REVISTA DIREITO MACKENZIE

ISSN: 23172622

ARTIFICIAL INTELLIGENCE AS A SUPPORT INSTRUMENT FOR RATIONALITY IN THE LEGISLATIVE PROCESS*

José Luis Leal Espinoza**
Luís Clóvis Machado da Rocha Junior***
Liton Lanes Pilau Sobrinho****

RECEIVED:	JULY 31ST, 2023
ACCEPTED:	OCT. 19TH, 2023

* Paper produced within the scope of the Environmental Law, Transnationality and Sustainability research group, of the Graduate Program in Legal Sciences, Master's and Doctorate degrees at the Universidade do Vale do Itajaí and Universidad Autónoma de Coahuila (Mexico). Text developed with support from the Coordination for the Improvement of Higher Education Personnel (Capes/Proex).

** Professor at the Universidad Autónoma de Coahuila (Mexico), PhD in Philosophy specializing in Constitutional Law and Fundamental Rights at the University of Alicante, Spain. Specialist in Constitutional Justice and Legal Argumentation at the Universidad de Castilla La Mancha, Spain. Full-time Research Professor and Vice Dean of Research and Graduate Studies of the Faculty of Political and Social Sciences of the Universidad Autónoma de Coahuila, Mexico. Member of the National System of Investigators Level I of the National Council of Science and Technology of Mexico. Member of the Instituto Iberoamericano de Estudios Constitucionales, Spain. Legal Advisor of the LXIV Legislature of the Chamber of Deputies of the H. Congreso de la Unión, Mexico. E-mail: jose.leal@uadec.edu.mx. Orcid: https://orcid.org/0000-0002-9072-0057

*** Master's in Law from the Universidade Federal do Rio Grande do Sul (UFRGS). PhD Law student at Universidade do Vale do Itajaí (Univali). Law Judge of the Court of Justice of the State of Rio Grande do Sul (TJRS). E-mail: luisclovis@tjrs.jus.br. Orcid: https://orcid.org/0000-0002-9072-0057

**** Professor of the Master's and Doctorate courses in the *Stricto Sensu* Graduate Program in Legal Science at the Universidade do Vale do Itajaí. Coordinator and professor of the *Stricto Sensu* Graduate Program in Law at the Universidade de Passo Fundo. Post-doctorate in Law from the University of Seville, Spain. PhD in Law from the Universidade do Vale do Rio dos Sinos – Unisinos (2008). Master's in Law from the Universidade de Santa Cruz do Sul – Unisc (2000). Bachelor degree in Law from the Universidade de Cruz Alta – Unicruz (1997). E-mail: liton@univali.br. Orcid: https://orcid.org/0000-0001-5696-4747

REVISTA DIREITO MACKENZIE
2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

· JOSÉ LUIS LEAL ESPINOZA
· LUÍS CLÓVIS MACHADO DA ROCHA JUNIOR
· LITON LANES PILAU SOBRINHO

ABSTRACT: The article seeks to apply AI to the rationality of the legislative process: avoiding contradictions and reinforcing the coherence and efficiency of legislation in the environment of legislative overproduction. The rationalities of the legislative process are pointed out and explained, correlating them with means of AI's usage, so that the legislative process obeys the certainty of law and legal certainty required by Rule of Law.

KEYWORDS: Artificial intelligence; legislative process; rationality; overproduction.

A INTELIGÊNCIA ARTIFICIAL COMO INSTRUMENTO DE APOIO À RACIONALIDADE NO PROCESSO LEGISLATIVO

RESUMO: O artigo busca aplicar a IA à racionalidade do processo legislativo: evitando contradições e reforçando a coerência e a eficiência da legislação em ambiente de superprodução legislativa. As racionalidades do processo legislativo são apontadas e explicadas, correlacionando-as com os meios de utilização da IA, para que o processo legislativo obedeça à certeza do direito e à segurança jurídica exigida pelo Estado de Direito.

PALAVRAS-CHAVE: Inteligência artificial; processo legislativo; racionalidade; superprodução.

1. Introduction

The use of artificial intelligence (AI) has been widely studied in the context of the judicial process, in legal argumentation, whether in the description of support systems especially aimed at identifying previous relevant cases (precedent retrieval) or in the identification of normative-legislative references (relevant Statutes) composing possible and interesting systems of recommendation and selection of precedents (Bonat; Hartmann Peixoto, 2020) to help decision making. AI also supports the identification of similar cases, the fulfillment of warrants and subpoenas, promoting the coherence and consistency of Jurisprudence, as demonstrated by the Victor project, in the Federal Supreme Court (Morais da Rosa, 2019).

However, little has been discussed about the use of *learning machines* for data mining, by association, sequencing or agglomeration, in order to build metadata capable of contributing to the rationality of the legislative process. It is believed that it can help in the creation of diplomas, statutes and codes and laws in general. The idea is that AI can reduce the need for research, re-reading and accurate analysis by humans, that it helps in the investigation of the effects and effectiveness of legislation and implies the reduction of redundant or heavy workload. Nonetheless, it is necessary to establish the differences between the judicial and legislative process, and their rationality requirements, without the intention of transforming legislative production into a logical-formal-axiomatic activity.

