From 'Efficiency' to 'Justice': Cross-domain Translation Distortion of the Concept of Algorithm in Judicial Contexts and Its Regulation

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Abstract: With the widespread application of artificial intelligence in the judicial field, the algorithm, a core concept of computer science, is being translated across domains into the institutional context of adjudication. Drawing on the three-layer framework of conceptual structure–the propositional kernel, contextual activation frame, and institutional embedding structure–and the RID model in *Knowing and Saying: An Ontological Investigation of Human Cognition* , this paper analyzes the distortion that occurs when the concept of algorithm enters judicial practice. The study argues that the algorithmic kernel of optimization is metaphorically generalized when it is mapped onto the judicial goal of justice. At the contextual level, the engineering pursuit of efficiency and consistency conflicts with the judicial pursuit of individual justice and procedural participation. At the institutional level, the black-box character of commercial algorithms dislocates technical responsibility and judicial responsibility. Through a comparative analysis of the COMPAS risk assessment system in the United States and sentencing-assistance systems in China's Smart Court program, including the 206 System, the paper reveals heterogeneous forms of translation distortion under different judicial systems. It concludes that a productive interaction between algorithms and judicial justice requires litigation-oriented algorithmic review, the dismantling of algorithmic black boxes, and the reconstruction of judicial responsibility in the age of artificial intelligence.

Keywords: Algorithmic judicialization; Cross-domain translation; Three-layer structure; Procedural justice; COMPAS; Smart Court

1 Introduction: The Cross-border Entry of Algorithms into Judicial Contexts

Under the contemporary wave of digitalization, artificial intelligence is reshaping nearly every aspect of social life with unprecedented speed and depth. From shopping recommendations and route navigation to financial trading and urban governance, algorithms have become a basic infrastructure of modern society. Yet when this technological current enters the judiciary, which is often regarded as the last institutional line of social fairness and justice, the resulting shock and reflection are more intense than in many other domains. The COMPAS recidivism risk assessment system in the United States and China's active construction of Smart Courts both indicate that algorithms are moving from marginal assistance toward the core area of judicial decision-making. This movement changes litigation procedures and evidentiary rules, and it also challenges judicial discretion, litigants' procedural rights, and the normative foundations of the judicial system.

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The cross-border entry of algorithms into judicial contexts appears at first to be an expansion of technical application. In substance, however, it is a complex process of cross-domain translation between concepts and logics. A logic born in computer science laboratories must be translated and embedded into a judicial setting saturated with value conflicts, interest struggles, and ethical considerations. This translation is not seamless. Computer science pursues efficiency maximization, error minimization, and logical rigor, whereas adjudication pursues substantive fairness, due process, and justice in individual cases. When these two underlying logics collide, algorithms often display a kind of contextual maladaptation, which this paper calls translation distortion. The distortion is not limited to technical prediction error or model failure; it touches deeper contradictions in human cognition and institutional design.

To analyze this problem, this paper introduces the RID model and the three-layer conceptual framework proposed in *Knowing and Saying* [19]. From this interdisciplinary perspective, the paper asks why algorithms become alienated

in judicial use and how their use can be regulated through the principle of functional outsourcing and upward concentration of responsibility. The aim is to provide a theoretical basis and institutional reference for preserving judicial justice in the age of artificial intelligence.

As algorithms are used more deeply in judicial settings, their negative effects have become increasingly visible. The COMPAS system has been accused of systematic racial bias, and some local courts in China have shown forms of algorithmic dependence when using sentencing-assistance systems. These phenomena are not merely defects of technology itself. They reflect a deeper conflict between technical logic and legal logic. The core logic of algorithms is probability and correlation, while the core logic of law is responsibility and causality. When algorithms try to predict human conduct by probability and replace causality with correlation, they inevitably challenge the basic commitments of the legal order.

