Data Rights Delimitation Through the Lens of Hohfeldian Jurisprudence

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Abstract: Data, as a unique form of asset, holds significant commercial and economic value, characterized by its valuableness, infinite replicability, and updatability. The delimitation of data rights encompasses various aspects, including ownership and control over personal information, data access rights, rights to rectification and erasure, data portability, and the right to data publication. The process of defining data rights is dynamic, requiring continuous adjustment and balancing of the interests of all parties involved to achieve the rational, secure, and sustainable utilization of data resources. Using Wesley Hohfeld's analytical theory of rights as a starting point, the definition and balancing of data rights must also take into account factors such as legal regulations, public interest and ethics, personal privacy protection, and the principles of data sharing and openness. By comprehensively applying Hohfeld's framework of jural relations, effective protection and rational utilization of data rights can be achieved, offering a valuable conceptual framework for data rights delimitation.

Keywords: Hohfeld; Data Rights; Personal Information Protection; Legal Relations

1. The Formalist Predicament in Data Rights Delimitation

At the dawn of the 21st century, formalist thinking began to exert a notable influence on contemporary data law. While studying these theories, we must simultaneously confront fundamental questions about the foundations of legal knowledge: What constitutes its basis, and how can we justify its legitimacy and rationality? For instance, mathematical definitions and formulas can be intuitively assessed and deductively derived from axioms, making mathematics one of the most robust theoretical systems in human knowledge. Yet, the foundations of mathematics remain contested, primarily among three schools: the formalism represented by Hilbert, which deduces theorems from axioms; the logicism advocated by Russell; and the intuitionism, which presents greater challenges for formal justification. [1] Among these, formalism emerged as the dominant school of thought. Since various branches of natural sciences are grounded in mathematics, they are inherently products of rationality. This raises a critical question: How can such rationality be applied to legal reasoning? Is it possible to employ rational methods and metrics to assist in the delimitation of rights?

Data law should transcend traditional property-right frameworks and instead be founded on a value logic oriented toward open utilization, focusing on the concrete delineation of rights within the interactive relationships among different entities. When society tends to interpret the social value of data and corresponding institutional needs through the lens of property ownership, some scholars argue that unclear data rights constitute the primary obstacle to the sustainable development of the

digital economy.[2] Consequently, clarifying data rights and establishing a property rights system for data elements have become pivotal issues in data law. These scholars propose well-defined concepts of data ownership and delimitation to ensure lawful data use and circulation. Simultaneously, data law should institute data property rights registration and trading mechanisms to facilitate data transactions and protection, alongside establishing corresponding dispute resolution mechanisms to ensure balanced and equitable interests among all parties.

This article will reaffirm the value logic that data law should uphold, introduce the Hohfeldian analytical matrix of jural relations, and use the personal information protection regime as a case study to demonstrate how a relational approach can foster both data value development and the realization of public interests.

2. Delineating Data Rights

2.1 The Definition of Data and the Delimitation of Rights

The delimitation of data rights refers to the stipulation and definition of rights pertaining to the possession and use of data. According to legal provisions, personal information constitutes a fundamental right of citizens, who thereby possess ownership and control over their personal data. Simultaneously, activities such as the collection, processing, and use of data must comply with legal requirements and safeguard the security and privacy of personal information.

The delimitation of data rights is a complex issue involving legal, ethical, and social factors. National and regional laws and regulations serve as the foundational basis for defining data rights. Legal stipulations clarify the ownership, control, and access rights that individuals and organizations hold over their data. They can also establish fundamental principles of data protection, prescribe the methods of data processing and conditions for authorization, and institute supervisory bodies to oversee and protect data rights.

The delimitation of data rights must consider public interest and ethical considerations. In certain circumstances, individual data rights may be subject to limitations for purposes such as protecting societal interests, national security, or crime prevention. When balancing different interests, it is necessary to evaluate the purpose and impact of data use, ensuring that data utilization adheres to ethical standards.

Privacy protection is a crucial aspect of data rights delimitation. Individuals possess the right to confidentiality and control over their personal information, encompassing all stages of data use, collection, processing, and transfer. Delimiting data rights requires due consideration for the protection of individual privacy, restricting unauthorized access, misuse, and disclosure of personal data.

