**Participants:**

Bettina

Max

Gulia

Stefania

Fahad

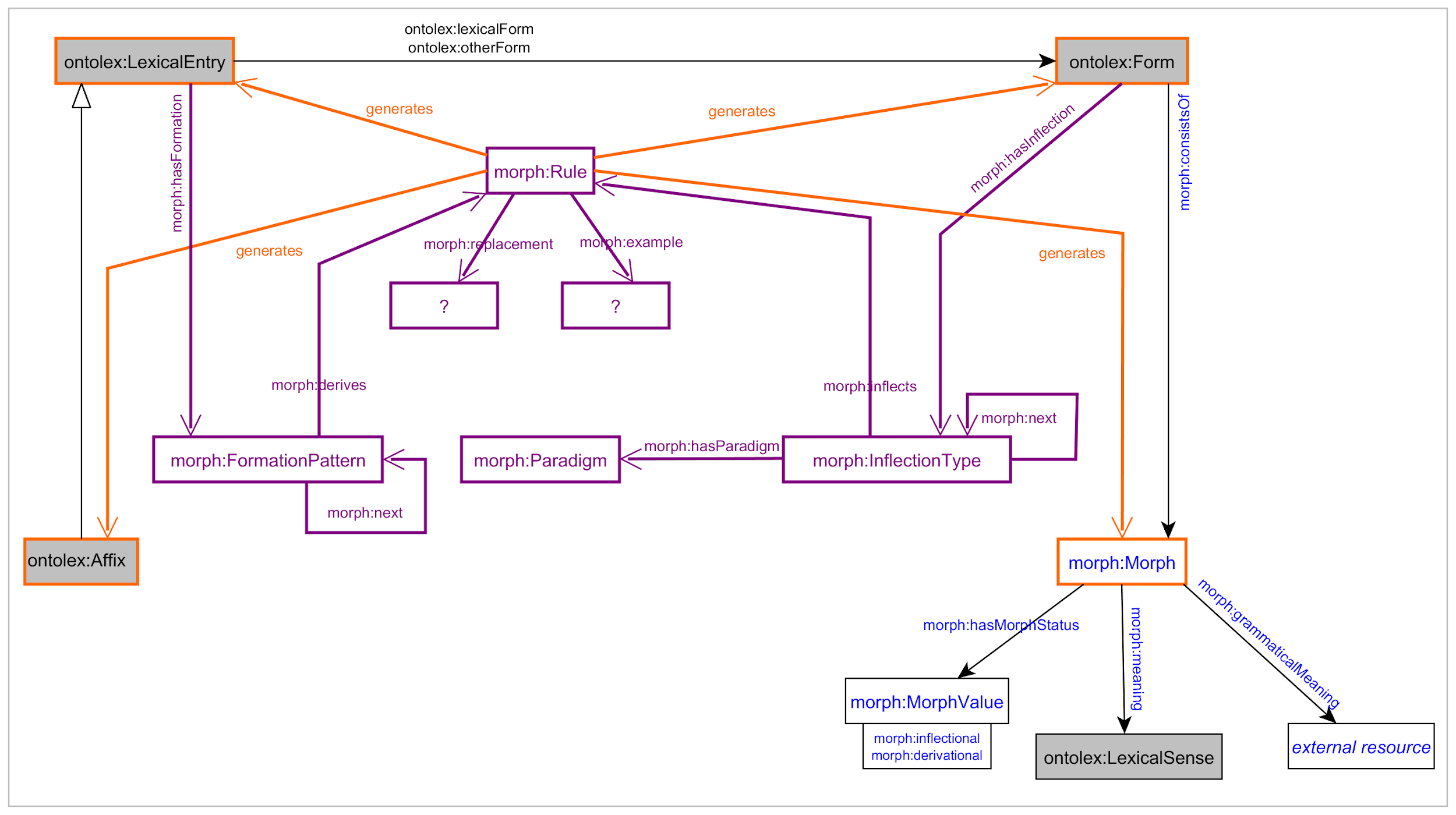
1. **Max: create SPARQL construct query that outputs the following kinds of triples:**

Desired output triples:

1. [ ] a ontolex:Form
2. [ ] a morph:Morph
3. [ontolex:Form instance] morph:consistsOf [morph:Morph instance]
4. [morph:Morph instance] morph:grammaticalMeaning [lexinfo instance]

**2. Modelling draft for automatic generation process of ontolex:LexicalEntry and ontolex:Form instances**

**input data output data**

****

**3. Discussion of reverse applicability - Stefania data example**

Generating the inflection types and paradigms from existing non-segmented wordforms.

