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## Qualifications

### Principal Investigator

Period : 01.06.2010 - 31.12.2017 in

### Principal Investigator

Period : 15.05.2018 - 31.12.2025 in Department of Digital Humanities

## Employment

### Research Director

Department of Digital Humanities

University of Helsinki

Finland

1 Jan 2018 → present

### Title of Docent

Faculty Common Matters (Faculty of Arts)

University of Helsinki

Finland

1 Jan 2010 → present

### Deputy Team Supervisor

Centre of Excellence in Ancient Near Eastern Empires (ANEE)

University of Helsinki

Finland

1 Jan 2018 → 31 Dec 2025

## Research outputs

2024

### Applications and Related Tasks

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., 2 Jan 2024, In: Synthesis Lectures on Human Language Technologies. p. 137-145

### Conclusion and Future Directions

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., 2 Jan 2024, In: Synthesis Lectures on Human Language Technologies. p. 147-148

### Evaluation and Measurement

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., 2 Jan 2024, In: Synthesis Lectures on Human Language Technologies. p. 65-97

### Features and Methods

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., 2 Jan 2024, In: Synthesis Lectures on Human Language Technologies. p. 19-63

**Large Scale, Multi-domain Language Identification**

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., 2 Jan 2024, In: *Synthesis Lectures on Human Language Technologies*. p. 117-135

**Specific Challenges of Variation and Text Types**

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., 2 Jan 2024, In: *Synthesis Lectures on Human Language Technologies*. p. 99-115

**Automatic Language Identification in Texts**

Jauhainen, T., Zampieri, M., Baldwin, T. C. & Linden, K., Jan 2024, Cham: Springer. 148 p. (*Synthesis Lectures on Human Language Technologies*)

**Introduction to Language Identification**

Jauhainen, T., Zampieri, M., Baldwin, T. & Linden, K., Jan 2024, In: *Synthesis Lectures on Human Language Technologies*.

**2023****CLARIN Annual Conference Proceedings 2023**

Linden, K. (ed.), Niemi, J. (ed.) & Kontino, T. (ed.), 10 Dec 2023, Leuven: CLARIN ERIC. 185 p. (*CLARIN Annual Conference Proceedings*)

**Sharing the Finnish Dark Web Marketplace Corpus (FINDarC)**

Lindén, K., Ruokolainen, T., Hääläinen, L. & Harviainen, J. T., 10 Dec 2023, *CLARIN Annual Conference Proceedings*. Lindén, K., Niemi, J. & Kontino, T. (eds.). Leuven: CLARIN ERIC, p. 134-139 6 p. (*CLARIN Annual Conference Proceedings*).

**Tuning HeLI-OTS for Guarani-Spanish Code Switching Analysis**

Jauhainen, T., Jauhainen, H. & Linden, K., Oct 2023, *Proceedings of the Iberian Languages Evaluation Forum (IberLEF 2023)*. Montes-y-Gómez, M., Rangel, F. & Jiménez-Zafra, et al., S. M. (eds.). Aachen: CEUR-WS.org, 12 p. (*CEUR Workshop Proceedings*; vol. 3496).

**BabyLemmatizer 2.0 – A Neural Pipeline for POS-tagging and Lemmatizing Cuneiform Languages**

Sahala, A. & Linden, K., Sept 2023, *Proceedings of the Ancient Language Processing Workshop associated with The 14th International Conference on Recent Advances in Natural Language Processing, RANLP 2023*. Anderson, A., Gordin, S., Li, B., Liu, Y. & Passarotti, M. C. (eds.). Shoumen: INCOMA, p. 203-212 10 p.

**The CLARIN infrastructure as an interoperable language technology platform for SSH and beyond**

Branco, A., Eskevich, M., Frontini, F., Hajič, J., Hinrichs, E., Jong, F. D., Kamocki, P., König, A., Lindén, K., Navarretta, C., Piasecki, M., Piperidis, S., Pitkänen, O., Simov, K., Skadiņa, I., Trippel, T., Witt, A. & Zinn, C., 12 Jun 2023, In: *Language Resources and Evaluation*. 32 p.

**EU Data Governance Act: Outlining a Potential Role for CLARIN**

Kamocki, P., Linden, K., Puksas, A. & Kelli, A., 9 Jun 2023, *Selected papers from the CLARIN Annual Conference 2022*. Erjavec, T. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 57-65 9 p. (*Linköping Electronic Conference Proceedings*; no. 198).

**The Pipeline for Publishing Resources in the Language Bank of Finland**

Dieckmann, U., Lennes, M., Piitulainen, J., Niemi, J., Axelson, E., Jauhainen, T. & Linden, K., 9 Jun 2023, *Selected Papers from the CLARIN Annual Conference 2022*. Erjavec, T. & Eskevich, M. (eds.). Linköping: Linköping University Electronic Press, p. 33-43 11 p. (*Linköping Electronic Conference Proceedings*; no. 198).

**FinnSentiment: A Finnish Social Media Corpus for Sentiment Polarity Annotation**

Linden, K., Jauhainen, T. & Hardwick, S., Jun 2023, In: *Language Resources and Evaluation*. 57, 2, p. 581-609 29 p.

### **Ethically Archiving a Hard-to-Access Massive Research Data Set in the Language Bank of Finland: The Finnish Dark Web Marketplace Corpus (FINDarC)**

Lindén, K., Ruokolainen, T., Hämäläinen, L. & Harviainen, J. T., 2023, *Proceedings of the Conference on Technology Ethics 2023 - Tethics 2023*. Rantanen, M. M., Westerstrand, S., Sahlgren, O. & Koskinen, J. (eds.). Aachen: CEUR-WS.org, p. 114-131 18 p. (CEUR Workshop Proceedings; vol. 3582).

