

*The Possible Use of Prosody in
Spoken Language Translation
Systems*

Bertil Lyberg

Robert Eklund

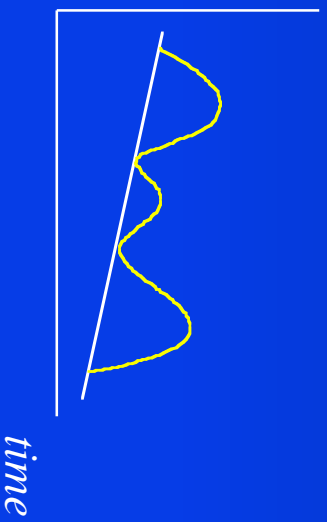
Telia Research AB

Sweden

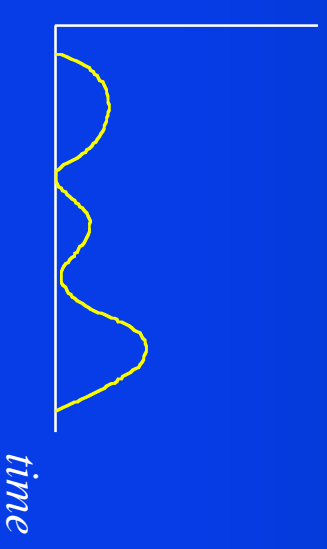
Fundamental frequency normalisation



$\log(F\emptyset)$



normalised $\log(F\emptyset)$



Swedish Tonal Accents

Accent 1 *Jag såg anden* 'I saw the duck'

Accent 2 *Jag såg anden* 'I saw the spirit'

Verb + particle

Bo stötte PÅ Lena

'Bo ran into Lena'

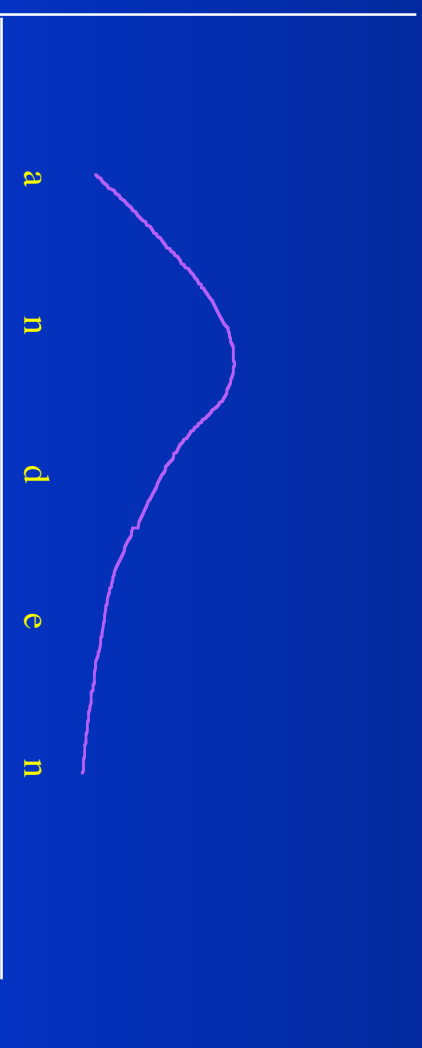
Verb + preposition

Bo STÖTTE på Lena

'Bo made a pass at Lena'