Legal scholars and computer scientists have both responded to these challenges. Legal scholarship has focused on algorithmic transparency, rights to explanation, and algorithmic accountability, while computer science has developed explainable artificial intelligence and fairness-aware machine learning. Yet many of these studies remain confined within disciplinary boundaries and lack a framework capable of connecting technical logic with legal logic. This paper therefore uses the RID model to examine algorithmic alienation from the perspective of cross-domain conceptual translation.

The theoretical contribution of the paper lies in showing how the RID model can reveal the internal mechanism of algorithmic translation distortion. Its practical contribution lies in proposing a regulatory path that enables the judiciary to use algorithmic tools without surrendering judicial responsibility. More specifically, judicial justice does not depend only on the accuracy of outcomes. It also depends on the openness, transparency, and explainability of the decisional process. Modern rule of law requires public power to give reasons. When black-box models intervene in adjudication, they deprive parties of access to the reasons for a decision and weaken the authority of judges as responsible decision-makers. The central question is therefore whether algorithms in courts are neutral tools that overcome human bias, or hidden judges that carry specific value preferences and may solidify social inequality.

In the age of deep learning and natural language processing, algorithms are no longer merely code on a programmer's desk. They have entered the capillaries of social governance. Courts, as the final line of fairness and justice, face a profound technical impact from filing and trial to sentencing and enforcement. The question is whether, by partially handing over decisions concerning liberty and fundamental rights to machines, we also hand over the authority to define justice.

The judicialization of algorithms is therefore not only a transfer of technology. It is a conceptual translation in which the clear, definite, efficiency-oriented logic of computer science is inserted into a complex, multidimensional, justice-oriented value system. The RID model holds that human cognition is not a passive reflection of the objective world. It is an information structure generated to respond to a particular demand and then stabilized into executable rules. When the concept of algorithm moves from the rule layer of computer science into the information and demand layers of law, the assumptions and limits of its original domain are often neglected, resulting in translation distortion.

The classical jurisprudential contrast between Ronald Dworkin and Richard Posner makes the conflict clearer. Dworkin's *Law's Empire* treats adjudication as an interpretive practice of law as integrity, in which judges must regard law as a coherent system of moral and political principles and show equal concern and respect for each citizen [5]. Posner's law and economics, by contrast, gives a central evaluative role to wealth maximization and efficiency [10]. The entry of algorithms into judicial contexts strengthens a Posnerian orientation toward efficiency and poses an unprecedented challenge to Dworkinian integrity and justice.

The argument proceeds as follows. Section 2 sets out the RID model and the three-layer framework. Section 3 examines COMPAS and China's Smart Court sentencing-assistance systems as two cases of translation distortion. Section 4 proposes regulatory paths to correct the distortion. Section 5 reflects on the jurisprudential shift from formal rule of law to substantive rule of law. Section 6 concludes.

2 Theoretical Framework: Three Layers of Cross-domain Conceptual Translation and the RID Model

2.1 The RID Model and the Logic of Cognitive Compensation

The RID model in *Knowing and Saying* contains three dimensions: Rule, Information or Structure, and Demand or Drive [19]. Its core insight is that human cognitive constructions do not arise from nowhere. They are forms of cognitive compensation developed to relieve particular survival pressures or solve particular problems.

From the perspective of cognitive compensation, algorithms enter the judicial field because they appear to compensate for the limitations of human judges in processing large volumes of information and for the irrational biases that may arise from emotion or implicit prejudice. This is the demand layer that motivates algorithmic use in courts. In response to that demand, algorithms generate an information structure by transforming complex case facts into computable feature vectors. They then stabilize that structure into rules, namely machine-learning models that output sentencing recommendations or risk scores.

The problem is that the demand faced by algorithms changes fundamentally when they move from the computer science laboratory to the courtroom. The demand in computer science is how to process data efficiently and accurately. The demand in law is how to realize fairness and justice in conflict. This displacement of the underlying drive is the root cause of cross-domain translation distortion.

