When writing a paper on multimodality, I came across the term “fragmentation” and found that in China it had always been used in its negative sense. Later, however, I noticed that fragmentation can also be understood positively in many papers both at home and abroad (Hu, 2018). Seeing that multimodality is a realization of various categories of signs, I attempted to make a further study of fragmentation from the semiotic perspective and also to make some suggestions to push forward its further research.

1. The Fragmentation Age

The notion of the “fragmentation age” can be accounted for philosophically, technologically, methodologically, politically, and socio-culturally.

1.1 The rise of postmodernism

The term “fragmentation” first occurred in the literature of postmodernism, which was a broad movement that developed in the mid- to late-20th century across the fields of philosophy, arts, architecture, and literary criticism, and marked a departure from modernism. Fragmentation is one of the four theoretical features of postmodernism (Ge, 2013), namely:

(1) Deconstructivism: opposing the thinking model of traditional “universal thinking”.
(2) Fragmentation: deconstructing the theoretical system of ontology.
(3) Decentralization: moving toward pluralism and uncertainty.
(4) Planarity: dispelling meaning and deep model.

There is interdependence among these four features.

The reason fragmentation is one of the distinctive features is due to the fact that fragmented phenomena seem to be all around us. They pervade our experiences with
different forms. The most important form of fragmentation involves the discursive formations philosophically. This pertains to the inability, unnecessity, or undesirability of referring to any unified, consistent, centered field, idea system, or narrative. They see fragmentation as an end to such meta-narratives, and a liberation of discourse, experience, and self from imposed requirements of the unified centered idea system and culture or “regime of truth”. It is possible to argue, on the other hand, that the omnipresence of fragmentation in discourse, experience, and self constitutes—in itself—a new meta-narrative; a postmodern one, one that is difficult to identify through modernist categories and concepts (Firat, 1992).

1.2 Development of modern science and technology
It is known to all that with the development of electronic science and technology, we are now acquainted with computers, visual recorders, smart phones, iPads, Internet, etc. Naturally, one can hear fragmented voices from different parts of the world.

If we turn our eyes to the Internet, no one would question the feasibility of email in allowing us to get in touch with relatives, friends, and scholars at home and abroad. There are also different platforms to meet various needs of people, such as Google, Baidu, Twitter, Facebook, WeChat, etc. To be more specific, the US president Trump has preferred to express his views on Twitter.

As for WeChat, we can join various groups. Some are groups of family members, friends, or colleagues; some are groups of different working units; some are groups of various academic organizations. One would never imagine that usually there are hundreds of names in the moments, and many of them use false names or addresses.

1.3 Big data
The big data revolution is a data-based revolution of information technology, which includes multiple asynchronous ways of messaging, caching, routing, and the streaming of huge data. As a result, the real world changes into a fragmented flat world. The traditional united, ordered technological structure is dispelled. Through integration and variety of data, big data technology manages to realize equalization and network optimization.

Different from postmodernism, big data technology resorts more to new forms of technology, such as intelligent perception and cloud computing. Thus, big data technology is represented by the following features (Huang, 2018):

(1) Orderless fragments of the world structure: Big data is actually an explosion of massive data as noticed already by the ancient philosopher Pythagoras (580?-500? B.C.) who suggested that data is the origin of everything in the world.
(2) Complexity, diversity, and individualization of the thinking mode. The fundamental features of the small data age are based on standardization, mass production, and centralization, which end in unidirectional centralization, whereas the big data age emphasizes equalization, decentralization through negotiation, communication, and
(3) The transcendental and irrational cognitive mode. Since the ancient era, people were puzzled by numerous and complicated phenomena in the world and looked for some unchangeable causes or laws. This led to the notion of rationality, or “logos” during the time of ancient Greece. The great philosopher Aristotle used the term “metaphysics” to mean the four causes of the non-changeability of everything, that is, raw material, form, dynamics, motion, and the final purpose. This lasted until the rise of “The Third Wave” in the post-industrial society as represented by cloning, global communications networks, nanotechnology, the voice against scientific imperialism, and rational monopoly came into our ears (Toffler, 1980). Consequently, centralization gave way to fragmentation.