Example: italian adjective *abbondante*:

,pos,base,full,degree,gen,num

0,adj,abbondante,abbondante,pos,f,s

1,adj,abbondante,abbondante,pos,m,s

2,adj,abbondante,abbondanti,pos,f,p

3,adj,abbondante,abbondanti,pos,m,p

4,adj,abbondante,abbondantissima,sup,f,s

5,adj,abbondante,abbondantissime,sup,f,p

6,adj,abbondante,abbondantissimi,sup,m,p

7,adj,abbondante,abbondantissimo,sup,m,s

:lex\_abbondante a ontolex:LexicalEntry ;

lexinfo:partOfSpeech lexinfo:adjective ;

ontolex:canonicalForm :form\_abbondante ;

ontolex:otherForm :form\_abbondante\_pos\_pl,

:form\_abbondante\_sup\_fem\_pl,

:form\_abbondante\_sup\_fem\_sg,

:form\_abbondante\_sup\_masc\_pl,

:form\_abbondante\_sup\_masc\_sg .

:form\_abbondante a ontolex:Form ;

lexinfo:degree lexinfo:positive ;

lexinfo:gender lexinfo:feminine,

lexinfo:masculine ;

lexinfo:number lexinfo:singular ;

ontolex:writtenRep "abbondante"@it .

:form\_abbondante\_pos\_pl a ontolex:Form ;

lexinfo:degree lexinfo:positive ;

lexinfo:gender lexinfo:feminine,

lexinfo:masculine ;

lexinfo:number lexinfo:plural ;

ontolex:writtenRep "abbondanti"@it .

:form\_abbondante\_sup\_fem\_pl a ontolex:Form ;

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:feminine ;

lexinfo:number lexinfo:plural ;

ontolex:writtenRep "abbondantissime"@it .

:form\_abbondante\_sup\_fem\_sg a ontolex:Form ;

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:feminine ;

lexinfo:number lexinfo:singular ;

ontolex:writtenRep "abbondantissima"@it .

:form\_abbondante\_sup\_masc\_pl a ontolex:Form ;

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:masculine ;

lexinfo:number lexinfo:plural ;

ontolex:writtenRep "abbondantissimi"@it .

:form\_abbondante\_sup\_masc\_sg a ontolex:Form ;

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:masculine ;

lexinfo:number lexinfo:singular ;

ontolex:writtenRep "abbondantissimo"@it .

:lex\_abbondante a ontolex:LexicalEntry ;

lexinfo:partOfSpeech lexinfo:adjective ;

ontolex:canonicalForm [ ontolex:writtenRep "abbondante"@it ] ;

ontolex:MorphPattern :it-adj\_002 .

:it-adj\_002 a ontolex:MorphPattern ;

morph:transform [

morph:rule "~/~"@it ;

morph:generates [

lexinfo:degree lexinfo:positive ;

lexinfo:gender lexinfo:feminine,

lexinfo:masculine ;

lexinfo:number lexinfo:singular

]

] , [

morph:rule "~e/~i"@it ;

morph:generates [

lexinfo:degree lexinfo:positive ;

lexinfo:gender lexinfo:feminine,

lexinfo:masculine ;

lexinfo:number lexinfo:plural

]

] , [

morph:rule "~e/~issima"@it ;

morph:generates [

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:feminine ;

lexinfo:number lexinfo:singular

]

] , [

morph:rule "~e/~issime"@it ;

morph:generates [

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:feminine ;

lexinfo:number lexinfo:plural

]

] , [

morph:rule "~e/~issimi"@it ;

morph:generates [

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:masculine ;

lexinfo:number lexinfo:plural

]

] , [

morph:rule "~e/~issimo"@it ;

morph:generates [

lexinfo:degree lexinfo:superlative ;

lexinfo:gender lexinfo:masculine ;

lexinfo:number lexinfo:singular

]

] .

Fahad’s SWRL modelling   
<https://docs.google.com/presentation/d/1pHt8IG0ni5x9AkoPCsCCccRPEFIeObW7eR-PxY1JN7A/edit?usp=sharing&urp=gmail_link>

