



***BulFrame: A new resource
built on FrameNet and
WordNet***

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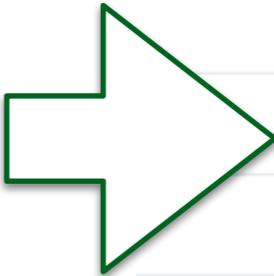
BulFrame

- **BulFrame** is a web-based system designed for creating, editing, validating and viewing Conceptual frames.
- Some of the main advantages of both resources (WordNet and FrameNet) with regard to the conceptual description of the predicate – argument structure are complemented and upgraded to expand WordNet with Conceptual frames that represent verb predicate – argument syntagmatic relations.



Conceptual frame

- Conceptual frames are abstract structures which define the semantic and syntactic compatibility between verb predicates and noun arguments.
- **A Conceptual frame is:**
 - represented by a set of verbs organized in the WordNet synsets;
 - associated with a semantic class;
 - described by a set of frame elements.



▼	🗄️	Frame
	🔗	Lemma
	T	Frame name
	☰	Origin
	T	Semantic type
	T	Definition
	↻	Relation Inheritance
	↻	Relation Uses
	↻	Relation Inchoative of
	↻	Relation Causative of
	↻	Subframe
	↻	Inchoative
	🗃️	Frame element





Conceptual frame

- Each **Conceptual frame element** is:
 - associated with a set of nouns that are compatible with the verb predicate.
 - The set could contain a single noun or several nouns linked between each other with lexical relations (synonymy, antonymy) and / or hierarchical relations (hypernymy, hyponymy).

▼	☒	Frame element
	▮	Element name
	☰	Status
	▮	Semantic type
	▮	Element definition
	☰	Syntactic obligatoriness
▼	☒	Syntactic category
	▼	☒ NP
		☰ Syntactic function
		🔗 Selective restrictions
	>	☒ PP
	>	☒ S



Conceptual frame

- We can generalize that a **Conceptual frame** defines a unique set of syntagmatic relations between:
- verb synsets representing the frame, and
- noun synsets expressing the frame elements.



Comparison with FrameNet

- In FrameNet, all lexical units evoking a semantic frame have identical (or closely comparable) semantic descriptions: they denote the same part of a scene; have the same number and types of frame elements and the same relations between frame elements (Ruppenhofer et al. 2016: 11).

Experiencer focused emotion

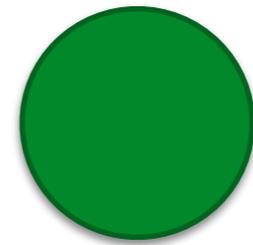
hate, abhor, abominate, adore, delight, despair, despise, detest, dislike, dread, empathize, enjoy, envy, fear, grieve, like, loathe, love, luxuriate, mourn, pity, relish, resent, rue, savour



Comparison with WordNet



{hate; detest} ‘dislike intensely;
feel antipathy or aversion
towards’

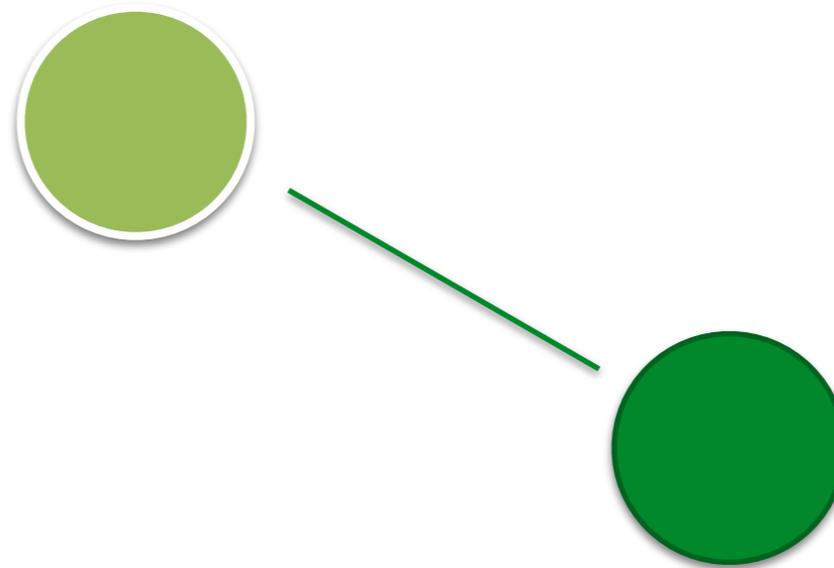




Comparison with WordNet



{dislike} ‘have or feel a dislike or distaste for’