1.4 Changes in politics, society, and culture

When talking about fragmentation, we should not restrict ourselves to its philosophical or theoretical perspectives. As a matter of fact, fragmentation is a scene which can be found every day and everywhere in our political, social, and cultural life in this new era.

Political fragmentation occurs wherever citizens are governed by different governmental agencies (Kongen, 2008). This can be illustrated by the disappearance of the two camps, socialist and imperialist, which once dominated the world after the Second World War. Today, even within the Arabic countries, there are two fragments headed by Iran and Saudi Arabia respectively.

Social fragmentation is associated with major economic disruptions. There is anger over the fact that new opportunities are limited to the rich, the powerful, or the criminal. Migration in search of employment and better life can be illustrated by those Africans who sailed dangerously on the Atlantic in order to land in Europe, which has endangered the rule of Merkel government in Germany. The same can also be witnessed from those migrants of Central American countries who are planning to climb the border wall and enter US territory, to the degree that Trump has had to send 7,000 soldiers to reject their entry, as well as adopt the family separation policy.

There are different views toward cultural fragmentation. Some scholars argued that the origin of the uneven distribution of ethnic and cultural fragmentation across countries has been underexplored, despite the importance attributed to the effects of diversity on the stability and prosperity of nations (Ashraf & Oded, 2013). On the other hand, the existence of art-loving minorities and of “elite art” may mean an inability of all but a few to enjoy that particular art. This situation will tend to create and maintain a large growing number of separate art-loving groups. A major idea in the economics of these conditions is that the art product will tend to be fragmented in an increasing number of outcomes and the cultural demand will be more and more diversified (Svendsen, Arnijot & Handelshayskole, 1992).

In China, some scholars are not happy with the advance of postmodernism. They hold the view that because of Freud fever, Nietzsche fever, Heidegger fever, etc., as represented by the market economy, commercialization, and even fast food, one can find
fragmentation in China’s traditional culture. Yet, there is still some truth in fragmentation if we acknowledge the fact that with the development of media and tourism, we have the chance to contact different cultures, religions, ideologies, and customs, and pluralism has become a concept of peaceful coexistence of different cultures.

2. The Semiotic Perspective

Fragmentation can be found here and there in various disciplines and social life, especially those related to multimodality. In this part, I will restrict myself to the semiotic perspective since fragmentation cannot cut itself off from the development of semiotics and the widespread use of signs in modern life, neither can the development of semiotics cut itself off from the development of science and technology.

2.1 The signified and signifier

Since the beginning of the last century, Ferdinand de Saussure (1857-1913) has been well-known among the semiotic circle for his dualistic description of the features of sign, for instance, “signified/signifier”. In contrast, Pearce argued that there are three kinds of signifier, namely, icon, symbol, and index. Thus, in the semiotic circle, scholars have seen their difference as a matter of dualistic approach or triadic approach.

However, quite a few scholars today have re-interpreted the relation between signified and signifier, especially the description of the signifier (Tan, 2011).

Jacques Lacan (1901-1981) claimed that the description of “signified/signifier” should be reversed as “signifier/signified”, because the function of signifier is always floating, and therefore a signifier cannot be fixedly tied to a signified. This argument is based on his “Three Orders” description in psychoanalysis, that is, the imaginary, the symbolic, and the real (“Jacques Lacan”, 2018).

Roland Barthes (1915-1980) challenged Saussure’s theory of “signified/signifier” by pointing out that they do not correspond to each other. The signifier’s process of signifying is one of spreading, one of generating without an end. Before the signifier has reached its signified, it has already shifted to other signifiers. Thus, we have found a sea of signifiers which flow freely over the signified (“Roland Barthes”, 2018; Shi, 2018).

Using terms such as difference, trace, and dissemination, Jacques Derrida (1930-2004) further discussed the relation between signifier and signified. Since the role of signifier is unstable, the signified is bound to differ all the time. Following the difference of the signified, one signifier is replaced by another signifier, which finally ends in the notion of trace. Finally, Derrida used the term “disseminaton” to mean the changing value of a linguistic sign in a particular text (“Jacques Derrida”, 2018).