2.2 The Propositional Kernel Layer: Logical Reduction and Generalization

In computer science, the propositional kernel of the algorithm is a definite set of instructions for finding an optimal solution under given constraints. It has three core features. First, it requires a single target function, such as minimizing error or maximizing accuracy. Second, it requires quantifiable evaluation standards, because inputs and outputs must be translated into numerical matrices. Third, it presupposes logical closure, since algorithmic operation does not rely on moral intuition or emotional resonance external to the model.

When algorithms enter judicial contexts, however, their object changes from data to human beings and disputes. Judicial justice cannot be reduced to a single objective function. Criminal sentencing must simultaneously consider retribution, prevention, rehabilitation, victim protection, social defense, and other goals. These goals are often internally conflicted. At the rule layer, algorithmic translation tends to reduce multidimensional and heterogeneous value conflicts to one-dimensional statistical probabilities. This reduction improves processing efficiency, but it may do so at the cost of substantive justice. For example, an algorithm may identify a statistical correlation between low educational attainment and higher recidivism. It cannot understand the structures of social inequality behind that correlation and may therefore convert systemic social injustice into algorithmic punishment of individuals.

2.3 The Contextual Activation Frame Layer: Contextual Dislocation and Conflict

The meaning of a concept depends on the network of contexts in which it is used. Wittgenstein argued in *Philosophical Investigations* that the meaning of a word lies in its use and that use is embedded in a form of life [14]. In the engineer's form of life, an algorithm means efficient code and an optimized model. In the judge's form of life, it must mean a legitimate procedure and acceptable reasons.

This contextual difference produces a deep distortion at the information layer. Algorithmic consistency is a virtue in engineering: the same input should produce the same output, which guarantees reliability. In the judicial context, however, mechanical consistency may become injustice, because each case is unique and each defendant has a particular motivation, background, and attitude toward remorse. The judicial ideal is to treat like cases alike and unlike cases differently. Algorithms can often recognize surface similarity, such as the same charge or statutory range, but they struggle to recognize substantive difference, such as the difference between coerced conduct and deliberate criminality. As a result, algorithms may manufacture substantive inequality while pursuing formal equality.

2.4 The Institutional Embedding Structure Layer: Suspended Responsibility

Concepts ultimately operate within institutional structures. In the original engineering and commercial structure of algorithms, responsibility is relatively clear: developers are responsible for code functionality, companies for product performance, and users for usage. Once algorithms enter the judicial structure, however, this responsibility system risks becoming suspended.

Modern judicial systems are founded on publicity and transparency. Judges must state reasons, parties may question the grounds of judgment, and higher courts may review lower courts' reasoning. Commercial algorithms, however, are often protected as intellectual property and presented as black boxes whose internal weights and logic cannot be disclosed. This creates a serious paradox: how can an opaque black box become a legitimate component of a transparent judicial procedure? If an algorithm produces a wrong prediction or an unjust sentencing recommendation, who bears responsibility? Is it the developer, who may insist that the tool is merely auxiliary, or the judge, who may not understand the tool's internal logic? This ambiguity is the most dangerous form of distortion at the demand layer, because it erodes judicial credibility and creates space for the evasion of responsibility.

3 Dual Case Analysis: Empirical Forms of Algorithmic Translation Distortion

3.1 The COMPAS System: The Conflict between Predictive Probability and Substantive Fairness

COMPAS is a widely used recidivism risk assessment tool in the United States. Developed by Northpointe, later renamed Equivant, it analyzes a questionnaire of 137 items and outputs a recidivism risk score from 1 to 10. It has been used in bail, sentencing, parole, and other crucial stages of criminal justice. As an early representative of judicial algorithms, COMPAS reveals the translation distortion of algorithms in a particularly clear way.

At the propositional kernel layer, COMPAS equates recidivism probability with individual dangerousness. From a legal perspective, this challenges the presumption of innocence, because it predicts and may indirectly punish an individual by relying on group-level statistical traits, including location, family background, and social contacts. More fundamentally, the algorithm optimizes overall predictive accuracy, whereas sentencing requires not only accurate outcomes but also fair procedures. The model translates complex social background variables into statistical weights and strips criminal conduct of its social-structural causes. Sentencing thereby risks becoming probability-based punishment rather than responsibility-based judgment.

