SOME DIFFICULTIES IN READING THE LAW IN THE AGE OF ARTIFICIAL INTELLIGENCE

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Abstract: *Legal information is primarily full of linguistic information. Even a brief review of established legal sources tells us this convincingly. Even though we have, and we increasingly need, signs and images of law in the digital environment, the dominance of the languages of law in communication about law does not appear to be receding. Successful linguistic communication requires sufficiently common languages and expressions.*

On the one hand, one of the external characteristics of current EU legislation is the definition of concepts in regulations. In the structure of the legislation, the concepts follow the goals expressed at the beginning of the act. This makes reading the regulation easier, It facilitates the activities of both laypersons and experts. The language game becomes more precise.

But legal text and its concepts give, as the Finnish legal theorist, Professor Kaarle Makkonen insightfully wrote, only information about the rules. The deepest part of our legal expertise is the construction of a well-founded understanding resulting from the collection and processing of a variety of significant information. It is certainly not just a more or less formal treatment of legal concepts. We realised that after – if not somewhat before – the golden age of the jurisprudence of concepts – Begriffsjurisprudenz.

Legal concepts are always related to some legal informational environment. We are talking about systems and systems thinking. Crossing system boundaries easily leads to an incorrect legal view. Legal principles in force and their limits are not recognised.

It is necessary to keep these starting points in mind when we look at those modern artificial intelligence applications where the basic material is obtained using various statistical models of legal language. While the traditional search for text information is based on the search for characters it is now supplemented to an increasing extent by different expressions in different contexts, national and international. However, the limits on the application of the rules are much the same as before. This should not be forgotten amid our romantic enthusiasm for artificial intelligence.

The use of language models involves a certain degree of return to the era of text-based use of information systems. Artificial intelligence also provides opportunities for text-based operating systems to an increasing extent. Symbols are accompanied by texts. This is undoubtedly will have a bearing on information retrieval. We get often more, many more search results than before.

An increase in the number of search results does not necessarily increase the number of correct results; not at all. The exact match content remains unchanged. What is different is that the parent material obtained with the help of artificial intelligence can be useful in many ways in terms of legal understanding of things and at the same time in terms of excluding unnecessary information. And it is precisely identifying the right exclusions that burden s the use of our legal expertise. Even in the age of artificial intelligence, applying the law still involves an expert skill; even more than before. Law is an exact science, especially now as we witness the coming of the constitutional digital society.

1. Introduction

In legal life and work, the requirement of a specific word or precise expression – or specific words – has traditionally been one of the solution models in Roman law for clarifying communication. A certain word or way of expression has created an assumption, for example, about the existence of a certain legal act. This clarifies the identification of legal relationships and related problems. The downside is the emergence of routine problems. Individuality, and with it also rights, may be overshadowed by routines. That is why a strict requirement where terms are concerned has become rare. At least it should be rare.

Throughout the development and effective use of modern computers, legal theory – and especially legal informatics as part of it – has taken a stand on the possible use of computers as decision-makers, that is, machine decision-making. Of course, the subject itself is not entirely new. The accuracy of decision-making has long been one of the fundamental issues in the legal theory debate.

The goddess of justice, depicted in Western tradition, has a blindfold that expresses much of the same goal. One element of the ideal of justice has long been the fairness in the distribution of justice independent of the person. The law is not as a single person would like to read it. From this point of view, for example, a single-judge court is a very problematic institution. The act of handing down a judgement may be personified unless the reasoning is generally acceptable.

