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# Is time the master of all social representations?

## *Será o tempo senhor de todas as representações sociais?*

## *¿Será el tempo el señor de todas las representaciones Sociales?*

## *Le temps est-il le maître de toutes les représentations sociales?*

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**Abstract**

Time is a phenomenon that intrigues humanity and all fields of science, culture, and the arts. Time has been theorized by different strands of social psychology, including the Theory of Social Representations. In this, time is usually understood as one of the axes that make up the representational process. Based on this thesis, our essay aims to deepen reflections on the construct of "time" in the Theory of Social Representations. We raise a provocation: after all is it not time for the master of all social representations? To this end, we address the Theory of Social Representations, conceptualize the Toblerone and Wind Rose Models, return to the historical construction of time, point to the paradigmatic rupture in the understanding of time represented by the Theory of Relativity, and present time in the digital age. Finally, we suggest that time not only constitutes an axis of the process of constructing the social representation but can be understood as a social representation.

**Keywords***:* theory of social representations, time, theory of relativity.

***Resumo***

*O tempo consiste em um fenômeno que intriga a humanidade e todos os campos da ciência, da cultura e das artes. O tempo tem sido teorizado por diferentes vertentes da psicologia social, dentre elas a Teoria das Representações Sociais. Nesta, o tempo costuma ser compreendido como um dos eixos que compõe o processo representacional. Partindo dessa tese, temos como intuito neste artigo ensaístico adensar as reflexões acerca do constructo "tempo" na Teoria das Representações Sociais. Levantamos uma provocação: afinal, não será o tempo o senhor de todas as representações sociais? Para tanto, abordamos a Teoria das Representações Sociais, conceituamos os Modelo Toblerone e Rosa dos Ventos, retomamos a construção histórica do tempo, sinalizamos para a ruptura paradigmática na compreensão do*

*tempo que representa a Teoria da Relatividade, apresentamos o tempo na era digital. Por fim, sugerimos que o tempo não apenas constitui um eixo do processo de construção das representações sociais, mas pode ser ele próprio compreendido como uma representação social.*

***Palavras-chave**: teoria das representações sociais, tempo, teoria da relatividade.*

***Resumen***

*El tiempo consiste en un fenómeno que intriga la humanidad y todos los campos de la ciencia, de la cultura y de las artes. El tiempo ha sido teorizado por diferentes vertientes de la psicología social, entre ellas la Teoría de las Representaciones Sociales. En esta, el tiempo acostumbra a ser comprendido como un eje que compone el proceso representacional. Partiendo de esta tesis, tenemos como intensión en este artículo ensayístico adensar las reflexiones acerca del constructo "tiempo" en la Teoría de las Representaciones Sociales. Levantamos una provocación: Al fin, ¿no será el tiempo el señor de todas las representaciones sociales? Para tanto, enfocamos la Teoría de las Representaciones Sociales, conceptuamos los Modelos Toblerone y Rosa de los Vientos, reanudamos a la construcción histórica del tiempo, señalamos para la rotura paradigmática en la comprensión del tiempo en la era digital. Por fin, sugerimos que el tiempo no solo constituye un eje del proceso de construcción de las representaciones sociales, pero puede ser él propio comprendido como una representación social.*

***Palabras-clave**: teoría de las representaciones sociales; tiempo; teoría de la relatividad.*

***Résumé***

*Le temps est un phénomène qui intrigue l'humanité et tous les domaines de la science, de la culture et des arts. Le temps a été théorisé par différentes branches de la psychologie sociale, parmi lesquelles la Théorie des Représentations Sociales. Dans celle-ci, le temps est généralement compris comme l'un des axes qui composent le processus de représentation. Partant de cette thèse, nous visons dans cet article d'essai à approfondir les réflexions sur le concept « temps » dans la Théorie des Représentations Sociales. Nous lançons une provocation : après tout, le temps n'est-il pas le maître de toutes les représentations sociales ? À cette fin, nous abordons la Théorie des Représentations Sociales, conceptualisons les modèles Toblerone et Rose des Vents, nous revenons sur la construction historique du temps, pointons vers la rupture paradigmatique dans la compréhension du temps qui représente la théorie de la relativité, et présentons le temps à l'ère numérique. Enfin, nous suggérons que le temps ne constitue pas seulement un axe du processus de construction des représentations sociales, mais qu'il peut lui-même être compris comme une représentation sociale.*

