaces



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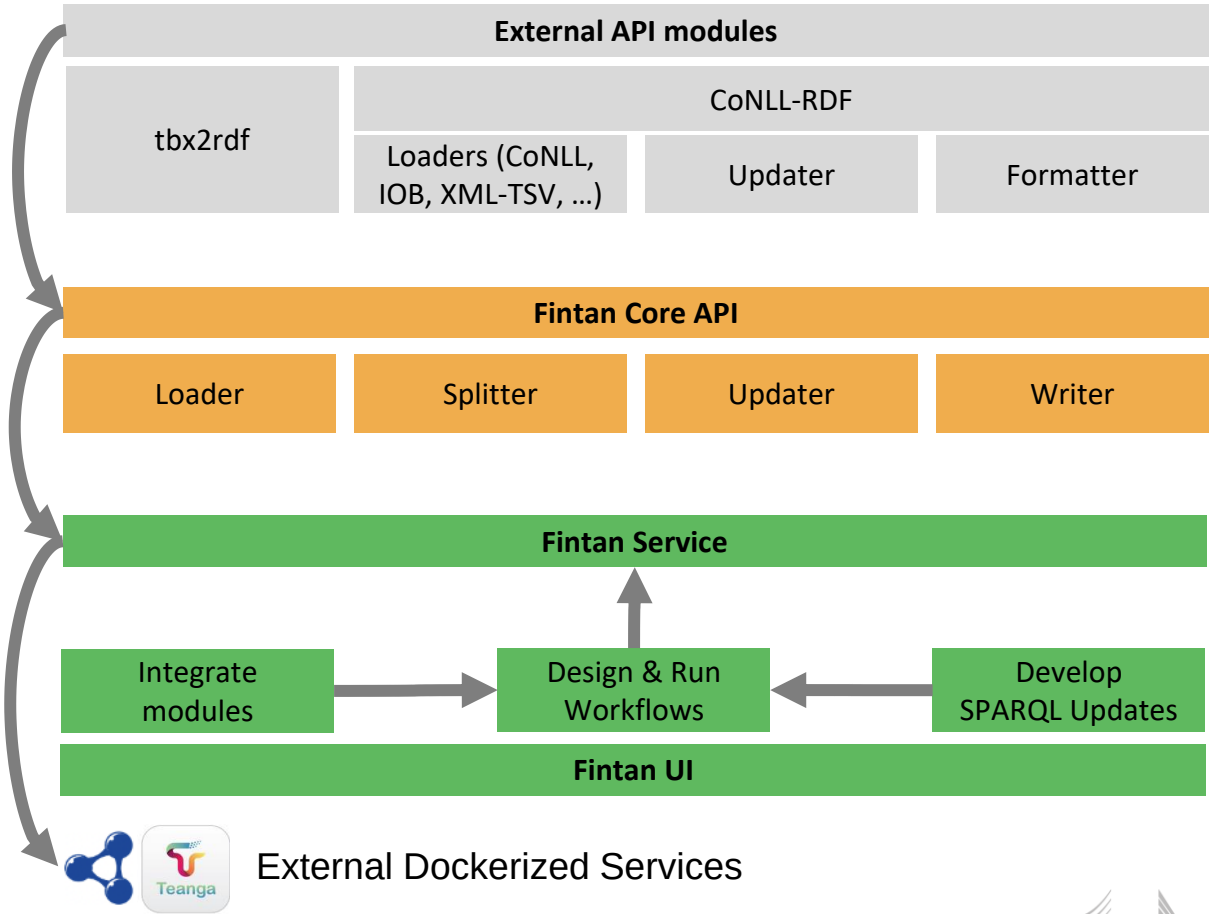
Architecturere

- External modules implement the Core API (Maven dependency)
- Core Java API with interoperable interfaces
- User interface
  - create and run complex workflows
  - export dockerized services
  - compatible to Teanga



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How to use Fintan

- **Java API**:
  Directly use Fintan as a Java application or as an API in your software (CoNLL-RDF, TBX2RDF)

- **Integrated Workflow Manager**:
  Use Fintan incl. UI as a dockerized service for building and running pipelines

- **Fintan-SaaS**: Deploy Integrated Services to other applications (export Services to Teanga)