The perception of the possible use of a computer as a judge has consistently been negative. It has been said on various occasions that machines do not understand people or society. And, accordingly, we do not know enough about how our reasoning works. The same is still the case.[1] However, artificial intelligence as a concept, and soon also as an established discipline, was born back in 1956. AI became, thanks especially to John McCarthy, as has often been said, *a metaphor*.[2]

When talking about the limitations of artificial intelligence, European regulation on the protection of personal data has long been a prominent example at the regulatory level. In this respect, the European Union's General Data Protection Regulation continues the policy adopted in the previous Personal Data Directive. Article 22 states that the data subject has the right not to be subject to a decision that is based solely on automated processing, including profiling, and that produces legal effects concerning him or her, or similarly significantly affects him. However, the prohibition against automated individual decisions is not without exceptions; it can be derogated from if, for example, such a decision has been adopted by EU law or the law of a Member State if it lays down appropriate measures to protect the rights and freedoms and legitimate interests of data subjects. As the use of artificial intelligence of varying degrees increases in information systems, precision in regulation has become more important than before. In the digital online society, what were earlier ordinary document secrets are increasingly also black box secrets that require regulation, even reaching deep at the algorithmic level.

The constant increase in computing power has undoubtedly contributed to the efficient use of information systems, but this alone does not explain the metaphor's popularity. Interesting progress has also been made at the programming level. Two specific points are worth mentioning.

If nothing else, we should remember the mathematical rounding model invented by the Finnish professor Seppo Linnainmaa already 1970. That model, as well as some years later Dr. Paul Verbos's similar way of thinking, produced what has become known as the backpropagation algorithm. With it, we can better manage reasoning in the environment of various data masses. This is – this must be – inevitably also of interest to lawyers.

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[1] Professor MIREILLE HILDEBRANDT nicely summarizes the problem points between computer use and rule of law in her article Law as computation in the era of artificial legal intelligence Speaking law to the power of statistics. (2017).

[2] See more for example NILSSON, The quest for Artificial Intelligence, chapter 3.2.

Self-learning systems based on neural networks are at the forefront of technical development. They are largely based on the award-winning research work of Finnish professor Teuvo Kohonen. The problem of self-learning systems has been and continues to be uncertainty about how information is formed at any given time. This requires even better, much better, legal skills from the users of the systems. Their use in legal teaching as examples is undoubtedly a challenging positive prospect.[3]

As the use of computers became more widespread, different approaches to information technology could be observed. Professor Ilkka Niiniluoto, an internationally renowned philosopher, illustrated the fourfold division between determinism and voluntarism.[4] At that time, there was also talk of romantic antitechnology. Turning transforming this idea in the opposite direction, it could be said that for the last couple of years we have witnessed the era of artificial intelligence that has emerged from advertising on a small base: the age of romantic artificial intelligence. Enthusiasm for the new easily eclipses the scientific requirement of justified doubt; yes, even in science itself. Professor Mireille Hilderandt concludes her illustrative analysis of the excessive expectations of AI for the power of justice by stating: In this article I made an attempt to critique some of the pink scenarios of artificial legal intelligence, notably where they seek to emulate a 'complete law' that 'closes the gaps in the law' to achieve 'legal singularity', finally making 'legal uncertainty obsolete'.[5]

In Finland, the University of Helsinki distributed to all members of the Finnish Parliament the popular book *What is artificial intelligence: 100 questions and answers*. The aim was to educate Parliament on the subject. In his book, professor Hannu Toivonen states, among other things, that artificial intelligence is the appropriate operation of a computer program and that good artificial intelligence increases well-being, justice and people's opportunities to influence their own lives.[6] But at the same time, in all parts of the work, he warns against the real problems of modern artificial intelligence. This book really is a wake-up call in the discussion of artificial intelligence.

From these important findings, it is easy to move forward to reflect on the new era of legal information management. It is not my purposes to engage in more general discussion about the pros and cons of artificial intelligence. And I want to avoid technical questions too.

2. Legal Information management skills

Doing legal research on and teaching information retrieval have been among the first focal areas in the birth and development of legal informatics almost everywhere. In the Nordic countries two famous university scholars – Peter Seipel in Sweden and Jon Bing in Norway – were the first to elaborate the key stages in what competence in retrieving information entails.[7] For both, the main goal was to wake up conservative lawyers to understand the special legal environment they deal with in their information retrieval. As professor Peter Wahlgren: "Although public concern and media discussions have primarily focused on substantive law issues, legal informatics has from the beginning been a science with a practical side (Bing and Harvold 1977; Seipel 1977). The possibility of enhancing the efficiency and quality of legal work has been a focal interest,

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[3]   Already in 2016 in Sweden Dr. LIANE COLONNA wrote about the relations between data mining and machine learning. See COLONNA, Legal implications of Data Mining.