### **HFST Training Environment and Recent Additions**

Axelson, E., Hardwick, S. & Linden, K., 2023, *Rule-Based Language Technology*. Hurskainen, A., Koskenniemi, K. & T. P. (eds.). Tartu: Northern European Association for Language Technology , p. 60-69 10 p. (NEALT Monograph Series; no. 2[1]).

### **Language Report Finnish**

Lindén, K. & Dyster, W., 2023, *European Language Equality: A Strategic Agenda for Digital Language Equality*. Rehm, G. & Way, A. (eds.). Cham: Springer International Publishing, p. 135-138 4 p. (The Cognitive Technologies).

### **Lemmatizing and POS-tagging Akkadian with BabyLemmatizer and Dictionary-Based Post-Correction**

Sahala, A., Alstola, T., Valk, J. & Linden, K., 2023, *Selected papers from the CLARIN Annual Conference 2022*. Erjavec, T. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 111–119 9 p. (Linköping Electronic Conference Proceedings; vol. 198).

### **New data, benchmark and baseline for L2 speaking assessment for low-resource languages**

Kurimo, M., Getman, Y., Voskoboinik, E., Al-Ghezi, R., Kallio, H., Kuronen, M., von Zansen, A., Hilden, R., Kronholm, S., Huhta, A. & Linden, K., 2023, *Proceedings of 9th Workshop on Speech and Language Technology in Education (SLaTE)*. Baixas: ISCA - International Speech Communication Association , p. 166-170 5 p. (ISCA International Workshop on Speech and Language Technology in Education).

## **2022**

### **Optimizing Naïve Bayes for Arabic Dialect Identification**

Jauhainen, T., Jauhainen, H. & Linden, K., 8 Dec 2022, *Proceedings of the Seventh Arabic Natural Processing Workshop*. Bouamor, et al., H. (ed.). Stroudsburg: The Association for Computational Linguistics, p. 409-414 6 p.

### **The CLARIN Committee for Legal and Ethical Issues and the Normative Layer of the CLARIN Infrastructure: Ville Oksanen, in memoriam (26 december 1976-23 november 2014)**

Kamocki, P., Kelli, A. & Lindén, K., 24 Oct 2022, *CLARIN: The Infrastructure for Language Resources*. Fišer, D. & Witt, A. (eds.). Berlin: de Gruyter, p. 457-479 23 p. (Digital Linguistics; vol. 1).

### **Italian Language and Dialect Identification and Regional French Variety Detection using Adaptive Naïve Bayes**

Jauhainen, T., Jauhainen, H. & Lindén, K., 12 Oct 2022, *Proceedings of the Ninth Workshop on NLP for Similar Languages, Varieties and Dialects: The 29th International Conference on Computational Linguistics*. Scherrer, Y., Jauhainen, T., Ljubešić, N., Nakov, P., Tiedemann, J. & Zampieri, M. (eds.). Gyeongju: COLING , p. 119-129 11 p. (International conference on computational linguistics; vol. 29, no. 19).

### **Language Identification as part of the Text Corpus Creation Pipeline at the Language Bank of Finland**

Jauhainen, T., Piitulainen, J., Axelson, E. & Linden, K., 6 Oct 2022, *Proceedings of the 6th Digital Humanities in the Nordic and Baltic Countries Conference (DHNB 2022)*. Berglund, K., La Mela, M. & Zwart, I. (eds.). Aachen: CEUR, p. 251-259 9 p. (CEUR Workshop Proceedings; vol. 3232).

### **Donate Speech: Collecting and Sharing a Large-Scale Speech Database for Social Sciences, Humanities and Artificial Intelligence Research and Innovation**

Lindén, K., Jauhainen, T., Lennes, M., Kurimo, M., Rossi, A., Kurki, T. & Pitkänen, O., Oct 2022, *CLARIN: The Infrastructure for Language Resources*. Fišer, D. & Witt, A. (eds.). Berlin: de Gruyter, p. 481-510 30 p. (Digital Linguistics; vol. 1).

**Digital Approaches to Analyzing and Translating Emotion: What Is Love?**

Alstola, T., Jauhainen, H., Svärd, S., Sahala, A. & Linden, K., 30 Aug 2022, *The Routledge Handbook of Emotions in the Ancient Near East*. Sonik, K. & Steinert, U. (eds.). London: Routledge, p. 88–116 29 p.

**Donera prat för AI-utveckling till Språkbanken i Finland**

Linden, K., Lennes, M., Jauhainen, T., Kurimo, M. & Rossi, A., 18 Aug 2022, In: *Språk i Norden*. 52, 1, p. 35-50 16 p., 132412.

**Lahjoita puhetta: a large-scale corpus of spoken Finnish with some benchmarks**

Moisio, A., Porjazovski, D., Rouhe, A., Getman, Y., Virkkunen, A., AlGhezi, R., Lennes, M., Grósz, T., Lindén, K. & Kurimo, M., 9 Aug 2022, In: *Language Resources and Evaluation*. 57, p. 1295–1327 33 p.

**Legal Issues Related to the Use of Twitter Data in Language Research**

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**The Interaction of Personal Data, Intellectual Property and Freedom of Expression in the Context of Language Research**

Kelli, A., Linden, K., Kamocki, P., Vider, K., Labropoulou, P., Birštonas, R., Mantrov, V., Hannesschläger, V., Del Gratta, R., Värv, A., Tavits, G., Vutt, A., Hoorn, E., Hajic, J. & Language, I., 8 Jul 2022, *Selected papers from the CLARIN Annual Conference 2021*. Monachini, M. & Eskevich, M. (eds.). Linköping: Linköping University Electronic Press, p. 76-87 12 p. (Linköping Electronic Conference Proceedings; vol. 189).