***Mots-clés:** théorie des représentations sociales, temps, théorie de la relativité.*

Time is an objective phenomenon that is understood in sociocultural relations in a complex and abstract way. We don't know exactly when it became an issue for humans. We recognize that there is a need to produce symbolic understandings for the concrete observation of temporality. From a biological/neurological point of view, it is understood that "unlike vision, there are no organisms that have sensors specialized in capturing temporal information from the external world" (Sampaio, 2016, p. 376), which makes it something strange, difficult to understand. Perhaps the invention of timekeeping, which began more than five thousand years ago when the Egyptians developed the first calendar, derives from this characteristic (Rector, 1994). The creation of calendars and the development of timekeeping strategies have played an important role in people's daily lives in all societies (Levine, 2016).

Since antiquity, a period that began with the invention of writing and ended with the fall of the Roman Empire, the measurement of time was already of great importance for scheduling religious rituals and agricultural events. The most used time intervals were the solar year and the solar day, which corresponded to the space between two consecutive sunsets. Also, the observation of the lunar month, measured from the first day of the crescent moon to the next. This understanding of time was linked to a greater integration with the cycles of nature and the observation of the stars. The Babylonians were possibly the first to use a 60-based measurement system that is aligned with the modern 24-hour system (Levine, 2016).

Among the issues that intrigue humanity, time certainly occupies a prominent place. In the arts and religion, it is a mystery, an entity to be respected. In the popular Brazilian song "Oração ao tempo", Caetano Veloso (1979) recognizes it as "(...) such a beautiful lord. Composer of destinies. Drummer of all rhythms. (...) so inventive. (...) continuous. (...) one of the most beautiful gods. (...)", time as the figure of the Orixá Quitembo (Kitembo/Ndembwa), who governs ancestry and the flows of life.

Time is not usually the subject of reflection in common sense: we simply pass through it, it passes and it passes over us. We experience it almost as if we were fighting a battle against it, which is expressed, for example, in the desire to be

eternal. However, since Antiquity , starting with philosophy, time has been an object of reflection and study. Later on, in Modernity , time became a scientific object for psychology, a field that focused on research into the perception of time, taking into account many elements, such as cognitive development processes, memory and language.

Our aim in this essay is to deepen the reflections on the construct "time" in the field of social psychology, based on two theses developed in the Theory of Social Representations, the Toblerone Model and the Rose of the Winds (Bauer & Gaskell, 1999). The movement in the essay is to raise a provocation: after all, isn't time the master of all social representations?

We will follow two different logics to explore the historical flows of modernity that engender our understanding of time. The first logic takes us back to the construct of time as an objective and linear phenomenon. The second observes that the digitalization of life has put a strain on the linearity of time, suggesting time as a multiple, non-linear, simultaneous and subjective phenomenon, when we will present the Relativistic Theory of Time and its impact on understanding the phenomenon, especially in the digital experience.

To do this, we will look more closely at the concept of social representations, developed in the Theory of Social Representations (TSR) and its possible links with the notion of time. We will work with the hypothesis that time is, in itself, a social representation.

We will be walking on uncertainties, murky, dubious trails when we write our arguments. We are not "masters" of what we write, in the sense of having a consolidated position on this discussion, as has been the case in the field of exact sciences, through the contributions of Albert Einstein. Nor do we associate ourselves with psychologies that are based on experimental studies on the perception of time, even though we recognize the importance of such studies.

## The Notion of Time in TRS: The Toblerone and Rose of the Winds Models

At this point in our writing, we will explore the constitution of the Theory of Social Representations, starting from the recognition of the representational phenomenon as an articulator of social and subjective experiences. In the process, we will try to understand how the authors intersect time with representational processes. We are interested in understanding how time composes, articulates and interacts with the knowledge produced in everyday life by common sense.

Serge Moscovici (1925-2014) is an important current exponent of critical social psychology. He focuses his studies on understanding how individuals and collectivities produce knowledge that has the function of elaborating the behaviors and communication that are established in relationships. For Moscovici, this knowledge can be understood as social representations.

