



# 7. Advanced queries

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# Enhancing NooJ grammars:

## 1. Lexical symbols

**house | houses**

**be | being | am | is | are | was | were**

# Enhancing NooJ grammars:

## 1. Lexical symbols

house | houses = **<house>**

be | being | am | is | are | was | were = **<be>**

- Lexical symbols are lexical entries written between brackets.
- A lexical symbol matches all the forms that are associated with the lexical entry: variants, inflected forms, derived forms
- Lexical symbols refer to dictionaries: **<tables>** will not match anything in any text, because *tables* is not a valid lexical entry.

# Lexical symbols: inflection + derivation

<demonstration>

=

demonstration | demonstrations |  
demonstrate | demonstrates | demonstrated | demonstrating  
| demonstrator | demonstrators |  
demonstratable

... only works if *demonstration* is an entry of a dictionary, associated with an inflectional paradigm, and the derivational paradigms to produce the verb *to demonstrate*, the noun *demonstrator*, and the adjective *demonstratable*

# Lexical symbols: inflection + derivation

<demonstration>

=

demonstration | demonstrations |  
demonstrate | demonstrates | demonstrated | demonstrating  
| demonstrator | demonstrators |  
demonstratable

<king> = king | kings | queen | queens |  
roi | reine | czar | tsar | tsarine |...

... only works if *king* is an entry of a dictionary and is associated with an inflectional paradigm, and the set of variants

# Lexical symbols: inflection + derivation

<manifester>

=

manifester | manifeste | manifestérons | ... |

manifestation | manifestations |

manifestant | manifestante | manifestants |

manifestantes |

remanifester | remanifeste | remanifestons | ... |

manifestable | manifestables |

manifestabilité | manifestabilités | ...

# Lexical symbols

<ЧИТАТИ> =

читати | читатиму | читатиме | читатимеш | читатимемо | читатимете | читатимуть |  
прочитати | прочитав | прочитала | прочитало | прочитали | прочитаю | прочитаєш |  
    прочитає | прочитаємо | прочитаєте | прочитають | прочитай | прочитайте |  
    прочитамо | прочитай | прочитайте | прочитавши | прочитаний | прочитаного |  
прочитаного | прочитаний | прочитаному | прочитаним | прочитаному | прочитаним  
| прочитане | прочитаного | прочитаний | прочитаному | прочитаним | прочитаному  
| прочитаним | прочитана | прочитаної | прочитану | прочитаній | прочитаною |  
    прочитаній | прочитані | прочитаних | прочитаних | прочитані | прочитаним |  
    прочитаними | прочитаних | читав | читала | читало | читали | читаю | читаєш |  
    читає | читаємо | читаєте | читають | читай | читайте | читаймо | читаючи |  
читаючий | читаючого | читаючого | читаючий | читаючому | читаючим | читаючому  
| читаючим | читаюче | читаючого | читаючий | читаючому | читаючим | читаючому  
| читаючим | читаюча | читаючої | читаючу | читаючій | читаючою | читаючій |  
    читаючі | читаючих | читаючих | читаючі | читаючим | читаючими | читаючих |  
читаний | читаного | читаного | читаний | читаному | читаним | читаному | читаним  
| читане | читаного | читаний | читаному | читаним | читаному | читаним | читана |  
читаної | читану | читаній | читаною | читаній | читані | читаних | читаних | читані |  
    читаним | читаними | читаних

# Enhancing NooJ grammars:

## 2. Syntactic symbols

**in | on | from | to | inside | over ...**

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**<PREP>** = in | on | from | to | inside | over ...

**<N>** (nouns), **<A>** (adjectives), **<V>** (verbs), **<DET>**  
(determiners), **<PREP>** (prepositions), **<CONJ>**  
(conjunctions)...

... only works if lexical entries are associated with these category (Part-Of-Speech) codes.