**Building a Chatbot: Challenges under Copyright and Data Protection Law**

Kelli, A., Tavast, A. & Lindén, K., 30 Jun 2022, *Contracting and Contract Law in the Age of Artificial Intelligence*. Ebers, M., Poncibò, C. & Zou, M. (eds.). Oxford: Hart publishing, p. 115-134 20 p.

**Report on the Finnish Language**

Linden, K. & Dyster, W., 28 Feb 2022, *European Language Equality: Language Technology Support of Europe's Languages in 2020/2021*. Giagkou, M., Piperidis, S., Rehm, G. & Dunne, J. (eds.). Dublin: ELE Consortium, 24 p.

**BabyLemmatizer: A Lemmatizer and POS-tagger for Akkadian**

Sahala, A., Alstola, T., Valk, J. & Linden, K., 2022, *CLARIN Annual Conference Proceedings, 2022*. Erjavec, T. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 14–18 5 p. (CLARIN Annual Conference Proceedings).

**EU Data Governance Act: New Opportunities and New Challenges for CLARIN**

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**HeLI-OTS, Off-the-shelf Language Identifier for Text**

Jauhainen, T., Jauhainen, H. & Lindén, K., 2022, *Proceedings of the 13th Conference on Language Resources and Evaluation (LREC 2022)*. Calzolari, N., Béchet, F. & Blache, et al., P. (eds.). Paris: European Language Resources Association (ELRA), p. 3912-3922 11 p.

**Language diversity in the newspaper and periodical corpus of the National Library of Finland**

Jauhainen, T., Piitulainen, J., Axelson, E. & Linden, K., 2022.

**Optimizing Naïve Bayes for Arabic Dialect Identification**

Jauhainen, T., Jauhainen, H. & Linden, K., 2022.

**The Resource Publishing Pipeline of the Language Bank of Finland**

Dieckmann, U., Lennes, M., Piitulainen, J., Niemi, J., Axelson, E., Jauhainen, T. & Linden, K., 2022, *CLARIN Annual Conference Proceedings, 2022*. Erjavec, T. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 53-56 4 p. (CLARIN Annual Conference Proceeedings).

2021

**A multilingual net of lexical resources**

Lindén, K., Niemi, J., Borin, G., Forsberg, M., Sanford Pedersen, B., Nimb, S., Orav, H., Kahusk, N. & Vider, K., 15 Nov 2021, *The Swedish FrameNet++: Harmonization, integration, method development and practical language technology applications*. Dannélls, D., Borin, L. & Heppin, K. F. (eds.). Amsterdam: John Benjamins, p. 123-137 15 p. (Natural Language Processing; vol. 14).

**Legal issues related to the use of Twitter data in language research**

Kamocki, P., Hannesschläger, V., Hoorn, E., Kelli, A., Kupietz, M., Lindén, K. & Puksas, A., 27 Sept 2021, *CLARIN Annual Conference Proceedings 2021*. Monachini, M. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 150-153 4 p. (CLARIN Annual Conference Proceedings).

**The interplay of legal regimes of personal data, intellectual property and freedom of expression in language research**

Kelli, A., Lindén, K., Kamocki, P., Vider, K., Labropoulou, P., Birštonas, R., Mantrov, V., Hannesschläger, V., Del Gratta, R., Värv, A., Tavits, G. & Vutt, A., 27 Sept 2021, *Proceedings of CLARIN Annual Conference 2021*. Monachini, M. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 154-159 6 p. (CLARIN Annual Conference).

**Sharing is caring: a legal perspective on sharing language data containing personal data and the division of liability between researchers and research organisations**

Kelli, A., Lindén, K., Vider, K., Kamocki, P., Tavast, A., Birštonas, R., Tavits, G., Keskküla, M., Labropoulou, P., Kull, I., Värv, A., Erikson, M., Vutt, A. & Calamai, S., 22 Jun 2021, *Selected Papers from the CLARIN Annual Conference 2020: Virtual Event, 2020, 5-7 October*. Navarretta, C. & Eskevich, M. (eds.). Linköping: Linköping University Electronic Press, p. 129-147 19 p. (Linköping Electronic Conference Proceedings; no. 180).

**Findings of the VarDial Evaluation Campaign 2021**

Chakravarthi, B. R., Gaman, M., Ionescu, R. T., Jauhainen, H., Jauhainen, T., Linden, K., Ljubešić, N., Partanen, N., Priyadarshini, R., Purschke, C., Rajagopal, E., Scherrer, Y. & Zampieri, M., Apr 2021, *Proceedings of the 8th VarDial Workshop on NLP for Similar Languages, Varieties and Dialects*. Zampieri, M., Nakov, P., Ljubešić, N., Tiedemann, J., Scherrer, Y. & Jauhainen, T. (eds.). Stroudsburg: The Association for Computational Linguistics, p. 1-11 11 p.

**Fear in Akkadian Texts: New Digital Perspectives on Lexical Semantics**

Svärd, S., Alstola, T., Jauhainen, H., Sahala, A. & Linden, K., 2021, *The Expression of Emotions in Ancient Egypt and Mesopotamia*. Hsu, S-W. & Llop-Raduà, J. (eds.). Leiden: Brill, p. 470-502 33 p. (Culture and History of the Ancient Near East; vol. 116).

**Isikuandmeid sisaldavate keeleandmete jagamisega seonduv õiguslik raamistik: Teadlase ja teadusasutuse kohustused ning vastutus**

Kelli, A., Vider, K., Tavast, A., Lindén, K., Kamocki, P., Birštonas, R., Labropoulou, P., Calamai, S., Tavits, G., Keskküla, M., Kull, I., Erikson, M., Ginter, C., Värv, A. & Vutt, A., 2021, In: Eesti Rakenduslingvistika Uhingu Aastaraamat. 17, p. 99-121 23 p.

