

EXPERIMENTS WITH THE PREDICTION AND GENERATION OF ROMANIAN INTONATION

MINISTERUL EDUCAȚIEI, CERCETĂRII ȘI INOVĂRII



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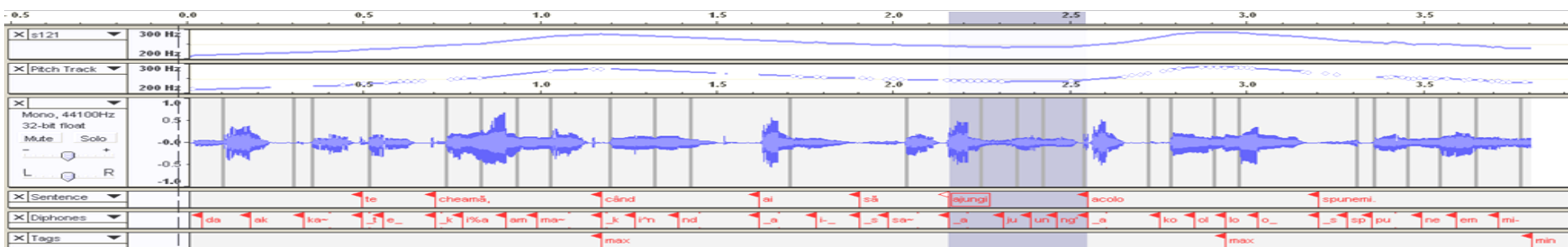
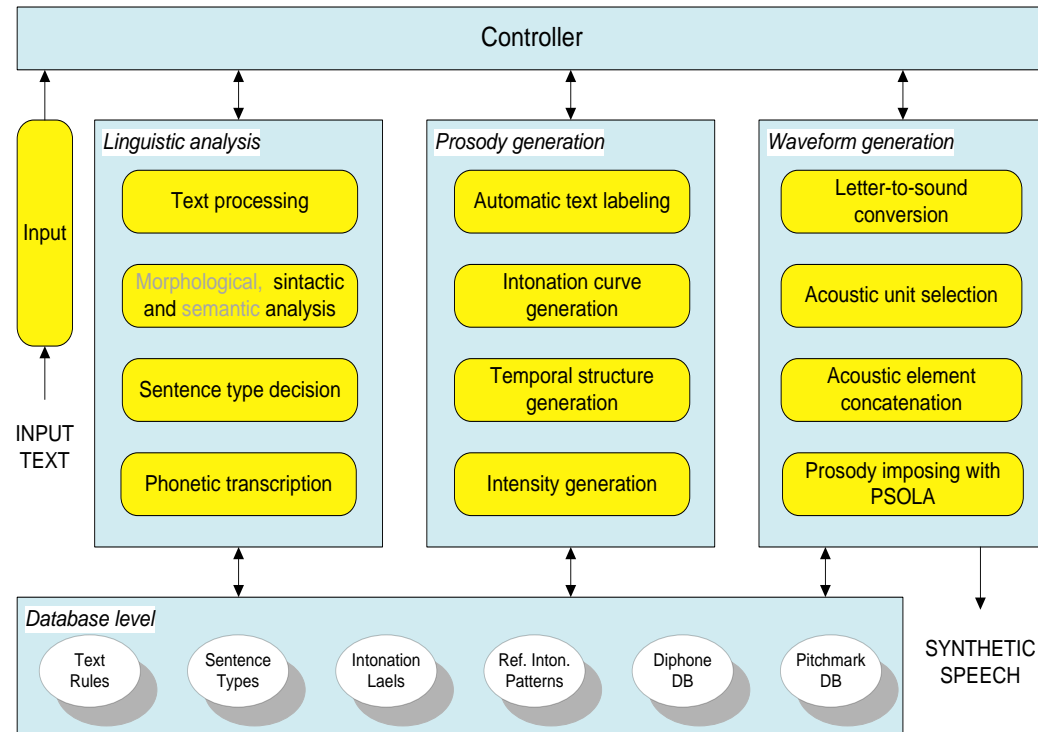
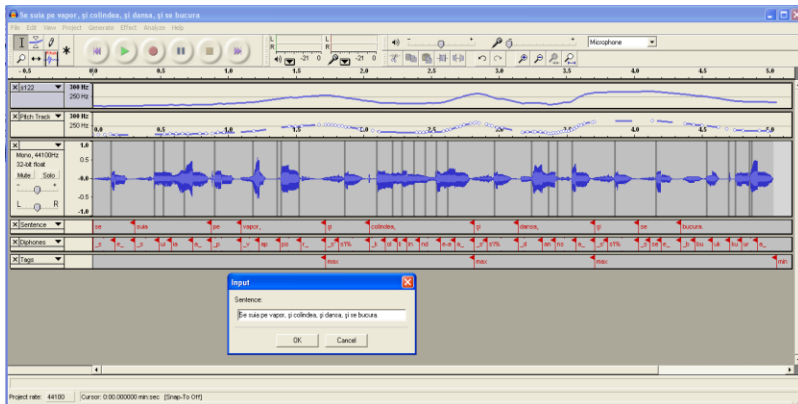
June, 2009