[4]   He has used the same divide in his book Tekniikan filosofia (The Philosophy of Technology, 2020).

[5]   HILDEBRANDT, Law As Computation in the Era of Artificial Legal Intelligence. Speaking Law to the Power of Statistics p. 16.

[6]   Professor dr. HANNU TOIVONEN is professor of computer science at the University of Helsinki. He has a long record of research on AI with a special focus on data mining and computational creativity.

[7]   In SEIPEL's Legal Informatics textbook, several editions of which have been published, information retrieval has in fact figured prominently. BING's dissertation, now a classic work, was based on the importance of legal information retrieval. See more SEIPEL, Juristen och datorn: introduktion till rättsinformatiken Norstedts 1990. 3. ed and BING, Rettslige kommunikasjonsprosesser: bidrag till en generell teori.

and the accompanying inclusion of system science has deepened the understanding of the functions of the legal system as such".[8]

Later, Professor Peter Blume, in Denmark, continued this work not only in his thesis on the development of legal information – from speech to data – but above all on determining the role of information in the lawyer's *methodological competence*. For Blume, information retrieval is part of the doctrine of legal sources.[9] This view is easy to endorse. It embodies what is a shared Nordic conception of the significance of legal information in legal life. In this context I must point out that written law has very much been our point of departure in the Nordic countries. And we do not have a specific tradition of educating law librarians.

In my own work, I have for years viewed legal information retrieval as part of our *basic method* of legal expertise.[10] When analyzing the focal issues there, we can identify some key principles. In Erich Schweighofer's anniversary publication, I have proposed the following principles as key principles for legal information resources[11]: (1) comprehensive accessibility of official materials (2) accuracy of the information (3) locatability of the information in time and place (4) retrievability of the information from data bases (5) linguistic and systematic comprehensibility of the information (6) technical usability of the material in the work of the person retrieving it (7) the extent to which the material is available free of charge (8) interoperability; structural, semantic and technical.

As far as I can see, none of these has lost its relevance as we move into the era of artificial intelligence; by no means. But a key element of our basic method, the requirement of *reasonable doubt* has inevitably become and is becoming even more important. We will have to assess more carefully than before whether the legal information we are using is correct and timely. As Hannu Toivonen has also noted, somewhat simplifying the case, the difficulties artificial intelligence encounters in processing texts stem not so much from language as from the messages it is conveying.[12]

Of course, this is not confined to information formed by artificial intelligence. No, in the online society we have already woken up to the significant increase in the variety of legal information available on the networks. Professor Mireille Hildebrandt has incidentally stated that legal research is in an online environment a lot information retrieval.[13] There we can find different kind of information, legal and semi-legal. For example, various narratives about law and legal rules have been added as an additional element to the advertising of government pages and pages of law firms. And other advertising increasingly describes, for example, the rules related to online business. Sometimes the expression "information overload" is a digital reality. We should have acceptable tools to analyze it.

AI language models and generative AI increase the basic requirements for lawyers in retrieving and utilizing legal information. It is increasingly clear that assessing the legal relevance of information requires sufficient legal information literacy. And it is even clearer that it cannot be just a question of assessing the formal correctness of information. The long path of legal information must be clear and visible, with no "black boxes".[14]

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8   WAHLGREN, The Quest for Scientific Methods: Sociology of Law, Jurimetrics and Legal Informatics pp. 227–238. See also SAARENPÄÄ, Legal Informatics: a Modern Social Science and a Crucial One pp. 15 in 50 Years of Law and IT and LIEBWALD, On transparent law, good legislation and accessibility to legal information: Towards an integrated legal information system, in which the author puts forward an interesting analysis of Bing's thoughts on the development of legal computer systems. These systems are still topical in the era of artificial intelligence.