**Naive Bayes-based Experiments in Romanian Dialect Identification**

Jauhainen, T., Jauhainen, H. & Linden, K., 2021, *Proceedings of the 8th VarDial Workshop on NLP for Similar Languages, Varieties and Dialects*. Zampieri, M., Nakov, P., Ljubešić, N., Tiedemann, J., Scherrer, Y. & Jauhainen, T. (eds.). Stroudsburg: ACL Anthology, p. 76-83 8 p.

**Naive Bayes-based Experiments in Romanian Dialect Identification**

Jauhainen, T., Jauhainen, H. & Linden, K., 2021.

**Suomalais-ugrilaiset kielet ja internet -projekti 2013-2019**

Jauhainen, T., Jauhainen, H. & Linden, K., 2021, *Multilingual Facilitation*. Hämäläinen, M., Partanen, N. & Alnajar, K. (eds.). Helsinki: University of Helsinki

2020

#### A Report on the VarDial Evaluation Campaign 2020

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#### Optical character recognition with neural networks and post-correction with finite state methods

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#### Improving Word Association Measures in Repetitive Corpora with Context Similarity Weighting

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#### Akkadian Treebank for early Neo-Assyrian Royal Inscriptions

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#### CLARIN contractual framework for sharing language data: the perspective of personal data protection

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#### A CLARIN Contractual Framework for Sharing Personal Data for Scientific Research

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#### The Impact of Copyright and Personal Data Laws on the Creation and Use of Models for Language Technologies

Kelli, A., Tavast, A., Lindén, K., Vider, K., Birštonas, R., Labropoulou, P., Kull, I., Tavits, G., Värv, A., Stranák, P. & Hajic, J., 3 Jul 2020, *Selected Papers from the CLARIN Annual Conference 2019*. Simov, K. & Eskevich, M. (eds.). Linköping: Linköping University Electronic Press, p. 53-65 13 p. (Linköping Electronic Conference Proceedings; no. 172).

#### Automated Phonological Transcription of Akkadian Cuneiform Text

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#### BabyFST: Towards a Finite-State Based Computational Model of Ancient Babylonian

Sahala, A., Silfverberg, M., Arppe, A. & Linden, K., 17 May 2020, *Proceedings of the 12th Conference on Language Resources and Evaluation (LREC 2020)*. Calzolari ... [ et al.], N. (ed.). Paris: European Language Resources Association (ELRA), p. 3886-3894 9 p.

#### The European Language Technology Landscape in 2020: Language-Centric and Human-Centric AI for Cross-Cultural Communication in Multilingual Europe

Rehm, G., Marheinecke, K., Hegele, S., Piperidis, S., Bontcheva, K., Hajic, J., Choukri, K., Vasiljevs, A., Backfried, G., Prinz, C., Gomez-Perez, J. M., Meertens, L., Lukowicz, P., van Genabith, J., Lösch, A., Slusallek, P., Irgens, M., Gatellier, P., Köhler, J., Le Bars, L., & 27 othersAnastasiou, D., Auksoriütė, A., Bel, N., Branco, A., Budin, G., Daelemans, W., De Smedt, K., Garabík, R., Gavriilidou, M., Gromann, D., Koeva, S., Krek, S., Krstev, C., Lindén, K., Magnini, B., Odijk, J., Ogrodniczuk, M., Rögnvaldsson, E., Rosner, M., Pedersen, B., Skadina, I., Tadić, M., Tufi, D., Váradı, T., Vider, K., Way, A. & Yvon, F., 1 May 2020, *Proceedings of The 12th Language Resources and Evaluation Conference*. Calzolari [ et al.], N. (ed.). Paris: European Language Resources Association (ELRA), p. 3322-3332 11 p.

**A Finnish news corpus for named entity recognition**

Ruokolainen, T., Kauppinen, P., Silfverberg, M. & Lindén, K., Mar 2020, In: *Language Resources and Evaluation*. 54, 1, p. 247-272 26 p.

**Building Web Corpora for Minority Languages**

Jauhainen, H., Jauhainen, T. & Linden, K., 2020, *Proceedings of the 12th Web as Corpus Workshop*. Barbaresi, A., Bildhauer, F., Schäfer, R. & Stemle, E. (eds.). Stroudsburg: The Association for Computational Linguistics, p. 23-32 10 p.

**Compatibility of business models of Estonian language technology entrepreneurs with regulatory framework on the use of digital content**

Kull, I., Vider, K., Mets, T., Kelli, A. & Linden, K., 2020, In: *International Comparative Jurisprudence*. 6, 1, p. 70–83 14 p.

**Experiments in Language Variety Geolocation and Dialect Identification**

Jauhainen, T., Jauhainen, H. & Linden, K., 2020, *Proceedings of the 7th Workshop on NLP for Similar Languages, Varieties and Dialects*. Zampieri, M., Nakov, P., Ljubešić, N., Tiedemann, J. & Scherrer, Y. (eds.). International Committee on Computational Linguistics (ICCL), p. 220-231 12 p.

**Impact of Legal Status of Data on Development of Data-Intensive Products: Example of Language Technologies**

Kelli, A., Tavast, A., Linden, K., Bristonas, R., Labropoulou, P., Vider, K., Kull, I., Tavits, G., Värv, A. & Mantrov, V., 2020, *Legal Science: Functions, Significance and Future in Legal Systems II : Collection of Research Papers in Conjunction with the 7th International Scientific Conference of the Faculty of Law of the University of Latvia (16–18 October 2019, Riga)*. Damberga, A. (ed.). Riga: University of Latvia press, p. 383–400 18 p.