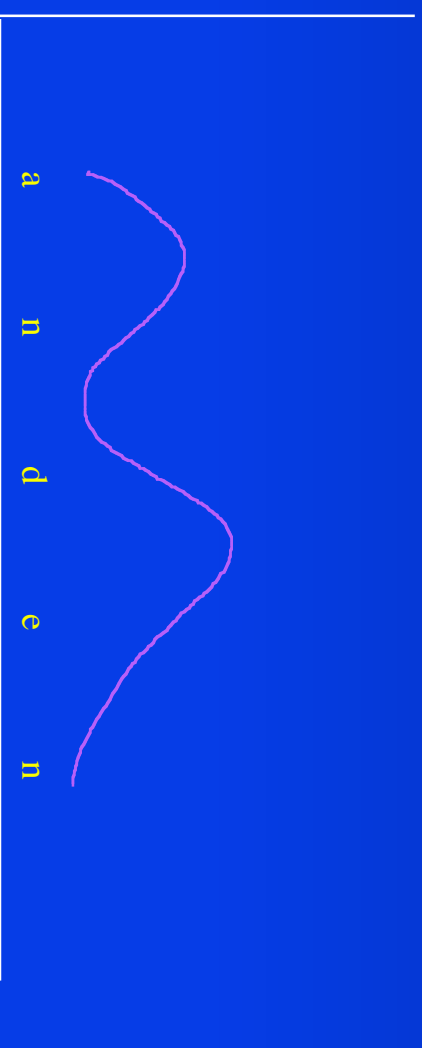
Accent 1

F₀



Accent 2

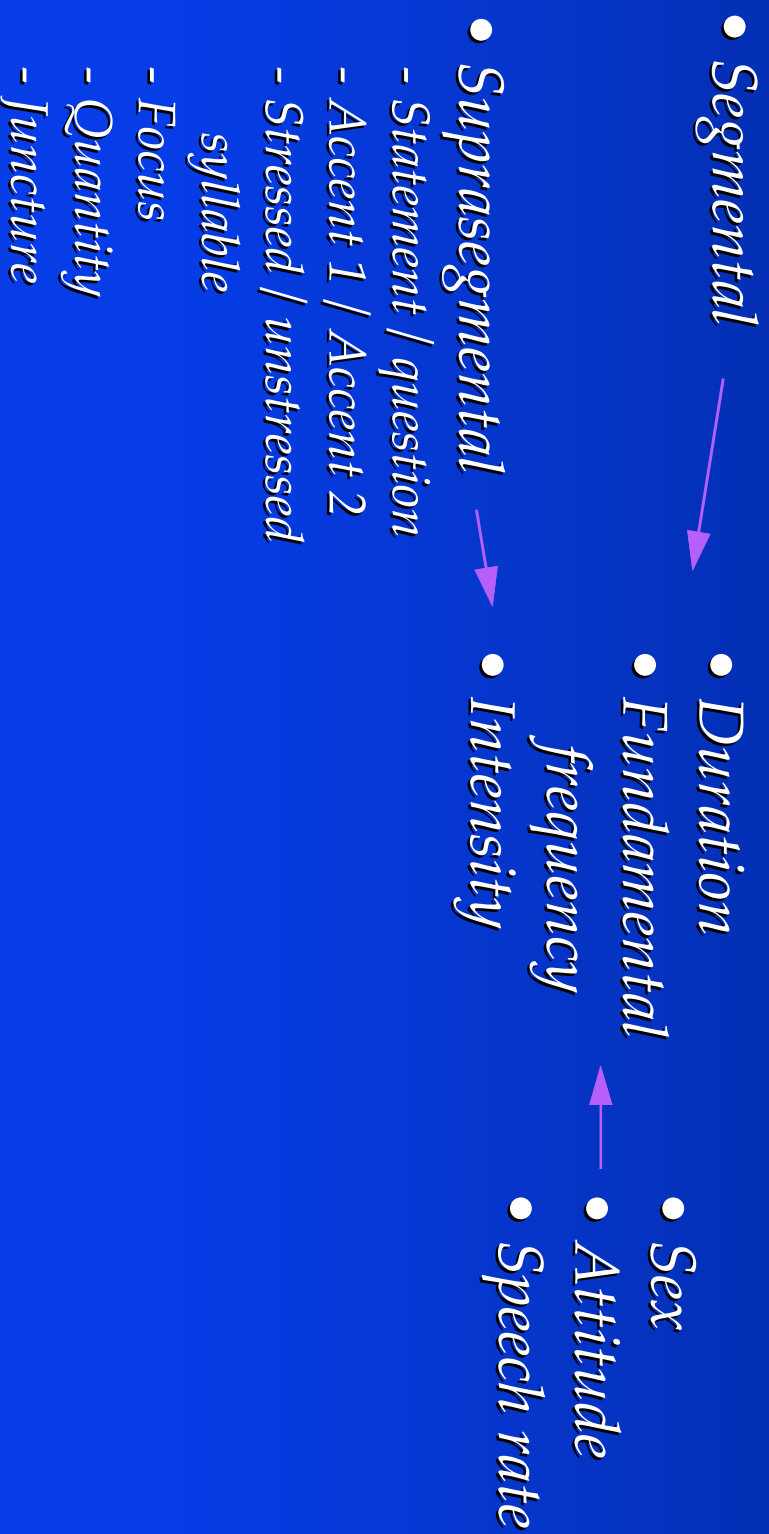
F₀



*Linguistic
information*

