

Human Rights, Real Rights and Data Rights

Humans and Human Rights

Humans are experiencing a “triple transition” from resource economy to digital economy, from centralized governance to multi-governance, and from industrial civilization to digital civilization. The dramatic change gave birth to the system of data rights, which implies the reconstruction of the system of rights and interests. Data rights are the basic human rights we enjoy in digital civilization, which guarantee the basic rights of humans in the digital world while improving the value of data. In addition to the traditional resources such as land, capital and energy, data has become a new type of resources, a new technology, and represent a new system and a new right. Data rights are different from human rights and real rights. The differences between the subjects, objects, and content of the rights determine that the content of data rights cannot be regulated simply by real rights. The proposal of data rights is not only the improvement of human rights, but also the development of real rights. It will be the most important right and order in future digital civilization.

Human rights are the product of the long-term development of humans, and they stem from the nature, personality, dignity and value of human beings. The development of human rights is a gradual process, and human right is an open and evolving concept, so any rigid or fossilized understanding of human rights can lead to the stagnation of human rights development. In the era of big data, everything is “online” and can be quantified, and all humans, machines and things exist as a kind of “data person.” The proposal of “data person” provides a new legal approach for the diversification and universal development of human rights, but it also brings about new problems and challenges for human rights protection.

The philosophical foundation of human rights

Human right has become a widely used term which draws widespread concerns all over the world. Human rights are the rights that people enjoy in order to meet their survival and developmental needs. Human rights are of universality, and all human beings are entitled to human rights.¹ As one of the major achievements of modern and contemporary philosophy, the concept of human rights has gone through thousands of years from the emergence of this idea to the formation of the concept. It can be said that the history of human civilization is the history of human rights development. Human rights can be traced back to the political and legal thoughts in ancient Greece and ancient Rome, and the development of the Renaissance, the Reformation, the natural law theory and the bourgeois revolution. Among them, such five basic theories as theory of natural rights, theory of legal rights, theory of social rights, theory of human nature, and theory of moral rights constitute the philosophical basis of human rights.

Theory of natural rights

The theory of natural rights is a transcendental presumption of human rights which is developed from the French *Declaration of the Rights of Man and of the Citizen*, and it is a classic theory on the source of human rights.² It is dominant among the five theories and has a wide influence. The theory of natural law came into being in the declining period of the ancient Greek

- 1 Article 2 of the *Universal Declaration of Human Rights* provides that “Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.”
- 2 Transcendentalism is a philosophical trend of thought. It believes that the ideas and concepts formed by human mind have the nature of autonomy, and denies that these ideas and concepts are only the reflection of humans’ changing and developing experience. It empowers the intelligence of humans with great power and strength, and holds that experience is formed by the concepts which are built or produced by humans’ thoughts to a great degree. Its extreme manifestation is regarding human thought as the only underpinning of the universe.

city-state, and it gradually developed into the modern theory of natural rights through the inheritance and development during the Renaissance and Reformation. Grotius, Hobbes, Locke and Rousseau have made great contribution to it, and Locke had the greatest impact on future generations. In his famous *Two Treatises of Government*,³ Locke pointed out that before human beings entered civilized society, they lived in a state of nature and were bound by natural laws, which showed human reason. Natural laws endow people with universal natural rights, namely, “the rights endowed by the creator,” including personal right, property right, right to equality, right to freedom, right to self-defense, right to self-jurisdiction and so on (Bai 2015, p. 6).

People have the rights to act and dispose their own bodies and properties according to their own free will, and no one needs to take the orders of others. However, this state of nature has a great defect that the natural rights enjoyed by people are not guaranteed and they are often in fear and danger. In order to get rid of the state of nature, humans establish political societies by entering into contracts to make the society act as an arbitrator and use laws to deal with disputes and punish crimes. As a result, states, governments and laws came into being (Bai 2015, p. 6). The aim and purpose of states are to guarantee citizens’ rights to life, security, freedom, equality, properties and pursuit of happiness. These rights of citizens are not gifts from the world, but natural rights that citizens enjoy, namely, the inherent rights of humans. Locke also proposed a series of principles for human rights protection, such as the principles of popular sovereignty, rule of law, and separation of powers. He also analyzed and verified the state of nature, natural laws and natural rights so that the development of natural laws and natural rights reached a

- 3 After the “Glorious Revolution” in England in 1688, Locke published the famous *Two Treatises of Government*. *Two Treatises of Government* mainly refutes the Hobbes and Filmer’s theory of absolute despotism. It argues that humans’ natural rights to freedom and property are not deprived during the change from a state of nature to society; countries are built on people’s mutual contracts, so people themselves must obey the administration of countries; the power of the citizens’ rulers is not absolute, but conditional. If the rulers lose their moral credibility, people have the right to overthrow them and re-establish a new government that abides by the contract.

peak and these theories also became the main source of thoughts for some declarations of rights and constitutions.⁴

Theory of legal rights

In the history of Western human rights development, the opposite of the natural rights theory is the legal rights theory, which is also known as the theory of “rights endowed by laws” (Li B. 2004, p. 12). Replacing the theory of natural rights, the theory of legal rights had become the most important ideological basis of human rights theories since the nineteenth century until the end of the Second World War. Representatives of this theory include Bentham, Hart, Dicey, Mill, Austin, Raz, Kelsen, McCormick and so on. They belong to the school of prescriptivism of law in the history of jurisprudence. Theory of legal rights holds that formal or informal legal rules and regulations produce human rights, emphasizing that human rights are not innate, but endowed by law. It denies the ethicality of law and human rights, and believes that ethics are subjective. Everyone has his own views of ethics, so it is difficult to make objective and exact judgments. It also criticizes that “the state of nature” in which people enjoy “natural rights” is fictitious, and “natural laws” are mysterious and thus unscientific (Li B. 2004, p. 12). As Bentham believes, natural laws, the state of nature, original contract and other relative theories are based on “imagination” and “fictions,” thus violating the historical realities and being “unauthentic.”

In Bentham’s view, natural rights do not exist; instead, all rights are endowed by law (Bai 2015, p. 7). Laws are the sum total of the sovereigns’ orders or orders adopted by the sovereigns (Wang G. 2015, p. 42). “Rights are the products of laws and are only the products of laws. There is no right without laws” (Shen & Huang 1994, p. 122). When defining the duties and

4 For example, United States Declaration of Independence adopted in 1776 provides that, “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable rights, that among these are life, liberty and the pursuit of happiness.” *Declaration of the Rights of Man and of the Citizen* adopted in 1789 provides that, “The aim of all political association is the preservation of the natural and imprescriptible rights of man. These rights are liberty, property, security and resistance to oppression.”

obligations of members of society, laws also endow people with corresponding rights. Based on the principle of utilitarianism, in Bentham's theory of legal rights, it is believed that human rights are driven by interests. In order to replace the human rights principles of "freedom, property, security and resistance to oppression" in the *Declaration of the Rights of Man and of the Citizen*, Bentham put forward the human rights principles of "security, survival, prosperity and equality" based on "legal rights." He believed that the aim of society is to promote the greatest happiness of the majority; and happiness includes security, survival, prosperity and equality. Therefore, the more completely the four goals are achieved, the faster the total amount of social happiness will increase (Bai 2015, p. 7).

Theory of social rights

Theory of social rights is another mainstream besides the theory of natural rights and the theory of legal rights. Its main representatives include the early socialist thinkers Saint-Simon, Fourier and Owen, legal sociology thinkers such as Marx and Weber, and scholars of school of sociological law such as Duguit and Pound (Wang G. 2015, p. 46). The main idea of the social rights theory is to regard law as a kind of social norm, which arises from specific social culture and social structure. According to theory of social rights, people are both "social animals" and "political animals" who can't live independently from the society, and they live in various social networks with various ties between them. Therefore, everyone's interests can be infringed by other people or social organizations; and everyone can infringe the interests of others or social organizations. In such cases, we need laws to address issues and make adjustments, so human rights came into being accordingly. The theory of social rights negates the rational core of the natural rights theory, and denies that people are "born equal and free" and that human rights are derived from "human nature" and "personality and dignity of humans" (Li B. 2004, p. 13).

After the Second World War, theory of social rights gained wide recognition and consensus all around the world. With the emergence of welfare states, the pursuit of social justice, the reaffirmation of human dignity, the challenge of social disruption, and governments' extensive intervention

in economic and social development, social right becomes an appropriate legal term that symbolizes the rightful claims of all people, especially the vulnerable groups (Wang G. 2015, p. 51). Social human rights are not a kind of charity or humanity, but a root-cause interpretation of the social structure of human rights. People are born with some human rights such as rights to life, security, liberty and equality, while some human rights such as the right to vote, the right to be elected and the right to strike are produced under certain historical conditions. The former human rights imply the ideal of human rights and the latter means the actuality of human rights. The ideal and actuality of human rights should be differentiated. Meanwhile, they should also be unified. According to the theory of social rights, human rights need to be adjusted with the changes in social culture and social structure. Social rights are the foundation for the strengthening of social solidarity and social harmony, and also the requirements of safeguarding people's social dignity. The legal order of human society is in constant development and change, so is the exploration of human rights. Law needs to be developed by using the research methods and research results of other disciplines for reference, so that the concept of human rights can be supplemented and improved constantly to conform to specific historical conditions and resolve the conflicts of interest in social fields.

Theory of human nature

The theory of human nature is another influential theory on the source of human rights. In recent years, a large number of scholars at home and abroad have conducted detailed research and demonstration on the theory of human nature, among whom is the Chinese scholar Li Buyun, one of the main representatives of this theory. Li believes that "human rights derive from the nature of human beings, and the nature includes two aspects, namely, the social attribute and the natural attribute of human beings." Social attribute means that people live in various social relationships, and the morality, thoughts, interests and behaviors of humans are influenced and constrained by the nature and characteristics of various social relationships. According to Marx, "Man is a Zoon politikon [political animal] in the most literal sense: he is not only a social animal, but an animal

that can be individualized only within society” (1975). Human right is a kind of social relationship, more specifically, the relationship of interests and morality between people. It’s related to the distribution, pursuit and enjoyment of human interests which are supported and recognized by a set of ethical concepts centering on justice in social life (Li B. 2004, p. 14). The natural attribute of human beings is human nature, including such three basic elements as natural instincts, morality and rationality. Natural instincts include life, welfare and freedom and emphasize the protection of human lives from arbitrary deprivation, personal safety from injury, freedom from violation, and people’s thoughts from being imprisoned, and also stress the guarantee of humans’ basic living standards and their rights to pursue happiness. Morality mainly refers to equality, universal fraternity and justice, emphasizing that humans are advanced animals with ethical pursuits. Rationality includes rational cognitive ability, philosophy and reason, and it emphasizes that humans can understand the laws of everything and further transform the world by rationality. In short, the natural attribute of humans is the internal force of human rights, while the social attribute of humans is the external conditions for the birth of human rights and determines the historical nature of human rights (Bai 2015, pp. 7–8).

Theory of moral rights

“Human rights are generally regarded as moral rights” (Donnelly 2001, p. 13). Professor Shen Zongling believes that human rights are moral rights and obligations because they originally refer to certain values and moral concepts (Shen 1991, p. 22). In Professor Xia Yong’s view, human society is a moral one and human beings are moral animals. Human right is the right that every human being should enjoy, and it is essentially neither natural right nor legal right, but moral right. Human rights fall into the moral system and are maintained by moral principles. There are three interrelated principles that play a key role in the formation of the ethics foundation of human rights: firstly, people shall and can enjoy the right that is independent from positive law and exceeds legal rights; secondly, this kind of right should be enjoyed by everyone in accordance with the rule that everyone is

equal and all humans are equal in dignity and values; thirdly, this right should and can show as a statutory right under a certain social system. These three principles constitute the core of human rights and build the framework of the principle of human rights (Xia 2001, p. 232).