**Keeleandmete õiguslike režiimi mõju nende abil loodud keelemudelitele**

Kelli, A., Vider, K., Tavast, A., Lindén, K., Birštonas, R., Labropoulou, P., Värv, A., Kull, I., Tavits, G. & Ginter, C., 2020, In: *Eesti rakenduslingvistika ühingu aastaraamat*. 16, p. 59-76 18 p.

**Uralic Language Identification (ULI) 2020 shared task dataset and the Wanca 2017 corpora**

Jauhainen, T., Jauhainen, H., Partanen, N. & Linden, K., 2020, *Proceedings of the 7th Workshop on NLP for Similar Languages, Varieties and Dialects*. Zampieri, M., Nakov, P., Ljubešić, N., Tiedemann, J. & Scherrer, Y. (eds.). International Committee on Computational Linguistics (ICCL), p. 173–185 13 p.

**Vestlusrobotid ja autoriõigus**

Kelli, A., Tavast, A. & Linden, K., 2020, In: *Juridica*. 5, p. 345–354 10 p.

**2019****The Extent of Legal Control over Language Data: the Case of Language Technologies**

Kelli, A., Tavast, A., Linden, K., Vider, K., Birštonas, R., Labropoulou, P., Kull, I., Tavits, G. & Värv, A., 30 Sept 2019, *Proceedings of CLARIN Annual Conference 2019*. Simov, K. & Eskevich, M. (eds.). Utrecht: CLARIN ERIC, p. 69-74 6 p.

**To Ask or not to Ask: Informed Consent to Participate and Using Data in the Public Interest**

Linden, K., Kelli, A. & Nousias, A., 30 Sept 2019, *Proceedings of CLARIN Annual Conference 2019*. Simov, K. & Eskevich, M. (eds.). Leipzig: CLARIN ERIC, p. 56-60 5 p.

**Language Model Adaptation for Language and Dialect Identification of Text**

Jauhainen, T. S., Linden, B. K. J. & Jauhainen, H. A., Sept 2019, In: *Natural Language Engineering*. 25, 5, p. 561-583 23 p., 135132491900038.

**Automatic Language Identification in Texts: A Survey**

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Silfverberg, M. & Linden, K., 9 May 2011, *Proceedings of the 18th Conference of Computational Linguistics NODALIDA 2011*. Pedersen, B. & Skadiņa, I. (eds.). Northern European Association for Language Technology , p. 183–190 8 p. (NEALT Proceedings Series; vol. 11).

**Designing a Dependency Representation and Grammar Definition Corpus for Finnish**

Voutilainen, A., Linden, K. & Purtonen, T. K., 8 May 2011, *Las tecnologías de la información y las comunicaciones: Presente y futuro en el análisis de corpora: Actas del III Congreso Internacional de Lingüística de Corpus..* Pastor, C. & Mora, C. (eds.). Valencia, p. 151-158 9 p.

**HFST-Framework for Compiling and Applying Morphologies**

Linden, K., Axelson, E., Hardwick, S., Pirinen, T. A. & Silfverberg, M., 2011, *SYSTEMS AND FRAMEWORKS FOR COMPUTATIONAL MORPHOLOGY*. Mahlow, C. & Piotrowski, M. (eds.). Springer-Verlag, p. 67-85 19 p. (Communications in Computer and Information Science; vol. 100).

2010

**FinnTreeBank 1**

Voutilainen, A., Purtonen, T. K., Leisko-Järvinen, S., Kumlander, M., Linden, K., Nissinen, M. & Hardwick, S., 29 Dec 2010

**FinnWordNet - a Finnish WordNet database**

Linden, K., Carlson, L. & Niemi, J. A., Dec 2010

**Creating and Weighting Hunspell Dictionaries as Finite-State Automata**

Pirinen, T. & Linden, K., Nov 2010, In: *Investigationes Linguisticae* (Online Edition). 19

**FinnWordNet - WordNet på finska via översättning**

Linden, K. & Carlson, L., Nov 2010, In: *LexicoNordica*. 17, 16 p.

**Building and Using Existing Hunspell Dictionaries and TEX Hyphenators as Finite-State Automata**

Pirinen, T. & Linden, K., Oct 2010, *Proceedings of International Multiconference on Computer Science and Information Technology: Computational Linguistics—Applications (CLA'10)*. Ganzha, M. & Paprzycki, M. (eds.). Wisla, Poland, Vol. 5. p. 477–484 8 p. (Proceedings of the International Multiconference on Computer Science and Information Technology).

**Part-of-Speech Tagging using Parallel Weighted Finite-State Transducers**

Silfverberg, M. & Linden, K., Aug 2010, *Proceedings of IceTAL 2010: 7th International Conference on Natural Language Processing*. Reykjavik, 12 p.

**Finite-State Spell-Checking with Weighted Language and Error Models: Building and Evaluating Spell-Checkers with Wikipedia as Corpus**

Pirinen, T. & Linden, K., May 2010, *Proceedings of LREC 2010: Workshop on Creation and use of basic lexical resources for less-resourced languages*.

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Oksanen, V., Linden, K. & Westerlund, H., May 2010, *Proceedings of LREC 2010 : Workshop on Language Resources: From Storyboard to Sustainability and LR Lifecycle Management*.

2009

**HFST Library**

Silfverberg, M., Linden, K., Pirinen, T. & Axelson, E., Jun 2009

**HFST-optimized-lookup**

Silfverberg, M., Hardwick, S. & Linden, K., Jun 2009

**Conflict resolution using weighted rules in HFST-TWOLC**

Silfverberg, M. & Linden, K., May 2009, In: NEALT Proceedings Series. 4, p. 174-181 8 p.