At the contextual activation layer, COMPAS pursues overall predictive accuracy while overlooking racial differences in false positive rates. ProPublica reported that Black defendants were incorrectly labeled high risk at roughly twice the rate of white defendants, while white defendants were incorrectly labeled low risk at roughly twice the rate of Black defendants [1]. Dressel and Farid further showed that COMPAS was not substantially more accurate than predictions made by untrained human participants [4]. Chouldechova demon-

strated mathematically that, where base recidivism rates differ across groups, calibration and equalized error rates cannot be simultaneously satisfied [3]. These findings show that algorithmic bias is not merely the product of malicious design. It is also produced when algorithms uncritically absorb historical data that already contain systematic racial bias and then present the result as scientific objectivity.

At the institutional embedding layer, COMPAS creates a procedural justice crisis. In the Loomis litigation, the defendant sought access to the source code in order to challenge the risk assessment, but the request was refused on trade-secret grounds. This denial limited the defendant's ability to contest the basis of the assessment and allowed judicial discretion to be influenced by an opaque system. Rudin argues that high-stakes contexts such as criminal sentencing should use interpretable models instead of black-box models supplemented by post-hoc explanations, because post-hoc explanations may themselves be unreliable [12]. Wu similarly notes that the black-box problem has specific institutional risks in Chinese criminal procedure and requires targeted legal regulation [15]. Algorithmic dependence thus transfers substantive judicial power from judges to algorithm developers who have not been authorized by democratic procedures.

3.2 China's Smart Court Sentencing-assistance Systems: The Tension between Similar-case Consistency and Judicial Discretion

China's Smart Court program is an important component of recent judicial reform. Sentencing-assistance systems represented by Shanghai's 206 System are developed under public authority and are intended to realize similar-case consistency, prevent wrongful convictions, and unify adjudicative standards. Unlike the commercialized path of the United States, algorithmic judicialization in China has a distinct administrative character, and this produces its own form of translation distortion.

At the rule layer, sentencing-assistance systems use natural language processing to extract case features and compare them with past judgments in order to generate sentencing recommendations. Their core logic is to find the most similar historical case. The difficulty lies in defining similarity. Algorithms can process quantifiable statutory circumstances, such as surrender, meritorious service, or the amount involved in a crime, but they have difficulty capturing discretionary and affective dimensions, such as repentance, victim forgiveness, or social impact. This reduction simplifies complex adjudication into mechanical feature matching and neglects the uniqueness of each case.

At the information layer, the logic of similar cases receiving similar judgments conflicts with judicial discretion. Feng argues that algorithms can improve efficiency in routine cases with simple facts and clear features, but they often fail in hard cases involving rule creation or value conflict [6]. Guo and Yong further argue from the perspective of procedural justice that algorithm-assisted sentencing is not only a technical issue but also a constitutional issue concerning the allocation of judicial power and participation rights [7]. When a judge's professional judgment conflicts with an algorithmic recommendation, the judge may face strong institutional pressure. Under performance indicators oriented toward similar-case consistency, judges may compromise with algorithmic outputs, resulting in the shrinking of discretion and the ossification of adjudication.

At the demand layer, China's Smart Court systems also face the problem of responsibility attribution. Although the Supreme People's Court has established the principle that artificial intelligence may only assist adjudication and may not replace judges [13], algorithmic recommendations can become standardized reference baselines in practice. Departures from those baselines may require judges to bear a heavier burden of justification and greater professional risk. Reiling's analysis of China's Smart Court reform notes that Chinese reform embeds technical systems deeply in court administration and adjudicative management, which provides a significant comparative example but also raises institutional questions about discretion and responsibility [11]. If algorithmic training data are biased or model logic is defective, responsibility for erroneous judgments remains difficult to allocate.

3.3 Sociological Roots and Ethical Dilemmas of Algorithmic Distortion

Beyond technical logic and institutional design, translation distortion is rooted in broader social structures and ethical dilemmas. Algorithms are socio-technical systems. Their operation depends not only on code and data but also on the cultural and institutional backgrounds into which they are embedded.