The TTS System SprintVox

Presented topics:

- Text processing/analysis
- Prosody prediction and generation





Text processing

Processing:

- ASCII – UTF-8, Abbreviations, Numbers, Symbols, Alphabet, etc.
- See PreprocessRules.xml

Example:

- „*DI. Prof. Dr. Ing. Gavril Todorean ajunge pe str. Barițiu la 2 PM.*”

Phonetic transcription:

- Naming conventions, Transcriptions, DB corrections, naturalness
- See PhoneticRules.xml

Examples:

- handbal = handbal
- â = î
- _chea = _|k|i%|a

```
<?xml version="1.0" encoding="UTF-8" ?>
<preprocessingRules>
  <abbreviations>
    ...
    <abbrev text="Dl.">
      <in_words text="domnul"/>
    </abbrev>
    <abbrev text="Dr.">
      <in_words text="doctor"/>
    </abbrev>
    <abbrev text="Prof.">
      <in_words text="profesor"/>
    </abbrev>
    <abbrev text="Ing.">
      <in_words text="inginer"/>
    </abbrev>
    <abbrev text="str.">
      <in_words text="strada"/>
    </abbrev>
    <abbrev text="PM">
      <in_words text="după masă"/>
    </abbrev>
    ...
  </abbreviations>
  <numbers>
    ...
    <number value="2">
      <in_words text="doi"/>
    </number>
    ...
  </numbers>
  <symbols>
    ...
  </symbols>
  <alphabet>
    ...
  </alphabet>
  ...
</preprocessingRules>
```



PreprocessRules.xml

```
<?xml version="1.0" encoding="utf-8" ?>
<PhoneticRules>
  <Phonemes>
    <phoneme name="a"/>
    <phoneme name="a~"/>
    ...
    <phoneme name="u" />
    <phoneme name="u~" />
    <phoneme name="u'" />
    <phoneme name="v" />
    <phoneme name="x" />
    <phoneme name="z" />
    <phoneme name="_" />
  </Phonemes>
  <PhoneticTranscription pad="_" >
    <pat text="ă" phons="a~" />
    <pat text="â" phons="i^" />
    ...
    <pat text="ce" phons="c'|e" />
    <pat text="ci" phons="c'|i" />
    <pat text="c" phons="k" />
    ...
    <pat text="handbal" phons="h|a|n|b|a|l" />
    ...
    <pat text="_chea" phons="_|k|i%|a" />
    <pat text="de_" phons="d|e|_" />
    ...
  </PhoneticTranscription>
  <PhonemeGroups>
    <!-- Empty for the moment -->
  </PhonemeGroups>
</PhoneticRules>
```