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| [<#finnish\_noun\_type\_kala\_nom\_morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#finnish_noun_type_kala_nom_morph%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<https://www.w3.org/community/ontolex/wiki/Morphology#Morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttps://www.w3.org/community/ontolex/wiki/Morphology#Morph%3E) |
| [<#kissa\_form\_kissaan>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissaan%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<http://www.w3.org/ns/lemon/ontolex#Form>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#Form%3E) |
| [<#kissa\_form\_kissaan>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissaan%3E) | [<http://www.w3.org/ns/lemon/ontolex#writtenRep>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#writtenRep%3E) | kissaan |
| [<#kissa>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa%3E) | [<http://www.w3.org/ns/lemon/ontolex#otherForm>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#otherForm%3E) | [<#kissa\_form\_kissaan>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissaan%3E) |
| [<#finnish\_noun\_type\_kala\_ill\_morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#finnish_noun_type_kala_ill_morph%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<https://www.w3.org/community/ontolex/wiki/Morphology#Morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttps://www.w3.org/community/ontolex/wiki/Morphology#Morph%3E) |
| [<#kissa\_form\_kissasta>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissasta%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<http://www.w3.org/ns/lemon/ontolex#Form>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#Form%3E) |
| [<#kissa\_form\_kissasta>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissasta%3E) | [<http://www.w3.org/ns/lemon/ontolex#writtenRep>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#writtenRep%3E) | kissasta |
| [<#kissa>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa%3E) | [<http://www.w3.org/ns/lemon/ontolex#otherForm>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#otherForm%3E) | [<#kissa\_form\_kissasta>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissasta%3E) |
| [<#finnish\_noun\_type\_kala\_ela\_morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#finnish_noun_type_kala_ela_morph%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<https://www.w3.org/community/ontolex/wiki/Morphology#Morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttps://www.w3.org/community/ontolex/wiki/Morphology#Morph%3E) |
| [<#kissa\_form\_kissaneen>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissaneen%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<http://www.w3.org/ns/lemon/ontolex#Form>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#Form%3E) |
| [<#kissa\_form\_kissaneen>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissaneen%3E) | [<http://www.w3.org/ns/lemon/ontolex#writtenRep>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#writtenRep%3E) | kissaneen |
| [<#kissa>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa%3E) | [<http://www.w3.org/ns/lemon/ontolex#otherForm>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://www.w3.org/ns/lemon/ontolex#otherForm%3E) | [<#kissa\_form\_kissaneen>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#kissa_form_kissaneen%3E) |
| [<#finnish\_noun\_type\_kala\_comi\_morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttp://localhost:9999/blazegraph/namespace/kb/sparql#finnish_noun_type_kala_comi_morph%3E) | [rdf:type](http://localhost:9999/blazegraph/#explore:kb:rdf:type) | [<https://www.w3.org/community/ontolex/wiki/Morphology#Morph>](http://localhost:9999/blazegraph/#explore:kb:%3Chttps://www.w3.org/community/ontolex/wiki/Morphology#Morph%3E) |

prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

prefix ontolex: <http://www.w3.org/ns/lemon/ontolex#>

prefix lexinfo: <http://www.lexinfo.net/ontology/2.0/lexinfo#>

prefix morph: <https://www.w3.org/community/ontolex/wiki/Morphology#>

prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>

#select ?w\_end ?form

construct

{

#?w ontolex:otherForm ?form .

?form a ontolex:Form ;

ontolex:writtenRep ?w\_end .

?w ontolex:otherForm ?form .

?morphI a morph:Morph .

?morphJ a morph:Morph .

?morphEnd a morph:Morph .

}

where {

# start with an ontolex:Word

?w a ontolex:Word ;

morph:inflects ?begin ;

ontolex:canonicalForm/ontolex:writtenRep ?w\_begin .

?begin morph:next\* ?midI .

FILTER NOT EXISTS { [] morph:next ?begin }

{

?rule\_I morph:inflectionType ?midI ;

morph:replacement ?repl\_I .

?repl\_I morph:source ?s\_I ;

morph:target ?t\_I .

}

BIND(REPLACE(?w\_begin, ?s\_I, ?t\_I) as ?w\_midI)

BIND (URI(concat(STR(?rule\_I), "\_morph")) as ?morphI)

# go to next slot

?midI morph:next ?midJ .

{

?rule\_J morph:inflectionType ?midJ ;

morph:replacement ?repl\_J .

?repl\_J morph:source ?s\_J ;

morph:target ?t\_J .

}

BIND(REPLACE(?w\_midI, ?s\_J, ?t\_J) as ?w\_midJ)

BIND (URI(concat(STR(?rule\_J), "\_morph")) as ?morphJ)

# get to the end of the path

?midJ morph:next\* ?end .

FILTER NOT EXISTS { ?end morph:next [] }

{

?rule\_end morph:inflectionType ?end ;

morph:replacement ?repl\_end .

?repl\_end morph:source ?s\_end ;

morph:target ?t\_end .