**Guessers for Finite-State Transducer Lexicons**

Lindén, K., Mar 2009, *Computational Linguistics and Intelligent Text Processing: 10th International Conference, CICLing 2009*. Gelbukh, A. (ed.). Springer-Verlag, p. 158-169 12 p. (Lecture Notes in Computer Science).

**Corpus-based lexeme ranking for morphological guessers**

Linden, K. & Tuovila, J., 2009, *State of the Art in Computational Morphology edited by Cerstin Mahlow, Michael Piotrowski*. Berlin, Heidelberg: Springer-Verlag, p. 118-135 18 p. (Communications in computer and information science).

**Corpus-based paradigm Selection for morphological entries**

Linden, K. & Tuovila, J., 2009, In: NEALT Proceedings Series. 4, p. 96-102 7 p.

**Entry Generation for New Words by Analogy for Morphological Lexicons**

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**HFST runtime format: A compacted transducer format allowing for fast lookup**

Silfverberg, M. & Linden, K., 2009, *Finite-State Methods and Natural Language Processing - FSMNLP 2009 Eight International Workshop*.

**HFST tool for morphology: An efficient open-source package for construction of morphological analyzers**

Linden, K., Silfverberg, M. & Pirinen, T., 2009, *State of the Art in Computational Morphology edited by Cerstin Mahlow, Michael Piotrowski*. Berlin, Heidelberg: Springer-Verlag, p. 28-47 20 p. (Communications in computer and information science).

**Weighted finite-state morphological analysis of finnish compounding with HFST-LEXC**

Linden, K. & Pirinen, T., 2009, In: NEALT Proceedings Series. 4, p. 89-95 7 p.

**Weighting finite-state morphological analyzers using HFST tools**

Linden, K. & Pirinen, T., 2009, *Finite-State Methods and Natural Language Processing - FSNLP 2009 Eight International Workshop*.

**2008**

**A probabilistic model for guessing base forms of new words by analogy**

Linden, K., 2008, In: Lecture Notes in Computer Science. 4919, p. 106-116 11 p.

**Assigning an Inflectional Paradigm using the Longest Matching Affix**

Linden, K., 2008, *Ei mitään ongelmia: Juhlakirja Juhani Reimanille 50-vuotispäiväksi 23.1.2008*. Wiberg, M. & Koura, A. (eds.). Turku

**2007**

**Expert panel report: the Nordic countries : a leading region in language technology**

Koskenniemi, K. (ed.), Linden, K. (ed.) & Nordgård, T. (ed.), 2007, Helsinki: University of Helsinki. Department of General Linguistics. 76 p. (Publications; vol. 40)

**Opiskelijapalautteen keräämisestä**

Kauhanen, I. & Linden, K., 2007, Helsinki: Helsingin yliopisto, yleisen kielitieteen laitos. 18 p. (Opintomonisteet / Yleisen kielitieteen laitos. Helsingin yliopisto; no. No. 4)

**SpråkVis - Språkteknologiisk vismanskrapport: En utgivad sammanfattning av The Nordic Countries - A leading Region in language Technology**

Koskenniemi, K. (ed.), Linden, K. (ed.) & Nordgård, T. (ed.), 2007, Helsinki: Helsingfors universitet. Institutionen för allmän språkvetenskap. 12 p.

**2006**

**Common Infrastructure for Finite-State Based Methods and Linguistics Descriptions**

Yli-Jyrä, A. M., Koskenniemi, K. & Linden, K., 2006, *International Workshop Towards a Research Infrastructure for Language Resources*. 2 p.

**Multilingual modelling of cross-lingual spelling variants**

Linden, K., 2006, In: Information Retrieval Journal. 9, 3, p. 295-310 16 p.

**2005**

**Inquiries into words, constraints and contexts: Festschrift in the honour of Kimmo Koskenniemi on his 60th birthday**

Arppe, A., Carlson, L., Linden, K., Piitulainen, J. O., Suominen, M., Vainio, M., Westerlund, H. & Yli-Jyrä, A. M., 2005, [S.I.]: CSLI publications. 288 p. (CSLI Studies in Computational Linguistics ONLINE)

**Morfessor and Hutmegs: Unsupervised Morpheme Segmentation for Highly-Inflecting and Compounding Languages**

Creutz, M., Lagus, K., Linden, K. & Virpioja, S. P., 2005, *The Second Baltic Conference on Human Language Technologies: Proceedings*. Langemets, M. & Penjam, P. (eds.). Tallinn: Institute of Cybernetics; Institute of the Estonian Language

**Word sense discovery and disambiguation**

Linden, K., 2005, Helsinki: University of Helsinki.

**Word senses**

Linden, K., 2005, *Inquiries into words, constraints and contexts: Festschrift in the honour of Kimmo Koskenniemi on his 60th birthday*. [S.I.]: [s.n.], p. 249-258 10 p.

2004

**Evaluation of Linguistic Features for Word Sense Disambiguation with Self-Organized Document Maps**  
Linden, K., Nov 2004, In: *Language Resources and Evaluation*. 38, 4, p. 417-435 19 p.

**Discovering Synonyms and Other Related Words**

Linden, K. & Piitulainen, J. O., Aug 2004, *Proceedings of COLING 2004: CompuTerm 2004: 3rd International Workshop on Computational Terminology*. Ananadiou, S. & Zweigenbaum, P. (eds.). p. 63-70

**Morpheme Segmentation Gold Standards for Finnish and English**

Creutz, M. J. P. & Linden, B. K. J., 2004, *Publications in Computer and Information Science: Report A77*. Helsinki University of Technology, 33 p.

2003

**Word Sense Disambiguation with THESSOM**

Linden, K., Sept 2003, *Proceedings of WSOM'03 - Intelligent Systems and Innovational Computing*.