Furthermore, the delimitation of data rights must also incorporate principles of data sharing and openness. For non-personal sensitive data, appropriate sharing and openness can foster innovation and social development. When determining data rights, a balance must be struck between the interests of data holders and the public interest, ensuring the reasonable use and full utilization of data resources.

2.2 Data Assets and Their Characteristic

Data assets refer to collections of data owned and managed by organizations, constituting data resources with economic value that significantly impact organizational operations and decision-making. These may encompass various data types, including customer data, sales data,

production data, market data, and human resources data. Data assets are typically regarded as crucial business assets that support decision-making, business innovation, market competition, and organizational development.

Data assets possess significant commercial and economic value. Through the collection, organization, and analysis of data, information and trends can be identified, thereby supporting decisions, driving innovation, and enhancing efficiency. The value of data assets depends on their contribution to business and strategic objectives.

Unlike physical assets, data assets have unlimited replicability. Once created or collected, data can be easily copied and transmitted without temporal or spatial constraints. This enables simultaneous use by multiple users and applications, enhancing data accessibility and flexibility.

Furthermore, data assets can be continuously updated and modified. New data can supplement or replace old data to maintain accuracy and timeliness. These updates help organizations keep pace with changing information and support timely decision-making and action.

Concurrently, data assets face security and risk challenges. Security concerns include data breaches, unauthorized access, and data corruption. Threats to data assets originate from both internal and external malicious acts, necessitating appropriate security measures to protect data confidentiality, integrity, and availability. Modern organizations are also becoming increasingly dependent on data in their business operations. Data assets form the foundation of normal organizational functioning and innovation, impacting corporate competitiveness and long-term development. Therefore, organizations must prioritize data management and governance to ensure the reliability, consistency, and sustainability of data assets.

Data assets often contain personal identification and sensitive information, involving privacy and compliance issues. Organizations must comply with applicable regulations and laws, such as personal information protection laws, to safeguard individual privacy. Simultaneously, appropriate data rights delimitation and permission control mechanisms must be established to ensure compliance and accountability.

2.3 The Relational Approach to Data Rights Delimitation

The evolution and challenges of the "Coasean approach" to resolving information privacy issues in the digital environment provide a critical starting point. Historically, the Coasean solution was widely advocated, positing that endowing users with property rights over their personal information would facilitate voluntary transactions and promote value distribution more favorable to users. However, data utilization is characterized by non-rivalry, rendering the Coasean parable of boundary demarcation between farmer and rancher inapplicable when understanding data production and allocation efficiency.

Scholars contend that in the digital realm, legal rights delineation should adopt a relational rather than a substantive approach to conceptualizing various "rights" and "duties". It is both feasible and imperative to construct legal norms defining "data rights". [3] Thus, although Coasean property arrangements prove inadequate, Coasean-style rights delimitation remains essential.

Academic discourse has drawn analogies between data and the distinct characteristics of oil versus gold to explore the fundamental logic of data value realization. [4] Oil embodies use value, whereas gold primarily functions as a medium of exchange. Unlike oil, data utilization is non-rivalrous, enabling multiple entities to concurrently develop diverse applications from the same data, thereby realizing various social values. Nevertheless, tension exists between traditional

exclusive property regimes and data's characteristics of scale value and non-rivalry [5].

While proprietary protection of personal information represents a legitimate exclusionary claim, it fails to address the negative externalities internalized by enterprises through information processing. Moreover, algorithm-driven data processing may yield systemic negative consequences, such as political risks, whose costs cannot be mitigated through Coasean bargaining. Consequently, individual refusal of data processing also generates negative externalities.

Appropriate solutions must be developed in the data domain to balance individual rights with social interests. Enterprises seek not merely economic benefits but also dominant power through data processing. Constructing data rights based primarily on the property rights prototype is neither necessary nor capable of resolving the negative impacts and structural inequalities inherent in data processing.

Furthermore, regarding the construction of data rights rules, relevant principles of the Coase Theorem can be referenced. The popular interpretation of the Coase Theorem proves inadequate for conceptualizing data rights frameworks; nevertheless, the law should establish rights delineation to balance conflicts among social actors with mutually influencing interests. Coase's insight reveals that when social entities interact, they inevitably cause reciprocal harm. Complete fairness remains unattainable regardless of how rights are initially assigned; conflicts can only be managed through defining boundaries between individuals. [6] The crucial imperative is to ensure that rights delineation exists with sufficient clarity to provide a foundation for transaction-based reconfiguration.