The historical progress of the concept of human rights can be explained by its unique moral connotation: firstly, the concept of human rights shows great identity between human beings; secondly, the concept of human rights contains a profound critical spirit; thirdly, the concept of human rights turns humans' requirements for the identity of group and the critique of reality into the right that everyone shall claim by the means of institutionalized procedure, which indicates a new form of social integration (Xia 2001, pp. 222–223). As a moral right, human right is neither endowed by the state, government or law, nor granted by nature, but derived from the morality of human beings. "Humanity," as the basis of human rights, is only a moral assumption. As Maine proposed in the book *Ancient Law*, the concept of "natural law" implies that a moral world is added to the material world. The difference between human beings as a whole and the other categories is probably that human beings have a world of spirit, morality, ethics, consciousness and ideas besides the material world (Bai 2015, p. 8).

A further developed view takes conscience as the source of human rights. This view holds that human rights are based on the similarity of human beings and their compassion and love for each other. Compassion is one of the most primitive moral feelings. "Before human beings had clear moral norms or any concept of moral obligation, a feeling of compassion to others in the same group and family had grown and expanded in the primitive men. This feeling of compassion plays a role in maintaining the group, which is called social morality today" (He 2014). With compassion, people can understand and feel the pain of others and further hope to alleviate and eliminate it, while with love people can experience the happiness of others and further hope to strengthen the feeling (Zhang H. 1997). Based on the sense of identity among the same class or group, people establish the feeling of compassion and love for each other, and form some simple thoughts such as "to feel for others" and "one should not impose on others what he himself does not desire." Conscience, especially compassion, is the most ultimate source of human rights (Bai 2015, pp. 8–9).

Concept of human rights

In 1979, Professor Karel Vasak, a French human rights scholar and former UNESCO legal adviser, firstly proposed the “Three Generations of Human Rights”⁵ (see Table 1) when delivering his inaugural speech at the 10th Conference of International Society for Human Rights Studies. According to Professor Vasak, the three great revolutions the world has experienced since modern times have produced three generations of human rights (Qi 2015, p. 64), namely the right to freedom of the first generation, social rights of the second generation, and collective human rights of the third generation. These three generations of human rights echoed the three slogans – “freedom,” “equality” and “fraternity” – put forward in the French Revolution, and reflected humans’ requirements on human rights at different times, so some scholars also call them “human rights in the first world,” “human rights in the second world” and “human rights in the third world.”

Table 1. Sketch of the Three Generations of Human Rights.

Development stages of human rights	Summary	Highlights
The first-generation human rights	Appearing in the 1789 French Revolution and focusing on the maintenance of individual freedom by law, it reflected the personal liberalism that prevailed in the seventeenth and eighteenth centuries, and laid the foundation for the arising of civil and political rights.	It stressed individual’s opposition to state intervention and required the state carried out the duty of negative inaction. It was called “negative human rights,” which included personal rights, property rights, etc.

(Continued)

- The “Three Generations of Human Rights” have been reflected in and supported by three international documents on human rights: the 1966 International Covenant on Civil and Political Rights, the 1966 International Covenant on Economic, Social and Cultural Rights, and the 1986 Declaration on the Right to Development.

Table 1. (Continued)

The second-generation human rights	Emerging after the October Revolution in Russia in the early twentieth century, it focused on the requirement that the state shall build basic social and economic environments to promote the realization of individual liberty. It is mainly a reflection of socialism and the Western concept of “welfare state” since the nineteenth century. The content of human rights placed emphasis on economic, social and cultural rights.	It emphasized that the state had a positive obligation to the realization of human rights and was called “positive human rights,” mainly including economic, social and cultural rights.
The third-generation human rights	It came into being with the liberation movement of the colonies and oppressed people in the 1950s and 1960s, and aimed to achieve the awakening and development of the country and the nation. It reflected the requirements of the post-war third-world countries for the redistribution of global resources and the response to major issues that threaten the survival of mankind.	It stressed the solidarity, and was called “solidarity right,” which included such collective rights as right to self-determination, right to development, right to peace and right to a clean environment.

First-generation human rights

The first-generation human rights are usually called the “right to freedom.” On the one hand, it took “freedom” as its main content, and “personal autonomy” as its fundamental purpose. On the other hand, its ideological basis was classical liberalism (Wang G. 2015, p. 121). The first-generation human rights were born in the 1789 French Revolution. Its concept

of human rights was mainly the continuation of the revolutionary claims of the human rights history and progress in the United States, Britain and France. Meanwhile, it combined the individualistic liberalistic philosophy and was inclined to the laissez-faire economic and social theory (Wang G. 2015, p. 123). From the perspective of ideological schools, the first-generation human rights mainly involved theory of inherent rights,⁶ theory of natural human rights,⁷ will theory of human rights,⁸ motivated theory of human rights, interest theory of human rights⁹ and religious theory of human rights.¹⁰

In terms of the social basis of its formation, the first-generation human rights are the result of various factors. It is a human rights theory formed in the confrontation with absolute states, aiming to oppose the state's improper interference with individual freedoms and rights in the name of political rights, and claiming that the state bears the obligation of negative inaction. Therefore, it is called "negative human rights." In other words, human

6 The theory of innate rights of man is an influential human rights theory claimed by many ideologists in the East and West since ancient times. It has been reflected in the legal documents such as *The Declaration of Independence* and *The Declaration of the Rights of Man and of the Citizen*.

7 The theory of natural human rights is also called the theory of natural rights or the theory of instinctive human rights. The theory holds that human right is the natural right of human beings and it is self-evident as a result of humans' instinct in the state of nature. The main representatives are Aristotle and Cicero.

8 Will theory of human rights is also called the human right with internal motivation. It advocates that humans have intrinsic value, that is to say, humans' personal dignity comes from their free will and reason. The representatives are Hegel, Fichte and so on.

9 Interest theory of human rights is also called the interest-driven theory of human rights. It is believed that human beings have rights because of their interests, and human rights are driven by interests. It is systematically elaborated in the theory of Bentham, the founder of utilitarian theory. However, the interest theory of human rights is opposed by those who hold will theory of human rights. One of them is Hegel, who did not agree to study the nature of rights from the perspective of human interests.

10 The religious theory of human rights has been the human rights theory of Christianity, Catholicism and other major religions since the Roman times. The religious theory of human rights basically believes that human beings have rights since they are children of God. Aurelius and Ratzinger are the main representatives of this theory.

rights are proposed only to maintain the most basic functioning of society. By advocating individual rights, the scope and procedures of government rights were limited. The main role of the state is to keep law and order and create a proper environment for free competition, and not to intervene in social and economic life. The saying that “government is best which governs least” is a vivid illustration of this theory.

The claims of the first-generation human rights mainly include the rights to life, personal liberty, freedom of religion, freedom of speech and the press, freedom of assembly and association, freedom of movement and residence, freedom from arbitrary detention, freedom of communications, and political rights such as the right to vote, and it especially stressed that the property rights shall not be violated (Wang G. 2015, p. 123). The first-generation human rights focused on guaranteeing individual freedom by law, which reflected the individual liberalism prevailing in the seventeenth and eighteenth centuries and laid the foundation for the emergence of civil and political rights (Qi 2015, p. 64). However, the negative view of rights has changed with the historical development, especially with the increasing influence of capitalism on individuals and society, and the dramatic changes of functions of the government and the expectations of people on the government. Thereby, the modern concept of human rights has got new connotation and meaning (Wang G. 2015, p. 123).

Second-generation human rights

Second-generation human rights were born after the October Revolution in Russian the early twentieth century and was usually called “social rights.”¹¹ Social rights meant that people’s rights in social or economic life were guaranteed by the active intervention of the state with the economy and society (Xu C. 2009, p. 196). Social rights, as the second-generation human rights,

11 The October Revolution in Russia was a great socialist revolution carried out by the Russian working class under the leadership of the Bolshevik Party allied with low-income peasants. The victory of the October Revolution created a new era in human history and laid a foundation for the victory of the proletarian revolutions in the world and the national liberation movements in the colonies and semi-colonies.

originated from the revision of capitalism made by socialism. After over 200 years' evolvement of the first-generation rights to liberty, capitalism swept across the world, taking advantage of the industrial revolution and changed the civilization and lifestyle of humans in the second half of the nineteenth century, especially in the late nineteenth and early twentieth centuries. With the flourishing of capitalism and the continuous development of monopoly enterprises, the shortcomings of capitalism such as poverty, unemployment, food crisis and inflation appeared, laying the society under enormous shadow. Property right and freedom of contract, which were the basis of law of capitalist society and the foundations of all property rights and liberty of contract built up on status liberties, were overwhelmingly beneficial to the bourgeoisies and completely disadvantageous to the proletarians (Wang G. 2015, p. 124).

In this case, all rights and freedom may become illusions with no real significance. Poverty and unemployment were not caused by the laziness of the individual, but the structure of capitalist economy and society. Poverty and unemployment problems can only be solved by the society or even the state (Oosuka 2000, pp. 12–13). As a result, a socialist trend of thinking to correct the shortcomings of capitalism and fight injustice emerged at a historic moment. In terms of rights, this trend of thought required the state to intervene in the activities of capitalists and to protect and improve the lives of workers in order to ensure the fairness in production and distribution (Wang G. 2015, p. 124).

The second-generation human rights focused on the requirement that the state should build an appropriate social and economic environment to promote the realization of individual freedom, and its purpose was to stress that the state should have an active obligation to the realization of human rights, so it was called "positive human rights" (Qi 2015, p. 64). The second-generation human rights centered on social rights such as labor rights and the right to life and were characterized by turning from the pursuit of individual rights to claiming for collective rights and the rights for certain classes. In the aspect of its content, it focused more on economic, social and cultural rights. Besides the rights claimed by first-generation human rights, it further proposed the rights to work, rest, healthcare, education, maintaining a moderate living standard, and laborers solidarity (Wang G. 2015, p. 124).

Third-generation human rights

Third-generation human rights, habitually known as “rights of solidarity,” emerged with the liberation movements of the colonies and oppressed people in the 1950s and 1960s. It becomes the main feature of contemporary human rights with the focus on self-determination and development of countries and nations, reflecting the requirements of the third-world countries to reallocate global resources in post-war period, as well as the choices in the face of major problems that endanger human survival (Qi 2015, p. 64). Third-generation human rights explored the collective “rights of solidarity” concerning human conditions, mainly including rights to peace, development, environment, national self-determination and human common heritage. Those human rights are seen as collective human rights because they can be realized “only through the joint efforts of all participants in society, including individuals, countries, public institutions and private sectors and the entire international community” (Wang G. 2010, p. 89).

Third-generation human rights are vastly different from the first and second generations in terms of subject range. If the first and second generations are domestic demands for rights based on the relationship between individuals and the state, as well as groups and the state within a country, the third-generation human rights showed a major change in the direction of right demands. It is no longer the request from individuals to the state but from one nation to another, one country to another, or even one country to all other countries or the international community (Wang G. 2015, p. 131). The third-generation human rights focused on solidarity, and can be called “solidarity rights” with collective nature. It transcends the former concept of “personal human rights,” and is known as a collective and even social justice. Third-generation human rights mainly include critical multicultural view of human rights,¹² Asian values of human rights,¹³ Confucianism view of

- 12 The critical multicultural view of human rights was formed on the basis of the concept of “multiculturalism” that emerged in the 1970s, focusing on the use of cultural resources in human rights research, the value premise of human rights, the substantive and procedural foundations of human rights, etc. The representatives include Suppio, Habermas, Yasuaki Oonuma, and Shikihara.
- 13 The Asian Values of Human Rights emphasizes the significance of the human rights value of traditional Asian culture to the development of human rights. It is based on

human rights,¹⁴ liberalistic view of human rights,¹⁵ collectivist view of human rights,¹⁶ absolutism of human rights,¹⁷ relativism of human rights,¹⁸ etc.