Moscovici recognizes the relevance of Durkheim's concept of collective representations. In this concept, the existence of an organized social thought imposes itself on individuals, which makes the understanding of collective representations rigid, homogeneous and constant over time, as well as separating the social from the individual, with the former imposing itself in a definitive and immutable way on the latter. Due to this rigidity, Moscovici distances himself from Durkheim's sociology, since he attributes to the notion of social representations the fluidity of dynamic and constantly changing psychosocial phenomena, also recognizing the plurality of social representations and their respective diversity within groups. By changing the name, Moscovici gives new meanings to representations, removing the supra-organic nature of collective representations from the concept of social representations. With this in mind, social representations are mobile and plastic. For the author, they are a phenomenon and not just a concept (Moscovici, 2005).

To build the TRS, Moscovici integrates studies on language, perception and human understanding, understanding these phenomena in the interlocution of subjective and social aspects. The founding work of the theory is the book "*La Psychanalise, Son Image et Son Public* ", published in 1961, about the social representation of psychoanalysis in 1950s France. In this study, he sought to understand how specialized knowledge, once debated in social environments, became the object of representation, migrating from the scientific universe to common sense (Moscovici, 2012).

Social representations are an integrated set of knowledge and also a psychic activity that make social and physical reality intelligible (Moscovici, 2012) and almost tangible. They are dynamic and creative, not reproductions or reactions to specific stimuli. Social representations correspond to articulated systems with their own logic, a specific language and a structure based on both values and concepts. They are collectively constructed theories that aim to interpret and construct reality and direct behavior. For this reason, they reverberate in social relationships and are part of a set of actions that modify each other (Moscovici, 2005).

Central to SRT is the mediating aspect attributed to social representations, since the relationship between subject and object (world, society) is always mediated by the intervention of another subject (alter). To illustrate this interactional field, where representation is constituted, Moscovici (2005, 2012) proposes the existence of a relational triangle between Subject-Other-Object , where each of the terms is totally determined by the other two. Thus, it is in the experience in the world and in relation to others that subjects produce themselves subjectively in the same way that they produce the world and other subjects.

Therefore, social representations are a specific form of knowledge (practical knowledge) that connects the subject with the object - through the mediation of other subjects and social structures - thus facilitating the aggregation of the one

who knows with the object itself. In other words, the object produced contains the attributes, thoughts and even feelings of the person who produced it, making the split between subject and object an illusion (Moscovici, 2011).

We can say that representations cross subjects and cross the way they perceive reality and the world. They transform both the world and the subjects in the representational process. Representations are charged with affections and collective meanings, they are in the field of language, memory and the symbolic. The way in which subjects represent delimits their sense of belonging to reality, to social groups and gives identities more or less fluid contours.

An important function of social representations is to turn the diverse and strange into something familiar. To do this, they instrumentalize subjects in such a way as to turn the unusual into something common and the strange into something understandable. They also allow a series of adaptive changes to be made to the structure of knowledge, on the condition that the universe as a whole retains its qualities of consistency - at this point, we wonder about the relevance of time in maintaining the constancy of the universe.

Two processes are used in the process of creating a representation: anchoring and objectification (Moscovici, 2012). Objectification aims to transform something abstract into something concrete, to transfer what is in the mind to what exists in the physical world, to turn the subjective into something objective by externalizing it into the material universe, attributing elements of reality to the forms of thought. This process transforms words and mental images into concrete reality (Moscovici, 2012). In this process, an object that was previously mysterious has been properly broken down, reintegrated, becoming something effectively objective, tangible, coming to seem natural.

In anchoring, subjects try to fix a strange idea, reduce it to common categories and images and place it in a familiar context. This foreign idea is introduced into our system of categories and compared to the paradigm of a category that we consider appropriate, through assimilation. In this case, it is possible to say that anchoring plays an essential role in the creation of representations, since it finds a relationship between little-known ideas and images with those that are already widely known (Moscovici, 2012). In the process of classifying people and objects, we name them and thus begin to imagine and represent them. It is the naming that makes it possible to overcome the disturbing anonymity (unfamiliar) to the known (familiar) (Moscovici, 2005).

Naming is only possible through language, which is always social, that is, shared by a community, a nation. When we name what was unrepresentable, due to its unconscious properties, we enter the field of knowledge, and we only know to the extent that we are aware of ourselves, the world and those around us. Through naming, we can even change the experience of otherness.

