

CS772: Deep Learning for Natural Language Processing (DL-NLP)

Introduction

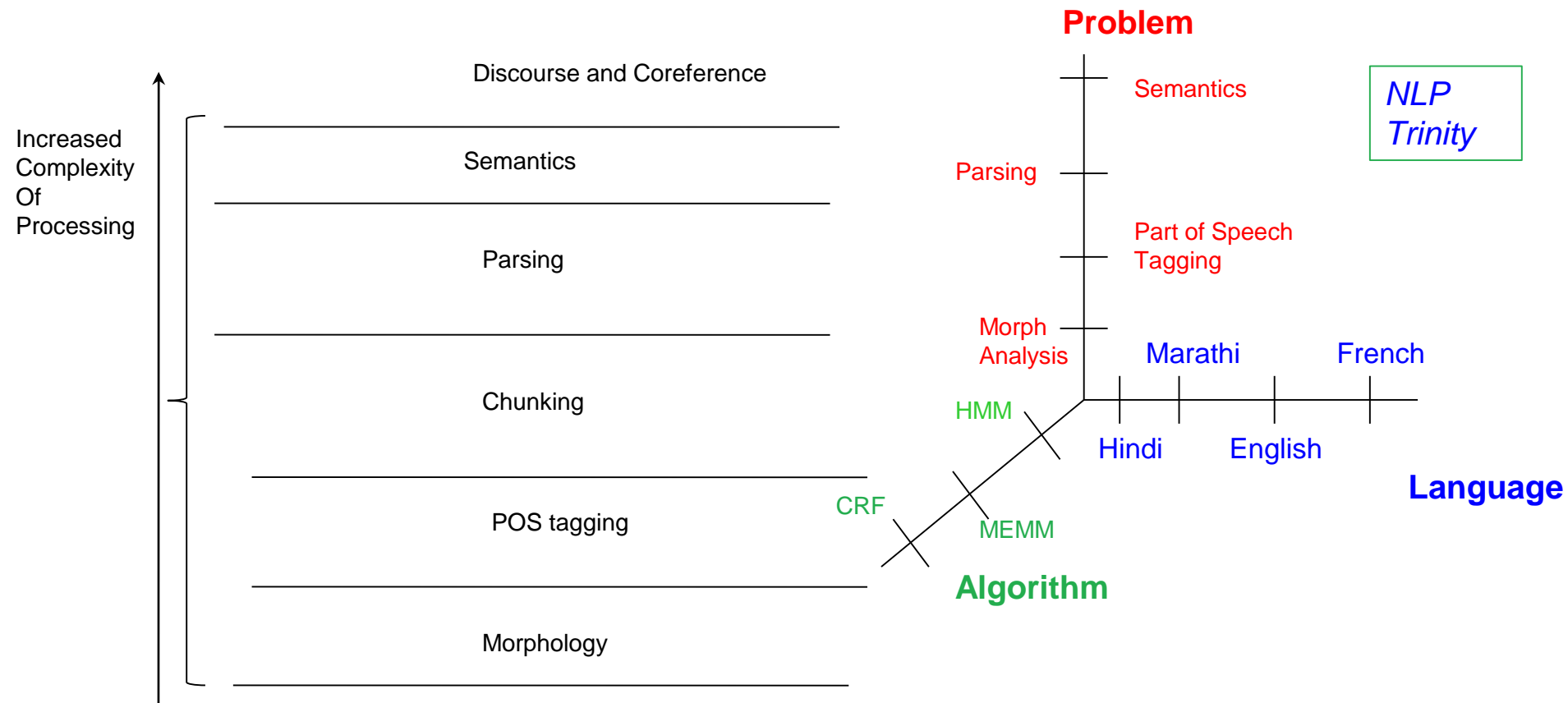
Pushpak Bhattacharyya
Computer Science and Engineering
Department
IIT Bombay
Week 1 of 2nd Jan, 2023

Nature of NLP

Natural Language Processing

Art, science and technique of making computers understand and generate language

NLP is layered Processing, Multidimensional too



Main Challenge: **AMBIGUITY**

Example

- (from a TV serial) “*You met the boy; how did you find him?*”

Example (cntd.)

- *“You met the boy; how did you find him; did you like him?”*

Example (cntd.)

- *“You met the boy; how did you find him; through some reference?”*

Topics to be covered

- Single Neuron, perceptron and sigmoid; application to NLP; text classification
- Multilayered FFNN, Backpropagation; Softmax Application to NLP; Multiclass NLP problems
- Recurrent Neural Net (RNN); Application to NLP- seq2seq
- Recursive Neural Net; Application to NLP Parsing
- Convolutional Neural Nets; Multimodal NLP
- Transformers; Application to MT, QA, NLG

Major Topics covered in CS626, last sem

- NLP and Ambiguity
- POS Tagging
- Named Entity Recognition
- Word Sense Disambiguation
- Wordnet and Lexical Resources
- Alignment and EM Algorithm
- Machine Translation and MT Evaluation
- Conversational AI and Pragmatics

Course: Basic Info

- Slot 4: Monday 11.30, Tuesday 8.30 and Thursday 9.30
- TA Team: Nihar Ranjan Sahoo, Sravanthi Settaluri, Ashita Saxena, NVS Abhishek, Paramveer Chaudhury, Sandeep Singhamsetty
- <http://www.cfilt.iitb.ac.in/~cs772-2023>
- Channels of communication: MS Teams, Moodle, Course Website
- Teams Name: cs772-2023 Joining code: 6umhfai
- Also visit moodle frequently

Evaluation Scheme (tentative)

- 40%: Reading, Thinking, Comprehending
 - Quizzes (20%) (4 nos.)
 - Endsem (20%)
- 60%: Doing things, Hands on
 - Assignments (20%)
 - Course Project (40%)

Quizzes and Endsem

- ONE/TWO subjective questions- only one page
- Rest MCQs on Moodle

Assignments and Project

- Continuous evaluation
- Meeting every two weeks to monitor progress
- Credit for thorough literature survey for the project work

Demos

<https://www.cfilt.iitb.ac.in/ssmt/speech2speech>

<https://www.cfilt.iitb.ac.in/mtsystem/translate>

<https://chat.openai.com/chat#>