In addition, third-generation human rights also stressed the possible different connotation of human rights in various traditional cultures. For example, in the 1980s, Lee Kuan Yew and Mahathir advocated the human rights views of “Asian value,” that is, non-Western views on human rights. At the same time, it also emphasized that under different social and economic conditions, the concept of human rights has different focuses. It is generally believed that in third-world countries, development is the essential basis of various human rights. Although at the theoretical level, civil political rights and economic and social rights are of equal importance, but at the practical level, restricted by the limited resources, medical backwardness, unavailable education and the historical factors of colonial exploitation, these countries can only prioritize people’s economic and social rights over their political rights. For those who cannot meet basic living requirements, whatever political rights they had, those rights would be useless (Wang G. 2015, p. 131).

the reflection of Western culture’s monopoly on the right to speak in the field of human rights and attempts to find explanations from traditional Asian culture. Representatives include Singapore’s Lee Kuan Yew, Malaysia’s Mahathir, South Korea’s Cui Zhongku, Japan’s Kochu Nobuo, Nobuyuki Yasuda, and Keifu Suzuki.

- 14 Confucian view of human rights is a human rights theory based on traditional Confucian philosophy and morality. Representatives include Chinese scholars Cheng Zhongying and Du Gangjian.
- 15 The liberalistic view of human rights is based on individual rights, and its representatives include Rawls, Dworkin, and Nosyk.
- 16 The collectivist view of human rights is contrary to the liberalistic view of human rights. It pays attention to the collective nature of human rights. It believes that the collective nature of human rights is more important than individuality. Its representatives include McIntyre, Walsh, Ethioni, Zernike, Granton, Bailey, etc.
- 17 The absolutism of human rights advocates that human rights are innate, natural, untransferable, unconditional and unchanging. Representatives include Breck, Douglas, McClelling, Rostow, Black and so on.
- 18 The relativity of human rights holds that human rights are social, moral, transferable, conditional and variable. Representatives include Brandeis, Dewey and Hook, Bodenheimer and Schwarz.

Human rights development

“At a certain stage of the human thought development, there must be a basic element to serve as the material for ideological fission and fusion. Human rights are the basic elements for the expansion and promotion of human thoughts in modern times” (Qi 2015, p. 160). The concept system, social customs and standardized system reflected by this element have reshaped the spiritual home for mankind, constructed the social existence of mankind and adjusted the dynamic mechanism and fundamental direction of human civilization. From the perspective of long-span time and space, the development of human rights is a gradual process. A rigid and closed understanding of human rights can lead to the stagnation of human rights development, for human rights are an open and evolving concept. On the contrary, it is scientific and feasible to face and treat the development and evolution of human rights with an inclusive, open-minded perspective.

Limitation of human rights

The three generations of human rights have been iteratively replaced along the historical themes of a particular era. They have established three milestones of rights concept in the history of human civilization, which are “freedom,” “equality” and “development.” During the development of human rights concept and system, great progress has been made in human freedom and dignity, as well as in human material and spiritual civilization. However, the three generations of human rights have common historical and epochal limitations. The first one is one-sidedness. The three generations of human rights are determined by the specific historical background, mission, and structure of the human rights movements. Requirements and priorities change in different periods; and different countries have different focuses, but the overall situation is always neglected. Secondly, they are of restorative nature. In terms of the origin of rights, the traditional argument for the theory of human rights mainly follows the logic that “rights are inherent but requiring revival.” Finally, they are confrontational. In the theoretical argumentation, the three generations are based on the confrontation between people and the state, as well as the society. The right of freedom is generated between

the oppressor and the oppressed, the right to life between the socially strong and vulnerable groups, and the right to development between the oppressed nations and the colonizers, and the less developed countries and the developed countries. In practice, the three generations of human rights also paved their way in the struggle. Briefly, “the three generations focus on part of, not the whole humankind; on the revision, not the innovation; on the conflict, not the harmony” (Xu X. 2006).

The victory of human rights

As a combination of theory, system and practice (Qi 2002), human rights have experienced a process from birth, alienation to reversion. The history, culture and other environments which are closely related to human rights are diverse, and the concept of human rights itself is often variable because the values and academic positions are different. Therefore, the theory and practice of human rights are extremely complicated (Zhao 2008). The simplest way to perceive human rights is to analyze and observe it from three aspects: thought, norms and practice. The human rights as a thought centers on providing a series of principles for the establishment of human rights, such as the reason for human equality (natural rights), the relationship between people and government (limited government), the boundary of rights between society and individuals (the principle of liberty), the way humans prevent misgovernment (the separation of power), the purpose of economy (survivalism), modern state functions (social security), and so on (Xu X. 2000). Human rights as norms refer to human rights norms that have been transformed from human rights as thoughts through the design of legislators.¹⁹ Human rights as a practice refer to the state in which human rights as thought and human rights as static systems are enjoyed and exercised by people in real life. From the historical perspective, human rights have achieved great success in the three aspects of thought, norms and practice,

19 Functionally, the norms of human rights include the declarations of human rights and the relief of human rights.

and the protection of human rights has been widely recognized and valued by the whole world (see Table 2).

Table 2. Some Human Rights Protection Mechanisms.

Time	Name	Main content	significance
1215	<i>Magna Carta</i>	It guaranteed the freedom of the church to elect faculty members; protected the inheritance rights of the nobility and knights that the king shall not illegally levy a territorial inheritance tax; without the consent of the “kingdom council” composed of nobility, priests and knights, the king might not levy or grant subsidies and shield costs to the immediate vassals; canceled the king’s right to interfere in the judicial judgment of the feudal court; without the judgment of the nobility in the same rank, the king shall not arbitrarily arrest or imprison any free person or confiscate his properties.	Marking the beginning of the institutionalization of human rights
1628	<i>Petition of Right</i>	The king was required not to collect debts or taxes from the people without the consent of the Congress; shall arrest people or deprive them of their properties only in accordance with national laws or court decisions; shall not arrest citizens at will according to the martial law; shall not forcibly occupy civilian housing for station troops.	Consolidating the foundation of human rights institutionalization
1679	<i>Habeas Corpus</i>	The detained person should be sent to the court to determine whether his or her detention is legal; any person who is detained may challenge the court’s legality by himself or others and obtain a ruling in a short time.	
1689	<i>English Bill of Rights</i>	It restricted the king’s power, restrained the king’s actual ruling, and guaranteed the parliament’s legislative, fiscal, judicial, and military powers.	

Time	Name	Main content	significance
1776	<i>Declaration of Independence</i>	It explained the political system ideology, that is, the theory of natural rights and the idea of popular sovereign; counted the crimes of Britain's oppression of the colonial people in North America, indicating that the colonial people were forced to take up arms under the unbearable circumstances, and strove for the legitimacy and justice of independence. The United States declared independence.	The human rights system obtained unprecedented opportunities and momentum for development
1789	<i>United States Bill of Rights</i>	It listed the freedoms and rights that are not clearly stated in the body of <i>the Constitution</i> , such as the freedom of religion, speech, the press, and assembly, the right to retain and carry weapons, not to be unreasonably searched and detained, and to refuse the search and seizure of personal properties without search warrants or attachment orders reasonably issued, and the privilege of the grand jury that they could issue a death penalty or other "non-honor crime" indictment to anyone. It guaranteed a prompt and open trial by a fair jury, and prohibited double trials.	A model of modern human rights legislation
1945	<i>Charter of the United Nations</i>	It expressed the determination to stop humanity from suffering from the scourge of war, and stipulated the purposes, principles, rights, obligations, the scope of the main body's authority, etc. <i>The Charter</i> stated that the purpose of the United Nations (UN) is to "maintain international peace and security," "stop acts of aggression," "develop friendly relations among nations based on respect for the principle of equal rights and self-	Human rights norms were developed to cover the world.

(Continued)

Table 2. (Continued)

Time	Name	Main content	significance
		determination of peoples” and “promote international cooperation”; it also required that the UN and its member states shall abide by the sovereign equality of all countries, as well as the peaceful settlement of international disputes by all countries, the non-use of force or threat of force in international relations, and the principle that the UN must not interfere in the internal affairs of states.	
1948	<i>Universal Declaration of Human Rights</i>	It inherited and absorbed the general concepts of freedom, equality and human rights in the cultural heritage of mankind, especially the legislation and implementation experience of human rights in modern Western countries, basically reflecting the strong desire of people all over the world for the struggle for and protection of human rights after the end of the Second World War and the level of understanding of the majority at that time. Compared with the concept of human rights embodied in the human rights legislation of European and American countries at that time, it enriched and expanded the specific provisions, and made significant contributions to the theory and practice of human rights.	
1966	<i>International Covenant on Economic, Social and Cultural Rights</i>	It established human economic, social and cultural rights, including the rights to work, organization and participation in trade union, rest, equal pay for equal work, access to social security, access to considerable standards of living, freedom from hunger, physical and mental health, education, participation in cultural life, and the right to special protection for women and children.	

Time	Name	Main content	significance
1966	<i>International Covenant on Civil and Political Rights</i>	It established human rights to life, freedom from torture, slavery and forced labor, rights to personal liberty and security, freedom of movement, equality before the law, personal privacy, freedom of religious belief and expression, peaceful assembly and freedom of association, and the right to participation to public affairs, the rights of minorities, the rights of family, marriage and children, etc.	

The extension of human rights

The development and popularization of next-generation IT such as the Internet, cloud computing, artificial intelligence, blockchain, and quantum communications have enabled human society to enter an era of big data with data as a key element. Data has been profoundly changing the production and life style in society and forming a “data space” that can be extended indefinitely, resulting in the great expansion of the field of human activities. In the era of big data, the human ability to collect, store, and analyze data has reached an unprecedented degree. The rise of big data has also triggered a series of ethical and legal issues. It has been reshaping the legal system formed in ancient times, changing the rights relationship between citizens, and creating many ways of social control without the help of the law (Zheng 2016). For human rights, big data provides new ways for human rights protection, but it also poses new challenges and difficulties.

As for the impact on human rights, big data’s violations of human rights mainly present in the following aspects: firstly, in the era of big data, the extraordinary capability in data collection has increased the possibility of human rights violations. Any trace of human activities can be converted into digital numbers to form a “data person,” thus infringing on the digital personality of citizens and enhancing the ability to violate human rights. Secondly, big data does not depend on causality, but relies on data relevance for prediction and inference. People can infer sensitive information that is covered purposely based on known data, and dig out enough data to find out a person’s personality

through correlation analysis. In this way, non-sensitive data can be turned into sensitive one, and non-confidential into confidential, making newly discovered information non-intuitive and unpredictable, thus increasing the possibility of human rights violations. Thirdly, technologies to promote human senses in the era of big data are constantly developing. Sensory enhancement technology enables people to obtain, from “outside-the-wall,” information that originally must be obtained through physical intrusion into private houses. The effect is equivalent to the physical intrusion into a house which causes a great violation of the personality rights of the parties. Finally, the consequences of human rights violations in the era have also changed. The permanent storage, ease of dissemination and search ability of data in data space lead to people’s frustrated expectation that data won’t fade with time, resulting in long-term damage to human rights, which will aggravate the damage.