2002

**Word Sense Disambiguation in Document Space**

Linden, K. & Lagus, K., Oct 2002, *Proceedings of 2002 IEEE International Conference on Systems, Man and Cybernetics*.

1997

**Language Applications with Finite-State Technology**

Linden, K., 1997, In: *International Journal of Corpus Linguistics*. p. 281-288

1987

**Unification as a grammatical tool**

Carlson, L. & Linden, K., 1987, In: *Nordic journal of linguistics*. 10, p. 111-136

## Projects

1. **FIN-CLARIN - Kielipankki**  
Linden, K., Piitulainen, J., Niemi, J., Lennes, M., Bartis, I., Westerlund, H., Drobac, S., Axelson, E. & Kauppinen, P.  
05/06/2006 → ...
2. **FinnWordNet - A Finnish WordNet**  
Linden, K., Niemi, J., Hyvärinen, M., Muhonen, K. & Pääkkö, P.  
01/01/2010 → ...
3. **HFST - Helsinki Finite-State Technology**  
Linden, K., Koskenniemi, K., Yli-Jyrä, A., Hulden, M., Silfverberg, M., Pirinen, T., Axelson, E., Hardwick, S., Niemi, J. & Hurskainen, A.  
01/01/2005 → ...
4. **Lahjoita puhetta -kampanjan suunnittelu ja toteutus**  
Jauhainen, T., Lennes, M., Linden, K. & Dyster, W.  
01/11/2019 → ...

5. **ANEE: ANEE Team 1: Digital Humanities Approaches**  
Svärd, S., Linden, K., Bach, J., Jauhainen, T., Jauhainen, H., Sahala, A., Konstantopoulos, G., Fink, S., Zaia, S., Luukko, M. I., Bennett, E. R., Alstola, T., Vanderstraeten, E., Autere, K., Giessler, J., Debourse, C. H. I., Tambs, L., Valk, J., Uotila, R. & Jones, C. W.  
01/01/2018 → 31/12/2025
6. **ANEE: Centre of Excellence in Ancient Near Eastern Empires**  
Silverman, J. M., Svärd, S., Lahelma, A., Nikki, N., Töyräänuori, J., Jokiranta, J., Laine, L., Kletter, R., Bonnie, R., Thomas, S., Holmqvist-Sipilä, E., Kouki, P., Wasmuth, M., Wallis, C., Lorenzon, M., Jauhainen, H., Jauhainen, T., Alstola, T., Bach, J., Fink, S., Konstantopoulos, G., Zaia, S., Sahala, A., Miettunen, P. H., Avneri Meir, R., Aissaoui, A. I., Arpe, O. P., Luukko, M. I., Kovanen, H., Linden, K., Bennett, E. R., Saari, S., Vanderstraeten, E., Autere, K., Debourse, C. H. I., Kailamäki, Ü., Kautonen, S. K., Spunaugle, A., Tambs, L., Jones, C. W., Wijnsma, U. Z., Valk, J., Gheorghiade, P., Autere, K., Uotila, R., Reinikainen, S. J. J., Cutillas Victoria, B., Holappa, M., Kletter, R., Smith, S. L. & Pföh, E.  
01/01/2018 → 31/12/2025
7. **LIST: Language Identification of Speech and Text**  
Jauhainen, T. & Linden, K.  
01/01/2021 → 31/12/2022
8. **Semantic Domains in Akkadian Texts**  
Linden, K., Alstola, T., Jauhainen, H., Jauhainen, T., Sahala, A., Svärd, S. & Zaia, S.  
01/09/2016 → 31/08/2020
9. **FIN-CLARIN UPGRADE - CLARINin vahvistaminen Suomessa FIN-CLARIN UPGRADE - Förstärkning av CLARIN i Finland**  
Linden, K., Lennes, M., Westerlund, H., Piitulainen, J., Niemi, J., Axelson, E., Jauhainen, T., Drobac, S., Hardwick, S., Kauppinen, P., Voutilainen, A., Dieckmann, U., Palolahti, M., Matthiesen, M. & Aalto, T.  
01/01/2017 → 31/12/2019
10. **Finn-Ugric Languages and the Internet**  
Linden, K., Jauhainen, H. & Jauhainen, T.  
01/01/2013 → 31/12/2018
11. **FIN-CLARIN-INVEST2 - Yhteiskäyttöisten kielivarojen ja -teknologian kohentaminen CLARINia varten Suomessa FIN-CLARIN-INVEST2 - Uppgradering av de gemensamma språkresurserna och -teknologin för CLARIN i Finland**  
Linden, K.  
01/01/2015 → 28/02/2017
12. **FINNCLARIN CONTENT**  
Linden, K. & Koskenniemi, K.  
01/01/2011 → 31/12/2015
13. **FIN-CLARIN-INVEST - Yhteiskäyttöisten kielivarojen ja -teknologian kohentaminen CLARINia varten Suomessa FIN-CLARIN-INVEST - Uppgradering av de gemensamma språkresurserna och -teknologin för CLARIN i Finland**  
Linden, K.  
01/01/2014 → 31/12/2014
14. **CLARA - Common Language Resources and their Applications**  
Koskenniemi, K. & Linden, K.  
Unknown funder  
01/12/2009 → 31/03/2014
15. **Respeaking**  
Tiittula, L., Linden, K., Bacon, H., Carlson, L., Eskelinen, J., Hartama-Heinonen, R., Koponen, M., Kukkonen, P., Mikkonen, K. & Pekkilä, E. O.  
Humanistinen tdk  
01/02/2013 → 31/12/2013
16. **FIN-CLARIN-BUILD - CLARINin vahvistaminen Suomessa FIN-CLARIN-BUILD - etablering av CLARIN i Finland**  
Linden, K.  
14/12/2012 → 31/12/2013
17. **META-NORD: Baltic and Nordic Parts of the European Open Linguistic Infrastructure**  
Linden, K., Koskenniemi, K. & Bartis, I.  
EU FP7  
01/02/2011 → 31/01/2013
18. **FIN-CLARIN: Finnish Language Resource Infrastructure**  
Koskenniemi, K. & Linden, K.  
01/01/2007 → 31/12/2012
19. **Common Language Resources and Technology Infrastructure (CLARIN)**  
Koskenniemi, K., Linden, K., Oksanen, V. & Yangarber, R.  
01/01/2008 → 30/06/2011