In value-generating data processing activities, exclusive data ownership doesn't constitute a necessary condition, though clearly defined rights frameworks for data processors and controllers remain essential. By delineating data acquisition behaviors—such as impacts on personal privacy and security, constraints on data scraping, and limitations governing data openness—the distribution of data benefits can be effectively balanced. Even where legislation doesn't explicitly regulate specific data acquisition behaviors, rights delineation inherently persists. In summary, developing appropriate data rights rules requires precise rights delineation to equilibrate interests among different entities and resolve challenges arising from data processing.

The accelerated advancement of the digital economy has established data as a significant production factor and economic asset. In constructing future data legal frameworks, focusing on rights delimitation within concrete stakeholder relationships becomes essential. As scholars have illustrated through examples like Guangdong's regional legislation, positive explorations have emerged in this domain—incorporating clear normative protections for the property rights generated by market entities through their development and utilization of lawfully acquired data resources. [7]

This legislative approach demonstrates a priority placed on protecting the legitimate rights and interests of market entities, emphasizing the preservation of value generated through their development and utilization of data resources. Such efforts help stimulate market participants' engagement in the data economy, fostering innovation and development.

Nevertheless, we should maintain a cautious stance toward approaches that establish broad, generalized rights affirmations at the legal level. The unique nature and complexity of data make it difficult for one-size-fits-all legal rights recognition to accommodate the needs of different stakeholders and scenarios. Future data governance construction requires more nuanced and flexible consideration of data-related rights and interests.

Beyond the property rights of market entities, it is necessary to balance considerations including personal privacy rights, public interest, and data security and trustworthiness. Properly

understanding the essence and value of data demands that we contemplate fundamentally new approaches to rights delineation. Data is not merely a material resource but, more importantly, a carrier of information and knowledge.

Therefore, in the process of establishing data governance systems, we should adequately respect the legitimate rights and interests of individuals and enterprises while simultaneously focusing on the protection of broader societal interests.

If we accept that data rights can be conceptualized beyond the traditional property model, then in formulating data rights rules, it is not necessary to simply replicate the "standardized" or "modular" rights delineation rules from property law. The primary rationale for standardizing rights into limited modules in property law is to reduce information costs. However, compared to tangible property, standardizing rights delineation for data is more challenging because key dimensions such as data provenance, scale, and information content are often not readily apparent. This implies that the law would need to standardize rights delineation across multiple dimensions of data, and it remains unclear what configuration of data interests would constitute the most effective modules.

In the construction of data governance systems, we should recognize the complexity and diversity of data, as well as the various interactive relationships among different stakeholders and across different contexts. Simply enforcing uniform standardized templates may prove inadequate for the rapidly evolving digital economy. Conversely, by progressively accumulating rights delineation rules through the process of data development and utilization, we can better align with practical needs and establish more feasible and concrete rights boundaries for all parties involved. This practice-based approach to constructing a "bundle of rights" framework can more effectively adapt to changing contexts and evolving interest relationships [8].

3. Data Rights Delimitation and Hohfeld's Theory of Rights

We may explore the application of the Hohfeldian framework in jurisprudence and its potential role in addressing data rights delimitation. Although Coase did not reference the theories of the American jurist Hohfeld—who preceded him by five decades—both the Hohfeldian framework and Coase's ideas on delimiting mutually harmful relationships reflect a relational understanding of law. While reintegrating the Hohfeldian framework into existing legal norms may entail prohibitively high transition costs, its analytical approach—akin to coordinate geometry in mathematics—proves particularly valuable when contemplating abstract and concrete issues of data rights delimitation. This method enables the systematic deconstruction of complex problems into minimal units, allowing reason to discern their inherent logic and verify their correctness. [9]

Hohfeld's analytical framework has traditionally served to parse and deconstruct legal conceptions including property rights. Present circumstances necessitate further reconceptualization of the "property" notion. Through judicious application of the Hohfeldian framework and developing data law regulations based on relational rights delineation, we may attain more precise comprehension of the substantive meaning and practical outcomes of various rights provisions.