From the perspective of rights, challenges brought by big data to human rights are mainly concentrated in the following aspects. Firstly, it is difficult to determine the subject of human rights violations; and subjects of tort could easily escape due to the diversification of data collection subjects, diversification of metadata utilization methods, and the secrecy of infringement methods. Secondly, the value of data makes it necessary for building up human rights norms to balance the interests of many aspects, which is not easy. Thirdly, the relationship between human rights and data is more elusive and creates difficulties for human rights legislation. Fourthly, the results of human rights damage tend to be diversified and are no longer limited to spiritual damage like damage to reputation. Economic damage, unfair treatment, and personal injury also occur sometimes, and the intensity of spiritual damage is greatly enhanced. At last, the direct causal relationship between damage outcomes and behavior is often unclear. All these factors have increased the possibility of human rights violations, making it more difficult to protect human rights in the era of big data.

Res and Real Right

Industrial civilization created a more just, effective and complete system than that in agricultural civilization and countries under the rule of law emerged with the emergence of industrial civilization. Real right law advocates that

private subject has absolute ownership of *res corporales*, which is the manifestation of industrial civilization in real right system. Real right law is an essential achievement in industrial civilization.

Value of things: Human values and the value of things

It is well known that the idea and concept of value was first brought up in the category of economics. “Use-value” refers to the usefulness meeting people’s material needs. With the development of productivity in the later period of primitive society, people’s understanding is also improving. When people extend the category of “value” to the subject of human beings, the category of “human value” appears. If a person, as the object, can satisfy the needs of another human subject, we can say that he or she is valuable to the other person, and this usefulness is called “human values” (Miao 2016, p. 56). Marx also pointed out in his works that “human value” refers to the value of workers, more specifically, “the value of labor force” embodied by workers in the form of a commodity, just as other commodities. Therefore, Marx also believed that people are also objects of value and can be of significance and value to humans. The survival and development of human beings need to be created and maintained via human labor. This is the requirement and needs of people themselves, which is also the value of humans to themselves (Miao 2016, p. 56). At the same time, satisfaction of people’s many needs also lies in other people’s labor creation, which means that other people who satisfy our needs create values for us. On the whole, human value is a category of relation in which human serves both as the subject and the object.

Generally speaking, things are considered valuable to people if they, as objects, can satisfy the needs of human subjects. The value of things is a special relation between human subjects and the objects that satisfy people’s needs, that is, the usefulness of certain things or phenomenon to humans. Interestingly, Marx also believed that “the general concept of ‘value’ stems from the behavior of human beings towards the things found in the outside world which satisfy their needs.” Thus, “the value of things” in philosophy refers to usefulness of things to human beings and it’s based on human needs. Therefore, things and phenomenon can only be of value when they can satisfy people’s needs. But since things cannot actively satisfy our needs, they can only achieve and realize their values with humans’ help or through human activities. Things can only serve as objects and satisfy the needs of human subjects,

whereas humans can be either the subject or the object. Under this context, human value reflects the relationship where human objects meet the needs of human subjects.

It can be seen from the above arguments that human-to-human values and significance as well as human-to-human needs, while the value of things is vested by human, and is potential and passive. Therefore, human value and the value of things are closely connected; human value is higher than, yet depending on the value of things. In the relationship between human activities and human values, human is both the ends and the means. If people want to survive, create and realize values, they must enjoy certain material substance and must acquire and enjoy certain value of things. In a deeper sense, the material value of things is not only the foundation of human survival and development, but also the manifestation of people's creation and realization of human values. "Without certain achievements of material value, creation and realization of human values are but empty talk" (Wang Y. 2009, p. 28). It is worth noting that the economic category only provides a possibility to "make the appreciation in things in direct proportion to the depreciation in human world." To make this possibility a reality, we must have corresponding institutional conditions (Zhu & Lv 2005, p. 9).

Origins of real right

As early as the seventeenth century, German jurists began to explore the differences between things and property, focusing on rights in things. Marx believed that "the actual basis of private property, the possession, is a factum." Before the founding of countries, human beings originally lived in the state of nature,²⁰ which was like Utopia for human beings. During that period,

20 The state of nature refers to the state humans lived in before the existence of organized societies. In the eighteenth century, there were two currents of political thoughts in Europe and America, one being liberalism, based on empiricism, founded by Scottish Enlightenment philosophers David Hume, Adam Smith and Adam Ferguson and represented by John Locke; the other being democracy, based on Descartes' rationalism, represented by Jean-Jacques Rousseau. Starting from the state of nature, Locke analyzed the deficiencies of the state of nature and formed the theory of liberalism

due to abundant resources and limited desires, people enjoyed freedom and equality and everyone's concern of self-protection was not to harm others. With further development of human societies and accumulation of more experience, people stopped living independently in the natural state and must form temporary groups for the sake of safety and survival benefits, thus subconsciously formed vague concepts of obligation towards each other and benefits in fulfilling them. With development of human societies, people gave up living on trees or in caves and started building houses, which gradually leading to the formation of families and private ownership. It can be argued that the emergence of private property for families is the inevitable result of the development of social productivity. "Private" at that time was only an unstable and lawless reality, but it has begun to take possession of the family centered object.

However, possession of things was not equal to ownership of things in the initial stage of human society. If anyone wanted to call something "his own," he had to possess that thing as an object of his. Otherwise, he couldn't call *res corporales* "mine" unless he could be sure that even though he didn't possess it physically, he possessed it in another sense. At first, possession could satisfy people's needs for materials, but with continuous advancement of production technology, people began to realize that possession showed uncertainty, which was to the disadvantage of sustainable development of production. Continuous production required continuous possession of production tools and land and support from others on this possession. Therefore, the system of ownership gradually came into being. It is worth mentioning that with the development of labor productivity, the world witnessed large-scale social division of labor and the establishment of private ownership, which led to significant social changes and material abundance.

where private property is inviolable and individual's natural rights should check state power. Similarly, based on the state of nature, Rousseau depicted humans in the true state of nature and the phases that man has undergone from natural state to a civilized society, and brought up the theory of democracy where citizens have authorities. The differences in the political thoughts of Locke and Rousseau are due to their different hypotheses, that is to say, there is a huge difference between their theories of the state of nature.

In summary, the emergence of ownership system was of great significance to the development of human society.

With the development of social productivity, human beings began to live together in the unit of countries. This was the emergence of countries. The emergence of countries and laws are two interconnected aspects of the same period in history and are concomitant with each other (Chen 2002). It can be argued that when people had the de facto possession of things, that is, after a private and exclusive possession relationship was protected by laws, such relationship had the nature of legal right. That is to say, possession of things by the possessors became a kind of right protected by law, which gave rise to the initial real right relationship in legal sense. At the same time, with the progress of mankind and the development of economy, as well as the gradual emergence of trade, consistent possession of commodities could no longer meet the requirements of social development. Goods need to flow in order to exert its greater value. Therefore, the concept of real right was further developed and real rights for security and usufructuary rights came into existence.

Legal characteristics and significance of res

“Res” in legal sense refers to material object that exists outside human body and can satisfy social needs of people and be controlled and dominated by people (Wei 2016, p. 122). This definition shows that res in civil laws has physical attributes and is also philosophical substance. But not all things and substances in physical and philosophical senses can be treated as res in legal sense. For example, the sun, the moon and the stars are not part of the res defined in law. In another perspective, as an object in civil laws, res covers a wide range of things. All natural objects or human creations, other than human bodies, which can satisfy certain social needs of people and be controlled and dominated by people, can be res in law (Wei 2016, p. 122). From this perspective, the scope of res in law tends to expand with the expansion of human abilities to transform and conquer nature. Therefore, res in civil law can only exist outside human body and cannot be human body. Res must have usability and have value and use-value, because only objects that can satisfy people’s needs in life or production can be owned and exchanged by subjects.

Res in civil law has not only the natural attributes, but also the legal attributes, and shows the following legal characteristics. First, they have to be *res corporales*, that is to say, corporeal or tangible things or those perceptible to the senses. The scope of *res corporales* is also expanding with expansion of human ability to dominate over nature. For example, we didn't regard natural forces like lightning, sound, light or heat as *res corporales*, but nowadays, their materiality has been recognized by people. Res in civil laws should be *res corporales*. Generally, only matters in physics can be recognized as res in law. But in some cases, rights can be seen as res as well. For example, when the right to use land is mortgaged, the mortgage right is deemed as a kind of real right.

Second, res must exist outside human body. Res in law is impersonal. Human beings are no longer treated as objects of rights after abolition of slavery. In modern civil law, people are the subjects of rights, but cannot be the objects of rights. Therefore, neither human beings nor body parts (unless separated from human beings) can be seen as res in law. Trade of human organs is not protected by law nor subject to law enforcement.

Third, res can satisfy the social needs of people. Res in civil laws must have certain use-value so as to satisfy the social needs of people. Things without use-value cannot be regarded as res in legal sense. Social needs are divided into for material needs and spiritual needs. Things that meet either type of needs can be deemed as res in civil laws. For example, things with economic values can satisfy people's need for materials in life; and things with emotional or cultural values can satisfy people's spiritual needs.

Fourth, res can be actually controlled or dominated by human power. Res in civil laws is a thing that can be owned and exchanged by subjects. If a thing cannot be controlled or dominated by human power, it cannot be owned by a particular subject nor used in trade. Therefore, even if certain things are matters in physics, they still cannot be regarded as res in civil laws if they cannot be actually controlled or dominated by human power. For example, electricity, heat, light and gas are treated as res only after they can be controlled and dominated by man. Therefore, the scope of res in civil laws is constantly expanding with increasing human dominance.

It's worth noting that res generally refers to *res corporales* like land, buildings and other kinds of objects. In recent years, theoretical explanation of *res corporales* has been gradually expanding, covering more things.

It's believed that *res corporales* do not have to have physical forms or fixed volume and that solids, liquids and gases are all regarded as *res corporales* (Wei 2016, p. 122). As for resources like light, heat and electricity, they are also seen as *res* in civil laws since we can technically control them, and they have been often used in industry and commerce as well as our daily life. *Res* should be objective realities, different from virtual property. Virtual property can serve as objects in civil laws and be protected by law, but they're virtual, not real. *Res* must be independent. *Real Right Law* follows the principle of "one ownership for one object" (meaning that one and only one ownership can be established for an independent object), so *res* in legal sense must be independent. Means of livelihood and production cannot be regarded as *res* in law if they cannot be used independently by human beings.

Res plays an important role in civil laws as it is the object in many legal relationships. Some legal relationships, such as ownership, directly take *res* as objects; some legal relationships, such as creditor's rights in deliverables, though taking behaviors as objects, are still closely related to *res*. To a large extent, *res* is crucial to the validity of civil legal relationships. Besides the subjects and content, the subject matter of an legal relationship also determines its validity (Wei 2016, p. 124). For example, land in China cannot be used as objects in private ownership; things whose circulation is prohibited by law cannot be the objects of trade; consumables cannot be the subject matter in loan for use and leasing. Moreover, *res* makes a difference in legal procedure and can influence the jurisdiction of cases under certain circumstances.

Nature of real right: Definition and classification of real right

Real right is the dominance over things, but actually reflects the relationship between different people. Paragraph 3, Article 2 of the *Real Right Law of the PRC* promulgated in 2007 expressly provides that "The term 'real rights' as mentioned in this Law refers to the exclusive right enjoyed by the holder to directly control specific *res*." This clearly defines the concept of real right in law, which ostensibly reflects man's dominance over things, but actually reflects the person-to-person relationship. Firstly, in essence, even though

real right is the right of the obligee to directly dispose “specific things,” the nature of real right is not about the relationship between man and things, but that between different people. Secondly, real right is the property right enjoyed by the obligee over “specific things.” It’s a kind of property right, the right in things, as opposed to the right *in personam*, that is, creditor’s rights. Thirdly, real right is mainly the right to dispose *res corporales*, which means that the obligee can realize his own rights independently without other people’s intervention or help. Judging from the scope of changes in *Real Right Law*, major adjustments concern property ownership and use of *res corporales*.