Moscovici (2005) points out that anchoring and objectification demand a perception of temporal continuity in the representational process, as they establish a historicity and contextualization for the representation. He recognizes that the memory of the past is more real than the present in the representational field. For the author (Moscovici, 2012), there is a permanence to representation, due to a constant reconstitution of the past that enables groups to remain constant. Social representations reflect an interaction with today's reality through yesterday's, as well as the supposed continuity that this presupposes. Furthermore, the author does not go into explaining how exactly time affects the representational field.

Considering this gap, 20 years after the creation of TRS, Martin Bauer and George Gaskell (1999) incorporated time into the triangular relationship (Subject-Other-Object) described above, thus adding the dimension of project to the representational process. According to the authors' thesis, the inclusion of the dimension of past and future is incorporated to denote the project of explicit or implicit continuity, linking subjects and objects, assuming a temporal linearity in the representational process.

Bauer and Gaskell (1999) set out to define a paradigm, i.e. a typical ideal formulation of basic concepts and methodological implications, for the study of social representations. They go back to Moscovici to note that social representations are composed through communication between Subject-Subject in order to understand objects. Therefore, for them, the Subject-Object relationship cannot be reduced to an individual processing information, as it is always mediated by another individual. The unit of analysis of social representations is always the Subject-Other interaction. The subject of representations is therefore a "we" who has the intention of communicating and understanding reality. But how does this "we" understand the passage of time?

The authors' proposal to understand representations also as a project was something innovative in the discussions established up until then. For them, Subject-Other-Object relations are related to a project that aims for "a future for us", a continuous movement that is also constituted through the anticipation of what the object and people's experience will be in the future. Through the theoretical influence of Maurice Merleau-Ponty, the authors come to understand social representations in movement, guided by a project, a plan or a goal, a search for a common destiny (Bauer & Gaskell, 1999).

In this way, the communicative triangle (Subject-Other-Object) is projected into a given future, like the outline of an elongated triangle that takes the form of a famous Swiss chocolate, which is why Bauer and Gaskell (1999) named their project the Toblerone Model. This model admits the centrality of time in the interaction with the communicative triangle in the constitution of social representations. In this way, time crosses the interaction of the communicative triangle, and is the axis on which the triangle is established.

Returning to the authors' paradigmatic proposal for the study of social representations, when considering the Toblerone Model, they derive seven methodological implications, namely: research should consider the process, structure and functions of representations; compare "natural" social environments rather than statistical strata; trace the evolution of ideas within each medium; consider multiple data streams to map conversations as well as mass media coverage; consider the relevance of longitudinal data to understand the representational process and, finally, adopt the "melancholic attitude"; observe without judgment and intervention, and thus avoid the "iconoclastic" impetus that immediately seeks to debunk common sense. For the authors, TRS thus provides a coherent framework for studying and understanding the mobilization of knowledge in everyday life that draws on various sources, has multiple concerns and involves all subjects in the constitution of common sense (Bauer & Gaskell, 1999).

Although the methodological implications are relevant, the suggestion of the Toblerone Model was recognized as insufficient by Bauer and Gaskell (2008) in a later work. According to them, empirical evidence demonstrated the need to construct various extensions of the model. They went on to conceive of representation as a function of various arguments such as the environment and context, in this way representation would correspond to the articulation between subject, object, project, time, environment, intergroup context, among others.

Bauer and Gaskell (2008) maintain the centrality of the subject as a conscious collective that integrates in the intentional construction of a common project, but understand that the Toblerone Model needs to be modified in order to allow the communication triangle to be extended to the context of intergroup dynamics. Through the impact that Bruno Latour's theory has had on the authors' understanding, they propose that social representations are formed in relation to other communities, in power dynamics, in order to resist or dominate. Thus, the Toblerone Model is modified by the authors into the form of a Rose of the Winds. In this way, social representations are subject to the centripetal intentionality of different communities, in relation to the construction of a common referent, oriented in time (Bauer & Gaskell, 2008).

The modification of the original Toblerone Model to the Wind Rose Model points, according to Bauer and Gaskell (2008), to the ability of SRT to integrate other theories, in this case, intergroup behavior. Thus, the synthetic power of the theory makes it possible to link new concepts in understanding the world.