- Check the list of codes in the documentation of the dictionary you are using

# Enhancing NooJ grammars:

## 2. Syntactic symbols

**<PREP>** = in | on | from | to | inside | over ...

**<N>**, **<A>**, **<V>**, **<DET>**, **<PREP>**, **<CONJ>**...

... Users are free to add dictionaries of terms and invent new categories, e.g.,

**<MEDIC>**, **<POLITICS>**, **<POSITIVE>**, **<PSYVERB>**...

# 3. Features and Properties

- Developers of dictionaries or grammars can invent any feature, e.g., **+PR**, **+Medic**

- Developers can also define properties in a special file: **properties.def**, e.g.,

**N\_Nb** = sing | plur ;

(Nouns have property “Nb”; its potential values are “sing” or “plur”)

- Properties will be useful to check agreements, e.g.:

**<\$N\$Nb=\$V\$Nb>**

(The value of the noun property “Nb” must be equal to the value of the verb property “Nb”)

# Enhancing NooJ grammars:

## 3. Features and Properties

- Lexical symbols, e.g. **<be+PR>**, **<cousin-s>**
- Syntactic symbols, e.g. **<N+Hum>**, **<V+INF>**,  
**<DET+p>**
- Combining properties, e.g.  
**<N+Hum-f+p>**, **<V+F-3+s>**  
**<cousin-Hum+p>**, **<have-INF+s>**  
**<MEDICINE+Disease-Pneumo>**

# Regular grammars: recapitulation

**<be> <PREP> <N>**

**<V+G> <ADV>\* <PREP> <N+Abst>**

**(bank | credit | debit | cash) <card>**

**<DET> ( (very | <E>) <A> | <E>) <A>\* <N>**

# Exercise: A Lexical Field

- Looking for all occurrences of the theme *death* :

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- Looking for all occurrences of the theme *death* :

<assassinate> | <decease> | <die> | <eradicate> |  
<exterminate> | <kill> | <obliterate> | <perish> |  
<suicide> | <strangle> |

<corpse> | <death> | <extermination> | <fatality> | *funerals* |  
*grim reaper* | <guillotine> | <massacre> | <mortality> |  
<murder> | <slaughter> | <tomb> | <widower> |

*fatal* | *deadly* | *morbid* | *mortal* |

<kick> *the bucket* | <buy> *the farm* | <put> <WF>\* *to death* |  
<wipe> <WF>\* *out*

<assassinate> | <decease> | <die> |  
 <eradicate> | <exterminate> | <kill> |  
 <obliterate> | <perish> |  
 <suicide> | <strangle> |

<corpse> | <death> | <extermination> |  
 <fatality> | funerals | grim reaper |  
 <guillotine> | <massacre> | <mortality> |  
 <murder> | <slaughter> | <tomb> |  
 <widower> |

*fatal* | *deadly* | *morbid* | *mortal* |

<kick> the bucket | <buy> the farm | <put>  
 <WF>\* to death | <wipe> <WF>\* out

Concordance    Frequencies    Evolution    Standard Score    Factor Analysis

Left Context Length: 50    Right Context Length: 50    Set

Count: 129

Left Contexts	Sequences	Right Contexts	Outputs
mpudent clerk, address here. Taken sister's girl,	died	last year, go to Europe, two sisters, quite indep	<VERBS>
ween your mother and my father, after my mother's	death	, which took place when I was a child. In conseque	<NOUNS>
ollowed by a return to Albany before her father's	death	. Her grandmother, old Mrs. Archer, had exercised,	<NOUNS>
d years before with her brother-in-law, after the	death	of her sister, taking him to task for the manner	<NOUNS>
she held no communication with him and after his	death	had addressed not a word to his daughters, who ha	<NOUNS>
don't see what makes you fond of it; your father	died	here." "Yes; but I don't dislike it for that," t	<VERBS>
n if they're sad things. A great many people have	died	here; the place has been full of life." "Is that	<VERBS>
houses in which things have happened--especially	deaths	. I live in an old palace in which three people ha	<NOUNS>
in an old palace in which three people have been	murdered	; three that were known and I don't know how many	<NOUNS>
is that it?" "She has offered to take her--she's	dying	to have Isabel go. But what I want her to do when	<VERBS>
el rose even to pride in her parentage. Since his	death	she had seemed to see him as turning his braver s	<NOUNS>
m equally simple his lawful heir should after his	death	carry on the grey old bank in the white American	<NOUNS>
and lay there for several weeks between life and	death	. His convalescence was a miracle, but the first u	<NOUNS>
y day, reading a heavy book and boring herself to	death	. She didn't know she was bored, but when I left h	<NOUNS>
aintance she had made shortly before her father's	death	, who offered so high an example of useful activit	<NOUNS>
ph lost indeed his one inspiration. If they might	die	at the same time it would be all very well; but w	<VERBS>



# CONGRATULATIONS



You know how to write complex regular grammars and apply them to a text