3.1 The Hohfeldian Analytical Matrix

Regarding the relational nature of rights, the Hohfeldian framework was introduced to China, though it differs significantly from the mainstream conceptual system of mainland civil law doctrine. With few exceptions, Chinese scholars have rarely consciously applied it to specific legal research. It is generally believed that the Hohfeldian framework pursues greater clarity and less ambiguity than

traditional legal concepts, which sounds like a formalist research objective. However, Hohfeld's framework actually directly critiques legal formalism, while its most enthusiastic followers in the early twentieth century were legal realists.

The philosophical method underlying the Hohfeldian matrix derives from Descartes and Leibniz, primarily Descartes, as can be appreciated in his famous Discourse on the Method. Descartes stated that this kind of deduction differs from syllogism, instead striving to discover new knowledge not contained in the premises. Hohfeld's brilliance lay in comprehending the correlative and negative nature of jural relations. Correlativity is a fundamental characteristic of jural relations: where there is a right, there must necessarily be a duty; otherwise, such a "right" is illusory.

In Principles of Civil Law, Professor Zhang Junhao suggested that perhaps correlativity involves respect for status. However, respect is a psychological concept, which is why Hohfeld used "liability." H.L.A. Hart further developed Hohfeld's matrix, distinguishing between primary rules of obligation and secondary rules of empowerment. Dean Roscoe Pound of Harvard Law School raised questions about this framework, but Hohfeld maintained that all four sets of jural relations must exist independently.

3.1.1 The Fundamental Forms of Jural Relations

There exist four primary forms of jural relations, representing the transition from a state of nature to a legal state—this constitutes the starting point of our deduction. Acts of disposition necessarily create and extinguish positive duties, while acts of obligation form and terminate negative duties. Acts of disposition modify claims, whereas acts of obligation alter privileges.

For instance, the legal maxim "what is not prohibited by law is permitted" illustrates how, when the law neither forbids nor compels certain conduct, there occurs a natural transition from the state of nature to the legal state. This mirrors the logical reasoning found in geometric symmetry.

When legislators impose duties on subjects in the state of nature, this does not mean prohibiting all behaviors. The concept corresponding to prohibition is "duty," while its absence corresponds to "no-duty," which aligns with "privilege." Thus, the principle that "what is not prohibited is free" becomes fundamentally a matter of logical deduction.

3.1.2 Systematic Construction through Hohfeld's Matrix

The fundamental forms of jural relations represent only the initial step in constructing and discovering legal relationships. Within Hohfeld's analytical matrix, the four pairs of jural relations and eight fundamental legal conceptions are intrinsically interconnected. This article further examines these eight conceptions and four relational pairs to demonstrate their application in legal science.

These eight conceptions function as independent, minimal units for analytical deconstruction. By proposing the concept of unitary jural relations, Hohfeld enabled decomposition to the simplest common denominator of legal relationships. He advocated replacing traditional notions of "rights," "duties," and "liabilities" with four conceptions of legal advantages and four of legal disadvantages.

Hohfeld observed that the term "right" was frequently used by jurists and judges to denote two or three distinct legal advantages within the same discussion, resulting in flawed legal reasoning. To remedy this, he proposed employing more precise conceptions.

Beyond its critical function, the Hohfeldian framework possesses constructive capacity. While the four relational pairs don't directly correspond to how legal norms typically present themselves, they serve as the "least common denominators" for analyzing and comprehending the substantive

content of legal provisions. Conversely, these minimal units can be systematically integrated through logical and functional combinations, progressively building systematic structures from simple to complex jural relations. This approach enables more nuanced description of how property rights function in practical contexts.

3.2 The Relational Dimension of Data Entitlements: The Case of Personal Information Protection

Within the realm of personal information protection, the Hohfeldian analytical framework offers a promising approach to understanding data rights delimitation. In contexts such as digital copyright and personal information processing, conventional property conceptions have proven inadequate, necessitating novel theoretical constructs. The Hohfeldian scheme enables more precise comprehension of rights delineation in data law while illuminating gaps within existing legal provisions.

Although personal information protection regulations emphasize "notice and consent," this framework does not necessarily endow individuals with ownership-like rights. Personal information and data differ fundamentally from tangible property, requiring specific rights delineation to govern the reciprocal relationships between individuals and data processors arising from consent.

Hohfeld's theory provides a logical structure for analyzing such issues. Legal reasoning typically progresses from natural facts to constructed facts, and finally to jural relations. Beyond the subject of a right, its scope also encompasses both content and object—for instance, when constitutional law prohibits governmental infringement on citizens' privacy rights, the "privacy right" referenced here remains the civil law concept of privacy.