The models proposed by Bauer and Gaskell (1999, 2008) articulate temporal dynamics with representational phenomena, complementing the TRS with the perspective of a project. This articulation is in line with the modern understanding of time, in its linearity, by suggesting that time corresponds to a vector that crosses the communicational triangle (I - Other - Object), indicating a perception of continuity and linearity in projects that may be subject to the force of interactions between different groups.

## The Construction of the Understanding of Time in Modernity

At this point in our writing, we will try to make a brief historical reconstruction of time, taking up the process of counting the physical property of time, materialized by the spread of clocks associated with the process of industrialization of society. We will look at how counting and the concept of time are constituted, enabling common sense to manage life by means of clocks.

Let's start our walk by thinking about the act of measuring, as it is linked to the basic processes of existence: we observe the movement of the Earth in relation to the position of the sun in order to know when it will be night, we measure distances to be traveled, etc. Measurement is considered to be an experiment in which the momentary value of a physical quantity is determined, since the measurement system is not totally precise and there are indeterminacies in relation to the measurand. In this way, both the measurement system and the quantity to be measured change over time and behave in different ways with each measurement carried out. The physical quantity can be a fraction, a multiple, or both, of a unit established by a standard. Therefore, for the fundamentals of scientific metrology, time is considered a physical quantity (Albertazzi & Souza, 2017).

The need to count and standardize the perception of time through numbers, which was associated with the increase in the complexity of language, led humanity to apply a series of measurement standards. With the advent of industrialization, there was a need to use stable and universal references. With this, the second was established as the basic unit of time in the International System of Units (Albertazzi & Souza, 2017).

The scientific definition of time includes the description of the second as the duration of 9,192,631,770 periods of radiation, corresponding to the transition between the two hyperfine levels of the fundamental state of the Cesium 133 atom (Albertazzi & Souza, 2017). We can say that time, as an objective phenomenon, becomes subjectively understood when common sense incorporates the construct "second" into its language and assigns social and subjective meanings to this transition: "life passes in a second", "just give me a second", "I ran for two hours and ten seconds".

The International System of Units also accepts the day, hour and minute as possible units to be used in specific areas, with the day corresponding to 24 hours, the hour equivalent to 3600 seconds and the minute analogous to 60 seconds (Albertazzi & Souza, 2017). But how was this structure for measuring time established? How did we incorporate clocks into our daily lives and start organizing our tasks into hours and days?

Before the assignment of seconds and the creation of clocks, various instruments were used to measure time. These devices calculated time by means of the flow of water or sand in glass (Rector, 1994).

In the commercial cities of Europe, at the dawn of the 13th century, church bells, which had only marked religious services, also began to mark working hours. As a result, the way in which time was observed in villages changed as the role of paid employment gained prominence. The changes began first with the ringing of bells, then with one-handed clocks and, from the 14th century onwards, with clocks that marked hours and minutes (Brito, 2016). Before the industrialization process, time had a more qualitative character, guided by activities, life cycles and religious rituals. With the establishment of industries, time began to control work through the performance of tasks (Aquino, 2008).

Clocks were built as temples. From donations and in the 14th and 15th centuries, it was possible to develop more precise mechanical clocks (Brito, 2016). This dissemination of the clock occurred with its popularization and was essential to the industrialization process, since massive, synchronized work would only work if tasks were carried out from start to finish at a timed pace (Fabro, 2017).

The need to organize work and daily school life led to the widespread personal use of the clock. This new way of disciplining the worker brought a series of protests and resistance, since the measurement of time, before the clock, was related to domestic activities and the cycles of family crafts and religious rituals. There was no precise calculation of time, so work took place according to demand and food was even eaten when the family was hungry, because societies were organized and guided by events in nature (Fabro, 2017) .

We can say that the development of scientific instruments for measuring time became widespread and established a constancy and linearity for the representation of all the flows of life: food, rest and work became a function of time. Time was objectified in the form of the clock. At the time, clocks were similar as objects to *pince-nez*. While the latter made it possible to accurately perceive vision, the former increased the perception of time.

In short, time - which in pre-industrial revolution society was a sacred time, centralized in religious activities, with community habits gravitating around it with the advent of capitalism (and intensification of the industrial revolution) - began to have work as something central, through the synchronization of tasks, acquiring currency status, having value for the market (Fabro, 2017). As a result, the control of time began to discipline bodies, understanding that awareness of time is part of the formation of the social being and the education of subjects . In this way, time, as a representation, starts to coerce subjects, introjecting their understanding. Nowadays, as a child, marking the minutes helps to build self-discipline.