In this paper, the possible application of AI techniques in a weak sense[1] will be discussed, in order to establish a *control of excesses*, that is, of cases in which there are evident *legislative irrationalities*, in order to allow arguments for rejection or exclusion of proposals, projects and legislation, based on models for predicting[2] (Morais da Rosa, 2020) effects, systematicity, constitutionality and other assessment criteria. It is not intended to determine the content of legislation, but to prevent irrational or *unreasonable*[3] laws from being produced. From the inductive method, we defend this idea based on the monographic procedural method and the bibliographic research technique.

1 While strong AI aims to build a machine that responds to general human intelligence, weak AI seeks to emulate performing specific tasks. In the strong model, a substitute is sought, in the weak one, to predict individualized applications. The target of the two is different and, with regard to Law, the claim is linked to a weak understanding, given the multiplicity of factors that can potentially constitute factors in the decision. In this sense, based on computer science and mathematics, it is intended to build machines/programs capable of expanding the horizon of information, data management and the production of decisions in accordance with regulations. AI systems can act intelligently, act as if they are intelligent – or as if they have minds. Thus, these systems, despite acting intelligently, would not be genuinely intelligent entities, but simulations of intelligent behavior, having neither reasoning nor will, since the machine is based on the input of knowledge provided by a programmer, necessarily human. On the debate see: Saerle, 1997 and 1998.

2 While the application of AI results in 'predictions', it is not about futurology. The term prediction in AI is a technical term: AI has no memory in the human sense, operating through comparisons between pre-existing data and newly entered data (non-monotonic logic). When thinking about the legal provision applicable to a case, for example, the integrity of Art. 926 of the Code of Civil Procedure, what is known on the subject is recalled. The AI can compare the information used in the feed (input) to 'predict' the meaning. There is no 'recall', but 'prediction'. And the 'prediction' is made based on the accumulated material: legislation, doctrine and jurisprudence (data). It is precisely this dimension of error mitigation (bias and heuristics) that is intended to be defended in the proposal formulated in the book.

3 In the sense of far from minimum ethical standards, as a limit to some legal proposal, from the point of view of human acceptability, in a rationally built morality (Atienza, 1987, p. 189; Perelman, 2000, p. 432).

REVISTA DIREITO MACKENZIE
2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

2. The rationality of the legislative process

The process of legislative production, according to Art. 59 of the 1988 Constitution of the Federative Republic of Brazil[4], presents some participants (subjects) who materialize it through the proposal, debate, analysis, discussion and voting. There are *legislators*, *the addressees of the laws*, *the legal systems*, their *purposes* and *values*. Rationality in this process implies articulating the message intended by the editors to the recipients, in order to achieve their ends and values, with coherence and consistency in the legal system, especially focused on the analysis of adequacy to the system and the legislative process. Certainly, part of the success of the legislative process – which implies *greater social and legal efficiency*, can be obtained by increasing the rationality of the procedure, although it is not a completely rational process[5] (Atienza, 2013, p. 712–718). Recognizing a duty to observe rationality will produce more respectability, obedience and better results in legislation, a central democratic source in constitutions.

In the legislative process, unlike legal argumentation in general, and judicial decisions in particular, there are no limitations on usable arguments, and many of them have a rhetorical and emotional character. At least in the concepts linked to positivism, it is known that the law, precedent and doctrine are undeniable starting points and limits in judicial reasoning, constituting a special case of general practical discourse (Alexy, 2011). Judicial argumentation follows a classificatory scheme, focused on the past, with the obligation to formally justify the premises (external justification), and linked especially to the participants in the judicial process. This configuration allows the use of AI in a more specific way, selecting the decision premises – precedents and norms (external justification), helping to identify similar cases (formal justice/equality) and pointing out possible formal defects (lack of assumptions and conditions of the action, joinders, res judicata etc.)

However, the argumentation in the legislative process follows a *means-end* scheme with a more general deliberation (involving several arguments), aimed at imagined

4 BRASIL. Constituição da República Federativa do Brasil de 1988. Disponível em: https://www.planalto.gov.br/ccivil_03/Constituicao/Constituicao.htm.

5 It points out "defects" that bring elements of irrationality to the legal argumentation, although it considers them inevitable: the time for discussion is, and should be, limited; available information is limited; the participation of citizens and interested groups is restricted; parliamentarians are not always moved by the public interest, sometimes they are guided by partisan interests, for example, and even when they act independently, there is the ideological issue.

future cases, without the obligation to justify the decision premises (moral, social, religious and even selfish). They are aimed not at convincing the Judge, but at public opinion, to propose solutions for moral and political disagreements, within the spaces of pre-commitments, with equality between the participants[6]. Thus, arguments based on causal connections prevail, based on the structure of the real and pragmatic, without institutional constraints.

