Using Enkapsis Theory for Unravelling Societal Complexities: The Case of Uber

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Abstract

Digital technologies can create novel clusters of societal entities. This can lead to tensions in relationships between existing societal entities and in some cases it requires a rethinking of the structures that characterize these relationships. An example of a digital technology that has challenged existing relationships between traditional businesses, legal authorities and the public is Uber, an application-based transportation networking company. One way of understanding such complex relationships is in terms of enkaptic interlacements. The theory of enkapsis is a philosophical tool, based on a specific view of reality, which may guide a novel understanding of the relationship between artefacts and entities and between social structures that exist in reality. It distinguishes between three main types of relationships between societal entities, namely part-whole relationships, enkaptic interlacements and interlinkages. If we apply this rather abstract theory to the complex case of Uber, we find, for example, that Uber has a part-whole relationship with the information technology infrastructure. This implies that without digital technologies, Uber loses its meaning and will not function according to its primary function, namely to connect drivers to passengers. We explore how the theory of enkapsis can explain a multiplicity of other complex relationships and explain the different responses to Uber in different countries, cultural settings and legal systems.

Introduction

Societal challenges may be evoked by novel digital technologies that connect different stakeholders in society in new ways. An example of a societal challenge is the arrival of smartphone applications that create peer-to-peer digital businesses, such as the transportation networking application Uber. Uber has caused unrest in the traditional taxi sector and it has evoked legal debates and numerous newspaper articles have been devoted to this so-called 'disruptive technology' (see for example Weisse and Guynn 2014; Suster 2014; Adhikari 2015). Uber directly or indirectly connects drivers to passengers, credit card companies to developers of geographical maps, mobile network providers to car manufacturers, legal authorities to international investors, etc.

A way of understanding the complex relationships between the different entities and stakeholders in digitally enabled clusters such as Uber, is in terms of enkaptic interlacements. The theory of enkapsis is a philosophical tool, based on a specific view of reality, which may guide a novel understanding of the relationship between artefacts, entities and social structures that exist in reality. We contribute to interdisciplinary research by using insights from philosophy to understand societal complexities caused by digital technologies. This approach connects academic research in humanities with research and innovation in the public and private sector to tackle societal challenges.

Enkapsis Theory

The theory of enkapsis is unique to Dooyeweerd, a Dutch philosopher, who introduced his theory in his book "A New Critique of Theoretical Thought" (1953). It is part of a larger philosophical framework of individuality structures and modal structures.

Aspects of reality

The theory of individuality structures is a philosophical undertaking to understand the nature of specific things and events in reality as well as to grasp the identity of entities in a non-reductionist manner. It proceeds on the basis that reality presents itself according to a number of irreducible yet closely interrelated aspects. Dooyeweerd distinguished 15 aspects in total. This article, for example, exists in the numerical aspect (it is one article in a bundle of articles), it exists in the social aspect (it is part of a communal effort to understand digital humanities), it exists in the economic aspect (you may have bought the article), it exists in the juridical aspect (it has copyrights), it exists in the pistic aspect (you may or may not trust the information in the article – or in academic papers in general). Below we have inserted a full list of aspects as Dooyeweerd has distinguished them.

- Quantitative aspect: amount
- Spatial aspect: continuous extension
- Kinematic aspect: movement
- Physical aspect: molecules
- Biotic/Organic aspect: life functions
- Sensitive/Psychic aspect: feelings and emotions
- Analytical aspect: distinction and logics
- Formative aspect: historical, technology
- Lingual aspect: symbolic communication
- Social aspect: social interaction
- Economic aspect: frugality
- Aesthetic aspect: harmony
- Juridical aspect: what is due (rights, responsibility)
- Ethical aspect: love
- Pistic aspect: faith, ultimate trust

Each aspect presupposes the previous aspect and therefore they are closely related. For example, the chemical processes (physical aspect) are needed in order to explain life functions (biotic aspect).

Aspectual Norms in reality

How are these aspects relevant to societal relationships? First, things in reality often have a remarkably stable appearance: trees usually point towards the sky, water feels wet when touched and freezes at temperatures below zero, cups drop down when kicked from the table, bridges tend to bear the weight of cars and chairs luckily bear the weight of people (but not of cars), seasons come and seasons go, greeting one another seems an intercultural habit, not paying for groceries is a rarity rather than common practice, and it is universally unquestioned that family members take care of each other. These examples show that things (trees) and common events (economic activity) or relationships (family, friends) in reality, at first sight, act according to recognizable, stable patterns. These patterns are often not *ex-nihilo* invented by humans, but reflect some deeper foundation or order in reality as it presents itself that underlies these actual realizations. The order can also be referred to as a specific 'normativity' or 'law-sphere' to which the matter or event or relationship 'ought' to respond in order to function and, according to Dooyeweerd, to contribute to human flourishing. There are plainly laws in nature that determine the strength of a material and that make a chair collapse or not under a certain load.