According to *Real Right Law*, there are three types of real rights – ownership, usufructuary right and real rights for security. Firstly, ownership refers to the right of the obligee to possess, use, benefit from, and dispose of his real or personal property in accordance with the laws.²¹ Ownership is the foundation of real right and the ownership system is the soul of real right law. The owner can possess, use, benefit from and dispose of the property he owns, and may exclude other people’s interference against his will. Ownership is the most complete and full real right. Secondly, ownership is *jus in re propria* (i.e. the right to use the property in any legal manner), while the usufructuary right is *jus in re aliena* (i.e. the right over property over another) (limited real right). The so-called usufructuary right refers to the right of a non-owner to possess, use and benefit from the property of others (Wang L. 2014, p. 154). The usufructuary right as provided in *Real Right Law* includes the right to land contractual management of land, the right to use the construction land, the right to use the homestead land and easement. Thirdly, real rights for security refers to the right of the holder of real rights for security to have priority of compensation in satisfying his or her claim in accordance with the law where a debtor fails to perform his or her debts due or where the circumstances of realizing the real right for security occurred as stipulated by the parties.²² The purpose of establishing real rights for security is to secure the realization of the creditor’s claims, including mortgage, pledge and lien.

21 See provisions of Article 39 in *Real Right Law of the People’s Republic of China*.

22 See provisions of Article 170 in *Real Right Law of the People’s Republic of China*.

Basic characteristics of real right

Jean-Jacques Rousseau pointed out in *The Social Contract* that “His [Man’s] first law is to provide for his own preservation. His first cares are those he owes to himself.” Man’s first needs are survival needs, which manifest firstly in his care for his property. However, real rights and property right are two different concepts and have their own connotation and denotation. It’s generally believed that property right are rights the targets of which have property value, including real rights, creditor’s rights, intellectual property rights and right of inheritance. Real right is only one type of property rights. Real right refers to the right enjoyed by the subject of right to directly control specific property, which has the content of man’s direct control over a thing as well as the effect of acting against a third party other than the subject of right (Xie 2011, p. 8).

From the perspective of its nature and origin, real right, as a type of rights, can be seen as a genuine “private right,” and its essence is private and independent. “Private” means that the subject of real rights is a particular person or some persons and it means nothing to others. Therefore, the subject of res can control things, enjoy and pursue due profits from things based on his or her own free will, free from other people’s interference. However, real right is not entirely free from constraints since the main purpose of real rights is to solve problems caused by scarcity of resources and the inevitable conflict of interests resulted from endless human desires.

As a legal relationship, the relationship of real right is different from those of property rights in many aspects. First, the subject of real right is a particular obligee. Since in Western countries, real right is established around private properties, there is no need to define subjects of state ownership and collective ownership, and the subject of real right can be defined with simple concepts like natural persons or legal persons. While in China, ownership includes both state ownership, collective ownership and individual ownership. Therefore, in the *Real Right Law of the P.R.C.*, subject of real right is referred to as the “obligee.” The obligee in the real right is definite. Second, objects of real right are particular *res corporales*. Different from intellectual property rights, objects of real right are *res corporales* instead of intangible properties or intellectual achievements. Third, the nature of real right is a right to dispose. The subject of real right enjoys the right to directly dispose things,

free from others' interference. Here, "to directly dispose" means that the obligee can achieve his or her own right without the help of others (Wang L. 2014, p. 152). Obligee of real right can legally possess and use things on his or her own will without others' interference. Fourth, real right is exclusive. As long as certain requirements are met, a real right can be established and take effects. Even if the obligee didn't actually possess or control certain things, he or she should still enjoy due rights and ownership of those things.

Effects of real right

The concept of effects of real right originates from Roman laws. It was brought up to make sure that obligee of real right can directly dispose the object and enjoy benefits gained from the object without infringement. Effects of real right refer to the obligee's ability to dispose the object and the exclusive effect of real right (Cui 2017, p. 6). Most publications on continental laws in China propose that effects of real right are shown as the right to exclude, preferential effect of right in rem and the retroactive effect, which will be elaborated below.

First, the exclusive effect of real right. According to Article 2 of the *Real Right Law* in China, real right is a kind of exclusive right free from other people's interference. Simply put, there cannot be two or more than two incompatible real rights on the same object. It's generally believed that the exclusive effect is shown in two aspects, that is, excluding the interference from the public powers and that from private rights. Public powers cannot infringe a private right, including real right; likewise, subjects of private rights cannot infringe real right either. Obligee has right to protect his or her own lawful rights and interests by stopping unlawful infringement. Powers are exercised by legal person of public law to protect public interests in line with regulations and legal procedures. Exclusiveness is not a natural attribute of real right, but something prescribed in laws and enforced and maintained by laws, dividing public powers from private rights (Cui 2017, p. 6). Furthermore, real right is a right to dispose directly, so obligee of real right can fully realize his or her right only when others' interference is excluded.

Second, the priority effect of real right. It is generally believed that the priority effect of real right refers not only to the priority real right has

over creditor's rights, but also to the priority among different real right (Liang 1998, p. 78). Real right has priority because it is an absolute right, a right in rem, and the obligee has right to directly dispose a particular thing without other's intervention. On the same subject matter, there cannot exist multiple real rights with the same content. Priority is given according to the time of events. As for ownership and other real rights, the latter is exercised in limited conditions and has priority over ownership. Furthermore, creditor's right is a right to claim, a right *in personam*. There is no priority between different creditor's rights as they are all equal. Therefore, if there are both real rights and creditor's rights on a subject matter, real rights, that is, ownership, real rights for security and usufructuary rights, have priority. There are also exceptions. For example, any change of ownership to the lease item does not affect the validity of the leasing contract; and creditor's rights included in the advance notice registration have priority over real rights.

Third, the retroactive effect of real right. Retroactive effect means that after real rights are established, no matter in whose hands the subject matter is, the obligee has right to directly dispose the subject matter.²³ Anyone other than the holder of real right has an obligation not to keep the obligee from exercising his or her rights. Anyone who obtained properties illegally has an obligation to return them to the owner and the owner has a right to ask the current holder of properties to return them. For example, Article 867 of the *Civil Code* in Taiwan provides clearly that "After the creation of a mortgage, the owner of the real property may transfer the real property to another person, but the mortgage will not be affected thereby." If a debt is not paid in due time, the mortgagee can retrieve the real property and apply for auction of the collateral by the court. However, it should be noted that

23 Some believe that the retroactive effect of real rights is also a kind of priority effect (Zheng Yubo: *Real Right in Civil Laws*, p. 31). See Judicial Yuan's "Yuan" Interpretation No. 1771: "The mortgage right should not be affected even if the owner transferred the ownership to others. If the collateral is sent for auction by the court, the mortgage right still should be exercised in no different way. Therefore, if the creditor asked the court to sell the collateral at auction but didn't claim compensation from the proceeds, he or she only lost one chance to be compensated. Creditor's right is not removed and the creditor still can exercise the retroactive right on the auction winner."

the retroactive effect of real right is not absolute. The bona fide acquisition system represents a limitation to the retroactive effect.

Property rights and industrial civilization: Evolution of human civilization

Civilization reflects social productivity. “Civilization is the accumulation of the progress and achievements that mankind has made by transforming the nature, the society and ourselves” (Sun & Gan 2007, p. 12). Some scholars think that “civilization is a summary of mankind’s material and spiritual wealth from the transformation of the world and it symbolizes the civilization of human beings and progress of our society” (Li X. 2002, p. 12). Others believe that the nature of civilization is the development of mankind’s abilities. We gradually “get rid of all spontaneity” and became “a complete person,” which means that we gradually evolved from animals to men and developed into a completely humane society without animality (Wu Y. 2009, p. 50). History tells us that civilizations are created by human beings, who are the strongest driving force of civilization. Where there is mankind, there is civilization. Generally speaking, civilization developed from a lower level to a higher level, and from unitarity to diversity. Looking back into the history of human societies, based on different production modes, human civilizations can be divided into three states: hunting-gathering, agricultural and industrial civilization. Here, “civilization” refers to a cultural pattern, which includes material culture and the institutional culture and the ideological culture. They are interrelated, mutually restricted and yet unified in development. The different development of these cultures results in different civilization (see Table 3).

Table 3. Evolution of Production Mode and Dominant Resources.

Types	Hunting-gathering era	Agricultural era	Industrial era
Main characteristics	fruit-gathering, fishing and hunting	farming and animal husbandry	mine digging and machine building

(Continued)

Table 3. (*Continued*)

Types	Hunting-gathering era	Agricultural era	Industrial era
Modes of production	Object of labor: wild animals and plants Methods: gathering, fishing and hunting Products: fruits and prey	Object of labor: land and prairie Methods: plantation, animal raising and handcraft Products: produce, livestock and handicrafts	Object of labor: natural mines Methods: excavation, smelting, building Products: natural chemical materials, energy, artificial products, physical energy, space base
Tools and resources	stoneware, bone tools; manpower	metal tools; fuel wood, animal power	intelligent machinery; mineral reserves

After mid-eighteenth century, Western countries like the UK started to use non-renewable resources like coal and petroleum. Industrial Revolution features widespread use of steam engine driving human society to the flourishing industrial civilization. Looking back into the development of the world industrial civilization, we can clearly find three industrial revolutions. The first one marked the beginning of the “age of steam engines” and the transition from agricultural civilization to industrial civilization; the second one symbolized the beginning of the “age of electricity,” when heavy industries like electricity, railways, chemical engineering and automobiles began to emerge and petroleum became the new resources; the third industrial revolution after the Second World War started the “age of information,” when information and resources around the world began to exchange in higher speed. The first three industrial revolutions not only greatly facilitated the revolution in our economy, politics and culture, but also influenced our ways of living and thinking. Now, the fourth industrial revolution is in the air with new resources development as the core task. The fourth one is a technological revolution characterized by various technological advancements, such as Internet, Internet of Things, big data, cloud computing, AI, VR and biotechnology. It can be inferred that the fourth revolution will have deeper and wider influence on human society than the previous ones.

Order in real right ownership

Order plays an important role in our social life. It is a precondition for human activities, a basic need for human communities in all time as well as a basic value required by rules and laws under any political and social mechanism. History tells us that life in order is generally more beneficial to human beings than life in chaos (Sun Y. 2011, p. 11). Due to the universality and consistency of laws and rules, legal system to some extent makes human activities more predictable and thus is required for an orderly society to eliminate arbitrariness. Furthermore, according to Bodenheimer, in terms of order, laws focus on the adoption of certain rules and standards by a community or political society. Such rules and standards are established to provide a frame or structure for numerous yet disordered human activities so that they wouldn't be out of control. Thus, orders are more relevant to the form instead of nature of social life (Bodenheimer 2004). Therefore, orders play a fundamental role to protect people's security and social stability. As people's ability to utilize resources develops, resources become more and more scarce. With limited resources, conflicts and disputes among people over material goods are inevitable. It indicates that states need to provide protection and confirmation of ownership via legal systems.

People's dependence on material goods leads to the requirements to acquire and retain material goods, while the scarcity of resources decides that in countries ruled by law, people need legal protection from governments over their material goods (Sun Y. 2011, p. 11). Material goods under the protection of law are properties. Therefore, property law or real right law came into existence.²⁴ This means that stable possession with reasonable

24 According to Professor Zhang Wenxian's interpretation of the draft real right law, "Res includes 'movable properties' and 'immovable properties'. Res refers to 'properties' and the so-called 'real right' is actually property right, including movable properties and immovable properties. In this sense, real right equals to property right." As mentioned by Professor Zhang, "Since the 20th century, especially after 1950s, property-rights economics redefined 'real right' and 'property right'. Most property-rights economists defined property rights based on the fact that the right originated from the disputes caused by scarce resources. Res is not simply things, but economic materials, productive factors and material goods." Please refer to Professor Zhang Wenxian's speech at China University of Political Science and Law on April 25, 2006, titled "What kind

causes requires the acceptance of other people. Rights are not the relationship between humans and things, but ones between different people. The nature of rights is a kind of social relationship and should be accepted and respected by others as an effective claim. Following authoritative orders, people would restrain themselves and respect each other's property rights, and thus the concept of just and rights came into existence.