In the legislative process, argumentation and debate are more open and without much demand for coherence, as they are carried out in an environment without professional jurists (Parliament), despite technical advice. The means-end relationship is more scrutinized (the legislation aims to produce the desired results), targeting situations that have not yet been realized. The consideration of political and social circumstances, in addition to the commitments and interests of legislators, more than jurisprudence or doctrine, guide the process, in an activity very similar to the functionality of an artificial intelligence system.

In order to produce results and achieve a rationality that gives it acceptability and effectiveness, the legislative process must observe, to the greatest extent possible, at least five levels of rationality (Atienza, 2013), which are the following:

(R1) The communicative or linguistic rationality

Communicative or linguistic rationality requires that the *legislator* (*publisher*) *transmits* to the addressee, *with fluidity and clarity*, his/her normative message (Law), whether it is an obligation, a prohibition, or a permission. A law that is not understandable by the addressees fails in the duty of rationality, at the level of communication between the Legislative Power (source) and society.

This rationality is fixed both at the *syntax* level, as a requirement to combine lexical items, letters and words, to make sense to the addressee, and at the semantic level especially[7].

6 "*Democracy requires that when there is disagreement in a society about a matter on which a common decision is needed, every man and woman in the society has the right to participate on equal terms in resolving this disagreement*" (Waldron, 1999, p. 283).

7 According to the traditional definition found in Charles W. Morris, syntax examines the relationships between signs, semantics studies the relationship of signs with the objects to which they refer, and pragmatics concerns the relationship between signs and their users and how they interpret and use them. This distinction and the definition of each of these areas had a great influence on language studies in contemporary thought, not only in philosophy but also in linguistics and communication theory. Syntax concerns the relationships between signs as basic

REVISTA DIREITO MACKENZIE
2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

It should consider aspects of psychology to promote greater adherence, considering the singularities of the recipients, simplifying words and sentences and avoiding inaccuracies (although eliminating ambiguity and vagueness is impossible). The rules of linguistics and formal logic should be adopted to prevent ambiguities (using understandable terms) and simple gaps or inconsistencies, which are avoidable. Thus, the misuse of additives ("and") in place of alternatives ("or"); the use or omission of "solely" or "only", the double conceptualization of institutes – such as the concepts of *gross revenue* and *income* for the tax calculation base[8] or even the contradictions[9].

units in the process of forming complexes and as propositions, abstraction made from the meaning of these signs. It is thus a formal science, since it establishes the rules for the formation of propositions from the possibilities of combination between signs. For example, the sentence of the Portuguese language "Maria fora lá brinca" [Maria outside play] is a syntactically incorrect combination since according to the rules of this language the different linguistic signs used in the formation of this sentence are not correctly related. The correct one would be "Maria brinca lá fora" [Maria plays outside]. Semantics is the study of the meaning of linguistic signs, their way of relating to the objects to which they refer and the truth value of the sentences in which they are articulated and which refer to facts in reality. Thus, for example, "Julius Caesar was murdered in 44 B.C.", is a sentence endowed with meaning, since the signs that compose it have meaning and are correctly articulated, they refer to objects in the real and the sentence adequately describes a historical fact occurred. Semantics therefore concerns the significant content of signs. It can be said that in the case of sentences of a given language, the syntax is a presupposition of semantics, since if the signs are not correctly articulated, the sentence itself will have no meaning or truth value, it will not be able to adequately describe facts that have occurred, being neither true nor false, but meaningless. For example, "44 murdered was Caesar B.C." in which the same signs of the sentence above are improperly articulated. The way in which the signs are related also changes the meaning of the sentence, for example, "Mary loves John" is different from "John loves Mary", although the signs in both sentences are strictly the same. Pragmatics, in turn, concerns the language in use, in different contexts, as used by its users for communication. It is, therefore, the domain of variation and heterogeneity, due to the diversity of use. In fact, pragmatics consists in our concrete experience of language, in the linguistic phenomena that we actually deal with; however, the study of language seems to presuppose the passage from this concrete level of language experience to semantics and syntax, which involve gradually greater levels of generalization. Thus, semantics makes abstraction of specific usage variations and considers the meaning of terms independently of usage. The syntax makes abstraction of meaning and considers only the classes or categories of signs to examine the formal rules according to which they are related (Morris; Rudolf, 1955).

8 Brazilian Supreme Federal Court (STF) Extraordinary Appeal No. 574.706. (Theme 69). Plenary. The Value Added Tax – VAT (ICMS) amount was excluded from the calculation basis of contributions to Social Integration Program and the Public Servant Assets Formation (PIS) and Social Security Financing (Cofins). By declaring the unconstitutionality of Art. 3, § 1, of Law no. 9.718/1998, which expanded the concept of gross revenue – reaffirmed the coincidence between the terms "gross revenue" and "income", and their distinction with the term "revenue", which would cover the totality of pecuniary income, and not just those arising from the core activity (sale of goods or provision of services) of the company, consolidating the concept of gross revenue or income as that which results from the economic result of typical business operations, as a representation of the taxed economic fact. There are even Master's dissertations trying to clarify the ambiguous question (Leal, 2017).

