# Information Structure with the Prague Arabic Dependency Treebank

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Conference on Communication and Information Structure in Spoken Arabic

The issue of information structure in language has been studied extensively both in the Prague School of Linguistics and in the Functional Generative Description [Sgall et al., 1986, Hajičová and Sgall, 2003].

This theory of representation of linguistic meaning is the framework for a family of multi-level annotation projects, esp. Prague Dependency Treebank for Czech [Hajič et al., 2001, 2006] and Prague Arabic Dependency Treebank [Hajič et al., 2004, Smrž et al., 2006].

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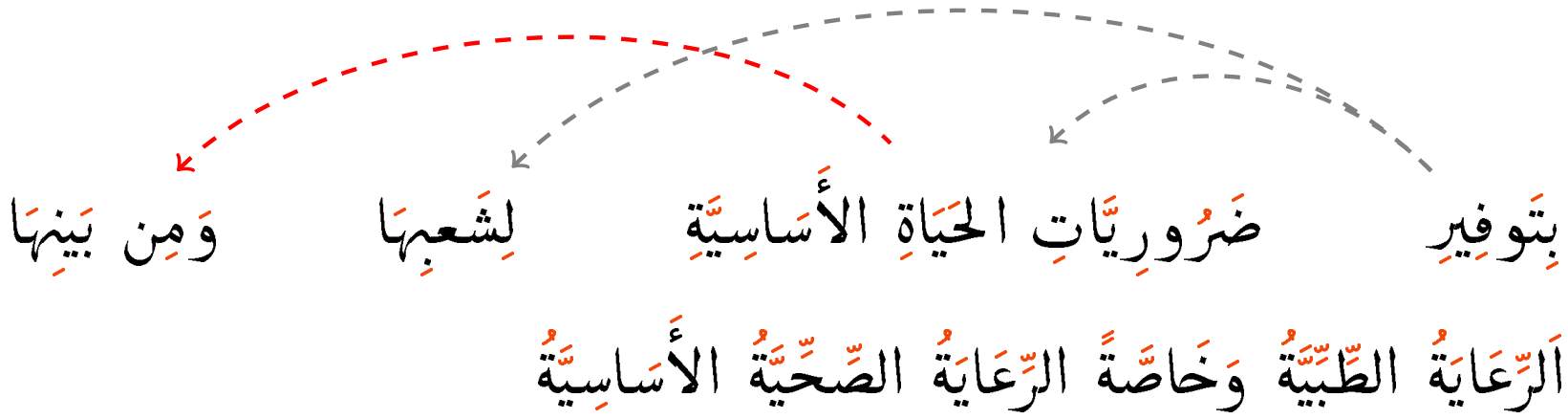
# Dependency Description

Representation of structure in language built on dependency exhibits

- Immediate Dominance relation
- Linear Precedence relation




*bi-tawfīri ḍarūrīyāti ’l-ḥayāti ’l-ʾasāsīyati li-šaʿbihā wa-min baynihā*

*ar-riʿāyatu ’ṭ-ṭibbīyatu wa-ẖāṣṣatan ar-riʿāyatu ’ṣ-ṣiḥḥīyatu ’l-ʾasāsīyatu*

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Distinction of different points of view and levels of abstraction

- Surface/Analytical syntax level
- Deep/Tectogrammatical syntax level

Description includes recovery of tree topology and syntactic functions.

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How is communicative dynamism expressed and delivered/packaged?

- word order variation with respect to systemic ordering
- intonation centers, sentence stress
- extra constructs in syntax or morphology

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| *ʾan tanḫafiḍa qīmatu . . .* | أَن تَنخَفِضَ قِيمَةُ الصَّادِرَاتِ إِلَى الوِلَايَاتِ المُتَّحِدَةِ |
| *fī ʾn-niṣfi . . .* | في النصف الثاني من السنة الجارية |
| *ʾilā 400 . . . min 593 . . .* | إِلَى ٤٠٠ مِلْيُونِ دُولَارٍ مِن ٥٩٣ مِلْيُونَ دُولَارٍ حَالِيًّا |
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# Topic / Focus

Dichotomy of aboutness inspiring to many similar concepts in modern linguistics [cf. Kruijff-Korbayová and Steedman, 2003, for overview].

**Topic** (theme) part of sentence structure linking the content of the utterance with the context of the discourse

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Communicative dynamism as measure of this linguistic property

- Topic proper is the least dynamic part
- Focus proper is the most dynamic part

# Contextual Boundness

The elementary distinction, from which topic–focus dichotomy is derived, is contextual boundness.

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Using question test to identify the context-bound and non-bound items.

The relation of definiteness and boundness is not trivial [Kruijff-Korbayová, 1998, Brustad, 2000]. Boundness is not equated to the given/new concept.

عَلَى عَودَةِ الشَّيخِ إِلَى الكُوَيتِ مِن لَندن

*ʿalā ʿawdati ’š-šayḫi ʾilā ’l-kuwayti min landn*

يَتِمُّ القَبضُ عَلَيهِم مِن حِينٍ إِلَى حِينٍ

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*bi-maʿnan ʾāḫara ʾinna dawranā ’l-ʾasāsīya huwa ’l-ʿarḍu wa-laysa ’l-intiqādu*

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# The Annotation

# Relevance Issue

Topic–focus articulation is relevant even semantically — it affects the truth value of a proposition:

- presupposition, allegation, meaning proper
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Annotated corpora for written and spoken Arabic are becoming available for quantitative evaluation of linguistic theories, large-scale analysis of linguistic material, computational processing and modeling.

# Conclusion / Prospects

In PADT, which now consists of the morphological and the analytical levels of description of Arabic, the annotation of information structure and tectogrammatics is being established.

In our contribution, we have tried to overview the theoretical concepts we work with, and present our formal treatment of a number of corpus-based instances of linguistic phenomena that have a principal impact on the structure of information in Arabic.

Rich linguistic literature and interesting computational systems are available [cf. e.g. Hajičová et al., 1995, Kruijff-Korbayová, 1998, Hajičová and Sgall, 2004, Debusmann et al., 2005, Mikulová et al., 2006].

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