9   See BLUME, Retssystemet og Juridisk Metode 3 ed 2016. (in Danish).

10 About the basic method see for example SAARENPÄÄ, Legal informatics and our basic method, in: Jusletter IT 23 February 2023, passim.

11 See SAARENPÄÄ, Legal Information: the Long Path and the Way Home in International Trends in Legal Informatics p. 80.

12 TOIVONEN cw. p. 161.

13 HILDEBRANDT, Law as Information in the Era of Data-Driven Agency, Modern Law Review 1/2016 p. 11.

14 See also GREENSTEIN, Artificial Intelligence Destroyed the rule of Law? in Scadinavian studies in Law 69 pp. 287–312,where STANLEY GREENSTEIN critically examines the significance of the Compass AI software used in the United States in criminal proceedings.

In most countries and international organizations, we have enjoyed for a relatively long time the opportunity to obtain for use original material from databases in the right format, at the right time and openly. When thinking about legislation and other primary legal sources we can undoubtedly see this as part of the development the constitutional state and rule of law.[15]

Of course, there are still country-specific differences. In Finland, for example, preliminary rulings of the Supreme Court are entered in the database so that the court only reports the parts of the decisions in different lower courts that have progressed to the Supreme Court. This narrows our ability to assess a case as a whole as legal research material.[16]

When we move on to secondary sources of law, the assessment situation changes significantly. Although a considerable number of different legal publications are often, if not mostly, available as secondary sources of law, the number of sources actually used, both in sentencing and in law and administrative sciences, is scanty in practice. It has long been and still is one of the vulnerabilities of legal life both nationally and internationally. Professor Rolf H. Weber has aptly pointed out, "the lack of transparency on digital platforms due to insufficient comprehensibility, mandated disclosure rules, information overload, opacity and fragmentation jeopardizes the rights' situation of users"[17] This is a clear – in fact essential – point of departure in examining our topic. In the modern constitutional state, we cannot afford to leave legal information as such or legal data stores without a clear plan safeguarding later the intensive use.

As I understand it, there are at least five basic problems creating that vulnerability. They are, or at least may be:

1. Printed sources are primarily used as source materials, not digital online materials. To be sure, the situation seems to be changing slowly, but far too slowly.[18]

2. Only the best-known works are used as source materials – a practice described in famous arm's length rule put forward by Professor Peter Seipel.[19] This often results in the most recent specialist literature being overlooked.

3. Only materials produced within the framework of a particular school of thought are sometimes used as source material when doing research. Blind adherence to one's school of thought narrows the scope of legal sources consulted in both research and adjudication.[20] Here, we can say that justice becomes more scarce.

4. Only materials found on the basis of certain standard expressions are used as source material. This reveals serious shortcomings in information retrieval skills and information literacy.[21]

5. Due to the lack of money, only free legal and other source material found online is used as source material. The data economy of information, including research data, has changed and continue to change in a major way.[22]

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[15] See for example Frostestad Kuehl, The Right to Access Legal Information: Progress and Evolving Norms in a Digital Age, Law Library Journal 2022 p. 262 pp.

[16] In Sweden there is an interesting solution in the official Lagrummet database. When retrieving cases you have a first, so called simple, possibility to search at the level of abstracts. You can then extend this to retrieve longer abstracts – referat. After this, can find the edited decision. Even that is not totally original.

[17] Rolf H. Weber, Transparency on Digital Platforms, in: Jusletter IT 31. August 2023.

[18] The transition to the free publication of scientific information has already filled the databases of numerous universities with significant legal sources. The well-known list of e-publications maintained by the University of Regensburg also provides an illuminating perspective on the large number of open access publications. See also DIRECTORY OF OPEN ACCESS JOURNALS.

[19] For example, in Finland the supreme court has a large number of text book references in its decisions.

[20] The well-known observation of Virginia Wyse and Frederic Schauer about small groups discussing with each other illustrates the dangers of content biases in the source material. See Wise/Schauer, Legal Positivism as Legal Information 82 Cornell L. Rev. 1080 (1997), passim.