All in all, laws are important for protecting social orders, which is mainly achieved through definition of properties. Real right is the result of the changes in possession of things in real right law. Therefore, orders are the most fundamental goal in real right law in terms of instrumental value and concept. Real right law should not only meet the needs to maintain social orders and guarantee utilization of resources in order, but also develop along with the complication of social orders so as to satisfy social requirements (Sun Y. 2011, p. 11). The goal of real right law is to establish legal orders and regulations on res and other limited resources (Wang Z. 2001, p. 14). For individuals, the most direct and important values of real right law is its protection over one's properties.

Industrial civilization and "property-oriented laws"

Civilization is the aggregated physical and spiritual achievements of human beings in their transformation of the world. It is the symbol of the progress of human society while law is like the twin of civilization. Diachronically, human civilization developed from pastoral society into agricultural society, industrial society and finally into the current information society. Industrial civilization witnessed a more fair, effective and comprehensive mechanism than the one in agricultural civilization. It goes together with the appearance of countries ruled by law. "Human-oriented laws" in agricultural civilization were gradually replaced by "property-oriented laws" with the protection of private rights as core in industrial civilization. Laws undergone major changes from "status" to "contract." In 2007, *Real Right Law*, which affects every Chinese citizen's rights and interests, came into force, which symbolizes China's entry into the real right age. In China's legal system, *Real Right Law of the PRC*, as a basic

of real right law do we need – reflections on real right law from the perspective of philosophy of right."

civil law, is the detail and embodiment of the provisions about properties in China's constitution. From the perspective of legal philosophy, the goal of legal system is to specify and protect rights. Generally speaking, "res" refers to owner's properties and "right" refers to the owner's right to freely dispose his or her properties without others' interference. *Real Right Law of the PRC* advocates that private subject has absolute ownership of *res corporales*, which is the manifestation of industrial civilization in real right system. *Real Right Law of the PRC* is an essential achievement in the context of industrial civilization.

It takes a long and complicated process to evolve from one civilization to another, during which the bud of a new civilization can be found in the old one (Li Z. 2012, p. 4). Currently, human society is undergoing another peculiar revolution, where science, productivity, politics, economies and societies are all changing. Under the impact of information revolution, the real society and the Internet society are going side by side while interacted and inter-mapped. Through the Internet, human beings are building a new order – the digital order, and a new civilization – the digital civilization. However, current real right rules are used in an attempt to harm data rights via limiting or prohibiting rights or to satisfy the obligee's desire for data rights through limiting rights and power. Such a mechanism can hardly break out the limitation of real right system; and data rights cannot be freed from the routine of traditional real right law. In the meantime, due to the irreconcilable conflicts and contradictions between exclusiveness of real right and the special features of data rights (public right characteristics, private right characteristics, shareability), using real right law to protect data rights would be conservative and unbalanced, unable to meet people's needs for data rights. Therefore, we urgently need to improve the mechanism over *res corporales*. Since real right law has limitations in data rights protection, changes to traditional laws and thoughts are inevitable in digital civilization.

Data and Data Rights

In digital civilization, people begin to rethink about the relationship between data and human beings and the right of a "data person." In the age of big data, data represents a factor of production, a new resource, an organization method and a new type of right. Utilization of data has become a main

way to gain profits. Protection of data rights becomes an important symbol of digital civilization. We enjoy data rights, just like human rights and real rights. The proposal of digital rights will be an essential driving force and legal foundation of the reconstruction of orders that pushes digital civilization forward. Data right breaks the limitations in data protection of the traditional theories of personality rights, privacy, real rights, creditor's rights and intellectual properties. It becomes a new type of rights in big data era, which at least should include data sovereignty, personal data rights and data sharing rights.

Hypothesis of "data man": Economic man, social man and data man

ECONOMIC MAN

"Economic man" is a fundamental hypothesis in Western economics about human being's economic behaviors. It originated from the statement of the British economist Adam Smith in 1776 in *The Wealth of Nations*. Adam Smith believes that human behaviors are driven by economic incentives and all behaviors of human beings are aimed to satisfy one's own interests to the greatest extent. Everyone is in pursuit of his own interests, which in return, under "natural orders," will promote the increase of social interest more effectively when he acts on his own will (Zang 2009, p. 12). The so-called "economic man" is not just "self-interested." Maximizing personal interests is the goal of the "economic man," which will also maximize interests of the whole society (Yang 2006, p. 83). The nature of "economic man" is to be self-interested and self-interests are the basic motive for people to engage in productions. In the hypothesis of "economic man," for the first time, the motivation and behavior of a person going after his or her own interests were incorporated into the economic analysis framework in a clear and systematic way, and the relationship between personal interests and social interests, which were originally perceived from moral and philosophical perspectives, is summarized into a systematic and clear economic argument (Zang 2009, p. 12).

SOCIAL MAN

Some behaviorists point out that besides economic behaviors resulted from the pursuit of personal interests, people also engage in activities due to

responsibility, vanity, the sense of honor, sympathy, love for families and friends and customs *per se* (Zhang & Mao 2009, p. 127). People act not only because of interests or the principle of maximization. There are also altruistic behaviors in our society, which cannot be understood via the “economic man” hypothesis alone. “Social man” is one of the hypotheses about human nature in Western modern management, which is originated from the Hawthorne Experiment conducted by Mayo.²⁵ The hypothesis is that human beings are “social men,” who are not alone but engaged in certain social relationships bounded by the community. Besides materials, people also pursue love and friendliness among different people, morality, sense of belonging and honor. The hypothesis of “social man” can be used to explain human characteristics not reflected by “economic man” and those mechanisms not in line with maximization of efficiency or interests (Zhang & Mao 2009, p. 127). With the hypothesis of “social man,” we can understand many altruistic behaviors out of responsibility or morality, as well as the existence of policies on tax and redistribution out of consideration of social equity. The transition from “economic man” to “social man” is a breakthrough not only in economics, but also in social sciences, which greatly promotes the extension of economics into other fields like social sciences.

DATA MAN

For laws in digital civilization, its hypothesis of human nature is different from industrial civilization. The individualism and self-interested trend praised in the “economic man” hypothesis is no doubt most suitable for the age of industrial revolution (Wu X. 2015, p. 72). Digital civilization is the reflection and response to industrial civilization and is more advanced than industrial civilization. More than 2,500 years ago, the ancient Greek philosopher Pythagoras proposed that “all is number,” meaning that number is the nature of the world and dominates human societies and even the whole nature. Nowadays, microcomputers like smartphones and wearable devices

25 The Hawthorne Experiment, which is about changes in relationships among a group of people, is a famous experiment in managerial psychology. It was conducted on workers at the Hawthorne plant of the Western Electric Company in suburban Chicago by the Harvard professor George Elton Mayo (1880–1949) during 1924–1932. The experiment found that workers are not only “economic men” driven by money and personal attitude plays an important role in behavior changing.

measure and record the physical world in bytes, 24 hours a day. Human beings are now really in the era of big data where “all is number and number is all.” “Data man” is not only a digitized version of human beings, but also digitized version of all objects and parts, which will interact and affect each other. “Data man,” as a new type of legal personality, exists on the basis of digital civilization. Laws and regulations based on digital civilization and “data man” go beyond the traditional boundary between good and evil and break out traditional limitations to effective organization. We can say that compared with traditional hypotheses of human nature, “data man” is more suitable for theories and practice in digital civilization.

The core of the “data man” hypothesis is altruism

“Altruism” is a human virtue. It is a saying in ethics referring to life attitudes and principles of behaviors that put social interests at first and advocate the sacrifice of personal interests for social interests. In the nineteenth century, Comte, a French philosopher who founded the discipline of praxeology, brought up the concept of “altruism” and used it to explain the selfless behaviors in societies. He described altruism as our “moral obligation to renounce self-interest and live for others.” Therefore, altruism emphasizes on other’s interests and advocates the utter devotion to sacrifice oneself for others’ benefits. Currently, it’s generally believed that altruism is characterized by helping others willingly without hoping for return in the future (Han K. 2017, p. 8). Interdisciplinary studies of the game theory and biological evolutionism show that communities with the characteristic of altruism have more evolutionary advantages in ecological competitions.

Digital civilization and comprehensive development of human beings. Altruistic data culture is a mainstream culture that originates from digital civilization. “Data man” emphasizes the altruism in human behaviors and existence. The function of “data man” is to help human beings create a public big data space that can be shared. Its value as a tool decides that “data man” is altruistic in nature. If the altruism of “data man” can bring more benefits and convenience for human beings, more altruistic behaviors will be generated due to pursuit of interests. Once the original subject of data rights gains necessary legal rights, altruistic behaviors would unfold another era in

data utilization. The altruistic feature of “data man” will help facilitate the development of big data during its application and promotion.

Darwin wrote in *The Descent of Man* that “a tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good, would be victorious over most other tribes” (Darwin 1871, pp. 159–60). The altruistic feature of “data man” can also help facilitate cooperation between different human beings. At the beginning, only a small group of people would benefit from the cooperation, but with the involvement of more people, such altruistic behaviors will step up from accidental cooperation to stable legal relationship so as to ensure that man can gain continued interests from altruistic behaviors. Therefore, driven by the needs to improve social benefits and promote common progress, governments should establish a protection mechanism for “altruistic behaviors,” that is altruistic rights. Such right not only meets the requirements of social development, but also is a manifestation of the altruistic functions of “data man” in law.

Protection of data man's rights

It seems that laws and development are always opposite to each other (Long 2016, p. 2). Laws are the result of summarizing past experiences and can hardly predict the future. Restricted by the philosophical understanding in the nineteenth century, traditional capacity for rights was endowed only to the natural person and the juridical person, while other human beings and organizations were ignored (Liu 2015, p. 121). “Data man” is a new subject in the big data era and new legal rights and relationships will be created around “data man,” such as data rights, data power and data sovereignty. Here, data right is not a stand-alone right system, but an intentional right used to fill the gap created by data space in the current legal system. Out of the existing right protection system, data conflicts generated from this intentional right have no corresponding laws to refer to, so conflicts in data processing behaviors became a new type of stand-alone conflicts. When new right emerges and the traditional legal relationship becomes a barrier unable to be gotten over, a new right system needs to be established.

The original subject of data right has complete rights over his or her data before data is collected and becomes part of the big data. However, after that, on that data there's both the right of the original right owner and the right of the big data controller, so the original right owner only has limited rights over this part of data in the big data. American scholar Neil M. Richards proposed the "Three Paradoxes of Big Data,"²⁶ one of which is the Power Paradox. It means that big data has great power to transform society, but big data also has power effects of its own, which gives privilege to entities such as service providers and governments at the expense of ordinary individuals. It is likely to benefit institutions who have control over personal data. Therefore, it is necessary to establish a new data rights legal system, different from the existing one, to protect the right of the original data rights owner.