9 See the use of the term "rescission" in Civil Law. In Law no. 8.245/1991 (Art. 62, item I), it is treated as a cause of extinction for breach of a contract, but in the Civil Code, Art. 455 considers rescission as a cause of termination of the contract by origin prior to its formation and linked to defect in the object – eviction or redhibitory vice. Resolution is the termination of the contract due to breach of contract (Art. 475 and 478-480), a supervening cause of the contractual formation.

(R2) The legal-formal rationality

Legal-formal rationality requires that the law must be inserted in harmony in the legal system, internally and externally, as a requirement of the Rule of Law principle (Maccormick, 2008). Internally to the legal system in general aims to avoid gaps (insufficient regulation) and contradictions (inconsistency) in regulation, in comparison with existing or more general legislative acts. Externally is related to norms – constitutional rules and principles, which are the basis for the validity of legislative acts, especially when there are clear rules – such as the material limits of Art. 60 § 4 of the 1988 Brazilian Federal Constitution. Legal-formal rationality ensures the supremacy of the constitution, but also, in a simple requirement, wants to avoid *erroneous legal references*, derogations or incorrect revocations and, with that, promote *unity, systematicity and order*.

One of the instruments of this rationality are the guidelines and the manuals of legal techniques (legistics), which improve the writings, and which can be incorporated into algorithms or standards, to alert eventual inconsistencies to technicians and parliamentarians. Furthermore, once they are stored in a database, doctrine and dogmatics will allow the control of terms (concepts and conceptions adopted), and the techniques used. Here, not only the technical-legal knowledge is considered, but the economic, scientific, journalistic, technological in general, which provide the "specialized language of that sector", observing the rationality of the social subsystems to be regulated (eg. General Personal Data Protection Law, Social Networks, Regulatory Agencies, Securities and Exchange Commission etc.). Therefore, material or ideological inconsistencies and failure to understand the normative message by the addressees are avoided.

(R3) The pragmatic rationality

The duty of pragmatic rationality implies measuring, assuring and promoting the social effectiveness of the law (obedience, observance, application), demanding that the addressees adapt their conduct to the legislation. There is rationality when voluntary adherence occurs, either through acceptance or through adherence to regulated, desired or encouraged behavior. The act derived from the legislative process that fails to be accepted does not meet pragmatic rationality (law that becomes obsolete), which can occur due to erroneous empirical predictions or incorrect premises (lack of data).

REVISTA DIREITO MACKENZIE
2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

Defects arise from the impossibility of complying or not complying with the laws, because they prescribe unrealizable, impossible or unnecessary behavior. Laws, in this aspect, that are not capable of influencing behavior, are irrational and should be corrected or adapted, according to models of analysis of their best effectiveness.

For this, adequate and proportional stimuli must be thought and established to the legislative objectives, whether on the behavior of addressees in general, or on the behavior of Magistrates. Legislative techniques need to consider effective and sufficient sanctions, such as proportionate punishment for crimes, *astreints* (daily fines for delays in executing legal obligations) and sufficient coercive measures, on established obligations.

(R4) The teleological rationality

The teleological rationality of the law speaks to the promotion of the end – objectives, benchmarks and goals of the legislation. The law must be able, at least in theory, to achieve the social ends to be pursued, in an idea of functionalization. In this aspect, teleological rationality requires not only controlling the enactment of legislation, but also helping to correct its course during its application. Therefore, when gathering data on the practice and application of certain civil legislation, e.g., Art. 927 or Art. 489 § 1 of the Code of Civil Procedure, it is possible to analyze if it promoted its desired end, if it produces the desired result (gains in stability, coherence and integrity), in order to change, improve it or improve the structure.

In fact, all legislation has an objective: some aim to reduce inequality; others improve the identification of criminals; improve children's nutrition; it seeks to produce jobs or reduce bureaucracy, and so on. Now, a Law fails when it does not satisfactorily produce the intended end, or when it produces other harmful and unforeseen results. In this sense, a previous prognostic study, by models and scenarios, through more general studies, will allow the analysis of the ability and suitability to promote the intended ends, as this can be the object of, at least, an approximate causality assessment.

This rationality differs from pragmatics and effectiveness, as a law can be obeyed and accepted by all, applied by the courts and welcomed by public opinion, but still be irrational from a teleological point of view, as it does not produce the desired results. It may even be unconstitutional if teleological rationality is a requirement for

the validity of legislation, as in Art. 14 § 9[10], in Art. 227 § 9[11] and Art. 195 of the 1988 Brazilian Federal Constitution, or it may simply be inefficient and inadequate, when it fails to produce the stated purposes. In the latter case, e.g., when the legislator invokes that it will aggravate the penalty compliance regime for certain crimes, or establish pre-trial detention by the Magistrate, to reduce a certain type of violence (Art. 313, III of the Criminal Procedure Code combined with Art. 20 of Law no. 11.340), it is necessary to analyze whether such objectives were effectively achieved, after 15 years of validity of such normative provision, exceptionally contrary to the general rule (Art. 311 of the Criminal Procedure Code).