}

BIND(REPLACE(?w\_midJ, ?s\_end, ?t\_end) as ?w\_end)

BIND (URI(concat(STR(?rule\_end), "\_morph")) as ?morphEnd)

BIND (URI(concat(STR(?w), concat("\_form\_", ?w\_end))) as ?form)

}

order by ?start ?end

@prefix : <file:///Users/max/Projects/LiODi/Ontolex-morph/dataset-generation-example.ttl#> .

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix ontolex: <http://www.w3.org/ns/lemon/ontolex#> .

@prefix lexinfo: <http://www.lexinfo.net/ontology/2.0/lexinfo#> .

@prefix morph: <https://www.w3.org/community/ontolex/wiki/Morphology#> .

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

<#kissa> a ontolex:Word ;

ontolex:canonicalForm [ontolex:writtenRep "kissa"@fi];

morph:inflects <#finnish\_noun\_type\_kala> .

<#finnish\_noun\_type\_kala> a morph:InflectionType ;

morph:paradigm <#finnish\_noun\_type\_9> ;

morph:next <#finnish\_noun\_type\_kala\_number\_direct> ; # this means that there will be more "slots" for grammatical categories

morph:next <#finnish\_noun\_type\_kala\_number\_oblique> .

<#finnish\_noun\_type\_kala\_number\_direct> a morph:InflectionType ;

morph:paradigm <#finnish\_noun\_type\_9> ;

morph:next <#finnish\_noun\_type\_kala\_case\_direct> ;

morph:example "kissa"@fi .

<#finnish\_noun\_type\_kala\_number\_oblique> a morph:InflectionType ;

morph:paradigm <#finnish\_noun\_type\_9> ;

morph:next <#finnish\_noun\_type\_kala\_case\_oblique> ;

morph:example "kissoi-"@fi .

<#finnish\_noun\_type\_kala\_case\_direct> a morph:InflectionType ;

morph:paradigm <#finnish\_noun\_type\_9> ;

morph:next <#finnish\_noun\_type\_kala\_post> ;

morph:example "kissassa"@fi .

<#finnish\_noun\_type\_kala\_case\_oblique> a morph:InflectionType ;

morph:paradigm <#finnish\_noun\_type\_9> ;

morph:next <#finnish\_noun\_type\_kala\_post> ;

morph:example "kissoissa"@fi .

<#finnish\_noun\_type\_kala\_post> a morph:InflectionType ;

morph:paradigm <#finnish\_noun\_type\_9> ;

morph:example "kissojen"@fi .

# \*\*\* CASES \*\*\*

<#finnish\_noun\_type\_kala\_nom> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_direct> ;

lexinfo:case lexinfo:nominative ;

morph:example "kissa"@fi ; # optional

morph:replacement [morph:source "$"; morph:target ""] . # we can actually create nodes for widely used replacements, like \_no replacement\_. Or just leave this empty

<#finnish\_noun\_type\_kala\_gen> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:nominative ;

morph:example "kissa"@fi ; # optional

morph:replacement [morph:source "$"; morph:target "n"] .

<#finnish\_noun\_type\_kala\_part> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:partitive ;

morph:example "kissaa"@fi ;

morph:replacement [morph:source "$"; morph:target "a"] .

<#finnish\_noun\_type\_kala\_ine> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:inessive ;

morph:example "kissassa"@fi ;

morph:replacement [morph:source "$"; morph:target "ssa"] .

<#finnish\_noun\_type\_kala\_ela> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:inessive ;

morph:example "kissasta"@fi ;

morph:replacement [morph:source "$"; morph:target "sta"] .

<#finnish\_noun\_type\_kala\_ill> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:illative ;

morph:example "kissaan"@fi ;

morph:replacement [morph:source "$"; morph:target "an"] .

<#finnish\_noun\_type\_kala\_ade> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:adessive ;

morph:example "kissalla"@fi ;

morph:replacement [morph:source "$"; morph:target "lla"] .

<#finnish\_noun\_type\_kala\_abl> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:ablative ;

morph:example "kissalta"@fi ;

morph:replacement [morph:source "$"; morph:target "lta"] .

<#finnish\_noun\_type\_kala\_all> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:allative ;

morph:example "kissalle"@fi ;

morph:replacement [morph:source "$"; morph:target "lle"] .

<#finnish\_noun\_type\_kala\_ess> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:essive ;

morph:example "kissana"@fi ;

morph:replacement [morph:source "$"; morph:target "na"] .

<#finnish\_noun\_type\_kala\_trans> a morph:Rule ;

morph:inflectionType <#finnish\_noun\_type\_kala\_case\_oblique> ;

lexinfo:case lexinfo:translative ;

morph:example "kissaksi"@fi ;

morph:replacement [morph:source "$"; morph:target "ksi"] .