## Activities

### Post-doctoral mentor / Måns Huldén

Krister Linden (Post doc mentor)

12 Jan 2009 → 11 Dec 2011

Activity: Examination types › Post doctoral mentor

### Examination of doctoral dissertation / Grégoire Détrez

Krister Linden (Opponent) & Bo Krister Johan Linden (Pre-examiner)

2016

Activity: Examination types › Opponent of doctoral dissertation

### Exmination of doctoral dissertation / Sami Virpioja

Krister Linden (Opponent) & Bo Krister Johan Linden (Pre-examiner)

2012

Activity: Examination types › Opponent of doctoral dissertation

### Examination of doctoral dissertation / Tuomo Kakkonen

Krister Linden (Pre-examiner)

1 Sept 2007 → 15 Sept 2007

Activity: Examination types › Pre-examiner of doctoral thesis

### Examination of doctoral dissertation / Vesa Siivola

Krister Linden (Pre-examiner)

15 May 2007 → 31 May 2007

Activity: Examination types › Pre-examiner of doctoral thesis

### Contributions to Computational Assyriology / Aleksi Sahala

Krister Linden (Supervisor) & Saana Svärd (Supervisor)

1 Jan 2017 → 31 Aug 2021

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

### PhD supervision of Rosa Suviranta

Tuomo Hiippala (Supervisor) & Krister Linden (Co-supervisor)

2022 → ...

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

### Supervisor of doctoral thesis in Language Technology / Emily Öhman

Krister Linden (Co-supervisor)

1 Aug 2016 → ...

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

### Supervisor of doctoral thesis in Language Technology / Miikka Silfverberg

Bo Krister Johan Linden (Supervisor) & Anssi Yli-Jyrä (Supervisor)

1 Jan 2010 → 22 Oct 2016

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

### Supervisor of doctoral thesis in Language Technology / Senka Drobac

Krister Linden (Supervisor)

1 Jan 2012 → ...

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

### Supervisor of doctoral thesis in Language Technology / Tommi Jauhainen

Krister Linden (Supervisor)

1 Jun 2011 → ...

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

**Supervisor of doctoral thesis in Language Technology / Tommi Pirinen**

Krister Linden (Supervisor)

1 Jan 2010 → 2 Dec 2014

Activity: Examination types › Supervisor or co-supervisor of doctoral thesis

**Cabinet of Commissioner Leonard Orban at the European Commission (External organisation)**

Krister Linden (Expert member)

1 Apr 2008 → 31 Mar 2009

Activity: Membership types › Membership or other role in public Finnish or international organization

**Nordiska Ministerrådet (External organisation)**

Krister Linden (Expert member)

1 Jan 2006 → 31 Dec 2006

Activity: Membership types › Membership or other role in public Finnish or international organization

**CLARIN - Common Language Resources and Technology Infrastructure (External organisation)**

Krister Linden (Board member)

1 Jan 2010 → 31 Dec 2011

Activity: Membership types › Membership or other role in national/international committee, council, board

**ESF - European Science Foundation (External organisation)**

Krister Linden (Expert member)

24 May 2011 → 23 May 2015

Activity: Membership types › Membership or other role in national/international committee, council, board

**HAKA - Identity federation of the Finnish universities, polytechnics and research institutions (External organisation)**

Krister Linden (Board member)

2012 → 2013

Activity: Membership types › Membership or other role in national/international committee, council, board

**KIT Language Technology Graduate School of Finland (External organisation)**

Krister Linden (Expert member)

1 Jan 2001 → 31 Dec 2005

Activity: Membership types › Membership or other role in national/international committee, council, board

**Langnet (External organisation)**

Krister Linden (Board member)

1 Jan 2012 → 31 Dec 2015

Activity: Membership types › Membership or other role in national/international committee, council, board

**Lantern - Language Technology Research Network (External organisation)**

Krister Linden (Secretary)

1 Jan 2005 → 31 Dec 2007

Activity: Membership types › Membership or other role in national/international committee, council, board

**META-TRUST (External organisation)**

Krister Linden (Board member)

12 Sept 2012 → 31 Jan 2017

Activity: Membership types › Membership or other role in national/international committee, council, board

**Northen European Association for Language Technology (External organisation)**

Krister Linden (Chair)

1 Jan 2010 → 31 Dec 2013

Activity: Membership types › Membership or other role in national/international committee, council, board

**Northern European Association for Language Technology (External organisation)**

Krister Linden (Expert member)

1 Jan 2014 → 31 Dec 2017

Activity: Membership types › Membership or other role in national/international committee, council, board

**NYKYKIELET 2010-2017 (Organisational unit)**

Krister Linden (Board member)

1 Jan 2014 → 31 Dec 2017

Activity: Membership types › Membership or other role in national/international committee, council, board

**Global Wordnet Association (External organisation)**

Krister Linden (Member)

2012 → ...

Activity: Membership types › Membership or other role in research network

**NEALT - North European Association for Language Technology (External organisation)**

Krister Linden (Member)

2009 → ...

Activity: Membership types › Membership or other role in research network

**Department of Modern Languages (Organisational unit)**

Krister Linden (Assessment)

2014

Activity: Membership types › Assessment of candidates for academic posts