*Acoustic
Correlates*

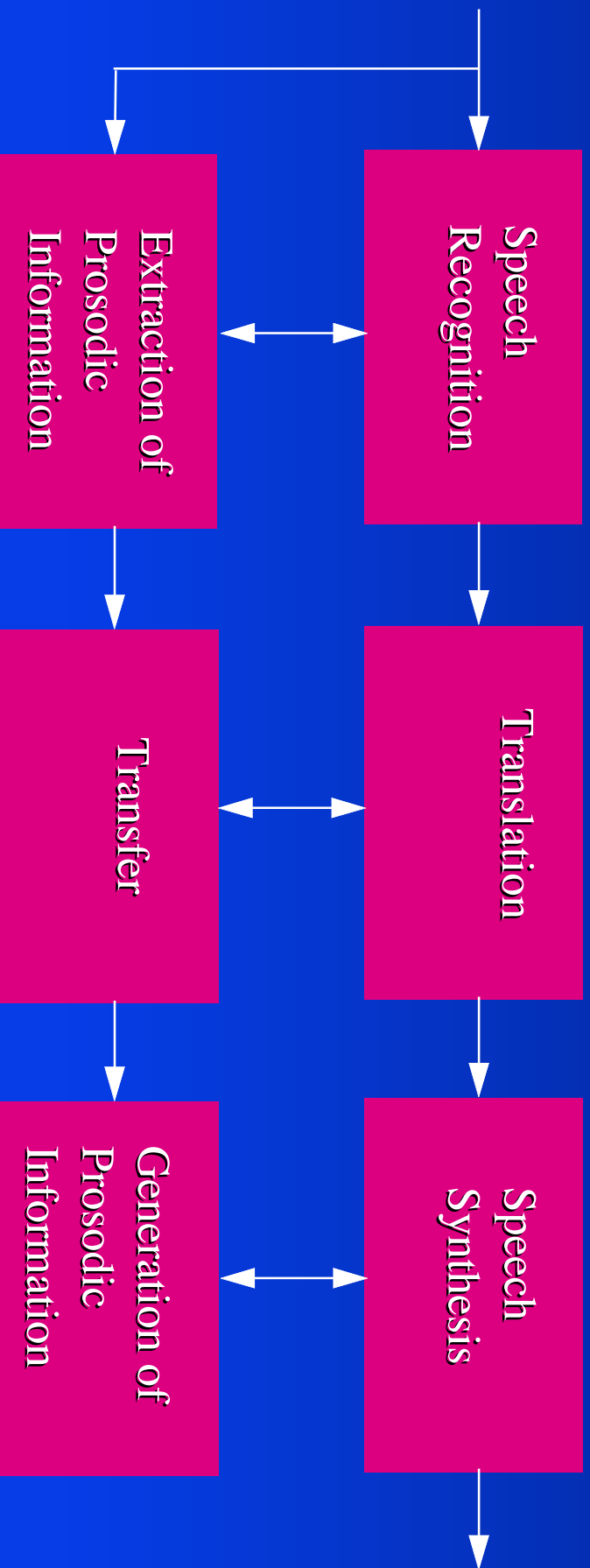
*Extra-linguistic
information*



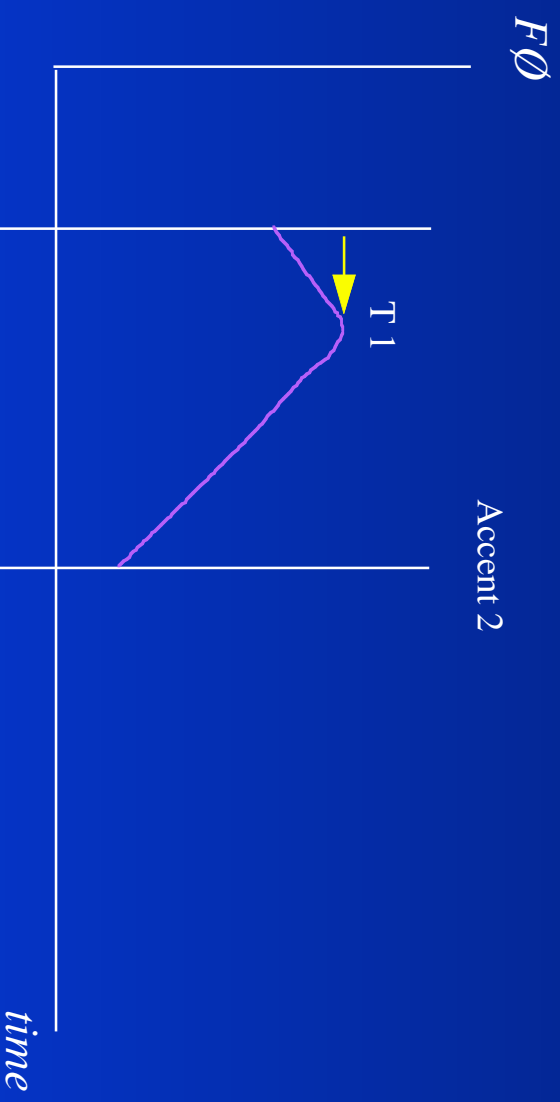