People have been collecting, analyzing and using data for a long time, but traditional data activities didn't bring such great changes and instabilities to our society and life. Based on the Internet and modern technologies like cloud computing, big data improves the self-management of our society, and at the same time, does impose unprecedented threat to our society and life. Existing legal system, ethics and social norms are not forceful enough to protect our social values like security and privacy. And the deep imbalance exists between data controller's control of the big data and the general people's incapability of their own data (Xiao & Wen 2015, p. 74). According to Michael Mann, "Human beings are restless, purposive, and rational, striving to increase their enjoyment of the good things of life and capable of choosing and pursuing appropriate means for doing

- 26 N. E. Richards brought up the "Three Paradoxes of Big Data": a. The Transparency Paradox, that is the paradox between transparency of information and secrets of information collections. Big data promises to use this data to make the world more transparent, but its collection is invisible, and its tools and techniques are opaque, shrouded by layers of physical, legal, and technical privacy by design. b. The Identity Paradox, that is to say big data seeks to identify, but it also threatens identity. Though big data evangelists talk in terms of miraculous outcomes, this rhetoric ignores the fact that big data seeks to identify at the expense of individual and collective identity. c. The Power Paradox. It means that big data has great power to transform society, but big data also has power effects of its own, which privilege entities such as service providers and governments at the expense of ordinary individuals. It is likely to benefit institutions who have control over personal data.

so” (Mann 2012, p. 4). No doubt that in order for human beings to enjoy “the good things of life,” deliberate establishment of right/power is also an “appropriate mean” that people will choose and pursue. Therefore, now that utilization of big data is quite popular, in order to enjoy all kinds of benefits brought by big data, we should also deliberately establish relevant rights in the big data ecosystem and form a data right mechanism based on data right and data power.

Empowerment of data

The legal nature of data is logically the starting point for deciding data ownership, while deciding data ownership is key to both the formation and adjustment of legal relationships and the utilization and communication of data (Ji 2008, p. 54). In big data era, data is a kind of asset, a productive force and an indispensable resource. By empowering data, social forces will change from violence, wealth and knowledge to data²⁷ and data will become a new object of right.

Data is a new object of right

With WeChat, Weibo, We-Media, social networks and e-commerce websites becoming the new social focuses, data explosion has been driving the establishment of new power relationships. This is an age with data as the key, and data has changed people’s ways of recognition, coordination and

27 In 1990, Toffler pointed out in his book Powershift that power, which is used to dominate others, had always been achieved via violence, wealth and knowledge since ancient times. In the third wave of civilization, knowledge would become the facet of power and whoever has knowledge has power. Once a person or organization owns the violence or wealth, it cannot be owned by other people or organizations. Different from violence and wealth, which are exclusive, knowledge can be owned by different people at the same time. Therefore, “knowledge is the most democratic source of Power.” Whoever has control and the right to spread knowledge has initiative in power. In the age of data, every “data center” becomes a sort of “power center” and these “power centers” will have the say.

communication. In future data society, everything will be “online” and everything can be quantified. All human beings, things and machines will exist, interact, create values and promote future development as a kind of data. With the development of time and technologies, data is given new connotations and denotations.

Data is a new object of right. It's not the new crude oil, but a completely new type of resources. The rapidly developing Internet technologies are making our world even more transparent, online and digitized. Especially with the help of big data and the Internet of Things, everyone can become a “data man,” with all human activities being exposed and behaviors being predictable via data analysis, and thus there would be no privacy at all. Through regulations of laws, we can save an uninterrupted personal space for ourselves in the digitized world.

Human beings are connected to the Internet as the object and become nodes that constantly collect data and upload data to the cloud, which marks the beginning of the digitization of mankind. Our minds and thoughts, life habits, existence and activities can all be digitized and interact with other people, things and machines via information disclose, data sharing and trade. In the age of “data man,” abundant and thorough data resources are constantly improving our methods of communication and mutual understanding. Things are connected with things and people with people, making all people, things and machines exist, interact and create values as data. No matter humans are natural beings or social beings, we are always data producers and controllers throughout our lives. Governments have power on the condition that they protect the rights of their citizens. In order to ensure fair use of data of the “data man,” the government should empower “data man” to protect his or her data security and privacy so as to avoid insecure or inefficient exchange and utilization of data caused by “the natural expansion of power.”

Legal attribute of data

Data rights are still up in the air due to the uncertain legal attribute, which limits the development and utilization of data as well as the healthy and sustainable development of the data industry (Ji 2008, p. 54). According to the

definition of “data” in ISO, in terms of human behaviors and activities, digits, texts, sound, images and graphs in general sense can all be regarded as data after coding.²⁸ As a new type of property, data can be listed for transactions in data centers or on data platforms following certain rules,²⁹ which obviously shows its attribute as a property. “Data originates from the aggregation of personal information, which has personality features” (Ji 2008, p. 56). Therefore, it is also believed that data has personality attribute.

According to different sources, data can be divided into derived data and recorded data. Derived data mainly derives from aggregation of personal information. Personal information is a combination of all information formed in personal development that can be used to identify a person, thus involving the personality interest of the subject. In Article 109 of the *General Provisions of the Civil Law of the PRC*, it states that “The personal freedom and human dignity of a natural person shall be protected by law.” Personal information should be protected by law because of the right of self-determination on personal information, whose jurisprudential basis can be found in laws about personal freedom and human dignity (Ji 2008, p. 56). We are human beings because we have exclusive right to decide our own personality formation and development. Collection, procession and utilization of personal information are directly related to personal freedom and human dignity. Like ownership, derived data has exclusivity and independence and individuals shall enjoy all interests brought by his or her own data.

Recorded data is recorded via tools like cookies by network providers while data subjects are using the Internet. Such data is not identifiable and thus does not have personality attribute nor is private. Utilization of such recorded data will not cause privacy problems for data subjects. While

28 The exact definition in ISO is as follows: Data are representations of real world facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing by human beings or automatic means.

29 Since February 2014, China has established over 10 big data trading platforms or centers, such as Zhongguancun Shuhai Big Data Trading Platform, GBDEX, Yangtze River Big Data Exchange, East Lake Trading Center for Big Data, Xuzhou Big Data Exchange, Hebei Trading Center for Big Data, Haerbin Data Exchange, Jiangsu Big Data Exchange, Shanghai Data Exchange, Xixian Big Data Exchange of Shaanxi Province and Zhejiang Big Data Exchange Center.

enjoying the convenience brought by data, data subjects are also amenable to tolerate to a certain extent such utilization (Tao 2016, p. 158). In some sense, the absence of personality attribute in recorded data deepens the property attribute of data. In short, the legal attribute of derived data is personality interests and that of recorded data is property.

The power and right of data

“Power” is a concept mainly used in politics, and “rights” in legal studies. “Power exists on the basis of legal rights and aims to realize legal rights, and rights, as a qualification in law, limit the form, process, content and procedures of power. Moreover, certain rights can only be achieved with the exercise of power” (Chang 2014, p. 110). Based on the political theories, big data is not only a paradigm of power, but also a narrative of power, which follows the logic of power to continuously produce, reshape and dominate new political, economic and social relationships.

Data power is a modern power, which is a binary power that dominates reasons and is also dominated by reasons.³⁰ First, data is the information integration of modern powers and the informatization of modern powers. It is universally accepted that information is power. According to Brynjolfsson, data power means that information is at the core of power and becomes the power to allocate resources (Brynjolfsson & McAfee 2014). This means a revolution in our will to power and the invasion of unconscious (or sub-ideology) data into the existing social power. Second, data power is the reconstruction of modern powers in values. If we say that the incorporation of data into modern powers has made powers assessable and tradable, as if it is the result of power capitalization, then the reconstruction of modern powers in values means the digitization of the trading logic between power

30 Power of big data consists of two types of logic, that is, logic of capability and logic of structure. The former manifests itself in such dimensions as role, object and technology, whereas the latter is characterized by such dimensions as relationship, rule and pattern. The two kinds of logic contain positive endogenous power; however, they may also stun and shock the normal social power system to induce risks of mismatch and conflicts in both public and private domains. Accordingly, a type of rational and prudent common insight as well as governance concept on power of big data is to be constructed.

and capitals. In other words, data is incorporated into the power system as big data and, as Ethan Zuckerman said, redefined the operating and trading logic of modern capitals (Zuckerman 2013). At last, data power is the evolution of modern powers in theories. Data power is the trigger of the revolution in knowledge graph and is the core language attached to modern civilization and systems. Reading and recognizing such data will lead the trend in modern powers, explain and predict the changes as well as deconstruct and combine units in modern powers (Lin & He 2016, p. 486).

“Civil rights represent possibilities of a kind of national protection, according to which the right holder can perform certain conduct or require others to perform certain conduct to his or her benefits” (Tong 1990, p. 66). The nature of right is the free will of the subject, and the object is the external Dasein of right, which confirms right in a relevantly fixed way. Data rights determine the allocation of data value and interests as well as the demarcation of data security responsibility and data quality. We can start the discussion on data rights from the point of the object of the rights. It’s generally accepted in China that rights in civil laws involve real rights, creditor’s rights, intellectual property and personality rights, with their objects being res, behaviors, intellectual achievements and personality interests (Wen 2016, p. 15). The age of big data is multi-dimensional and dynamic, so not only the unidirectional property allocation of original data, but also the dynamic structure and rights of multiple subjects should be reflected in the civil legal rights. Therefore, the information and values in data involves the interests in not only personality rights but also property rights. In short, data right is a combination of different rights and involves both data personality right and data property right. In the future digital civilization, a new type of right – data right – is emerging. It combines personality right and property right and will actively utilize and grant others to utilize data.

A third right: Data right is the combination of personality right and property right

Digital order will become the first order in future’s society. Establishing rights for data is in accordance with the will of the people; the institutionalization

of data rights represents the general trend; and the protection of data rights via the *Constitution* is inevitable in this age. Data right has four “new” characteristics: first, data right is a new object of right; second, data right is a new type of right; third, data right represents a new attribute of right; fourth, data right has new powers and functions of right. Data right is under a different category with different content and attributes, so it needs a different protection mechanism (see Table 4 for more details).

Table 4. Characteristics of Data Rights.

Characteristics	Summary
Objects of right	Data is not the “res” defined in civil law (not the object of real right). It is neither a physical object nor <i>res incorporales</i> defined in intellectual properties. Data is an independent, objective existence in the digital world, beyond the physical and spiritual world. The subject of data rights is particular obligees, which include the particular person that data points to and those who collect, store, transmit and process data (including natural person, legal person, unincorporated organization, etc.). Different subjects have different rights. The object of data rights is a particular data set. Data is made of a series of numbers, codes, images, texts and so on. A single number or code has no value. Only a data set after combination, integration and aggregation of data has value. Therefore, the object of data rights should be a particular data set that has certain patterns and values.
Types of right	According to traditional legal interpretation, humans have two kinds of rights – personality rights and property rights. In the age of data, people leave “data footsteps” in various data ecosystem. Data is fragments of human behaviors, an important vehicle to social activities and an essential extension of one’s personality. We should protect the dignity of the data subject as a human being, whose freedom should not be deprived, reputation not damaged, privacy not intervened and information not stolen. Furthermore, such data are important social resources and can be priced, which have values and can bring economic interests to the data subject. Therefore, data property right should be established. Thus, data right becomes a comprehensive right involving both personality right and property right.

Characteristics	Summary
Attributes of right	Data right is the combination of public right and private right. It includes both data sovereignty, which is country-centered and shows the dignity of a country, and data rights, which is individual-centered and emphasizes the dignity of personal interests. The legal attribute of data rights should be analyzed from both the perspective of private rights like personal rights and the perspective of public rights like national security. That is to say, data rights need the autonomy of private rights as well as the intervention of public rights.
Powers and functions	Real right shares the exclusiveness of ownership. There cannot be two ownership on the same thing and everyone has the obligation of not interfering with the obligee's absolute control over his or her things. Data right, on the other hand, is no longer an exclusive right, but a shared right. "There can be multiple ownerships on the same data," which is the core and nature of data rights. The proposal of the important legal theory – "The nature of data rights is a shared right" – will mark the changing of civilization rules.