{hate; detest} ‘dislike intensely; feel antipathy or aversion towards’

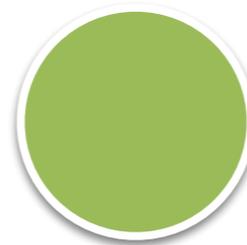




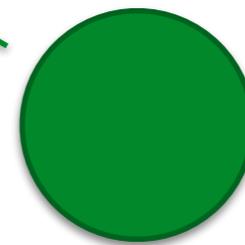
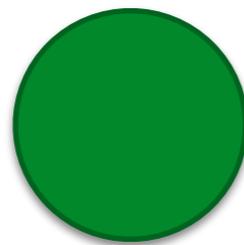
Comparison with WordNet



{dislike} 'have or feel a dislike or distaste for'



{hate; detest} 'dislike intensely; feel antipathy or aversion towards'



{resent} 'feel bitter or indignant about'





Comparison with WordNet

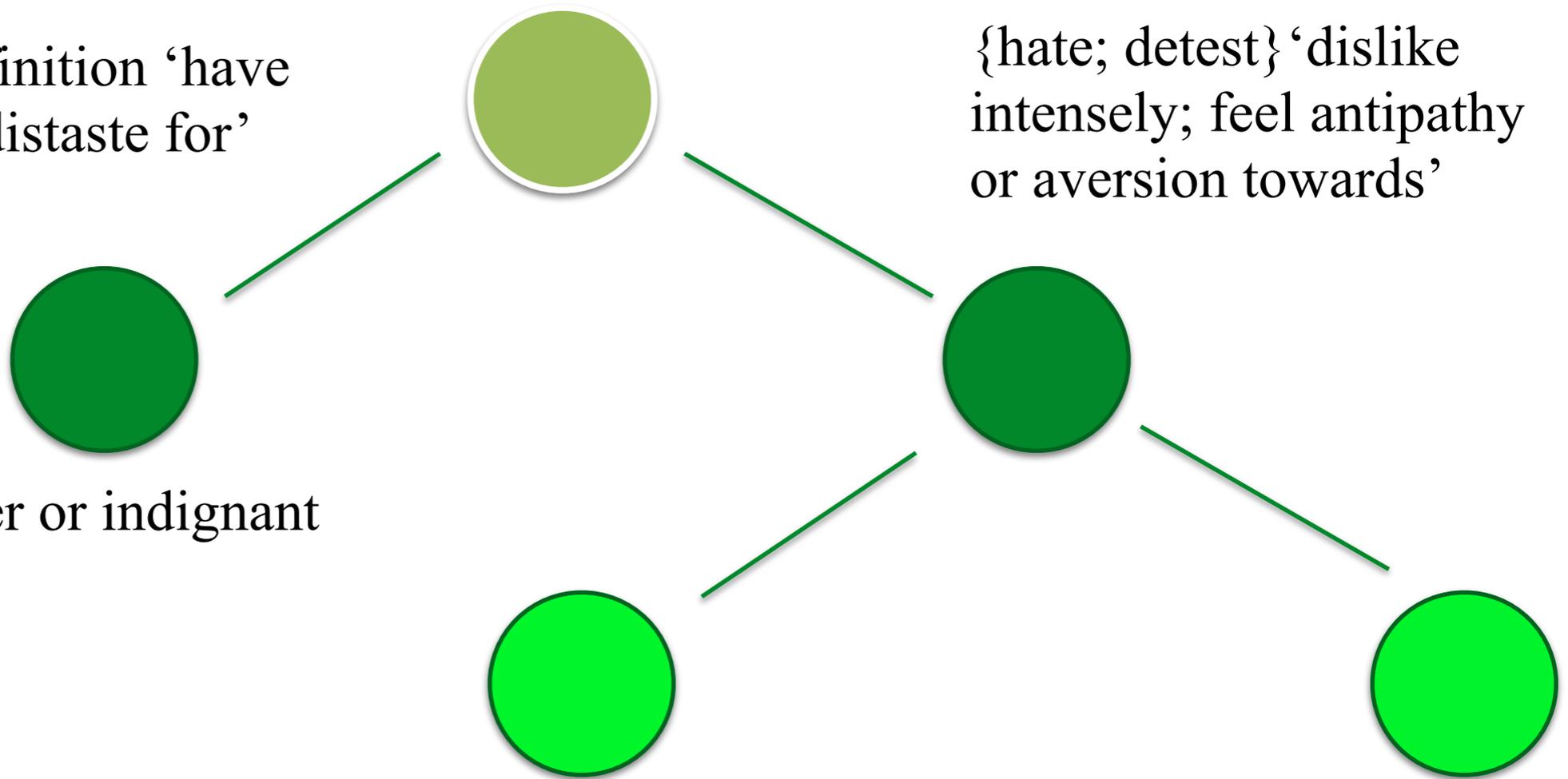
{dislike} with a definition 'have or feel a dislike or distaste for'