Spoken Language Translation



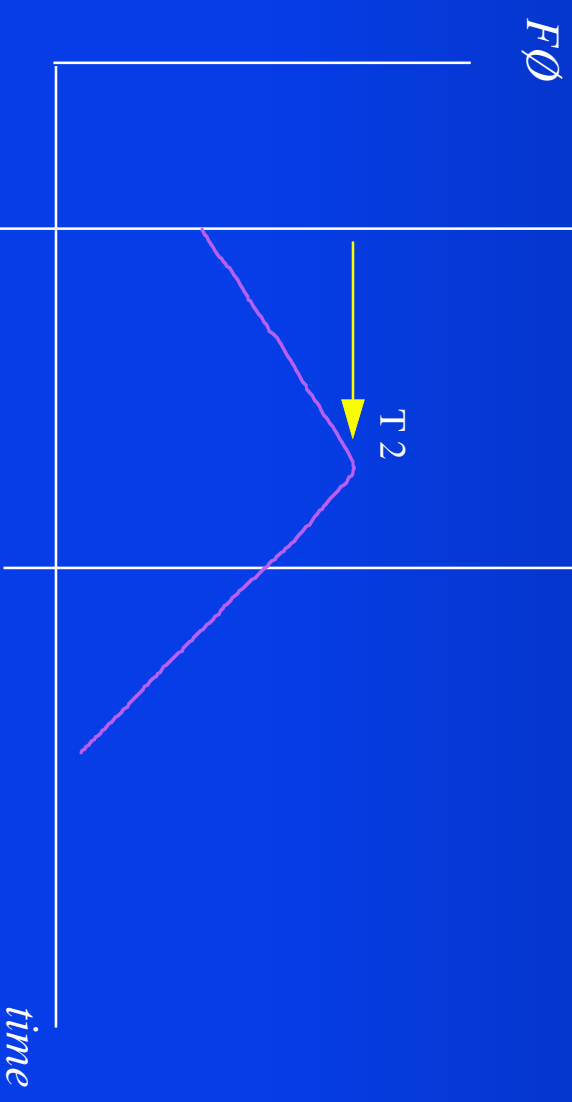
Spoken Language Translation with Transfer of Prosodic Information