The market economy needs linearity in people's behavior, including the time they wake up, and cannot depend on the sunrise (Fabro, 2017). In this way, the experience of modern time, which follows the pattern of the turning of the clock hand - in which after midnight the end of the day and the beginning of the next is defined - is no longer traced by sunrise, as in ancient societies, and comes to mean "another day" and not "the day again", which marks the passage of days in a linear way and establishes the notion of the past (Brito, 2016).

Time associated with the discipline of its use throughout life came to be socialized by common sense. The representation of time acquired innovative elements with the process of industrialization and, as such, produced new social meanings as it incorporated the meanings produced by the scientific model. Time began to define behavior and the way people communicate, and physical reality gained tangible elements for social understanding.

## The Relativistic Theory of Time

The publicization and popularization of the Relativistic Theory of Time has changed the social understanding of the linearity of time. With this in mind, we propose a synthetic understanding of Albert Einstein's theory.

Albert Einstein, a German theoretical physicist, founded the Theory of General Relativity and revolutionized the understanding of space and time. This is because the theory proposes that there is an intertwining between the variables of space and time, and that the time interval between events depends on the distance that separates them, and vice versa. This implies that the flow of time is adjustable, as relative movement changes the speed with which time passes. In this way, time does not pass at a fixed rate, as it is not marked by a mechanical regularity, since there is no kind of master clock controlling the universe (Halliday et al., 2023) .

The Theory of General Relativity has two distinct components: restricted relativity, which applies only to inertial references in which Newton's laws are valid. Created in 1905 by Albert Einstein, the Theory of General Relativity established itself as a new framework for coherently describing physical phenomena involving speeds close to that of light; general relativity is a theory of gravitation that replaces the one expressed by Newton, in which referentials can undergo gravitational acceleration (Tipler, 2019).

By imposing the universality of the speed of light, restricted relativity leads to a profoundly modified description of all physics, founds the notion of (interconnected) space-time and establishes a link between energy and mass. Restricted relativity also makes the speed of light (in a vacuum) an invariable quantity, which remains unchanged regardless of the

observer's position. Concepts such as the simultaneity of two events or the length of an object become relative to inertial reference systems (Tipler, 2019).

According to Einstein, the notion of time, based only on human experiences, would possibly appear to be distorted from the observation of bodies moving at the speed of light, because in our universe, bodies gain mass as their trajectory speed increases. Thus, close to the speed of light, the object's mass would be infinite (Tipler, 2019).

The time analysis of these fast-moving bodies will probably distort the subjects' usual conception. This is because, in relativistic mechanics, the distance between two points and the time interval between two events depend on the reference frame in which they are measured (Jewett & Serway, 2019; Tipler, 2019).

Simultaneity is not an absolute concept; on the contrary, it depends on the state of the observer's movement and their identification in order to determine the proper time. The proper time interval between two events is that measured by an observer for whom the two events occur in the same position. This results in time dilation, in which the time interval measured by an observer moving in relation to a clock is greater than that measured by another at rest in relation to the same clock (Jewett & Serway, 2019; Tipler, 2019).

Einstein's first postulate, for the Theory of General Relativity, states that the laws of nature have the same form for observers in any reference frame, accelerated or not, due to the principle of equivalence, since it is not possible to differentiate the point of view of an observer in motion and a stationary observer, even in appropriate gravitational fields. In the second postulate, a gravitational field is equivalent to an accelerated reference frame in space, in the vicinity of any point, because time is altered by the gravitational field (Jewett & Serway, 2019; Tipler, 2019).

For Einstein (in texts organized by Stachel, 2008), the gravitational force does not exist. Since the presence of a mass causes a curvature of space-time and around this massive body, the curvature it causes establishes the path in space-time that all freely moving bodies have to follow, so the perception of time will be different to the observer.

In other words, with the Theory of Relativity, Einstein (in Stachel, 2008) demonstrated that physical phenomena occur differently for observers moving at constant relative speeds and that the speed of light is the same for all observers. It also replaces Newton's independent concepts of space and time with the idea of space-time as a unified geometric entity. In practical terms, this theory indicates that events that occur simultaneously for one observer can be asynchronous, or non-linear, for another.

