**TL;DR**

- OntoLex-lemon is a common way for publishing lexical resources in a machine-readable way.
- Lexical resources might contain a considerable amount of morphological information (inflection, derivation, machine-readable ways of generating word-forms).
- BUT OntoLex core module is not expressive enough to represent it.
- OntoLex-morph is being developed as an extension of OntoLex to bridge this gap.
- We converted 4 different types of morphological resources to OntoLex-morph to validate its current state.
- Overall, the model in its current state can be successfully applied to represent a wide array of morphological data.
- Some problems and suggestions that we found are being addressed and will improve the model before its final publication.

**Background: OntoLex-lemon**

- Used for modelling lexical information in RDF.
- Core model extended with additional modules for special types of data: system, lexico-decomp.
- Morphology in the core model is limited to providing:
  - Morphosyntactic categories
  - Different forms for a lexical entry

OntoLex-lemon model is widely used for representing different lexical data:
- Dictionary data
- Lexical databases (WordNet)
- Etymological resources, etc.

**Inflection: Unimorph**

- Provides inflection data for more than 100 languages.
- Tables with three rows: lemma, (inflected) form and (morphosyntactic) features.

**Composition: GermaNet**

- GermaNet — one of the resources for morphological composition in German.
- Data is in TSV, as with Unimorph.

**Rules: SMOR/Morphisto**

- Morphisto is a morphological analyser and generator based on SFST.
- Generation rules are in explicit form.
- Representing these rules in OntoLex-morph provides interoperability with other FST systems (XFST, Foma, etc.).
- The vocabulary was designed with linguistic perspective in mind, but can be adapted to FSTs:
  - morph:InflectionType $\rightarrow$ states
  - morph:next $\rightarrow$ transitions
  - morph:InferenceRule $\rightarrow$ replacement operation
- Recursive iteration over states applying corresponding transformations as long as there is a morph:next property.
- This basic approach does not take into account morphophonological transformations (e.g. assimilation) and derivation but shows the potential of using OntoLex-morph for FST grammar representation bringing portability and interoperability.

**Results, challenges and future solutions**

- Overall, the model worked for all the types of morphological data it to which it was applied.
- Ordering of morphs is still not standardised.
- morph:InflectionType is highly debated and is subject to change.