Dooyeweerd further distinguishes between a qualifying aspect and a foundational aspect of things and events in reality. A tree, a family, a business, a church, and diplomacy have a distinct structural quality which can be related to one of the 15 aspects that were previously mentioned: a family has a biotic foundational aspect, a business, church and diplomacy are all formatively founded, though each has a distinct qualifying function. With a qualifying function, Dooyeweerd means the leading function or the highest aspect in which an entity or structure functions, and which characterizes it, and which provides the leading normative principle: without this qualifying aspect, the entity or structure will cease to exist. A tree is qualified by the biotic aspect, a business by the economic aspect, a church by the pistic aspect.

In Dooyeweerd's philosophical framework, there is moreover a distinction between pre-normative aspectual laws and normative aspectual laws. Normative aspectual laws hold for social reality (Chaplin 2011). It means that, in the social realm, there is room for neglecting or disobeying the laws and norms that hold for being a priest, a lawyer, a teacher or a businessman, etc. We can speak of a 'good businessman' or a 'bad teacher' to express that a person acts against or complies well with the norms that are inherent in these social practices. But what if new entities emerge, as we will see presently in the case of digital businesses? We will show how Dooyeweerd's theory of enkapsis can help in disentangling complex relationships between existing and novel societal entities.

Societal relationships

Not only societal entities are bound by structural laws, but also relationships between the different societal entities are subject to normative structures in order to contribute to human flourishing. Dooyeweerd distinguishes between enkaptic interlacements and part-whole relationships in order to explain how individuality structures cohere amidst their differences (Chaplin, 2011).

An *enkaptic interlacement* pre-supposes that the structures of things and events, or those of societal relationships functioning in it, have an independent internal leading function and an internal structural principle of their own. (Dooyeweerd, 1953, Vol. III, p. 637).

A *part-whole* relationship can be defined as follows: "In all those things whose structure is not that of a homogeneous aggregate, a *part* is essentially qualified by the structure of the whole. In this case the structure of a whole can never be construed by means of its parts, because the parts, as such, are entirely dependent on the whole. The question what is a part of a non-homogeneous whole cannot be decided by a functional mathematical-physical analysis, but

only by an inquiry into the internal individuality-structure of this whole." (Dooyeweerd 1953, Vol. III, pp. 638-639).

Another type of relationship, different from enkaptic interlacements and part-whole relationships, is interlinkages: these are relationships between two entities that function independent of each other and cooperate on a temporary, voluntary basis. Interaction does not disrupt or intervene in their respective qualifying functions. Figure 1 shows a schematic representation of the types of relationships.
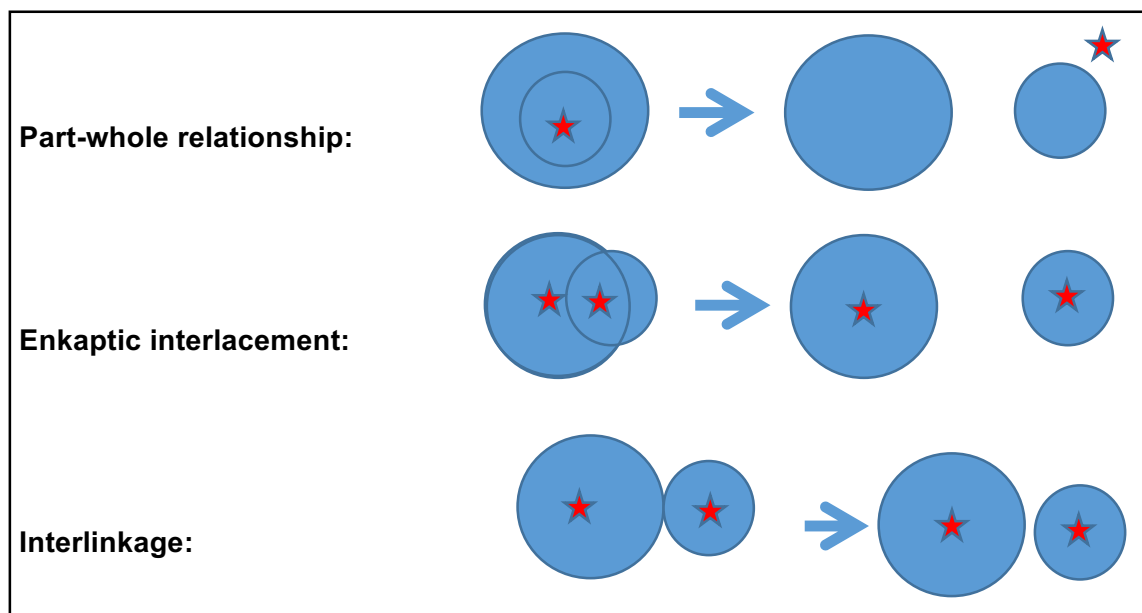

Figure 1: Schematic presentation of the types of societal relationships. The circles represent societal entities; the stars represent qualifying functions.