Differentiation between human right, real right and data right

Human right is the only symbol that is shared by all human beings and is the greatest common divisor for people around the world. The so-called human rights are "rights enjoyed and should be enjoyed by human beings based on the nature and social essence of humans" (Li B. 2003, p. 169). The human in human rights does not refer to economic man, moral man nor political man,³¹ but natural persons with biological characteristics and without any additional factors. We should be able to enjoy human rights just because we are human beings. The establishment of human rights is related to the philosophical foundation of human rights. There are many theories about

31 First, it doesn't refer to economic man. Economic man goes after interests and human rights wouldn't have enough protection if everyone is economic man. Second, it doesn't refer to moral man since human rights is not related to the existence nor level of morality. At last, it doesn't refer to political man. Though human rights has political attributes, using human rights as tools in political struggles will limit human rights.

the origins of human rights, such as customary rights, natural rights, legal rights and utilitarian human rights, human nature and moral rights.³² Human rights are rights in nature, “rights – human rights – legal rights – basic rights of citizens are concepts that incorporate and belong to one another” (Lin Z. 2004). The concept and connotation of human right is relatively broad and the protection of human rights covers a lot more than what legal rights and basic rights do. With the development of our economic society, the dimension and type of human right as well as its connotation and denotation will expand.

The proposal of real rights is the starting point of a new civilization. The mechanism of real right has ownership as the core and is supported by real rights for security and usufructuary rights. Real right is the right to control *res corporales*, which means that the obligee has the right to possess, utilize, dispose of and obtain profits from his or her properties according to his or her own will and free from other people’s interruptions. Acceptance of real rights is, after all, the acceptance of values created by individuals and the right of individual autonomy. Therefore, real right is a special, basic human rights related to things. The acceptance and protection of real rights show that we began to establish a new social civilization centered around “humans.” Under this new system, we have the idea that real right is not only an important part, but also an essential protection of human rights. Only when we fully protect the rights of each individual in our society can we promote the development of interests for the whole. *Real Right Law* is not only a law to protect properties and rights for Chinese people, but also

32 Customary rights: this is an empirical deduction of human rights represented by *Magna Carter*, with the logic being “customary rights → legal rights.” Natural rights: this is a transcendental deduction of human rights represented by the French *Declaration of the Rights of Man and of the Citizen*, a classic theory of human right, with the logic being “natural rights → legal rights.” Legal rights and utilitarian human rights: it is believed that human rights originated from formal or informal laws and regulations and free and equal pursuit of happiness and interests is the biggest value and virtue. The theory of human nature: it is believed that human nature has both natural and social attributes, with the natural attributes being the internal reason and foundation of human rights and the social attributes being the external reason and conditions. Moral rights: it is believed that human rights lie in the moral system and should be maintained by morality. The legitimacy of human rights is based on human morality.

a law that shifts social concepts and reshapes our culture psychologies (Gao 2007) (see Table 5).

Table 5. Differences between Human Rights, Real Rights and Data Rights.

	Human Rights	Real Rights	Data Rights
Subject	individuals, organizations	particular persons	particular obligees, including the particular person that data points to and those who collect, store, transmit and process data (including natural person, legal person, unincorporated organization, etc.)
Object	rights to things, behaviors, spiritual products, information and so on	particular things controlled by people; rights provided by laws	data sets with certain values or patterns; exceptions can be provided in laws
Content	personal and personality rights; political rights and freedom; economic, social and cultural rights; rights of vulnerable groups and special groups; rights of international communities and so on	ownership; rights over others' properties (real rights for security and usufructuary rights)	ownership; usufructuary rights; data rights for public interests; data sharing rights

Data is different from the “res” mentioned in civil laws in the past. Unlike other things, the control of data is not exclusive, which is decided by the intangible format of data. In this case, data is similar to intellectual achievements. But data is not “res” (real or movable properties) nor intellectual achievements or rights. Data is a kind of object different from the “res” with tangible formats, and the control of data is not exclusive nor consumable (Li A. 2018, p. 72). The allocation and control of the property rights in data is different from the possession and control of *res corporales*, so the real right system for *res corporales* is not applicable to data. It can be said that data right is not the same as any other traditional right, though they may

share some characteristics in common. We should not try to include data in existing laws by expanding the real right law or IP law, but rather follow our long-time practice to establish a new law for data. Therefore, besides the current property rights system, we should set up a new type of right for *res incorporales*, establish data sovereignty and relevant legal systems for data rights, thus creating a standalone property protection system that is different from the one for *res corporales*.

Bibliography

- Bai, G. 2015. *Law of Human Rights*. Beijing: Peking University Press.
- Bodenheimer, E. 2004. *Jurisprudence: The Philosophy and Method of the Law*. Beijing: China University of Political Science and Law (CUPL) Press.
- Brynjolfsson, E., and McAfee, A. 2014. *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York: W. W. Norton & Company.
- Central Compilation & Translation Bureau 2012. *Marx Engels Selected Works (Volume II)*. Beijing: People's Publishing House.
- Chang, H. 2014. "On the Relationship between Power and Right," *Young Society*. The 22th issue.
- Chen, H. (n.d.). "Origins of Real Right & Concepts of Real Right in Roman Laws and Germanic Laws," retrieved May 6, 2004, from <<http://www.iolaw.org.cn/>>.
- Cui, W. 2017. *On Real Right in Civil Laws*. Beijing: China Legal Publishing House.
- Darwin, C. 1871. *The descent of man and selection in relation to sex* (Vol. 1). New York: D. Appleton & Co.
- Donnelly, J. 2001. *Universal Human Rights in Theory and Practice*, Trans. Wang Puqu. Beijing: China Social Sciences Press.
- Gao, X. 2007. "Real Right, the New Starting Point of Our Social Civilization," *People's Daily*.
- Han, K. 2017. *Study on Egoism, Altruism and the Relationship with Well-being*. Wuhan: Wuhan University.
- Han, M. 2005. "New Industrialization: A New Civilization and A New Outlook on Development," *Philosophical Researches*. The 8th issue.
- He, H. 2014. "On Sense of Compassion," August 14. Retrieved from *Chinese Social Sciences Net*.
- Ji, L. 2008. "Research on the Protection of the Property Industry by Empowering Data," *Library Development*.

- Li, A. 2018. "Data: Its Rights Attribute and Legal Nature," *Oriental Law*.
- Li, B. 2003. *Exploration into Theories of Law* (169th edn). Changsha: Hunan People's Publishing House.
- Li, B. 2004. "On the Origin of Human Rights," *Political and Legal Forum*.
- Li, X. 2002. "Marxism on Civilization," *Journal of Kaifeng University*.
- Li, Z. 2012. "Surpassing Industrial Civilization, Creating A New Era in Human Civilization," *On Economic Problems*.
- Liang, H. 1998. *Research on Chinese Real Right Law*. Beijing: Law Press-China.
- Lin, Q., and He, J. 2016. "Power of Big Data: One Logic of Modern Power and Practical Reflection," *Journal of Northeastern University (Social Science)*.
- Lin, Z. 2004. "What is Human Rights?," *Study Times*.
- Liu, Z. 2015. "Establishment of Mechanism for Partial Capacity for Rights," *Chinese Journal of Law*.
- Long, W. 2016. "Study on Legal Challenges to China's Intelligent Manufacturing and Basic Strategies," *Law Review*.
- Mann, M. 2012. *The sources of social power: Volume 1, A History of Power from the Beginning to AD 1760 (Vol. 1)*. Cambridge: Cambridge University Press.
- Marx, K. & Engels, F. 1975. *Collected works, Vol. 19, Marx and Engels*. London: Lawrence & Wishart.
- Miao, Y. 2016. *Research on Marx's Thought of Human Values*. Shenyang: Liaoning University.
- Oosuka, A. 2000. *The Right to Life*. Beijing: Law Press.
- Qi, Y. 2002. "On Universal Human Rights," *Legal Forum*.
- Qi, Y. 2015. *Evolution of the Concept of Human Rights*. Jinan: Shandong University Press.
- Shen, Z. 1991. "The Nature of human rights," *China Legal Science*.
- Shen, Z., and Huang, N. 1994. *Theory of Western Human Rights (Volume II)*. Chengdu: Sichuan People's Publishing House.
- Sun, J., and Gan, Z. 2007. *On Civilization: Formation, Development and Prospects of Human Civilizations*. Harbin: Heilongjiang People's Publishing House.
- Sun, Y. 2011. *Reflection on the Basic Issues of Contemporary Property Law of China*, Changchun: Jilin University.
- Tao, Y. 2016. "Rational Utilization and Legal Regulation of New Type Personal Information in the Process of Network Informatization," *Journal of Shandong University (Philosophy and Social Sciences)*.
- Tong, R. 1990. *Study of the Civil Law in China: The General Provisions*, Beijing: People's Public Security University of China Press.
- Wang, G. 2010. *Comparative Constitution*. Wuhan: Wuhan University Press.
- Wang, G. 2015. *Human Rights Law*. Beijing: Tsinghua University Press.
- Wang, L. 2014. *Civil Law (Sixth Edition)*. Beijing: China Renmin University Press.
- Wang, Y. 2009. "On Human Values," *Journal of Socialist Theory Guide*.

- Wang, Z. 2001. *Real Right in Civil Laws (I)*. Beijing: China University of Political Science and Law (CUPL) Press.
- Wei, Z. 2016, *Civil Law (Sixth Edition)*. Beijing: Peking University Press, Higher Education Press.
- Wen, S. 2016. "Legislative Considerations over the Objects of Rights in General Provisions of the Civil Law – with Emphasis on Special Res," *Law Science*.
- Wu, X. 2015. "On Legal Expression of Ecological Civilization," *Journal of Nanjing Tech University (Social Science Edition)*.
- Wu, Y. 2009. "Marx's Theories on Civilization," *Shandong Social Sciences*.
- Xia, Y. 2001. *The Origin of the Concept of Human Rights* (revised edition). Beijing: China University of Political Science and Law Press.
- Xiao, D., and Wen, Y. 2015. "An Outline of Right and Power to Data Pedigree," *Journal of Xiangtan University (Philosophy and Social Sciences)*.
- Xie, Z. 2011. *On Property Rights in Civil Law (I)*. Beijing: China University of Political Science and Law (CUPL) Press.
- Xu, C. 2009. *Constitution*. Beijing: China Renmin University Press.
- Xu, X. 2000. "The System and Classification of Human Rights," *Social Sciences in China*.
- Xu, X. 2006. "Right to Harmony: The Fourth Generation of Human Right," *Human Rights*.
- Yang, J. 2006. "Reflections and Critiques on the Hypothesis of 'Economic Man,'" *Shanghai Economic Review*.
- Zang, D. 2009. "Backwash and Beyond: the Assumption of 'Social Man' vs 'Economic man': From Karl Polanyi to Mark Granovetter – The Latest Developments of the New Economic Sociology," *Journal of Gansu Institute of Public Administration*.
- Zhang, H. 1997. "On the Moral Basis of Human Rights," *Chinese Journal of Law*.
- Zhang, J., and Mao, W. 2009. "Logic between 'Economic Man' and 'Social Man' and Their Contemporary Significance," *Economic Research Guide*.
- Zhao, Z. 2008. "On the Relationship between Human Rights and Sovereignty and Its Solution," *Journal of Inner Mongolia Agricultural University (Social Science Edition)*.
- Zheng, G. 2016. "Between Encouraging Innovation and Protecting Human Rights: How the Law Responds to the Challenges of Big Data Technology Innovation," *Exploration and Free Views*.
- Zhu, Z., and Lv, H. 2005. "Synced Increase in Human Values and the Value of Things: Thoughts on How 'Human-orientation' Can Be Possible," *Social Science Front*.
- Zuckerman, E. 2013. *Rewire: Digital Cosmopolitans in the Age of Connection*. New York: W. W. Norton & Company.