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Design a pipeline

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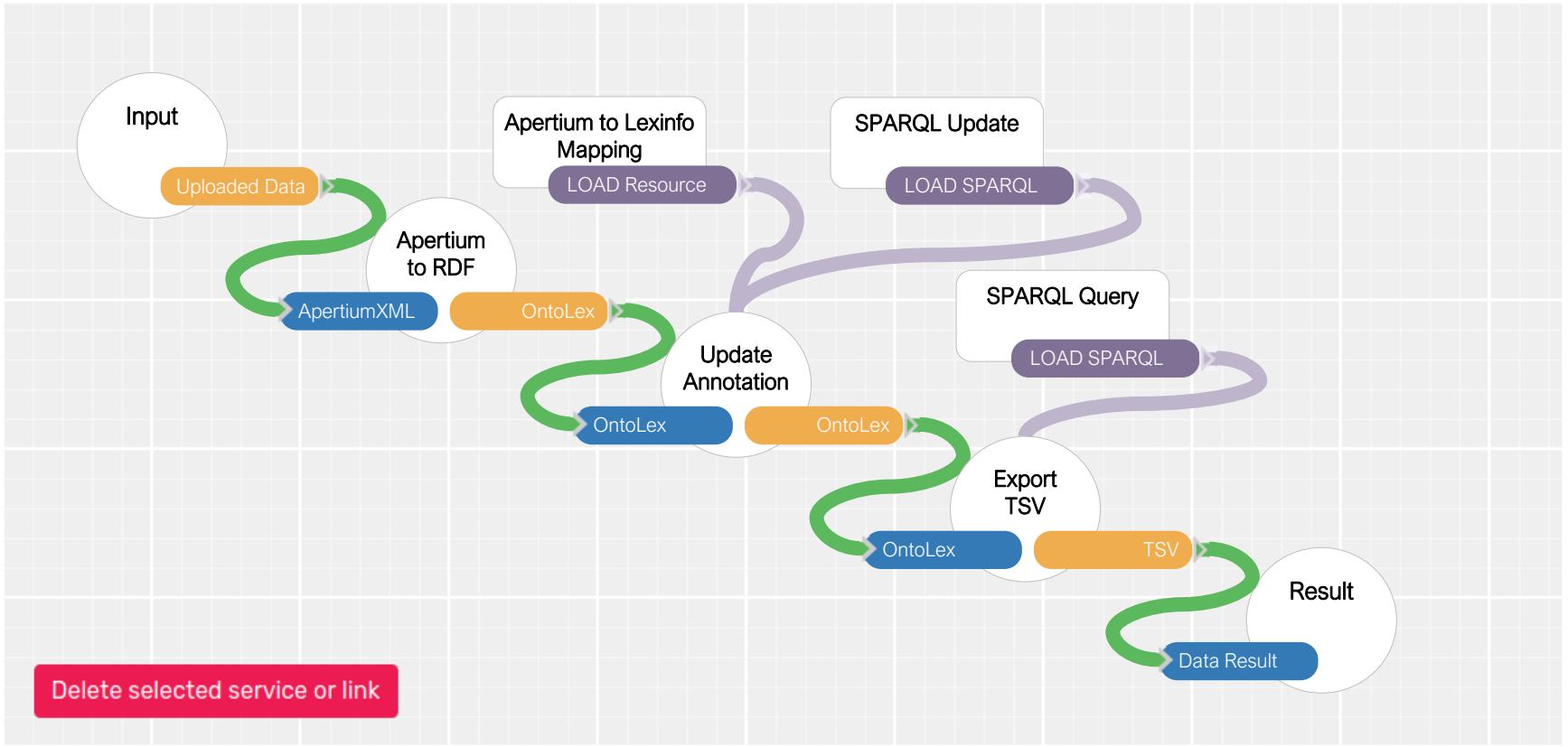
Fintan UI