All of these aspects indicate that relativistic theory changed the understanding of time, largely developed by classical mechanics, which was now applied to specific cases of mass with low speed and average size. Einstein demonstrated that, according to physical models, time does not occur in the same way for everyone when considering the speed of light. Thus, the time reference of the physical sciences has gradually managed to emancipate itself from a monological conception to a multifaceted conception that is more capable of allowing broad observation of the complex phenomena studied. However, the times of the physical sciences, like those of astronomy, remain, whatever their purpose, as times for measuring natural phenomena.

When we think about human phenomena, the linearity of time seems unquestionable in people's experiences. However, if we look at our experience of assimilating time, we realize that understanding the passage of time is social and subjective.

In view of the Theory of General Relativity, we can think about how the TRS can contribute to understanding the representations of time produced socially as a result of this paradigmatic break. In addition, the widespread use of technologies and the experience of a cyber-time have disrupted the representations of linear time established with the Industrial Revolution.

## The Digital Experience: Disembodying Representations of Time

Digitalization in everyday life has also changed our understanding of time. Technological progress has made it possible to implement computer networks and the internet protocol. The process of inserting users into the network has given rise to a new culture and a new industry, both permeated by digital time. In this way, the computerized society presupposes an infinite amount of accessible data and determines the human incapacity to encompass, retain and elaborate on all the information available (Kanan & Arruda, 2013).

Cybertime is part of cyberspace and constitutes all the knowledge and information of various kinds recorded on computers located all over the world, which communicate through computer language. Thus, by extension, we can consult these records and interact with them at any time and in any place, thanks to the means of communication of the internet network, mobile telephony, among others.

The internet enables a new cyberspace and cybertemporal dimension, characterized by extraterritoriality, through collective communication in virtual environments, by means of fluid social ties (Oliveira, 2017). In addition, with the changes impacting on capital's production processes and the repercussions on the work system, we can see the inconstancy that is characteristic of this phenomenon (Kanan & Arruda, 2013). In this way, communication and interaction no longer depend on the time predetermined by factory clocks or the speed of information and transportation traffic (Kanan & Arruda, 2013; Oliveira, 2017).

In this way, we can infer that the use of technologies associated with the internet has incorporated new dynamics of interaction and perception of time, as well as establishing a digital culture. Studies show that the use of technologies such

as *smartphones* has produced changes in human cognition, generating alterations in memory and attention, as well as changes in temporal perception (Castellon et al., 2021; Wilmer et al., 2017).

Digital culture has produced transformations in our language through the configuration of hypertext and multimedia. Hypertext means that text is produced and reproduced across electronic screens. It is no longer linear as is common in printed language, but is fragmented in a multidimensional way that allows it to be directed to other texts and associated with images and sounds (Santaella & Gabriel, 2019).

The hypertext reader is not a receiver of the text, but a co-author, as digital culture breaks down the patterns of sender and receiver of communication. This is because hypertext reading is interactive and the interlocutors are constantly acting in informational transit (Santaella & Gabriel, 2019).

This information traffic is marked by a heterogeneous, decentralized and fluid culture. Everyone can connect via technological devices with internet access. In this context, it is computer technologies, through digital media, that are mediating our professional and personal relationships and our broader sense of social life (Santaella & Gabriel, 2019).

Since the Industrial Revolution, there has been an increase in the individualization of time, with a personalization of values and norms, from which comes the notion that it is the subjects who are responsible for the use of their time (Aquino, 2008). With increased access to technologies, there is a greater individualization of time, which means that work, study and leisure time are interconnected as they are mediated by technology platforms. This is because people are constantly connected to the information available on the internet. In this way, there is no prospect of periods coming to an end and the subject does not find space to accomplish everything that is their duty or possibility (Kanan & Arruda, 2013). In other words, the new technologies have enabled an overlapping of temporality which has triggered an interposition of activities.

There are no specific sensory organs capable of characterizing the passage of time in humans; understanding time stems from the construction of a representation that links perceptual and cognitive processes into an abstraction that enables us to attribute coherence to events (Matthews & Meck, 2016). The fast-paced dynamics of the internet have demanded an acceleration of the collective perception of time, in order to maintain coherence, by incorporating the uses of technologies.