It is noted that, in the evaluation of the declared ends, there must be prediction of the results by economic, financial and empirical analyses, in a causal analysis and in an inductive reasoning, which does not guarantee *maximum efficiency*, but will exclude manifestly irrational proposals – at least as an argument in the public and parliamentary debate, since the requirement of constitutional validity is not taken care of.

(R5) The ethical rationality

Atienza (2013) recalls that the law resulting from a legislative process, which is not ethically justified in some relevant moral or social value, will be irrational. Likewise, if edited by someone who lacks ethical legitimacy, as an occupant of public office. According to the author, there is no legislative technique that allows analyzing it, and it performs a regulatory idea mostly in the negative sense – such as Radbruch's argument of extreme injustice[12], also because the Constitution does not solve all public and private moral problems. However, at least in an ideal dimension, legislation should seek to respect some ethical and moral limits.

10 Supplementary Law will establish other cases of ineligibility and the deadlines for their cessation, in order to protect administrative probity, morality for the exercise of a mandate considered to be the candidate's past life, and the normality and legitimacy of elections against the influence of economic power or abuse of the exercise of function, position or employment in the direct or indirect administration.

11 § 2 The law shall provide for rules for the construction of public spaces and buildings for public use and for the manufacture of public transport vehicles, in order to guarantee adequate access for people with disabilities.

12 The following statement is noteworthy: in the conflict between justice and legal security (*rectius*, certainty) it must be resolved as follows: 1) Positive Law, based on legislation and state power, has preferential application, even when its content is unfair and not beneficial to people; 2) justice will prevail over the law if it proves to be unbearably (*rectius*, extremely) unjust, to the point that it proves to be an unjust norm, containing an unjust right. (Radbruch, 1946, p. 105-108). See also Alexy (2011).

2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

3. The problem of the irrationality of the legislative process

Both legislative overproduction and atechny violate the principle of the Rule of Law and legal certainty, in the sense of the certainty of the law, the recognizability of laws and norms – and, therefore, exacerbate the deficit of effectiveness and rationality. In this sense, AI, based on previously established criteria, will be able to establish models that help in the evaluation of the rationalities of legislative proposals, before their promulgation/approval. There are, in fact, some initiatives in the use of AI in the Legislature, such as "Ulysses"[13] – a set of AI services designed by the Innovation and Information Technology Directorate of the Chamber of Deputies to assist parliamentarians in legislative activity – without yet promoting the rationality of the legislative process.

In Brazil, in particular, there are tens of thousands of laws, at all levels of the Federation, that do not pay attention to these requirements derived from the Rule of Law (certainty and knowability). Only at the federal level, there are more than 30 thousand legal documents, considering the normative species of Art. 59 of the 1988 Brazilian Federal Constitution (Brasil, 2016), with a high degree of inconsistencies, contradictions and empirical flaws in its elaboration. There are many laws that are poorly written or contradictory (in the logical-formal sense) or incoherent (they do not make sense with legal and constitutional norms – they are unconstitutional) and, sometimes, without observing rationalities and techniques. Some laws are useful, others produce undesired effects, revealing problems of social effectiveness.

In this scenario, it is proposed the application of AI models, in a weak sense, that allow, especially in the legislative scope, the prior control of irrational processes – which would allow greater control by public opinion and society.

There is a linguistic irrationality, for example, in Law no. 14.046 which is about the "*cancellation*" of the service, an institution that does not exist in civil law. Art. 17 of the *Maria da Penha* Law "basic food basket penalty", when Art. 43 of the Criminal

13 Chamber of Deputies. Legislative Consultancy of the Chamber uses AI to speed up work. Available at: https://www.camara.leg.br/assessoria-de-imprensa/568452-consultoria-legislativa-da-camara-utiliza-inteligencia-artificial-para-agilizar-trabalhos/. Soon, it will also classify speeches by deputies and technical studies. The next step will be to translate all this into other languages and then answer questions from citizens. It will also recognize the voice of the deputies, summarize the projects and even identify the position of society on certain subjects. (Câmara lança Ulysses, robô digital que articula dados legislativos – Notícias 2,018).

Procedure Code does not provide for it, dealing only with the penalty of "pecuniary benefit". It does not take care of simple formal language, but of textual acuity, which decisively contributes to the *clarity* and *determinability* of the law, required by the principle of the Rule of Law and legal certainty[14].

There are also problems of systemic rationality in the legislative process, not always perceived or foreseen, before the enactment of the law. The penalty for mistreatment of animals is differentiated according to the species, as if horses and birds were not also objects of affection and love, and even ends up being superior to the penalty fixed for the death of a human being. In this sense, Art. 32 of Law no. 9.605/1996, in § 1-A: the crime of mistreatment of dogs and cats carries a penalty of 2 to 5 years of imprisonment, higher than the others; at the same time, the penalty for the practice of homicide while driving a motor vehicle, while intoxicated, is 2 to 4 years in prison (Art. 302 of the Brazilian Traffic Code), as well as manslaughter, practiced by the doctor, implies the negligible penalty of 1 to 3 years of detention (121 § 3 of the Criminal Procedure Code). This irrationality is implying, in the case of the crime of criminal mistreatment, some self-restraint by the police authority in the indictment, and by the judiciary in the punishment, in the face of the deficit of legal-formal and pragmatic rationality – something similar to what has happened with the punishment to the crime of rape, after the reform that equated effective carnal intercourse with any lewd act, even if repugnant, of lesser harm (Law no. 12.015 - Art. 213 of the Criminal Procedure Code).