Chaplin (2011) gives some examples of normatively structured types of relationships into which individuals or communities can enter without losing their distinct identity: "publicity, fashion, sporting events, the press, public traffic, public artistic performances, charitable work, diplomacy, international political relations, political communication, and missionary activity" (p. 116). Fashion and sport are socially qualified, charitable work is morally qualified, international political relations are juridically qualified and so on. For the individuals functioning in interindividual relationships or the communities functioning in intercommunal relationships, such qualifying norms also exist.

Dooyeweerd treats the market under the theme of intercommunal relationships, which is a type of interlinkage. Intercommunal relationships are communities that are linked together and operate in a non-hierarchical manner. According to Chaplin, "a market is an economically

qualified interlinkage" (2011, p. 116). This is in contrast with signing a labor contract, which brings the employee into the community of a business enterprise and, with it, into the hierarchical structure of an employer-employee relationship, which is a typical enkaptic interlacement.

We have now reached the point in our argument where the philosophical work can be linked clearly to a case study of a digital nature, namely the application-based ridesharing company Uber. Uber challenges the previous assertions about the nature of the market, disrupts traditional ideas of a business enterprise and redefines labor relationships according to its own standards.

Case Study: the 'app-based' company Uber

Uber is an application-based transportation network company, founded in 2009, which develops, markets and operates the Uber smartphone application, also known as the "Uber app". Uber relies on and combines a number of digital technologies such as GPS, credit card transaction systems, and an online matching system which connects drivers to passengers. The Uber app enables smartphone users to submit a trip request, which the software program then automatically sends to the nearest Uber driver, who is thus alerted to the location of the passenger. A large group of Uber drivers are Uber Pop drivers, who use their own personal cars. In February 2017, Uber was available in more than 81 countries and more than 581 cities worldwide (http://uberestimator.com/cities). The Uber app automatically calculates the fare and transfers the payment from the passenger's smartphone to the driver. Since Uber's launch, several other companies have replicated its business model: the most well-known is Lyft in North America, and there are some country-specific versions such as Didi in China and Ola in India. Uber's current estimated value is $70 billion (https://lawstreetmedia.com/blogs/technology-blog/uber-greyball/). Since its inception, Uber has faced protests from several different directions. Most notably, Uber was seen as unfair competition by traditional taxi drivers, who are subject to a number of laws and rules that Uber drivers refuse to comply with because Uber is not a taxi-company (Davis, 2015).

Analysis

If we apply the rather abstract theory of enkapsis to the complex case of Uber, we can define all stakeholders in terms of qualifying and foundational functions. The next step is to see in which way the stakeholders are connected; and we may find that some relationships are not appropriate, i.e. are interfering with their respective qualifying functions, and that they cause problems and tensions. In Table 1 below, we have listed a selection of the various stakeholders with whom Uber interacts.

Table 1: Stakeholders in the digital transportation networking business network and their qualifying and foundational aspects

	Qualifying aspect	Foundational aspect
Uber	Economic *(business)*	Technical/Formative *(internet, smartphone, GPS)*
Driver	Economic *((extra) income)* Sometimes social *(meeting people)*	Technical/Formative *(car + driving skills)*
Passenger	Social *(work or leisure)*	Economic *(ability to afford)*
Regular Taxi company	Economic *(business)*	Technical/Formative *(fleet of cars)*
Regular Taxi driver	Economic *(income)*	Technical/Formative *(skills)*
Regulators	Juridical *(law enforcement)*	Technical/Formative *(fines, coercive means)*
Credit Card Company	Economic *(business)*	Juridical *(terms and agreements)*
Local Community	Social *(community)*	Spatial *(sharing physical space)*

The above table shows the key similarities and differences in terms of qualifying and foundational functions between the different stakeholders. This may inform the relationships between the different stakeholders, which depend to a large degree on the sharing or not of qualifying functions.

Further insights into the relationships between stakeholders can help to explain what is important and should be protected, and what seems less important on closer inspection. In the section below, we elaborate on a selection of relationships that are listed in Table 2. We use italics to denote entities or actors that relate to Uber.