First, training data are often digital deposits of historical judicial practice. They do not neutrally reflect the world. They may contain existing bias, discrimination, and inequality. In some regions, minority groups may experience higher arrest rates because of unequal policing patterns. Once such historical deviations are absorbed and amplified by algorithmic models, they can produce systematic discrimination in future sentencing predictions. Because the discrimination is hidden in mathematical models and code, algorithmic discrimination may be harder to detect and correct than human prejudice.

Second, judicial algorithms create ethical dilemmas. Adjudication is not merely fact-finding and rule application. It is also an exercise of human concern and moral judgment. Sentencing requires consideration of subjective culpability, remorse, family background, social expectations, and other factors that are difficult to quantify. When algorithms try to measure such dimensions through uniform standards and weights, they inevitably fall into a mechanized ethical dilemma. Algorithms do not understand tolerance, mercy, or redemption. They predict future conduct from past statistical regularities and thereby risk reducing a defendant from a singular person to a sample in a dataset.

Third, black-box algorithms intensify power asymmetries in judicial procedure. In traditional litigation, judges, prosecutors, lawyers, and defendants participate in judgment for-

mation through public examination, debate, and reasoning. Commercial algorithms disturb this balance. Developers control the core code and data and obtain hidden influence over judicial outcomes. Judges and litigants, often lacking technical expertise, may be unable to challenge algorithmic outputs effectively. The result is a substantive transfer of judicial power to technical actors.

4 Reconstructing the Knowledge Order: Regulatory Paths for Correcting Translation Distortion

4.1 Breaking the Algorithmic Black Box: From Trade Secret to Public Review

The first regulatory task is to break the algorithmic black box. Xu argues that the black box of artificial intelligence algorithms is not only a technical problem but also a legal problem that must be addressed through rights to explanation and review mechanisms [16]. Judicial legitimacy is founded on public reasoning. If algorithmic logic is hidden behind trade-secret protection, parties lose the possibility of cross-examination and defense, and procedural justice becomes impossible. Algorithms used in courts should therefore disclose their source code, training-data distribution, and weighting logic to judicial review bodies and qualified expert witnesses. This is necessary to protect litigants' rights and to define the version responsibility of algorithm developers.

Public review should not remain a passive after-the-fact remedy. It should run through the full life cycle of design, testing, and deployment. During development, legal scholars, ethicists, and public representatives should participate in value alignment to ensure that optimization goals do not depart from judicial justice. During testing, independent third-party institutions should conduct stress testing for fairness, non-discrimination, and robustness. During deployment, dynamic monitoring and feedback mechanisms should be established so that systematic deviation in particular categories of cases triggers correction procedures.

4.2 Defining Boundaries of Use: Institutional Exploration in China's Smart Courts

China has undertaken active institutional exploration in regulating artificial intelligence in courts. In 2022, the Supreme People's Court issued its Opinions on Regulating and Strengthening the Application of Artificial Intelligence in the Judicial Field. The document establishes an auxiliary-adjudication principle: artificial intelligence may serve only as an auxiliary tool, may not replace judicial decision-making, and judges must remain responsible for case outcomes [13]. This principle institutionalizes functional outsourcing and upward concentration of responsibility and helps prevent algorithmic overreach in judicial contexts.

In practice, however, implementing the auxiliary-adjudication principle is difficult. To prevent assistance from becoming domination, procedural law must define clear boundaries. In cases involving the death penalty, life imprisonment, minors, mental illness, or other major interests and special subjects, sentencing-assistance systems should either be excluded or used with extreme caution. If judges adopt algorithmic sentencing recommendations, they should briefly state reasons in the judgment. If they reject the recommendations, they should explain why, but the explanation should not become an excessive burden. It should be understood as a legitimate exercise of discretion.