Furthermore, problems of pragmatic and teleological rationality can be pointed out when successful social programs are modified, which already produce good results, or when technical analyzes such as inflation and extreme poverty indices are considered to assess whether the value of 400.00 BRL for the *Auxílio Brasil* social welfare program purposes (Law no. 14.284/2021) is rational, efficient and produces the desired result.

14 These principles require trust, calculability and knowability (knowledge), both in the past, present and future, about legal norms, or about facts of life. There are several doctrinal classifications of the content of the structuring principle of legal certainty (some subjective and objective, others static and dynamic, others still in relation to Legislation, Administration and Judiciary), derived from the Rule of Law, but in general (a) there is legal certainty in the *static aspect*, that is, timeless, in a *watertight* cut of reality; (b) and there is legal certainty in a *dynamic aspect*, that is, in the consideration of laws, normative acts, interpretations and facts over time – past, present and future. The certainty and determination of the norm and the applicable law is part of the static aspect (certainty of the Law, predictability and knowledge of the norms) (Avila, 2011).

REVISTA DIREITO MACKENZIE
2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

4. Proposal for the use of Artificial Intelligence to contribute to the rationality of the legislative process

Legislative production is done through language (vernacular), an instrument capable of building algorithms with the articulation of its various fields (syntactic, semantic and pragmatic). AI, which is not synonymous with replacing the human with "autonomous thinking machines", will focus on language and on the empirical assumptions invoked in legislative production, acting as an aid in the deliberations of parliamentarians and committees, in line with international recommendations (OECD, 2020).[15]

AI encompasses a dimension of data and information analytics, such as algorithms that analyze data and its crossings. Another dimension includes machine learning systems, whose algorithms are able to predict or generalize patterns learned from a set of data used to train this system. In the analysis algorithm system, the data are already structured and help the user to make correlations in the search for behavioral patterns in front of the sample researched by the user: "*Both the data and the possible parameters of data treatment are given a priori, being left to the algorithm operator the possibility to manipulate it within a specific context and with some limitations*" (Gutierrez, 2019, p. 85).

Systems based on machine learning[16] have a higher degree of complexity when compared to analysis algorithm systems, as they are able to predict or generalize patterns learned based on a set of data used to train the system. The algorithmic construction in this system does not depend on data previously chosen by users, since the system learns based on its interaction with an external and dynamic environment, through which it performs correlations in order to recognize patterns. Machine learning is, therefore, an active system, endowed with the ability to analyze, make correlations and look for patterns based on unorganized data, unlike analytics (Copeland, 2016).

15 An AI system is a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments, operating with varying levels of autonomy, but linked to objectives set by humans. AI is not just a technology, but a range of techniques.

16 Machine learning is a data analysis method that automates the construction of analytical models. It is a branch of artificial intelligence based on the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention (*SAS: Analytics, Artificial Intelligence and Data Management* [no date]).

In this context, the usefulness and linkage of AI, especially for its pragmatism, in the legislative process[17] is undeniable. The proposal here is to use AI[18] by building a series of identifiable rules/standards (linguistic, legal, technical), subject to evaluation in automation, initially by compiling the data (mining and analysis), and then by development of machine learning, robotics and natural language processing to help process the various information necessary for the rationality of the legislative process.

It must be able to learn from human additions, observe the goals set by humans, linked to constitutional rules and fundamental rights, especially learning from examples of legislative errors and, thus, be able to reduce legislative irrationalities. From the most common linguistic, technical and legal errors, to pointing out possible contradictions and including statistical and empirical data by subject of knowledge, which can be used by Parliament's thematic committees to assist the debate.

Some *metadata* must be selected, to establish "algorithms" or revenue that will be support systems fed with linguistic rules (Portuguese – semantic and syntactic), legal definitions (legal or jurisprudential and even doctrinal), express prohibitive rules (constitutional norms) to help in the "irrationality alert". Ideally, the mythical figure of the "rational legislator" is not sought, but rather to expand the instruments of filtering, capturing public opinion, considering the constitutionality and sustainability of ideas in the legislative process, which is a "procedure" in which applicability of AI seems more appropriate. As Fenoll points out, AI is much more useful in these procedures than in dimensioning the "correction" of proposals:

> In the first (procedural), artificial intelligence will always achieve results superior to those that any human being could achieve. The magnificent efficiency of the first investigations is not surprising. An artificial intelligence tool will compile information correctly with an efficiency incomparable to the human mind, similar to the operations of a calculator (Fenoll, 2018, p. 31).

17 "*Man became man through the use of tools. He made himself, he produced himself and he produced tools. (...). There is no tool without the man, nor the man without the tool. In this sense, language is also a 'tool' that enables the creation and transformation of the cultural world, but a tool that dialogues with man in a relationship of constitutive interdependence, as a substrate that shapes the ways of thinking and acting*" (Fischer, 1979, p. 21-22).