Through the views held by these scholars, we can find all their views are related to changeability, multiplicity and instability of signifier, which suggests the fragmentation of semiotic theory.
2.2 Structuralism and deconstructivism

Semiotics is the fundamental driving force of structuralism and deconstructivism. Saussure held the view that the value of language as a semiotic system depends on a certain number of letters which are opposite and complementary to each other in the system. This led to the rise of structuralism with an aim for humanities to be as accurate and scientific as natural science, which is marked by integrity and synchronicity.

In contrast to Saussure, Martin Heidegger (1889-1976) argued that the traditional principles and standards of structuralism should be inherited critically because the relation between words can be inverted and reconstructed, thus logically negating the traditional basic design principles. This is done through decomposition as well as the emphasis of fragmentation, superposition, and regrouping (Jin, 2016).

Derrida moved a step further by putting forward the theory of deconstructivism. He argued that the sign itself can well express meaning regardless of structure. He used expressions such as anti-logos, difference, substitution, etc. to overturn the foundation of structuralism. Derrida even argued that writing is by no means subordinate to speech. Because of this, he attempted to develop a kind of “philology” to represent the superiority of writing, especially repeatability in the sense of semiotics. As a result, deconstructivism is marked by its openness and avoidance of termination.

In all, deconstructivism is a reflection of fragmentation against integration (“Jacques Derrida”, 2018; Jin, 2016).

2.3 Literary semiotics

In his study of cultural myths, Barthes has noticed those myths are actually “second-order signs” or “connotations”. This is because, in literature, a signifier is always related to a new signified (“Roland Barthes”, 2018).

Since there is no originating anchor of meaning in the possible intentions of the author, Barthes stuck to the view that meaning must be actively created by the reader through a process of textual analysis. He then applied this notion in analyzing Sarrasine, a short story by Balzac. This resulted in his writing S/Z (1970/1974), in which Barthes established five major codes for determining various kinds of significance with numerous lexis throughout the text. The five codes are as follows:

(1) Hermeneutic/Enigma code: referring to mystery within a text. Clues are dropped, but no clear answers are given. Enigmas within the narrative make the audience want to know more. Unanswered enigmas tend to frustrate the audience.

(2) Proairetic/Action code: referring to sequential elements of action in the text. Proairetic elements add suspense to the text.

(3) Semantic code: referring to parts within a text that suggest or refer to additional meanings. Elements of the semantic code are called semes. Semes have a connotative function in the text. It has an extra layer of meaning in addition to its literal meaning.

(4) Symbolic code: referring to symbolism within the text. It exercises opposites to show con-
trast and add extra meaning so as to create tension, drama, and character development.

(5) Referential code: referring to anything in the text which concerns an external body of knowledge such as scientific, historical, and cultural knowledge (Barthes, 1970/1977; Shi, 2011/2018).

In all, the variability, multiplicity, and complexity between the writerly text and the readerly text is the source of fragmentation in dealing with the significance of a text.

2.4 Pedagogical semiotics
The function of pedagogy is to pass on the knowledge accumulated in human life from generation to generation, from the old to the young. This is mainly done through speech and writing, suggesting that pedagogy is bound to be tied up with the signs of sound and character.

Since the new era, various advanced electronic devices, such as computers, recorders, video-recorders, smart phones, iPads, etc., as well as the operation of various forms of software and online platforms, have developed rapidly. This is the reason why universities and schools have shown great interest in improving the learner’s cognitive ability of signs. In doing so, we should first emphasize the making of a new instructor. This can be seen from the following questions put forward by a researcher (Roman, 2016).

—How prepared are our instructors to function in learner-centered classrooms and support personalized instruction?
—How receptive are our instructors to engaging students not just as consumers but also as producers of content?
—How prepared are our instructors to continuously learn new technology?
—Can our instructors smarten up using smart phones?
—Can our instructors blog?
—Can our instructors create their own websites?
—Can instructors develop skills to engage in project-based learning?