PhoneticRules.xml



Text analysis

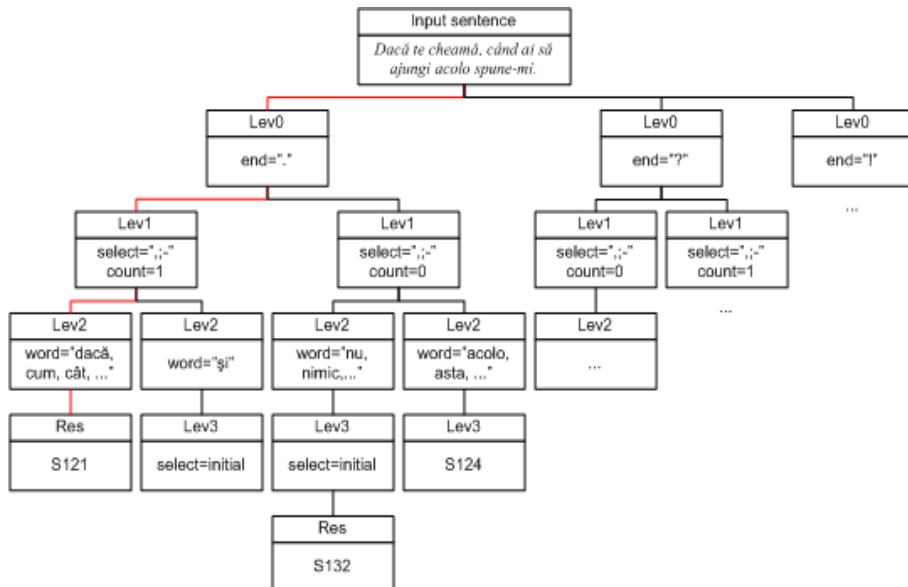
Lexical, syntactic, semantic – the minimum necessary

Intonation patterns

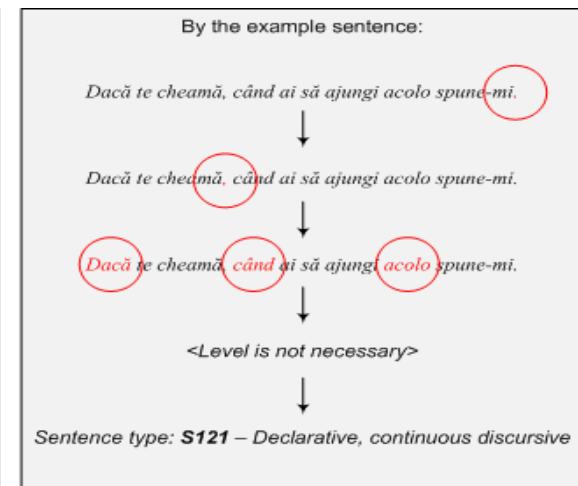
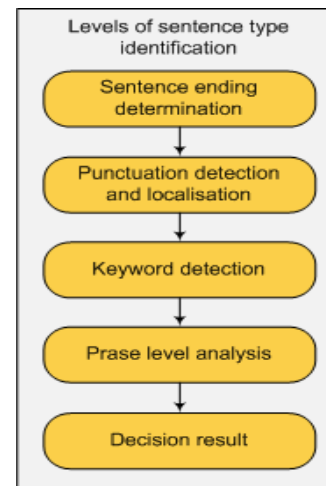
Sentence type identification rules – in SentenceRules.xml



The identification algorithm



ID	Intonation Patterns
S111	Declarative, descending neutral
S121	Declarative, continuative and finality
S122	Declarative, enumerative
S123	Declarative, with continuous completion
S124	Declarative, ascending, positively raising
S132	Declarative, ascending negative
S211	Interrogative, yes-no questions
S212	Interrogative, starting with negative word
S219	Interrogative
S213	Increasing pattern, starting with interrogative word
S215	Interrogative, elliptic
S217	Interrogative with separate interrogative word
S221	Interrogative word at the beginning
S225	Interrogative word within the sentence
S224	Interrogative repeating sentence
S231	Interrogative ascending descending
S241	Interrogative descending ascending
S320	Imperative, indirect
S330	Imperative, with keyword
S400	Declarative, with interruptions





Prosody generation

Automatic text labeling

- Critical points
- Mapping points

Identified intonation patterns

- sxx

Generation of intonation curve

- sxx.IntonCurve
- sxx.tag