Table 2: Types of relationships between stakeholders in the digital taxi networking business and Uber

Relation to Uber:	Part-whole	Enkaptic Interlacement	Interlinkage
Driver	X		
Passenger	X		
Regular Taxi company			X
Regular Taxi driver		X	
Regulators		X	X
Credit Card Company		X	
Local Community	X	X	

Uber has a part-whole relationship with the *information technology infrastructure*: without digital technologies, Uber loses its purpose and will not function according to its leading or qualifying function, namely to connect drivers to passengers and to earn money through this activity. For Uber it is of major consequence to be aware of the technological potential of digital infrastructures now and in the future, in order to remain in business.

Uber has an enkaptic interlacement with the *credit card company* that takes care of the automatic payments. Uber can exist independently of the credit card company system since it can handle payments in different ways, even in cash, as it does in some countries where credit cards are a rarity (https://drive.uber.com/joburg/cash-is-here/). The credit card company and Uber share the same qualifying function (they are both qualified by the economic aspect); and for the actual functioning and the success of Uber, automatic credit card payment is an important feature that is often mentioned as a benefit (Frostick, 2016). The reverse is also true: the credit card payment system does not depend on Uber for its existence.

Uber has an interlinkage with *regular taxi companies*. Dooyeweerd treats the market under the theme of interlinkages. A market, in this case the market of passenger transportation, is an economically qualified interlinkage. Both Uber and a regular taxi company are qualified by the economic aspect.

Surprisingly, the relationship between Uber and the *drivers* has the character of an interlinkage too: the drivers do not sign a labor contract with Uber. If they sign a labor contract, the driver

becomes an employee and therefore enters into the community of a business enterprise, an enkaptic interlacement which entails a certain degree of hierarchy. An interlinkage has a much more voluntary, non-hierarchical character. Uber cannot force drivers to work at certain hours or in certain areas, which is in contrast to the regular taxi drivers. Another feature of an interlinkage is that the entity, in this case the Uber driver, can be replaced by something else, for example an automated driver. What is needed for Uber's long-term continuation is a physical platform which can move from A to B (i.e. currently the car), but which does not a human driver per se. Uber is actually experimenting with automated driving (Isaac, 2016; Levin, 2016), which is in accordance with the current primary process that characterizes Uber's qualifying function.

Uber's relationship with *legal authorities* such as municipal, regional and national transportation regulation boards is not univocal and has caused conflicts in many places. In some countries, Uber has been banned (GrantSimran Khosla, 2015), whereas in others it has been embraced (Mardiste, 2016). In most cases, Uber has an enkaptic interlacement with legal authorities. This is so because the state and a business have different qualifying functions that should not dominate one another: a state should remain a state (juridically qualified, protecting and enabling justice) and a business should remain a business (economically qualified, aimed at the continuation of the business through frugal allocation of means). Uber cannot be forced by legal authorities to adopt a certain way of doing business (for example, it should not tell Uber where to invest) and Uber cannot force the government to implement a new transportation law. It does not mean that, in the actual functioning of the state or the functioning of Uber, they cannot inform one another about these issues. This happens, for example, in Manila or in Estonia, where there is a strong enkaptic relationship because each Uber driver has to be registered with the transportation board. (Reuters, 2016; Alba, 2015).
From a normative perspective, business and the state should remain an enkaptic interlacement (and not a part-whole relationship, such as in the case of the relationship between a state and an army).

The relationship between Uber and the *passenger* seems at first sight to be a part-whole relationship: without potential passengers, an automatic system that connects drivers to passengers would not make sense. However, on closer inspection, Uber can and does use its underlying software for purposes not solely restricted to the transportation of human passengers. Theoretically, one can order a taxi to transport anything from A to B and Uber is experimenting with several options such as delivering food (Hempel, 2015), a cat (Molloy, 2015) and, from 2016, it is investing in taking over freight transportation (http://www.reuters.com/article/us-uber-trucking-idUSKCN11Y0DI). Therefore, the passenger

as such is not what makes up the part-whole relationship with Uber, but any human or non-human entity that may be moved. Thus, if a general need for transporting something or somebody is gone, Uber will no longer exist as such, since its part-whole relationship falls apart.

Conclusion

Digital technologies can create novel clusters of societal entities. This can lead to tensions in relationships between existing societal entities and in some cases it requires a rethinking of the structures that characterize the relationships. The theory of enkapsis, which is a philosophical framework posed by Dooyeweerd (1953) and was further refined by Chaplin (2011), can help determine what is important to a societal structure and what is, on closer inspection, less important. It distinguishes between three main types of relationships between societal entities, namely part-whole relationships, enkaptic interlacements and interlinkages. An example of a digital technology that has challenged existing relationships between traditional businesses, legal authorities and the public is Uber, an application-based transportation networking company. We have applied the theory of enkapsis to the example of Uber to explain a multiplicity of complex relationships and furthermore, how these relationships correlate to different responses to Uber in different countries and legal systems.

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