4.3 Reconstructing Human–Machine Collaboration: From Tool Dependence to Subjective Return

Functional outsourcing and upward concentration of responsibility are not merely institutional arrangements. They also represent a philosophical reconstruction of human–machine collaboration. In the age of artificial intelligence, human cognitive compensation tools are increasingly powerful, but this does not mean that humans may abandon their position as cognitive subjects. On the contrary, the more powerful algorithms become, the more indispensable judicial value judgment and moral intuition become.

Reconstructing collaboration requires judges to improve algorithmic literacy. Judges do not need to become programmers, but they must understand the basic principles, limitations, and possible sources of bias in algorithmic systems. Only then can they maintain critical reflection when facing algorithmic recommendations. Collaboration also requires stronger human-in-the-loop mechanisms. After an algorithm generates a preliminary sentencing recommendation, an experienced judge should review it. If parties object to the algorithmic assessment, they should have the right to seek reconsideration by a human judge.

Ultimately, functional outsourcing and upward concentration of responsibility require a reflexive judicial algorithmic system. Such a system should not merely output a result. It should also output confidence levels, decisive factors, and potential uncertainty, thereby providing genuinely meaningful support for judicial decision-making.

5 Jurisprudential Reflection on Algorithmic Regulation: From Formal Rule of Law to Substantive Rule of Law

5.1 The Extremity and Crisis of Formal Rule of Law

The use of algorithms in the judiciary is a miniature of the transformation of modern rule of law into technical rule of law. This transformation changes not only judicial techniques but also the underlying logic of legality. Max Weber famously observed that modern law tends toward formal rationalization. Formal rule of law emphasizes generality, clarity, predictability, and a mode of adjudication that resembles an automatic machine. In one sense, algorithmic adjudication is the technical-age intensification of formal legality. It translates complex facts into computable data and uncertain legal rules into precise code.

Yet this extreme formal legality contains a serious crisis. As the RID analysis shows, algorithms at the rule layer reduce logic and strip cases of social-historical context and individual uniqueness. This decontextualization can turn adjudication into cold calculation and ignore the moral demands and human concerns behind law. When formal rule of law is pushed to an extreme, it may become digital domination and depart from the original purpose of protecting rights and realizing justice.

5.2 The Return of Substantive Rule of Law and Human–Machine Collaboration

The crisis created by algorithms calls for the return of substantive rule of law. Substantive rule of law is concerned not only with the internal coherence of rules but also with their social effects and moral legitimacy. In the algorithmic age, substantive legality requires the value judgment and emotional resonance of human judges.

Functional outsourcing and upward concentration of responsibility express substantive rule of law in technical conditions. Routine data retrieval and preliminary logical comparison can be outsourced to algorithms in order to improve efficiency and reduce simple human errors. Final value judgment and decisional responsibility, however, must be concentrated upward in human judges so that adjudication does not deviate from substantive justice. In this collaborative model, the algorithm is not an automatic machine that replaces the judge but a cognitive prosthesis that empowers the judge. The judge can use algorithmic capacity to grasp case information more comprehensively while relying on moral judgment and practical wisdom to correct algorithmic conclusions.

5.3 Toward Reflexive Technical Rule of Law

Future judicial reform should not be simply anti-technical or fully technical. It should move toward reflexive technical rule of law. Reflexivity means that technical systems remain alert to their own limitations and risks and that institutional design leaves space for correction.

In reflexive technical rule of law, algorithms should be regulated by law and should also become instruments of regulation. By embedding fairness, transparency, and accountability into algorithmic design–that is, regulation by design–external legal constraints can be translated into internal operating logic. Dynamic audit and evaluation mechanisms should also ensure that algorithms remain aligned with human values as they iterate and evolve.

5.4 Reshaping and Regulating Algorithmic Power

The rise of algorithmic power must be taken seriously. Unlike traditional state coercion, algorithmic power often appears in a hidden, flexible, and apparently scientifically neutral form. It guides, limits, and sometimes determines human conduct through architecture and code. In the judiciary, algorithmic power appears as the authority to redefine case facts, set sentencing baselines, and allocate judicial resources.