{hate; detest} 'dislike intensely; feel antipathy or aversion towards'

{resent} 'feel bitter or indignant about'

{abhor, loathe, abominate, execrate} 'find repugnant'

{contemn, despise, scorn, disdain} 'look down on with disdain'





Comparison with FrameNet

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Experiencer focused emotion

- **Content** with the semantic type [Content]
- **Event** with the semantic type [State of affairs]
- **Experiencer** with the semantic type [Sentient]
- **Degree** with the semantic type [Degree]
 - **Explanation** with the semantic type [State of affairs]
 - **Manner** with the semantic type [Manner]
 - **Time** with the semantic type [Time]



Comparison with FrameNet

CF

Experiencer focused emotion

{dislike} {like} {hate; detest} {love}

{Experiencer} — {Content}

[Person]

[Physical entity] and [Abstraction]

[Animal]

[Physical entity]



Lexical section

The Lexical section include: verb lemma (literal), part of speech, WordNet ILI to which the verb belongs, verb lemma sense number, verb lemma definition, synset semantic class, verb literal stylistic or usage note, and the whether the verb is a multiword expression or not.

дишам

Characteristic	Value
 POS	v 
 Group ID	eng-30-00001740-v 
 Sense	3
 Semantic class	verb.body 
 Multiword Expression	< Empty >  
 Note	< Empty >  
 Definition	последователно поемам и изпус



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Morphological section

- **Personality: personal, impersonal:** zazoryava se ‘it dawns’, **third personal singular and plural:** rekata se vliva v moreto ‘the river flows into the sea’, **and plural personal:** sabirame se okolo masata ‘we gather around the table’.
- **Aspect: perfective verb:** (zapeya) ‘start singing’; **imperfective verb:** (zapyavam) ‘sing off’; **a simultaneously perfective and imperfective verb:** (pensioniram) ‘retire’; **an imperfective verb with no perfective equivalent:** (vali) ‘it rains’; **a perfective verb with no imperfective equivalent:** (povyarvam) ‘get to believe’.
- **Tranzitivity**



Frame section

- **The FrameNet related parts are:** frame name, frame definition, frame to frame relations, and frame elements with their names, status (core, non-core and extra-thematic), and definition.

▼		Frame
		Lemma
	T	Frame name
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		Relation Causative of
		Subframe
		Inchoative
>		Frame element



Frame section:

Frame element

▼		Syntactic category	Node
▼		NP	Node
		Syntactic function	Single choice from list
		Selective restrictions	Relation to word
▼		PP	Node
		Preposition	Multiple choice from list
		Syntactic function	Single choice from list
		Selective restrictions	Relation to word
>		S	Node
>		AdvP	Node
>		SC	Node



Frame section:

Frame element

- The semantic classes of nouns in WordNet are subdivided into a set of semantic subclasses. For example, within the semantic class [**Food**] we can introduce the sub-class of [**Beverage**] for nouns associated with verbs like *stir*, *sip*, *drink*, *lap*, etc. Such representation aims to specify the organization of concepts into an ontological structure which allows inheritance between the semantic classes down the hierarchy and ensures more precise specification of verb -- noun compatibility.



BulFrame

- **BulFrame** is a system whose functionality is designed for the definition and description of Conceptual frames. The functionality is divided into three main functions: (a) defining the abstract structure; (b) description of particular Conceptual frames based on the defined structure; and (c) public access to the Conceptual frames, with a read-only restriction.



Contributions

- Identification of verbs that evoke a particular FrameNet semantic frame;
- Detailed ontological representation of semantic classes of noun synsets;
- Specification of frame elements relevant for the expression of syntagmatic relations;
- Assigning the frame elements with noun semantic classes or a combination of classes ensuring the words' compatibility in Bulgarian;
- Definition of Conceptual frames depicting semantics of Bulgarian verbs.



Acknowledgments

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