The above questions can be answered partly from what we have practiced in China. We now have micro-classes, MOOC, network visual courses, cloud classes, rain classes, mixed learning, etc. What attracts us also is the fact that even when those traditionally trained instructors attempt to safeguard the reading-writing civilization, they still have to make use of television programs to persuade people to move back to the traditional method of reading aloud (Hu, 2018; Zhu & Chang, 2018).

2.5 Media semiotics
Traditionally, media semiotics studies the art of communication through semiotics.

Beginning from the 1980s, the world of media and the world of semiotics have been changing at an unprecedented rate as a result of technological development.
People change the ways in which they receive and consume information, services, and entertainment. This leads to the fragmentation of media semiotics, which can be found in the following aspects (Li, 2013; Daniel, 2017).

(1) Fragmentation of channels and media outlets. This is a trend of increasing choice and consumption of a range of media in terms of different channels such as web and mobile, and also choice within channels, for example, more TV channels, radio stations, magazines, and websites. By means of digital channels, conversation and personalization of content are increasing.

(2) Fragmentation of audience and their attention. Audiences are scattered across numerous social media services. They are further fragmented among multiple channels as well as multiple platforms. This suggests media now have access to smaller and more defined groups of consumers, and content is becoming more aligned to consumer’ specific passions.

(3) Fragmentation of agencies and marketing departments. This opens up opportunities to build more meaningful and personalized relationships between brands and consumers.

3. Discussion

3.1 Advantages
Since we are now living in an era of fragmentation, together with the increase in various categories of signs, such as writing, sound, action, pictures, photos, screen, etc., there must be some advantages underlying the uprising of this notion.

With the rise of new media, management can reach their customers via a number of channels, so that they may have access to smaller, more defined groups of consumers. They can witness the accumulation of multiple online messages, and the content is becoming more aligned to people’s specific passions. These features are marked by variety, independence, interactivity, and lower cost.

Fragmentation will help governors to make rapid responses and have flexibility, and to be free from regulatory framework, so that they will have a larger potential for adaptability to local needs and practices.

Flexibility also derives from organizations formed to address emerging problems, instead of having a general stewardship agenda. In particular, networks of scientists can provide timely, original, and meta-analytical research to support policy-making bodies.

It goes without saying that students, whether primary, secondary, or tertiary are acquainted with fragmented learning, as they can make their own choices in using their time, reading and learning what they like, and consequently, absorbing the kinds of knowledge they are interested in. Even educators are encouraged to practice new pedagogical approaches.

One would never imagine that even literary critics are talking about fragmented writing. A Chinese scholar wrote a paper concerning Robert Coover’s novels. She noticed
Coover’s style is marked by fragments, collage, the writer’s own interruptions, etc. This actually reflects the social reality and demand of the era, and also the depth of the readers’ souls (Li, 2015).

As for the great majority of email and WeChat users, no one would question that they are free to receive what they want to read and express what they want to say.

3.2 Disadvantages
As mentioned above, one can now hear quite a lot of critical comments about fragmentation from scholars in philosophy, culture, pedagogy, media, and even governors of state or heads of companies.

Many philosophers hold the view that fragmentation will hamper the study of reason, as “the tale of the fragmentalists demonstrates, reductionist science usually looks for a mathematical equation, formula, or process that describes general features of the universe” (Stewart & Cohen, 1997).

Culturally, fragmentation implies the disintegration of “singular” cultures and the formation of numerous diverse cultures, be they associated with particular ethnicities, religions, concepts of nationhood with particular forms of lifestyle, values, or commodification. Consequently, we may no longer keep our cultural inheritance.

Many negative comments about fragmentation come from traditional educators. Usually they complain that students do not spend much time on learning, specifically, reading books thoroughly. They lower their heads most of the time and earn the name “phubbers”. So far as fragmented knowledge is concerned, it is not systematic; it lacks environmental applicability; it emphasizes the form but neglects the basics of knowledge; it tends to lose the way of thinking and fails to summarize various complicated phenomena.

When talking about media fragmentation, one has to learn how to swim in a sea of signs as well as messages. It is very often the case that some messages are false, some are out of date, some are not creative, some are illegal and irrational, and some are merely a war of words (Cao, 2015).