Through applying the Hohfeldian framework, we can identify spaces for rights delineation left open by legal provisions while simultaneously revealing conceptual inadequacies in traditional rights discourse. This analytical approach helps transcend the limitations of conventional "rights" terminology, offering greater precision in mapping the complex relationships among data subjects, processors, and controllers.

3.2.1 Applying the Hohfeldian Framework to China's Personal Information Protection Law

Under the Hohfeldian analytical framework, the exceptions permitting personal information processing without consent under Article 13 of China's Personal Information Protection Law (PIPL) may entail distinct entitlements for information processors.

Furthermore, Article 15 of the PIPL grants individuals the right to withdraw their consent for personal information processing. Through the Hohfeldian lens, this right of withdrawal constitutes a power exercised by the individual. This act correspondingly creates a disability for the processor regarding further processing of said information while simultaneously imposing a duty to cease processing activities.

The right to data withdrawal empowers individuals with control over their personal data, enabling autonomous decision-making regarding its use and processing. By exercising this right, individuals can selectively restrict or revoke the processor's privilege to further process personal data, creating a correlative duty for the processor to respect this decision.

This power mechanism serves crucial functions in safeguarding individual privacy and ensuring lawful and appropriate use of personal data. In the digital era, where sensitive personal information is widely circulated and utilized online, the absence of such withdrawal rights would pose substantial threats to individual privacy. Through its exercise, individuals can effectively prohibit continued

processing of their data, thereby limiting potential misuse and dissemination.

To facilitate the convenient exercise of withdrawal rights, personal information processors should implement operational mechanisms that assist individuals in clearly selecting and specifying the scope of withdrawal. Such measures both fulfill individual demands for control and reduce transactional costs in data flows, creating a more efficient and rights-respecting data ecosystem.

3.2.2 Analyzing Specific Provisions of the Personal Information Protection Law through the Hohfeldian Framework

For other specific issues addressed in the Personal Information Protection Law, such as the right to refuse automated decision-making and the right to explanation, the Hohfeldian framework can provide deeper insights into the underlying rights delineation.

Regarding automated decision-making, it is debatable whether individuals possess a right to demand that decision-makers consider specific parameters or particular personal information. In the current digital era, automated decision-making is increasingly deployed across various domains, including credit scoring, recruitment, and loan approvals. Academic circles have expressed concerns about potential issues, such as algorithmic bias and discrimination, which may lead to unfair outcomes.

However, some individuals may simply oppose specific decision outcomes rather than reject automated decision-making entirely. These individuals seek to actively participate in the automated decision-making process to ensure more accurate and equitable results.

In the context of refusing automated decision-making, ensuring the fairness and transparency of the decision-making process is crucial. Individuals should have a claim-right to know the data and algorithms underlying decisions and to understand how outcomes are generated. Correspondingly, decision-makers bear a duty to ensure the process remains free from bias and discrimination, preventing unjust decisions based on specific information or parameters.

Only by guaranteeing procedural fairness and transparency can the individual's privilege to refuse automated decision-making be substantively protected, thereby safeguarding their legitimate rights and interests. This approach transforms abstract rights into concrete, enforceable legal positions through precise Hohfeldian correlations.

3.2.3 The Hohfeldian Framework in Data Governance: From Conceptual Analysis to Regulatory Transformation

(1) Credit Evaluation Algorithms: A Case Study in Hohfeldian Analysis

Taking credit evaluation algorithms as an example, individuals may assert a power to require decision-makers to incorporate specific corrective information. By providing such information, individuals can effectively remedy past behaviors or improve personal circumstances, while legitimately expecting these corrective inputs to be factored into algorithmic processing—ultimately leading to more reasonable and equitable assessment outcomes and social treatment. This demand for active participation in automated decision-making reflects individual concerns about decision processes and the pursuit of fairness and rationality.

Consequently, in designing and implementing automated decision systems, certain participatory privileges and channels should be granted to individuals, enabling them to provide feedback and lodge appeals regarding corrective information. This ensures more objective, equitable, and accurate decision outcomes.

