EUROPEAN LANGUAGE EQUALITY

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The Bulgarian Language in the Digital Age

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08/09-06-2022 META-FORUM 2022 – Joining the European Language Grid (hybrid conference)
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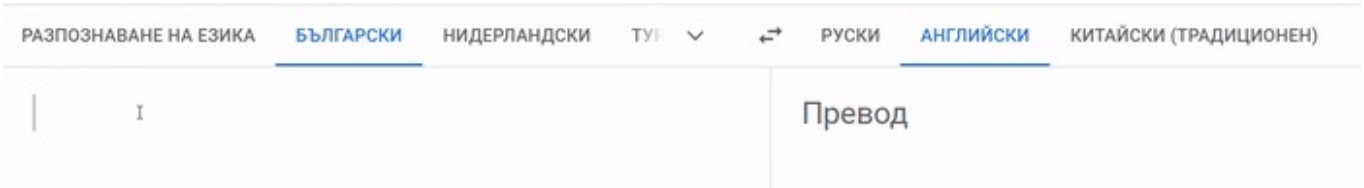
Technologies and Resources for Bulgarian

- **Machine translation technologies** for Bulgarian are still underdeveloped.
  - Bulgarian is present in several monolingual and multilingual corpora (PARSEME, UD treebank), and some of the multilingual corpora are sentence-aligned.
  - CEF-funded data-collection projects (CEF Automated Translation, MARCELL, CURLICAT).



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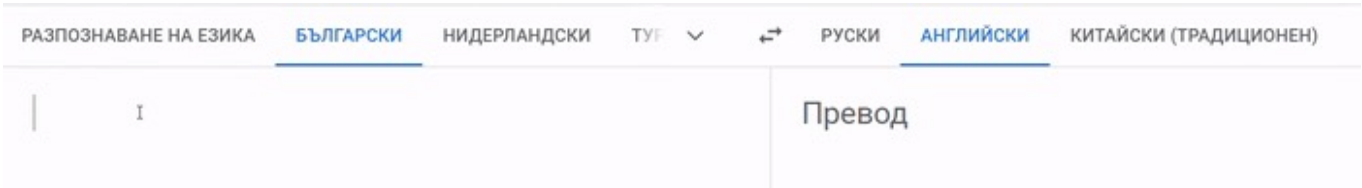
- The quality of **speech technology** is not yet satisfactory for a low-resourced language such as Bulgarian.
  - Bulgarian speech corpora (BGSpeech, BulPhonC) have been sporadically developed.
  - There are a few systems for speech synthesis (SpeechLab 2.0), specifically designed for Bulgarian.
  - No accessible and reliable speech to text systems for Bulgarian, especially working in real time.



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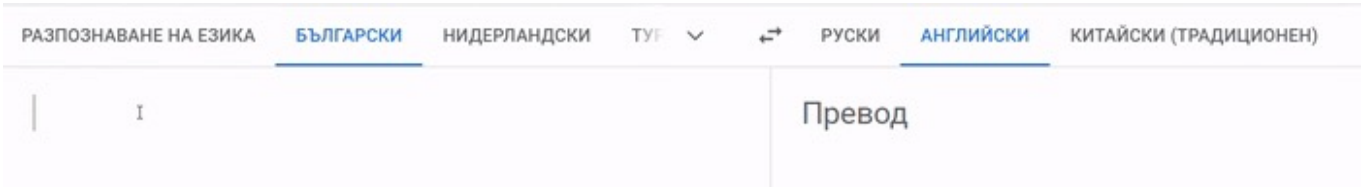
  - There are a few systems for speech synthesis (SpeechLab 2.0), specifically designed for Bulgarian.
- Recently, there has been serious advances in research based on **information extraction** for Bulgarian: event extraction, sentiment analysis, fake news detection, fact-checking.



Strengths

- **Strengths** of the Language Technologies for Bulgarian in 2022 include:
  - The availability of some LTs for text analysis (UDpipe, NLP-Cube),
  - Number of available language models for Bulgarian is growing (RoBERTa-base, XLM-R);
  - 220 high-schools with ICT focused curricula;
  - A number of very successful high-tech companies (around 50 AI companies).

Strengths and Weaknesses

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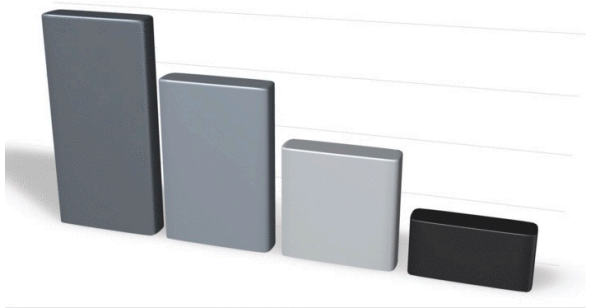
- **Weaknesses** of the Language Technologies for Bulgarian in 2022 include:
  - Many technologies are still not available (human-computer interaction, multimodal processing, language generation, etc.) ;
  - There are no available ready to use applications (summarisation, question answering, speech recognition, etc.);
  - Copyright issues are still the major barrier to the access and re-use of the available language resources;
  - There are not in general adequate LT funding policies.

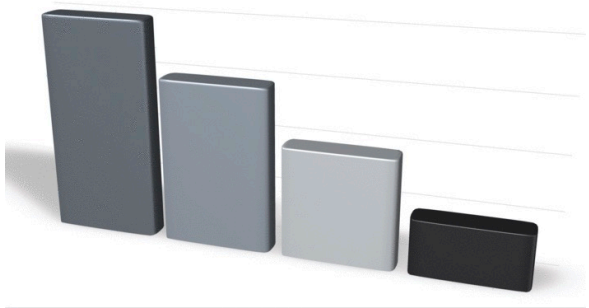
Recommendations and Next Steps

- There is a need for open real time services for machine translation from and to Bulgarian combining text and speech, **taking into account context, communicative purposes and different environments**.
- Speech and text technologies for Bulgarian have to be combined with technologies for other modalities: real time image and video processing **working simultaneously in a multilingual environment**.
- **Natural language understanding and generation** of Bulgarian have to become part of multilingual and multimodal processing.



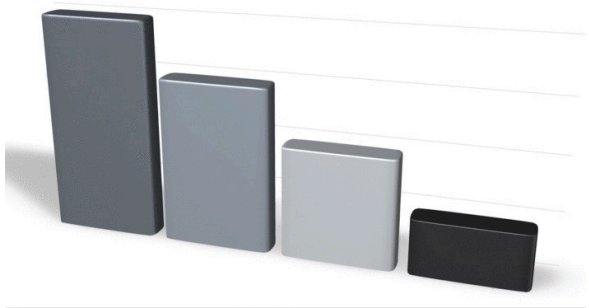
Recommendations and Next Steps

- Digital Bulgarian needs a **large-scale, long-term support**, harmonised with the support for all European languages.
- **BLARK-like minimum set of language resources and technologies** for all European languages should be developed and maintained.
- A **convenient and well-regulated access to data** is needed for the development of new products, applications and services.
- **Dedicated education and training programmes** in the field of LT and AI are essential for the advance.
- **The ELG** – the European hub and repository for ready-to-use (open-source) datasets, models, tools and services, has to be strengthen and further developed.



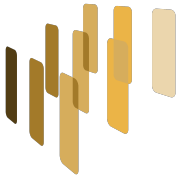
Recommendations and Next Steps

- **The vision for the future is high-quality LT for all European languages that supports political and economic unity through cultural diversity.**



European Language Grid

European Language Equality



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