[21] In this context, it is worth mentioning once again Julia Kristeva's excellent vision of intertextuality. It can have both positive and negative effects on information retrieval. Cfr. van Opijnen/Santos, On the concept of relevance in legal information retrieval, Artic intel Law 2017 pp. 25: 65–87.

[22] We undoubtedly live in an era of open science and publishing This will inevitably change the publishing markets everywhere. In Finland our national Declaration for Open Science and Research was published 2020. UNESCO Recommendation on Open Science was published 2021.

The materials provided by artificial intelligence will undoubtedly add their own special addition to this list. In this case, one of the competence problems of the researcher and the judge inevitably becomes how to identify the correctness of the material offered and the significance of the source.[23] This will inevitably lead to more extensive standardisation and valuation of legal data stores as well as a heightened priority for knowledge management as part of our basic method. As digital as we lawyers may be now, we will all become even more digital in the digital constitutional state.[24]

What is interesting and necessary is that in the training of both lawyers and judges, special attention must be paid to the quality of work in the age of artificial intelligence. In the United States, the ABA took a stand on the use of artificial intelligence early in 2023. However, the position was less rigorous than might have been expected.[25] As a former long-term member of the Supervisory Board of the Finnish Bar Association, I also dare to state that the activities of a law firm promoting specifically the use of artificial intelligence can lead to sanctions. Codes of conduct for attorneys-at-law primarily require personal legal knowledge, not only or mainly the use of AI programs. Where the client is concerned, the questions might in principle be the largely the same as in the case of whether a judge can be replaced by a computer. The client thinks they are getting better service when artificial intelligence is brought into the picture.

3. Summary

Good legal science is both theory-based and forward-looking. And good science must necessarily be based on the acceptable use of correct legal information. Inevitably, legal informatics must also remain this way, even more so in the age of artificial intelligence. It is required by our human and fundamental rights in the scales of justice. They should not be artificial. We are once again dealing with one of the basic pillars of legal informatics – information retrieval and management skills. At the very least, we need to check to ensure that the legal information management basics are up to date.

There is no doubt that we are moving very quickly from general to specific language-model-based AI systems. Regulatory sandboxes are really interesting tools in this progress if and when we keep in mind the openness of legal sources. But they can also be problematic. In building those sandboxes, we should keep in mind our legal information environment and legal systems.[26] Once again I would like to point out the famous words of my late teacher, professor Aulis Aarnio: "A system fixes the structures that determine what alternatives are available in making decisions in different situations. If the boundaries of the system are broken, the decision made is not consistent with the law as it stands at the time."

This must lead to a more efficient qualitative use of legal information. But this cannot happen without significant investments in the quality of systems and user training. It is in education that legal informatics should play a prominent role in legal training units.[27] All lawyers and administrative actors should be more familiar

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[23] In this process the visualization – for example data protection seals – of documents will be more and more important. As Dr. ROWENA RODRIGUES: The future for privacy and data protection seals depends on whether they can learn from the past. In addition to whether they are optimized to perform well (through regulatory, financial, and industry support) two critical elements for their success will continue to be: whether they can communicate well and whether they can continue to engender trust. Rodrigues – Papakonstantinou (eds.) Privacy and Data Protection seals.

[24] About digital lawyers as essential legal professionals of our time see also SAARENPÄÄ, The Digital Lawyer, in: Jusletter IT 26 February 2015.

[25] americanbar.org/groups/leadership/office_of_the_president/artificial-intelligence/issues/.

[26] About the regulatory sandboxes see more OECD (2023), „Regulatory sandboxes in artificial intelligence", *OECD Digital Economy Papers*, No. 356, OECD Publishing, Paris, https://doi.org/10.1787/8f80a0e6-en and Artificial intelligence act and regulatory sandboxes, EU parliament briefing Artificial intelligence act and regulatory sandboxes in www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI(2022)733544_EN.pdf.

