

Farsnet

What Farsnet Does
How is it related to
other Word-nets

Word-nets

How they're made
How they're
represented

Farsnet Semi
Automation

Automation
Making it semi

Some Basics over Fars-net and Word-net

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Course of Natural Language Processing, winter 2015

Outline

Farsnet

- What Farsnet Does

- How is it related to other Word-nets

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- How they're made

- How they're represented

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What Farsnet Does

- ▶ Farsnet is the most known Persian Word-net.

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What Farsnet Does

- ▶ Farsnet is the most known Persian Word-net.
- ▶ It covers all type of words with relations between them.

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What Farsnet Does

- ▶ Farsnet is the most known Persian Word-net.
- ▶ It covers all type of words with relations between them.
- ▶ It contains over 15000 words in 10000 synsets (explained later on)

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What Farsnet Does

- ▶ Farsnet is the most known Persian Word-net.
- ▶ It covers all type of words with relations between them.
- ▶ It contains over 15000 words in 10000 synsets (explained later on)
- ▶ It has been created semi-automatically.

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How is it related to other Word-nets

- Relations are same as Princeton's Word-net.

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How is it related to other Word-nets

- ▶ Relations are same as Princeton's Word-net.
- ▶ Farsnet's core is a translation of Balkan Word-net.

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How is it related to other Word-nets

- ▶ Relations are same as Princeton's Word-net.
- ▶ Farsnet's core is a translation of Balkan Word-net.
- ▶ It makes some relations over synsets to other Word-net for translation purposes.

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- ▶ There are 4 type of words which play important roles.

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How they're made

- ▶ There are 4 type of words which play important roles.
- ▶ In dictionaries all of them are ordered alphabetically.

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- ▶ There are 4 type of words which play important roles.
- ▶ In dictionaries all of them are ordered alphabetically.
- ▶ Word-nets divide them in synsets (each synset has only one syntactic role.)

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- ▶ All word forms represent a word meaning.

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How they're made

- ▶ All word forms represent a word meaning.
- ▶ Some words have several meanings.

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How they're made

- ▶ All word forms represent a word meaning.
- ▶ Some words have several meanings.
- ▶ Some meaning can be presented with several words.

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How they're made

Psycholinguistics use the box model to illustrate the relationship between word and meaning.

- ▶ A box for meanings.

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Psycholinguistics use the box model to illustrate the relationship between word and meaning.

- ▶ A box for meanings.
- ▶ A box for word forms.

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Psycholinguistics use the box model to illustrate the relationship between word and meaning.

- ▶ A box for meanings.
- ▶ A box for word forms.
- ▶ Arrows between these two boxes to relate the meanings.

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We use a different kind of model but still the same.

- ▶ All word forms are as column heads of a matrix.

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We use a different kind of model but still the same.

- ▶ All word forms are as column heads of a matrix.
- ▶ All word meanings are as row initials of the matrix

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We use a different kind of model but still the same.

- ▶ All word forms are as column heads of a matrix.
- ▶ All word meanings are as row initials of the matrix
- ▶ A cell of matrix is 1 if the corresponding word presents the corresponding meaning otherwise it's 0

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Now to make it a network.

- ▶ Make each word form a node.

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Now to make it a network.

- ▶ Make each word form a node.
- ▶ Consider a row in this matrix and draw out cells that are 1 in it.

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Now to make it a network.

- ▶ Make each word form a node.
- ▶ Consider a row in this matrix and draw out cells that are 1 in it.
- ▶ Add a relation of synonymy between every node which is in those drawn out words.
- ▶ There would be disconnected subgraphs of words afterwards.

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Now to make it a network.

- ▶ Each pair of meanings have their own relation.

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Now to make it a network.

- ▶ Each pair of meanings have their own relation.
- ▶ Every pair of word forms follow their meanings in relations

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Now to make it a network.

- ▶ Each pair of meanings have their own relation.
- ▶ Every pair of word forms follow their meanings in relations
- ▶ Adding those relations together makes the subgraphs as a whole.

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Now to make it a network.

- ▶ Showing these graphs can be different.

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- ▶ Showing these graphs can be different.
- ▶ Since we only need one relation over this graph it can be a tree form.

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Now to make it a network.

- ▶ Showing these graphs can be different.
- ▶ Since we only need one relation over this graph it can be a tree form.
- ▶ Hence best tool for trees comes as XML files.
Word-nets usually go in XML forms

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Automation of Farsnet with various assists.

- ▶ Using morphological rules to expand relations.

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Automation of Farsnet with various assists.

- ▶ Using morphological rules to expand relations.
- ▶ Using syntactical occurrences for adjectives (From PLDB and Bijankhan).

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Automation of Farsnet with various assists.

- ▶ Using morphological rules to expand relations.
- ▶ Using syntactical occurrences for adjectives (From PLDB and Bijankhan).
- ▶ Using wikipedia pages and analyzing them.

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Using Dictionaries

- ▶ checking the received results with monolingual dictionaries like "SOKHAN".

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