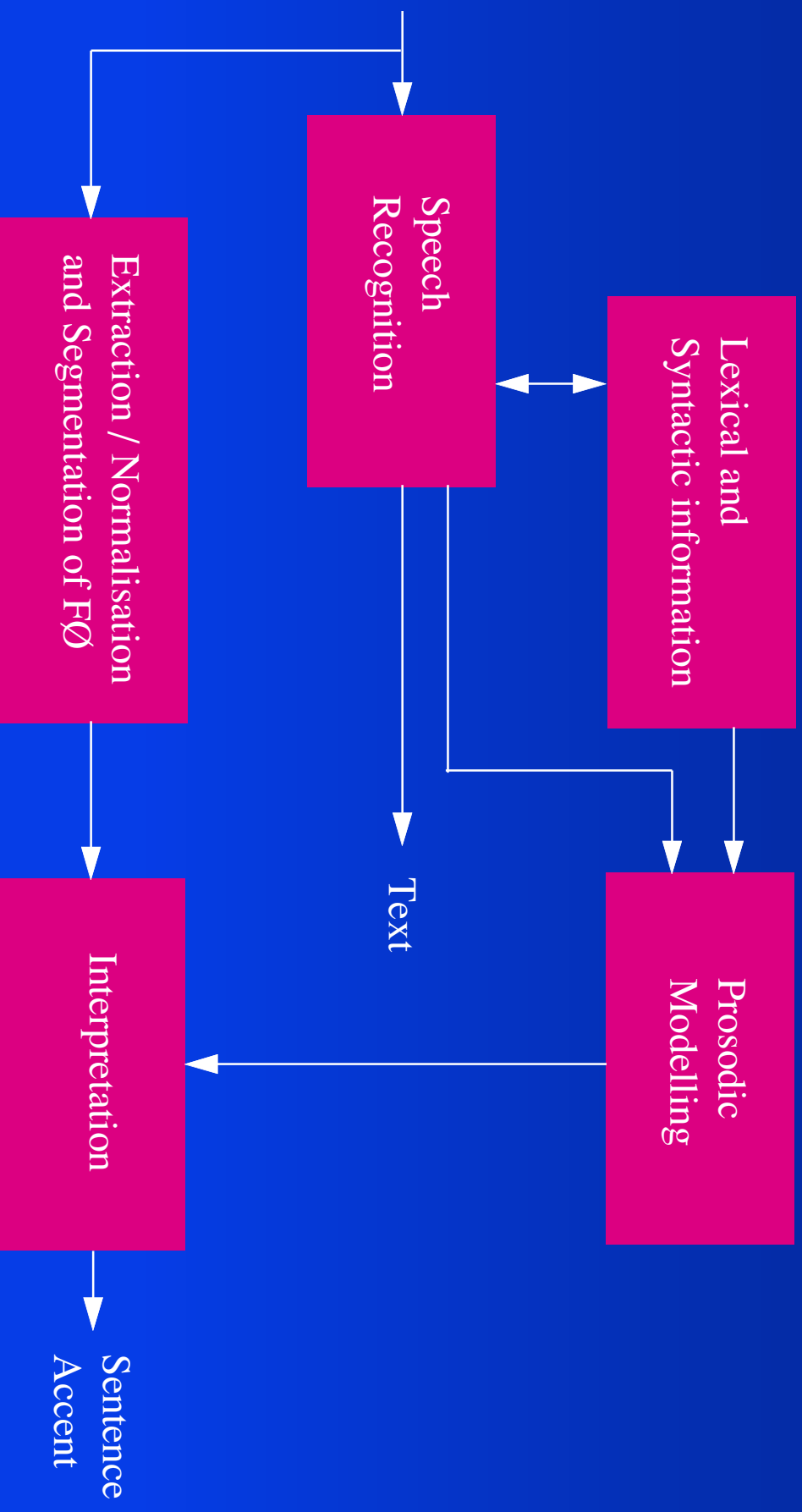
Dialect A



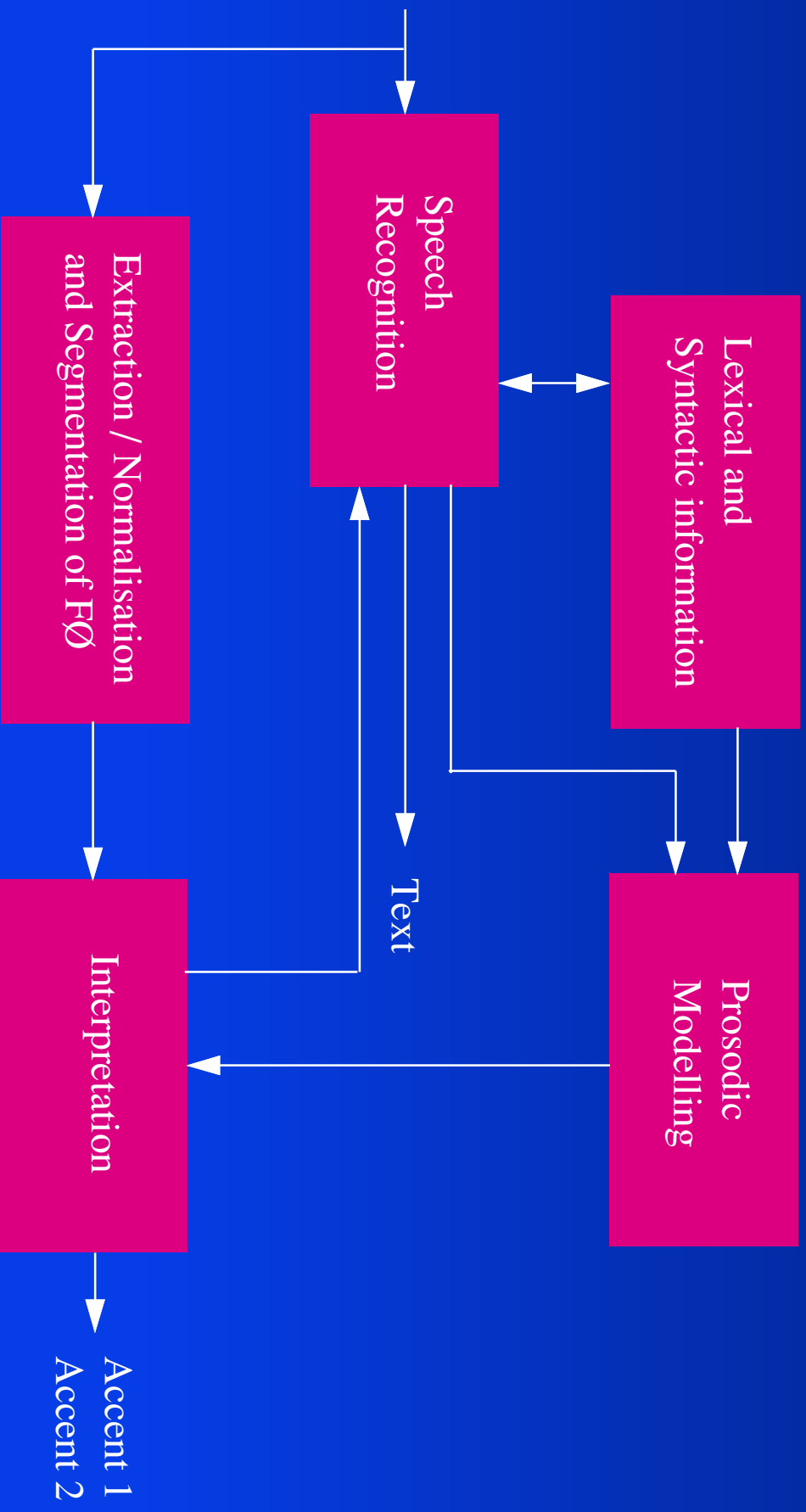
Dialect B



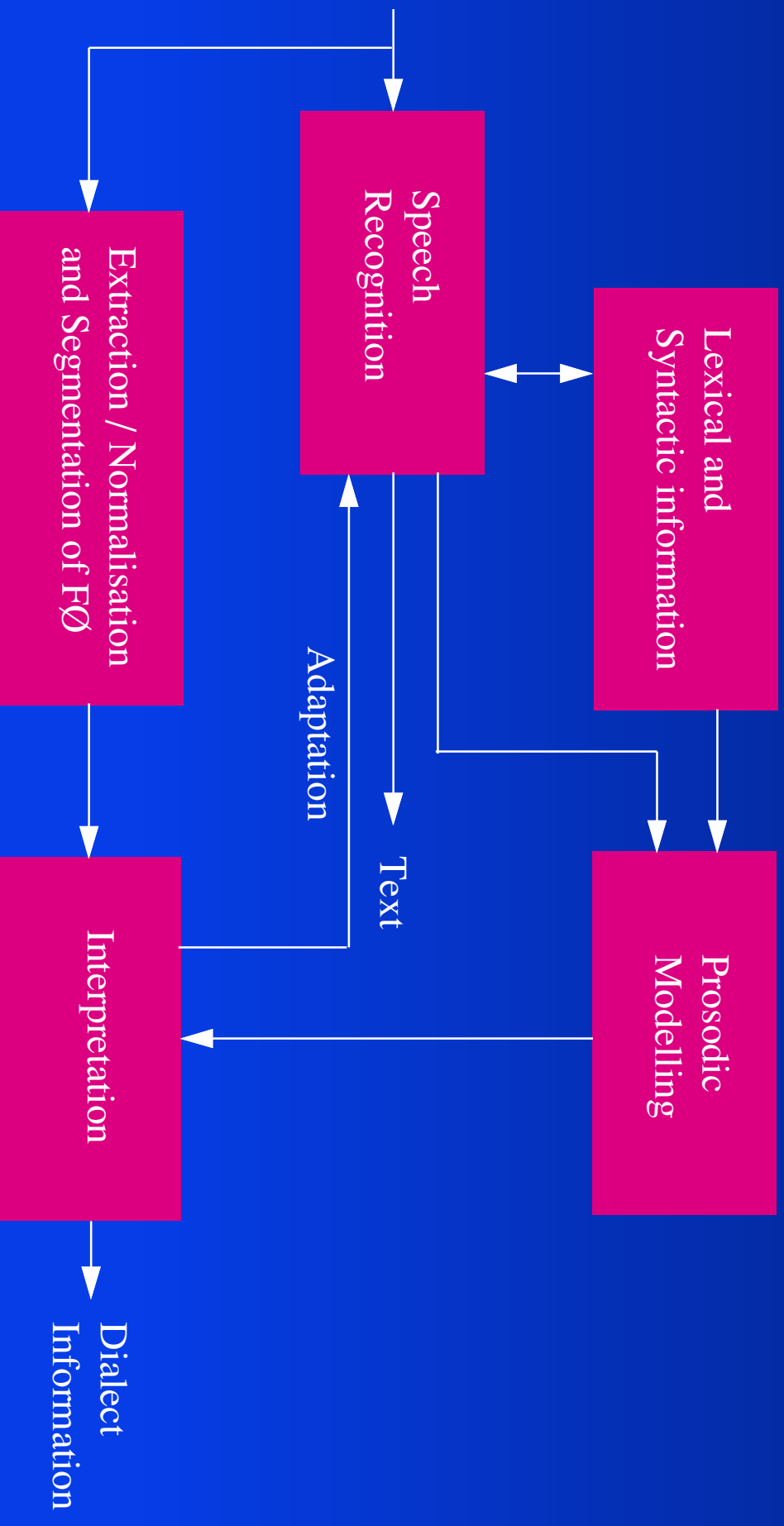
Extraction of Sentence Accent in Swedish



Extraction of Tonal Accent in Swedish



Extraction of Dialect Information in Swedish



Q: *VENN vann en ál?*

Q: *'WHO won an eel?'*

A: *En MAN vann en ál.*

A: *'A MAN won an eel.'*

Q: *VAD gjorde en man med en ål?*

Q: *'WHAT did a man do with an eel.'*

A: *En man VANN en ål.*

A: *'A man WON an eel.'*

Q: *VAD vann en man?*

Q: *'WHAT did a man win.'*

A: *En man vann en ÅL.*

A: *'A man won an FEL.'*

Prosodic Features or

Suprasegmental Features are:

- *Pitch*
- *Stress*
- *Quantity*

*The Acoustic Correlates of the
Prosodic Features are:*

- *Fundamental frequency*
- *Intensity*
- *Duration*

*Jag will FLYGA till Boston.
I want to FLY to Boston.*

*Jag will flyga till BOSTON.
I want to fly to BOSTON.*

There is no one-to-one correspondence between the prosodic features and the acoustic correlates.

Spoken Language Translation