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Fintan Configuration

- All this translates to a JSON configuration file, which could be run from command-line or exported inside a container.

```
{
"input" : "samples/xslt/apertium/data/apertium-en-es.en-es.dix"
, "output" : "System.out"
, "pipeline" : [

    {
      "componentInstance" : "Apertium to RDF",
      "class" : "XSLTStreamTransformer",
      "delimiterIn" : null,
      "delimiterOut" : null,
      "xsl" : "samples/xslt/apertium/dix2src-ttl.xsl <$param0> <$param1>"
    } ,
    {
      "class" : "SegmentedRDFStreamLoader",
      "lang" : "ttl",
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      "class" : "RDFUpdater",
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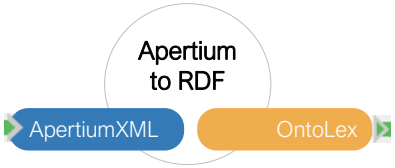
Fintan Configuration

- All this translates to a JSON configuration file, which could be run from command-line or exported inside a container.

- First: create Apertium RDF
  - Apply XSLT transformation
  - Load the resulting OntoLex entries as segmented RDF-Stream

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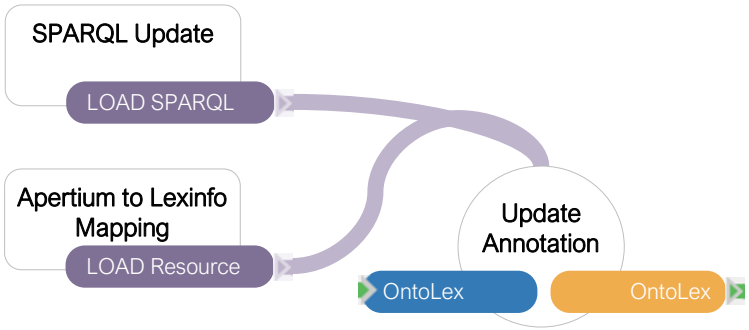
Fintan Configuration

- Second: RDF Updater
  - Load the mapping file
  - Load the SPARQL update
  - Apply LexInfo Mapping
  - Parallel processing per segment

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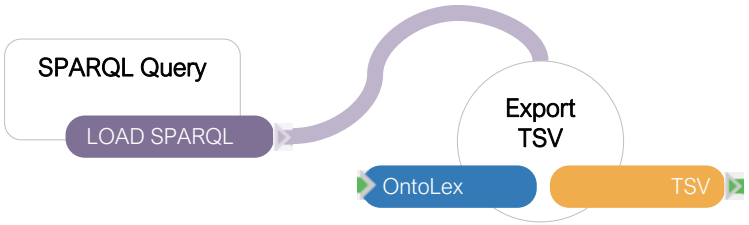
Fintan Configuration

- Third: Export TIAD TSV
  - Load SPARQL query
  - Write TSV data

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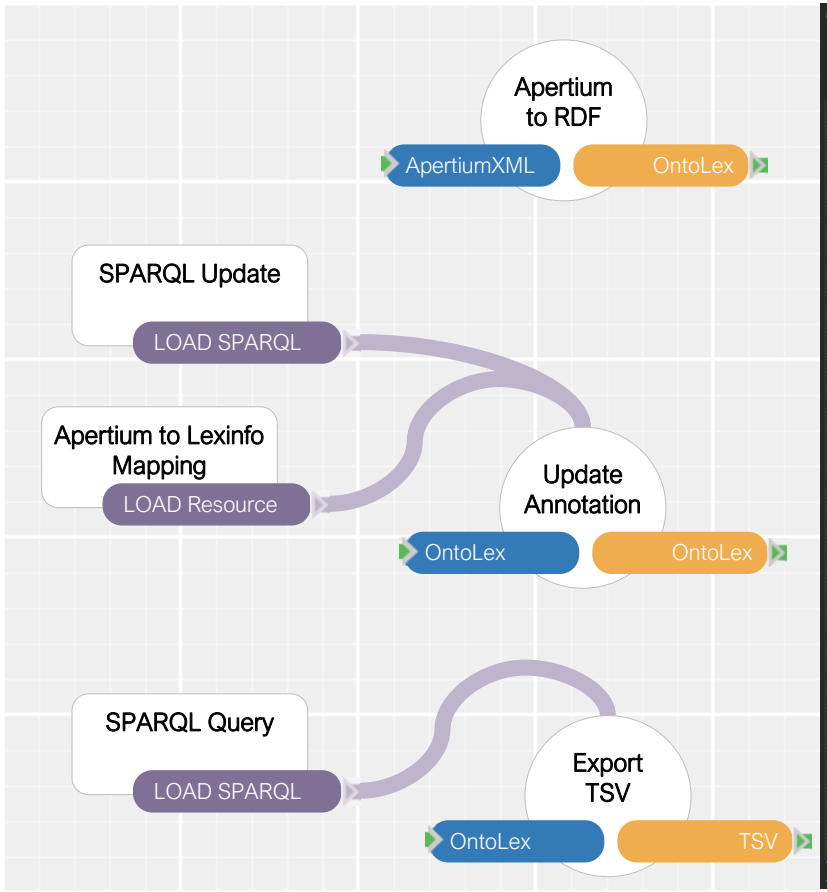
Fintan Configuration

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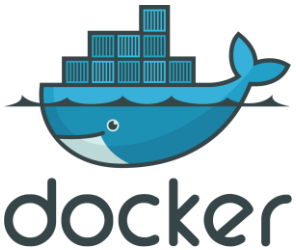
meets



Deploy as a service

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Fintan pipeline as a Docker container

- **Preconfigured pipeline**
  - Contains everything required to run Fintan for a specific task
  - Exposes rudimentary API to provide the input and collect the output
    - Plain text
    - Gzipped text
    - JSON
  - Can be called from Teanga, curl, Swagger UI (included)

```
docker build --tag fintan-api .
docker run -d -p 8080:8080 --name fintan-api
```

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Contribute

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How to contribute

- **Fintan is an extensive converter suite**
  - Add Fintan to your projects: Simply define the Maven dependency
  - Directly benefit:
    - Fomalized pipeline development
    - Parallel streamed graph processing
    - Preconfigured converter pipelines and components

- **Fintan is an extensible converter suite**
  - Implement the Core API
    - Use your tools directly in the workflow manager
  - Deploy to central Fintan repository
    - Gain visibility for your own converters

- **What's next?**
  - Fintan will be published as a software deliverable of the Prêt-à-LLOD project on Sep. 30
  - We will actively work on adding more components and preconfigured pipelines.

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Get in touch!

https://github.com/pret-a-LLOD/Fintan
https://github.com/acoli-repo/conll

faeth@em.uni-frankfurt.de
chiarcos@cs.uni-frankfurt.de

Thank you!

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