The diversity of actions has introduced variability in organizational structures, funding mechanisms, coordination, management, and compliance mechanisms. Thus, there is a lack of consistency in decision-making and responses, which will do harm to correct government and policy-making.

3.3 Suggestions
Section 3.1 and Section 3.2 deal with advantages and disadvantages concerning fragmentation respectively. Some people might ask the questions: Does fragmentation have advantages? Why should we bother about its disadvantages? Can those disadvantages be solved? In this section, I would like to voice some of my suggestions which might help with our solution and decision making.
3.3.1 Dialectical unity of opposites
The Western world is marked by the practice of “dichotomy”, represented by “one divides into two”. Thus, we have to choose one out of the two, for instance, to choose to side with fragmentation or to side with integration as in Diagram A.

Diagram A: \hspace{1cm} \text{fragmentation} \hspace{1cm} \text{integration}

I think it might not be the right way to make a choice. In contrast, I prefer to adopt the view of the dialectical unity of opposites, i.e., we should not only see the division between the two, but also see the complementarity between the two, as shown in Diagram B.

Diagram B: \hspace{1cm} \text{fragmentation} \hspace{1cm} \text{integration}

M.A.K. Halliday, the founder of systemic-functional linguistics, used the term “continuum” to mean the same notion. As a matter of fact, we can also find similar approaches in Chinese culture, for instance, “There are points and combinations”, “When there is harmony, there must be distinction”. All this suggests that only when we acknowledge the existence of fragmentation can we concentrate our mind to get the problem solved step by step and move on to integration.

3.3.2 Philosophy and pragmatics
Traditional philosophers have often criticized the strategies of reasoning practiced in science and in everyday life. However, in recent years, leading cognitive psychologists have painted a detailed, controversial, and highly critical portrait of common-sense reasoning. Stephen Stich (1990) begins with a spirited defense of this work and a critique of those writers who argue that widespread irrationality is a biological or conceptual impossibility. Stich then explores the nature of rationality and irrationality and rejects the most widely accepted approaches by appealing to truth, to reflective equilibrium or conceptual analysis. The alternative he defends grows out of the pragmatic tradition in which reasoning is viewed as a cognitive tool. Stich’s version of pragmatism leads to a radical epistemic relativism where he argues that the widespread abhorrence of relativism is ill-founded.

3.3.3 Deconstructivism and constructivism
In Section 2.2, we have already touched upon deconstructivism, which dissolved the integration and value of structuralism. What should be stressed here is that scholars of deconstructivism do not stop at this point. In the course of their further research, they put forward a new principle that we should not only deconstruct, but also manage to reconstruct. This leads to the birth of constructivism, as shown in Diagram C.

Diagram C: \hspace{1cm} \text{Structuralism} \rightarrow \text{Deconstructivism} \rightarrow \text{Constructivism}
Based on this understanding, instead of arguing between structuralism and deconstructivism, we should see the dialectical unity between the two, as shown in Diagram D.

Diagram D: Deconstructivism ←−−−−−−−−−−→ Constructivism

Diagram D shows that our understanding of the world and social life is actually a matter of “deconstruct” and “construct”. This is the driving force of any creative thinking. If everything is already there and structured, there would never be any new discovery and new development. This can be proved by research findings from both home and abroad (Searle, 1996; Huang, 2017; Lan & Han, 2018).

3.3.4 5-V of the big data
The path from deconstructivism to constructivism can also apply to the function of “Big data” we talked about in Section 1.3, for the reason that a description of things and phenomena in the form of figures is also a process of transforming things and phenomena into new form of figures. The principle of big data is based on the application of technology such as intelligent perception, the Internet, and cloud computing. This covers the processes of accumulation, transmission, processing, and storage, which are well-known as the 5-V features: volume, velocity, variety, value, and veracity. As a result, big data not only destroys the old world, but also helps us to build a new world, which will be done more logically, accurately, scientifically, and efficiently. In all, the big data revolution is a technological revolution; it heralds the actual arrival of an information society.

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