(2) The Shift from Individual Consent to Public Regulation

While current personal information protection systems still emphasize individual consent, there is a discernible transition toward a public regulation model. For instance, under withdrawal right regulations, even where laws grant individuals absolute autonomy, expecting rational control over each processor across extended information processing chains proves impractical.

This paradigm shifts stems from multiple factors. First, the digital era has witnessed exponential growth in the collection, storage, and use of personal information, substantially challenging individuals' capacity to control information processing chains. Second, legal reliance on individual consent reveals inherent limitations—despite guaranteeing absolute autonomous choice, expecting individuals to rationally manage every participant in complex processing chains remains a formidable task.

(3) The Emergence of Public Regulation Frameworks

In response to these challenges, an increasing number of jurisdictions are adopting public regulation models to more effectively protect personal information and safeguard public interests. This model emphasizes societal and institutional oversight of personal information collection and use, establishing relevant laws and regulations, developing industry standards, and creating independent regulatory bodies to ensure information security and privacy. It focuses on maintaining systemic balance by redistributing responsibilities and risks from individuals to all entities involved in information processing.

(4) Withdrawal Rights as Hybrid Mechanisms

The transition to public regulation does not entail complete deprivation of individual choice and rights. The introduction of withdrawal rights exemplifies this balance. These rights allow individuals to revoke previously granted consent or authorization under certain conditions, thereby restoring autonomous control over personal information.

Withdrawal rights partially alleviate the challenges of individual rational control across information processing chains, protecting data subjects' interests while imposing heightened obligations and responsibilities on processors. However, their practical implementation may face technological and cost-related constraints, potentially creating barriers to effective exercise.

3.3 The Hohfeldian Framework: Bridging Public and Private Spheres in Data Governance

The Hohfeldian framework serves as a significant theoretical instrument in private law discourse, yet its broader ambition lies in connecting public and private sectors through a unified conception of jural relations. This integrated approach not only helps simplify complex legal relationships but also facilitates information flow and cooperation between both sectors. In contemporary society, where boundaries between public and private spheres are increasingly blurred amid shared complex challenges, bridging this divide becomes particularly crucial. The Hohfeldian framework provides the conceptual methodology for establishing sustainable collaborative mechanisms.

In the data domain, personal information protection regulations involve tensions between private rights and state obligations. Here, the Hohfeldian framework offers a resolution: the personal information protection regime establishes a network of jural relations encompassing both private-private and public-private interactions, involving mutual definitions of private advantages, private disadvantages, state powers, and state liabilities.

3.3.1 Analytical Framework for Personal Information Protection

The Hohfeldian framework provides a comprehensive solution for personal information protection norms. By clarifying relationships between individual rights and state obligations, it helps balance the conflict between private rights and state duties while protecting personal information. The framework establishes a clear network of jural relations that enables effective coordination and management among private entities and between private and public entities.

Moreover, the framework offers the flexibility needed in modern society, allowing appropriate definition of private advantages, private disadvantages, state powers, and state liabilities according to different circumstances, thereby promoting implementation and enforcement of personal information protection norms.

3.3.2 Four-Dimensional Balance Mechanism

Analyzing the interdefinition of these four elements proves crucial:

(1) Private advantages refer to individuals' control and autonomy over their personal information, ensuring protection against misuse or disclosure

(2) Private disadvantages involve individuals' responsibilities to provide accurate information and comply with privacy policies

(3) State powers encompass appropriate management and supervision of personal information use while safeguarding public interests and social stability

(4) State liabilities include establishing effective regulatory mechanisms, formulating clear laws and regulations, and penalizing violations

The equilibrium among these four elements forms the foundation for effective operation of personal information protection systems.

3.3.3 Towards Integrated Protection Mechanisms

Personal information protection norms aim to safeguard individual privacy rights and information security while preventing misuse or disclosure. Under these norms, private entities bear rights and duties regarding personal information protection and processing, while the state assumes regulatory and supervisory responsibilities.

The Hohfeldian framework provides crucial insights for resolving conflicts between private rights and state obligations in personal information protection. By establishing personal information protection regimes that clarify networks of jural relations among private entities and between public and private entities, we can effectively balance individual and state interests while defining all parties' rights and responsibilities.

Protecting private advantages requires not only reasonable obligations from private entities but also corresponding state liabilities, forming a comprehensive protection mechanism. Maintaining state powers likewise necessitates active cooperation and participation from private entities. By defining private disadvantages and state liabilities, we ensure effective implementation of personal information protection norms, achieving dual safeguards for personal information security and privacy rights.