To prevent abuse, algorithmic power must be incorporated into the framework of democratic rule of law. Substantively, law should define prohibited areas for judicial algorithms. Major decisions that deprive citizens of fundamental rights must retain human final authority, and models based on sensitive traits such as race, gender, or religion should not be used for risk assessment. Procedurally, new due-process rules suited to algorithms should be developed, including code review, training-data disclosure, and model-bias testing. Responsibility mechanisms should also be reconstructed as distributed responsibility. Algorithmic operation involves data providers, model developers, system deployers, and final users. When an algorithm causes a judicial error, responsibility cannot always be attributed to one individual. A multi-actor responsibility network, supported by insurance and compensation funds but disciplined by strict accountability, is therefore necessary.

6 Conclusion

The rapid development of artificial intelligence creates unprecedented opportunities for improving judicial efficiency, but it also challenges traditional ideals of judicial justice. Based on the RID model and the three-layer framework of conceptual structure, this paper has analyzed the translation distortion that occurs when algorithms enter judicial contexts. The logic reduction at the propositional kernel layer, contextual dislocation at the activation-frame layer, and suspended responsibility at the institutional embedding layer together create a fairness crisis and a justice deficit in algorithmic judicialization.

The proper response is neither to reject technology outright nor to trust algorithms blindly. A workable path is to establish a governance framework of functional outsourcing and upward concentration of responsibility. Routine data retrieval and case comparison can be outsourced to algorithms, but final adjudicative authority and value judgment must remain with human judges. Judges must be responsible not only for case outcomes but also for the selection and use of algorithmic tools.

At the same time, the algorithmic black box must be broken, and rights to explanation and review must be strengthened so that algorithmic operation complies with public, fair, and just procedure. China's auxiliary-adjudication principle provides one useful institutional exploration. As generative artificial intelligence and large language models enter judicial contexts, legal systems must continue to work at the levels of technical design, institutional arrangement, and ethical regulation. Only in this way can courts embrace technical innovation while preserving human values and the final line of social justice.

The cross-domain translation of the concept of algorithm from computer science to law is not only a technical migration. It is also a clash of values and a restructuring of power relations. From the ontological perspective of *Knowing and Saying*, algorithms are tools of cognitive compensation whose effectiveness is always limited by the context and structure into which they are thrown. In the movement from efficiency to justice, the reduction of the propositional kernel, the dislocation of the contextual frame, and the suspension of in-

stitutional responsibility form the deep crisis of algorithmic judicialization.

The comparison between COMPAS and China's Smart Court sentencing-assistance systems reveals heterogeneous manifestations of this distortion in different institutional environments and confirms their common structural roots. This finding is theoretically important because it shows that algorithmic judicialization is not only a technical or legal issue. It is also an epistemological and ontological issue concerning how humans translate concepts between different knowledge systems and how such translation shapes power relations and the distribution of justice.

The present study is limited by its focus on criminal sentencing. Algorithmic translation distortion in civil and administrative justice requires further research. As large language models and other new forms of artificial intelligence develop, the form of algorithmic judicialization is changing, and the applicability of the three-layer framework should be continuously tested and updated. Future work may further examine comparative institutional design for algorithmic judicialization and the theoretical reconstruction of judicial justice in the age of artificial intelligence.

Finally, the broader interdisciplinary literature shows why this problem cannot be studied within law alone. Ji examines legal argumentation in the age of artificial intelligence and the challenges that technology poses to legal interpretation and reasoning [9]. Zuo reconsiders China's legal AI development and shows that technical application cannot be separated from concrete judicial institutions and practices [20]. In the wider field of social communication, Yu and Geng analyze how algorithmic paradigms reshape media logic [17]; Chen discusses intelligent-technology values and media ethics [2]; Hu examines how network technologies reshape public discussion [8]; and Yu and Qu analyze the ethical dilemmas of algorithmic push and content distribution [18]. Together, these studies provide a broad perspective for understanding and regulating the social applications of algorithms.

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