[27] DANIEL L. CHEN has written:"Perhaps a new generation of theory and evidence from behavioral and social sciences could not only enhance understanding law, but also provide better justice and increase cooperation, trust, recognition and respect." In that versatile package AI can help a great deal. See CHEN, Machine Learning and the Rule of Law pp. 441.

with the methodological significance of utilizing the legal information resources. Therefore, by utilising artificial intelligence, advertising in its various forms, which can already be seen in different parts of the world, can give a special overview of a person's and an organisation's legal expertise. Bar associations are facing new challenges in dealing with their members' ways of working in the new information environment.[28]

The linguistic gatekeepers of legal information will play a new, highly valued role.[29] We are witnessing a new spring in Legal informatics, without dreams and expectations regarding romantic artificial intelligence.[30] And those areas of law whose mastery is particularly dependent on legal languages, such as legal linguistics and comparative law, must meet the new, positive challenges ahead. As legal information has – inevitably – become more international, legal linguistics and comparative law have taken on heightened significance on the day-to-day level.[31] The importance of the expanding body of EU regulation has made it essential to have a sound knowledge of different legal languages and their significance. Today, with artificial intelligence becoming ubiquitous, these fields, too, will be forced to step back and assess their future trajectories. One question to be asked is how artificial intelligence can be taught to identify different legal languages and the special features of the contexts in which they operate?[32] Extensive international bodies of text pose risks when looking for the correct systematic meanings. To an extent, but only a limited one, these problems can be addressed by adding different seals into documents, in particular official documents. In the final analysis, we still find that we are prisoners, at the mercy of texts and how they are processed.[33] Of course, this has been the case even before. And we have already witnessed many interesting AI-based system experiments.

Similarly, we must remember that the various Chatbot programs are here to stay whether we like it or not. They are undoubtedly being used as we speak in legal contexts as well. Legal knowledge management cannot – may not – fail to take advantage of artificial intelligence where it has benefits to offer. But this requires the skills to adequately differentiate the benefits from the risks. As Dr. Renne Pesonen has noted in the Finnish literature on artificial intelligence, "No one has as yet succeeded in programming a computer to think like a human being, but even a computer with mediocre reasoning abilities can serve as a Vaucanson's digesting duck of sorts –concrete proof that reason does not necessarily require anything more than a complex physical automaton."[34]

If I may, I would like to conclude this paper by quoting another simplifying, illuminating observation by Professor Hannu Toivonen: "In order to achieve high-quality and interesting results we still need human insight in designing tasks, examining results and refining results into their final form."[35] Applied to transparent legal life, what this means is that we need people highly skilled in what is a new, evolving legal informatics.

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[28] See for example americanbar.org/groups/leadership/office_of_the_president/artificial-intelligence/issues/.

[29] A good example of "wake up calls" has been first "Legal Information Retrieval meets Artificial Intelligence (LIRAI)" conference in Rome September 2023. See also Gomez/Oliveira/Sousa, Enriching Legal Knowledge Through Intelligent Information Retrieval Techniques: A Review, passim.

[30] Cfr. Francesconi, The winter, the summer and the summer dream of artificial intelligence in law. *Artif Intell Law* 30, 147–161 (2022).

[31] On comparative legal linguistics from the perspective of different languages, see Mattila, Comparative Legal Linguistics, p. 21.

[32] Legal argument mining has already been and is an interesting fierld when we are thinking about the practical possibilieties to use AI in legal research. See more shortly for example XU – Ashley Multi-Granularity Argument Mining in Legal Text, pp. 261–266 in Legal Knowledge and Information Systems, Jurix 2022 Conference.

[33] For example, data protection seals will be important in the future. And a return to the use of legal images as symbols of power is doubtless taking on new forms. For an interesting treatment of legal images in Finland, see Professor Heikki Mattila, Näkökulmia vallan ja oikeuden visuaalisuuteen pp.. 184–199 (in Finnish) and pp. 245–248 (in English) in Harju (ed) Valtaa ja oikeutta.

[34] Pesonen, Miksi pitäisi miettiä, voiko kone ajatella? in Raatikainen (ed) Tekoäly ihminen ja yhteiskunta,Gaudeamus (2021) in Finnish.

[35] Heinonen cw p. 200.

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