The application of the Hohfeldian framework will help construct sound personal information protection systems, promoting sustainable development and social stability in the data domain. Meanwhile, in practice, public authority intervention in the data field, while seemingly paradigmatic in appearance, remains marginal in actual operation.

4. Deconstructing Hohfeldian Jural Relations in Data Contexts

In the complex ecosystem of data circulation and application, the traditional "ownership" paradigm has proven inadequate for effectively delineating the rights and interests of all parties involved. Hohfeld's theory of jural relations, with its precise logical structure, provides us with an analytical tool to deconstruct the intricate interest relationships in data contexts. The Hohfeldian matrix of jural relations, through deconstructing four correlated pairs - "right-duty," "privilege-no right," "power-liability," and "immunity-disability" - offers a sophisticated analytical framework for clarifying multi-stakeholder interactions in data scenarios. By decomposing the vague discourse of "data rights" into eight fundamental, interconnected legal elements, we can more clearly grasp the dynamic equilibrium among data subjects, controllers, third-party enterprises, and government agencies. This section will systematically analyze the networks of Hohfeldian jural relations formed by different core actors across various data scenarios from the perspective of stakeholder dimensions.

4.1 Definition of the Subject and Basic Legal Status

As the originator of personal information, the legal status of the data subject (user) needs to be fully defined through multiple sets of Hofstadter relations. When a user exercises their rights over personal information, they are actually initiating a series of changes in legal relationships. For example, when a user requests a platform to explicitly state its data processing rules, this is an exercise of "rights", corresponding to the platform's "obligation" to inform; when a user refuses to provide data in non-essential scenarios, this is an exercise of "privilege", and the platform is in a state of "no rights"; when a user terminates data processing by withdrawing consent, this is an exercise of "power", and the platform must bear the "responsibility" to terminate the processing; when a user is not bound by unilateral changes to the agreement made by the platform, this is an enjoyment of "immunity", and correspondingly, the platform is in a state of "no power". This multi-dimensional definition of legal relationships breaks through the traditional "all or nothing" concept of rights, enabling a more precise positioning of the legal status of the data subject.

Data controllers and processors (enterprise platforms) exhibit a more complex legal status throughout the entire data lifecycle. Platforms obtain authorization for data processing through user agreements, which is exercising "power", while users bear the "responsibility" of the agreement taking effect. Within the scope of authorization, platforms conduct data mining and analysis, which is exercising "privilege" and other entities are not allowed to interfere. When prohibiting third parties from illegally crawling data, platforms are asserting "rights", while third parties are required to bear the corresponding "obligation" of non-interference. The coexistence of this diverse legal status reflects the special role of platforms in the data ecosystem - they are both entrusted managers of data and developers and creators of data value.

4.2 The Interactive Network of Multiple Subjects

In the interaction between data subjects and controllers, the dynamic changes in legal relationships are particularly significant. When users exercise the "right" to delete, they immediately incur the "responsibility" of deleting data on the platform; whereas when the platform conducts compliant data processing, the exercise of its "privilege" places users in a temporary "no-right" state; regarding the platform's possible ultra-scope processing behavior, users always enjoy "immunity" protection, which means that the platform cannot change this legal state through unilateral actions. This fine distinction helps to resolve common disputes in practice, such as what legal obligations are

violated when the platform continues to process data after the user agrees to withdraw consent.

The relationship between data controllers and third-party enterprises exhibits distinct legal characteristics. Through data authorization via API interfaces, controllers exercise "power" and thereby create "privileges" for third parties to access; the signing of data licensing contracts creates mutually corresponding bundles of "rights" and "obligations" between both parties; while the protection of trade secrets imposes a continuous "obligation" of non-action on third parties. This complex network of relationships illustrates that data circulation is not merely a simple transfer of permissions, but rather a process of reconstructing multi-layered legal relationships.

When public authorities intervene in data governance, a unique configuration of legal relationships is formed. The investigative power of regulatory agencies, as a "right", corresponds to the "responsibility" of enterprises to provide data; the implementation of administrative law enforcement actions creates a "duty" for enterprises to cooperate; and under statutory exemptions, enterprises can still enjoy "privileges" for specific behaviors. This configuration not only ensures the effectiveness of regulation but also reserves necessary space for the independent development of enterprises.

