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### **A Theoretical Overview of Conceptual Frames and Semantic Restrictions on Frame Elements**

**Abstract:** The paper presents the work on a typology of the selectional restrictions that verbs from different semantic classes impose on the noun they combine with. Using the restrictions that have already been defined in FrameNet and VerbNet, we attempt at compiling a unified set of restrictions and translate them as sets of WordNet classes and (sub)trees. As the description of verbs' conceptual structure is largely language independent, the enriched representation is to a great extent applicable cross-linguistically, as illustrated in the paper.

**Keywords:** Frame semantics, FrameNet, WordNet, VerbNet, semantic roles

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REFERENCES

- Baker 2008: Baker, C. FrameNet, Present and Future. In: Webster, J., Ide, N., Chengyu Fang, A. (Eds.): *The First International Conference on Global Interoperability for Language Resources*. City University, Hong Kong, 2-17.
- Baker & Fellbaum 2009: Baker, C. & Fellbaum, C. WordNet and FrameNet as Complementary Resources for Annotation. In: *Proceedings of the Third Linguistic Annotation Workshop (ACL-IJCNLP '09)*. Association for Computational Linguistics, Stroudsburg, PA, USA, 125-129.
- Baker et al. 1998: Baker, C., Fillmore, C., Lowe, J. B. The Berkeley FrameNet Project. In: *COLING-ACL '98: Proceedings of the Conference*. Montreal, Canada, 86-90.
- Fellbaum 1998: Fellbaum, C. (Ed.). *WordNet: An Electronic Lexical Database*, MITPress, Cambridge, MA.
- Fellbaum & Baker 2008: Fellbaum, C. & Baker, C. F. Can WordNet and FrameNet be Made “Interoperable”? In: Webster, J., Ide, N., Chengyu Fang, A. (Eds.): *The First International Conference on Global Interoperability for Language Resources*. City University, Hong Kong, 67-74.
- Ferrandez et al. 2010: Ferrandez, O., Ellsworth, M., Munoz, R., and Baker, C. F. Aligning FrameNet and WordNet Based on Semantic Neighborhoods. In: *Proceedings of the 7th Conference on Language Resources and Evaluation (LREC 2010)*, 17–23 May 2010, Valletta, Malta, 310-314.
- Kipper-Schuler 2005: Kipper-Schuler, K. *VerbNet: A Broad-coverage, Comprehensive Verb Lexicon*. PhD Thesis. Computer and Information Science Dept., University of Pennsylvania. Philadelphia, PA.
- Koeva 2010: Koeva, S. *Bulgarian FrameNet*. Sofia, 2010.
- Koeva et al. 2004: Koeva, S., Totkov, G., Genov, A. Towards Bulgarian WordNet. – *Romanian Journal of Information Science and Technology*, Dan Tufiş (ed.), Special Issue on BalkaNet. Romanian Academy, 7 (1-2), 45-61.
- Laparra & Rigau 2010: Laparra, E. & Rigau, G. eXtended WordFrameNet. In: *Proceedings of the 7th Conference on Language Resources and Evaluation (LREC 2010)*, 17–23 May 2010, Valletta, Malta, 1214-1219.

**БАЛКАНСКО ЕЗИКОЗНАНИЕ**  
**LINGUISTIQUE BALKANIQUE**

- Leseva & Stoyanova 2019: Leseva, S. & Stoyanova, I. Enhancing Conceptual Description through Resource Linking and Exploration of Semantic Relations. In: *Proceedings of the 10th Global WordNet Conference*, 23–27 July 2019, Wrocław, Poland. Oficyna Wydawnicza Politechniki Wrocławskiej, 229-238.
- Leseva et al. 2019: Leseva, S., Stoyanova, I., Todorova, M., Kukova, H. Frame Specialisation Motivated by Inter-Frame Relations in FrameNet. In: *Proceedings of the 14th International Conference on Linguistic Resources and Tools for Natural Language Processing*, Cluj-Napoca, Romania, 18–20 November 2019. Editura Universităţii „Alexandru Ioan Cuza” din Iaşi, 167-178.
- Miller 1995: Miller, G. WordNet: A Lexical Database for English. – *Communications of the ACM*, 38(11): 39-41.
- Palmer et al. 2014: Palmer, M., Bonial, C., McCarthy, D. SemLink+: FrameNet, VerbNet and Event Ontologies. In: *Proceedings of Frame Semantics in NLP: A Workshop in Honor of Chuck Fillmore (1929–2014)*, Baltimore, Maryland USA, 27 June 2014. Association for Computational Linguistics, 13-17.
- Palmer 2009: Palmer, M. Semlink: Linking PropBank, VerbNet and FrameNet. In: *Proceedings of the 5th International Conference on Generative Approaches to the Lexicon*, Pisa, Italy, September 2009, 9-15.
- Rizov & Dimitrova 2016: Rizov, B. & Dimitrova, T. Hydra for Web: A Browser for Easy Access to Wordnets. In: *Proceedings of the 8th Global Wordnet Conference*, Bucharest, Romania, 27–30 January 2016. Bucharest: Research Institute for Artificial Intelligence – Romanian Academy, 339-343.
- Ruppenhofer et al. 2016: Ruppenhofer, J., Ellsworth, M., Petruck, M. R., Johnson, C. R., Baker, C. F., Scheffczyk, J. *FrameNet II: Extended Theory and Practice*. International Computer Science Institute, Berkeley, California.
- Shi & Mihalcea 2005: Shi, L. & Mihalcea, R. Putting Pieces Together: Combining FrameNet, VerbNet and WordNet for Robust Semantic Parsing. In: Gelbukh, A. (Ed.): *Computational Linguistics and Intelligent Text Processing*. CICLing 2005. Lecture Notes in Computer Science, vol. 3406. Springer-Verlag: Berlin, Heidelberg, 100-111.
- Stoyanova & Leseva 2019: Stoyanova, I. & Leseva, S. A Structural Approach to Enhancing WordNet with Conceptual Frame Semantics. In: Angelova, G. et al. (Eds): *Natural*

# БАЛКАНСКО ЕЗИКОЗНАНИЕ LINGUISTIQUE BALKANIQUE

*Language Processing in a Deep Learning World. Proceedings of RANLP 2019*, Varna, Bulgaria, 2–4 September 2019, 630-638.

Tonelli & Pighin 2009: Tonelli, S. & Pighin, D. New Features for Framenet – Wordnet Mapping. In: *Proceedings of the 13th Conference on Computational Natural Language Learning (CoNLL'09)*, Boulder, USA, June 2009, 219-227.

Tufiş et al. 2004: Tufiş, D., Barbu, E., Mititelu, V., Ion, R., Bozianu, L. The Romanian Wordnet. – *Romanian Journal on Information Science and Technology*, Dan Tufiş (ed.), Special Issue on BalkaNet, Romanian Academy, 7 (1-2), 105-122.

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