18 AI is an attempt to reproduce, in artificial systems, human cognition and its most varied components, such as learning, memory and the decision-making process. A good definition of the concept of AI is the one formulated by John McCarthy, considered the "father of artificial intelligence": to make a machine behave in a way that, if it were a human being, it would be considered intelligent or "It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable" (McCarthy, 2007).

REVISTA DIREITO MACKENZIE
2024 | v. 18 | n. 1 | p. 1-17 | ISSN 2317-2622. http://dx.doi.org/10.5935/2317-2622/direitomackenzie.v18n116334

As it is not possible to speak of truly autonomous AI, the software will operate in a conditioned way, always responding to predetermined inputs and outputs established by those who develop the program. This way, the result of any decisions made by the computer will continue to be strongly influenced by the values, beliefs and convictions of the person who created the AI, no matter how much an alleged impartiality and overcoming subjectivism are sought, which will require some kind of filter and control in any system created – or improved, as in the case of Ulysses (Câmara lança Ulysses..., 2018).

Even so, we believe that the compilation (mining with grouping and agglomeration) of the laws already in force (especially codes and their concepts) should be used, in addition to the norms of the constitution and binding decisions of the Brazilian Supreme Federal Court (Art. 927 of the Criminal Procedure Code), accompanied by *concepts* and legal, technical, economic, scientific and historical definitions in order to assist in the control. Furthermore, the commands of Supplementary Law 95 must be included, which is especially aimed at the systematization of legislative production.

At the same time, "prediction models with calculations and projections" can be built in the analysis of some laws – on topics with declared objectives (reduce deforestation, produce employment, reduce crime, ad so on), based on studies and statistics in specific areas of knowledge (economy, health, education, employment, crime), to test the possibilities of success, through prediction models. In this sense, the objective of weak AI is the quest to emulate the performance of specific tasks (González; López, 2017).

It should be reiterated: it is not, therefore, a question of building a "source code" to produce laws, content of articles and legal texts; it is cured of procedural correction and alert mechanisms for human control, pointing out errors and deviations from rationality, according to a previous legislative definition (including through a general law on the production of laws – Art. 59, sole paragraph of the 1988 Brazilian Federal Constitution (Brasil, 2016).

In this way, AI seems to be better applicable in the development of programs equipped with legislative and doctrinal metadata, which could be applied in Communicative Rationality (R1), in Legal-Formal Rationality (R2) and in Teleological Rationality (R4), in a stage of pre-sanction or approval in plenary of the bills. It will serve as an aid in the approval judgment (although not definitive, as the approval also has doses of ethical and political judgments).

In the field of communicative rationality control (R1), it is carried out through data mining, with the creation of algorithms, and potential linguistic contradictions in the texts are identified. Thus, in the case of the use of inappropriate concepts and meanings (basic food basket penalties), or the improper use of the particle "or" for "and", or even the use of terms out of context, such as the idea of "cancellation of contracts" (Law no. 14.186 – Pandemic Law), which does not exist, it could be possible to alert the legislator.

In the field of legal-formal rationality (R2), it seems to be possible through data mining, with the creation of an algorithm that contains the set of binding precedents of the Brazilian Supreme Federal Court (STF), the entrenchment clauses and the decisions about them, would help in a prognosis of possible invalidations. *The set of criminal laws applies here, for the purpose of establishing new criminal types.*

In pragmatic rationality (R3), it will play a very limited role, as the acceptance and compliance of legislation depend on several incommensurable variables, as can be seen in the difference between the mandatory use of seat belts (greatly accepted) and the use of helmets on motorcycles (little accepted). There is no way to adequately measure the variables that will influence pragmatic rationality, to create models of prognosis, except in cases that are evidently teratological or redundant – when there is already legislation for the same purpose. Ethical rationality (R5), in turn, depends on human and subjective perception, without establishing standards that can be measured by algorithms or other AI instruments.

Finally, in teleological rationality (R4), we think that AI will allow the analysis of predictions about the effectiveness in promoting the intended ends – value of the *Auxílio Brasil* social welfare program, not only from the budget point of view, but from the social cost of living; the effectiveness of a sanitary measure (such as providing free water), etc. Means-end relationship prediction models, from an economic, social, scientific point of view (a judgment of the factual adequacy of the measure).

5. Final considerations

The legislative process, internally, observes the pretensions of rationality, which concretize the principles of the Rule of Law and legal certainty. Among the various rationalities, part of them can be promoted through AI, especially through models that help

decision-making and control of ends, through prediction, as legal reasoning is similar to the AI technique. Although AI does not determine the approval or rejection of a bill or a legislative act, nor its content, and although it always depends on the ends set by humans, it will be a valuable instrument of rationality to build an effective and more rational understandable legal system, helping in gaining rationality and acceptability in parliamentary debate.

REFERENCES

ALEXY, R. 2011. *Teoria da argumentação jurídica*. 3. ed. Rio de Janeiro: Forense.