4.3 Practice of Legal Relationship Configuration in Typical Scenarios

In the specific scenario of data sharing, three parties form a chain-like relationship of "rights-obligations-responsibilities" that is interlocked. After providing data to the third party, the original controller still retains the "right" to supervise the use of the data; the recipient not only has to fulfill the "obligations" agreed upon in the contract, but also bears the "responsibility" of complying with statutory usage restrictions; while the data subject always enjoys the "right" to know the flow of data. The design of this multiple safeguard mechanism ensures that data sharing does not degenerate into data loss of control.

In the specific context of cross-border data transmission, the configuration of legal relationships underscores the consideration of risk control. Regulatory bodies, by setting compliance conditions, establish a "responsibility" for data processors to prove the legality of transmission. Enterprises must shoulder this "responsibility" and ensure compliance by improving internal governance. Meanwhile, users always have the "right" to be informed of cross-border transmission situations. This three-dimensional design of legal relationships not only facilitates the international flow of data but also safeguards national security and individual rights.

Through the lens of Hofstadter, we can clearly see that the essence of data governance rules is not simply to allocate data rights to a certain party, but to maximize data value while safeguarding the core interests of all parties through a fine combination of different legal relationships. This deconstruction not only has theoretical significance but also has important guiding value for practice. In specific system design, we should dynamically adjust the weight and combination of various legal relationships according to data types, application scenarios, and risk levels, thereby building a data governance system that can both ensure security and promote development. Especially in the context of the rapid development of new technologies such as artificial intelligence and the Internet of Things, this precise analysis method of legal relationships will help us better cope with new challenges that may arise in future data governance.

This deconstruction method reveals that the essence of data governance rules lies in promoting the flow of data value while safeguarding the rights and interests of the subject through the combination and configuration of different legal relationships. The ingenious aspect of the Hofstadter

framework is that it acknowledges both the control demands of data subjects over personal information and the legitimate rights and interests of enterprises formed based on data development, while simultaneously reserving necessary power space for government regulation. In specific system design, the weight and combination of various legal relationships should be dynamically adjusted according to data types, application scenarios, and risk levels, thereby constructing a data governance system that takes into account safety, efficiency, and fairness.

5.Conclusion

Rights can be conceptualized through two distinct approaches: as mature, established sets or as collections awaiting development. While personal information has been explicitly recognized as a right in the Civil Code, data itself has not been formally established as a rights bundle. This stems from the immaturity in defining data subjects, data ownership, data protection, and related dimensions. Effective protection and promotion of these rights require establishing robust legal frameworks capable of continuously adapting to and addressing societal needs and transformations.

This paper employs the Hohfeldian framework to conduct a normative analysis of data rights delimitation, aiming to bridge legal theory with practical realities. In legal operations, conceptual tools serve crucial auxiliary functions. Addressing data rights delimitation similarly requires conceptual instruments for normative analysis and definition. For instance, clarifying concepts such as data ownership, licensing, control, and access rights helps delineate the legal status and interests pertaining to data across different contexts.

We must recognize that conceptual tools should not become shackles that constrain legal conclusions. The law should strive to adapt to contemporary needs and social transformations, always bearing in mind that its fundamental purpose is to uphold social justice and order. Therefore, although conceptual tools play a significant role in analyzing data rights delimitation, final determinations should be based on comprehensive consideration of practical circumstances rather than being constrained by conceptual limitations. Data necessitates novel rights-delimitation approaches to resolve usage, sharing, and protection challenges. Our direction for exploration lies in establishing reasonable norms for data sharing that facilitate data circulation and effective utilization while protecting individual privacy and intellectual property rights.

By emphasizing the importance of conceptual tools in legal operations, we acknowledge concepts' indispensable role in researching and resolving data rights delimitation issues. Conceptual tools help us establish precise definitions for data rights concepts and principles for attributing data resources. However, it is crucial to recognize that these conceptual tools aim to assist reasoning rather than confine conclusions.

When addressing data rights delimitation, we cannot rely solely on traditional ownership or property rights models. With the advent of the data era, data as a unique asset possesses value and complexity that transcend traditional delimitation categories. Consequently, future legal frameworks for data should embrace innovative thinking, moving beyond conventional ownership or property rights models as the primary solution for delimiting data resources.

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