ATIENZA, M. Por una razonable definición de "razonable." *Doxa. Cuadernos de Filosofía Del Derecho* Doxa, (4), 189-200. 1987. Available at: https://rua.ua.es/dspace/bitstream/10045/10909/1/Doxa4_13.pdf Access on: 21 Apr. 2024.

ATIENZA, M. *Curso de argumentación jurídica*. Madrid: Trotta, 2013.

AVILA, H. *Teoria da segurança jurídica* 2011/ Humberto Ávila. 6. ed., rev., atual. e ampl. - São Paulo: Malheiros, 2021.

BONAT, D.; HARTMANN PEIXOTO, F. *Racionalidade no Direito*: Inteligência Artificial e precedentes. - 1. ed. Curitiba: Alteridade. Coleção Direito, Racionalidade e Inteligência Artificial, 2020.

BRASIL. [Constituição (1988)]. Constituição da República Federativa do Brasil: texto constitucional promulgado em 5 de outubro de 1988, com as alterações determinadas pelas Emendas Constitucionais de Revisão nos 1 a 6/94, pelas Emendas Constitucionais nos 1/92 a 91/2016 e pelo Decreto Legislativo no 186/2008. Brasília: Senado Federal, Coordenação de Edições Técnicas, 2016. Available at: https://www2.senado.leg.br/bdsf/bitstream/handle/id/518231/CF88_Livro_EC91_2016.pdf. Access on: 21 Apr. 2024.

CÂMARA LANÇA ULYSSES, robô digital que articula dados legislativos. Notícias, 2018. *Portal da Câmara dos Deputados. Online*. Available at: https://www.camara.leg.br/noticias/548730-camara-lanca-ulysses-robo-digital-que-articula-dados-legislativos/. Access on: 26 July 2022.

COPELAND, M. The Difference Between AI, Machine Learning, and Deep Learning? NVIDIA Blog. Online. 29 July 2016. Available at: https://blogs.nvidia.com/blog/whats-difference-artificial-intelligence-machine-learning-deep-learning-ai/. Access on: 26 July 2022.

FENOLL, J. N. *Inteligencia artificial y proceso judicial*. Madrid: Marcial Pons, 2018.

FISCHER, E. *A necessidade da arte*. Rio de Janeiro: Zahar, 1979.

GONZÁLEZ, P. M.; LÓPEZ, R. D. M. B. *Inteligencia artificial*. [s.l.] Los Libros de la Catarata, 2017.

GUTIERREZ, A. É possível confiar em um sistema de inteligência artificial? Práticas em torno da melhoria da sua confiança, segurança e evidências de accountability. In: FRAZÃO, A.; MULHOLLAND, C. *Inteligência artificial e direito*: ética, regulação e responsabilidade. São Paulo: Revista dos Tribunais, 2019.

LEAL, V. C. O conceito constitucional de faturamento para efeitos da incidência da contribuição social ao PIS e Confins. Master's in Law (Direito Processual e Constitucional Tributário). São Paulo: Pontifícia Universidade Católica de São Paulo (PUC-SP), 2017.

MACCORMICK, N. *Retórica e o Estado de Direito*. Rio de Janeiro: Elsevier, 2008.

MCCARTHY, J. What is Artificial Intelligence? Computer Science Department Stanford University Stanford. John McCarthy's Home Page. Online. 12 November 2007. Available from: http://www-formal.stanford.edu/jmc/. Access on: 27 July 2022.

MORAIS DA ROSA, A. A questão digital. *Revista de Direito da Faculdade Guanambi*. 26 September. v. 6, n. 2, p. e259-e259, 2019. DOI 10.29293/rdfg.v6i02.259.

MORAIS DA ROSA, A. Inteligência artificial e Direito: ensinando um robô a julgar. *ConJur*. Online. 2020. Available at: https://www.conjur.com.br/2020-set-04/limite-penal-inteligencia-artificial-direito-ensinando-robo-julgar. Access on: 26 July 2022.

MORRIS, C. W.; RUDOLF, C. International Encyclopedia of Unified Science. Chicago: Chicago Univerity Press, 1955.

OECD. Recommendation of the Council on Artificial Intelligence. Online. 2019. Available at: https://www.fsmb.org/siteassets/artificial-intelligence/pdfs/oecd-recommendation-on-ai-en.pdf. Access on: 26 July 2022.

PERELMAN, C. O razoável e o desarrazoado em direito. São Paulo: Martins Fontes, 2000.

RADBRUCH, G. Gesetzliches Unrecht und übergesetzliches Recht. In: Süddeutsche Juristen-Zeitung, 1946.

SAERLE, J. *A redescoberta da mente*. São Paulo: Martins Fontes, 1997.

SAERLE, J. *O mistério da consciência*. São Paulo: Paz e Terra, 1998.

SAS: Analytics, Artificial Intelligence and Data Management, [n. d.]. Online. Available at: https://www.sas.com/pt_br/202206/home.html. Access on: 27 July 2022.

WALDRON, J. *Law and desagreement*. Oxford: Oxford University Press, 1999.