The internet evokes a different perception of time, highlighting the relevance of the moment, signaling that the immaterial notion of time is crossed by the burden of affections and meanings attributed to it. Internet time is fluid, connected to a fickle cyberspace, allowing for the non-absolute simultaneity of events.

When we think about the organization of posts on the internet, the present tense appears before the past tense. It's not uncommon to read news of the resolution of a conflict before we've even had access to its origin. The agility with which information is posted, reposted, commented on and shared challenges the linearity of our perception of time.

## Time as a Social Representation

Although we agree with Bauer and Gaskell's (1999, 2008) important contribution to understanding time, we propose to think of time also as a social representation. Given that its understanding occurs in the articulation between the social and the subjective, it conditions the reified understandings that are disseminated and reinterpreted by common sense. As such, time corresponds to a social representation that has its meanings produced in the communicative triangle, through the construction of knowledge that is shared and reinvented in social relations, at the same time as it is subjectively internalized.

When we are born, we are introduced to it, we share its references of continuity and constancy with our social group, we learn to look at the clock and predict its passage. But what if we were introduced to another notion of time? Couldn't the inconstancies and simultaneities of time be removed from our perception by the imposition with which the social representation of time connects us to reality?

Following Einsteinian epistemology, if "several theoretical systems are in a position to link the same factual data" (Paty, 2008, p. 133), as the Toblerone Model proposal does, the "only criterion that allows one to be adopted in preference to another is the intuitive gaze of the researcher" (Paty, 2008, p. 133). Thus, in order to think about time, our preference is for a TRS dialog that considers the paradigmatic rupture represented by the Theory of General Relativity.

Moscovici (2005) points out that representations are constituted in social environments that allow a certain level of autonomy, as well as requiring a certain level of conditioning. Human communication and the production of knowledge that impacts on the behavior of groups are constituted in accordance with and in tension with these levels of conditioning. In this way, we can say that social representations also play an imposing role in understanding reality. They always require an insertion within a previous, pre-established framework.

For Moscovici (2005), representations have two main functions: firstly, they conventionalize objects, people or events, and to do this they give them form, categorize them and group them into models shared by a group of people. Secondly, representations present themselves as regulations, imposing themselves on us and determining our perception of reality.

With this in mind, our hypothesis is based on the observation that time is understood in the interaction between subjects, which carries meanings established throughout history that are integrated and shared by the group to which the subjects belong. In addition, the scientific propositions developed about time are elaborated and re-signified by common sense,

which attributes new meanings to time, integrating them with meanings already established. Thus, the social understanding of time is shared as a natural, constant and unquestionable fact, which imposes itself on the lives of all members of society. Thus, it is precisely through naturalization that something becomes a representation. It's not enough to anchor and objectify: it has to become intrinsic to human nature. There is a sense of automaticity to the phenomenon of time.

Returning to the historical elements previously presented, we can see that the demand to calculate the occurrence of the phenomena of the passing of the sun, the seasons and biological aging processes arose in prehistoric communities. The notion of time is attributed to these phenomena and it is calculated in order to organize religious rituals and agricultural events.

Here we can see the basis of a process of objectification, when an unfamiliar event is selected and observed, it becomes referenced in its constancy and is depicted in images of sundials and rustic calendars. Finally, it is naturalized and its course is associated with all the cycles of life observed by common sense, and the observation of this phenomenon is called time. In this way, in order to elaborate our reflection, we simplify the process of constituting the social representation of time present in pre-industrial cultures.

The social representation of time present in pre-industrial cultures underwent changes with the advent of industrialization. At this time, common sense incorporated the notion of time into the scientific definitions of the Modern Era (where Newtonian physics was located), time acquired new characteristics of rigidity and linearity that came to be observed, it was objectified in the figure of the mechanical clocks that became popular, although the name was the same, its naturalization operated through the anchoring of time as money, a monetary value.

The present day has presented us with new possibilities for understanding time, such as Einstein's own Theory of Relativity. Although our social representation of time carries many elements of its origins in the Industrial Revolution, the absorption by common sense of Einstein's postulates, as well as the process of broad access to digital media, has demanded a dynamic and fluid understanding of time. A time that is cyber-time, virtual, digital and sequential.

We return to these aspects in order to present new possibilities for understanding the Toblerone Model and the Rose of the Winds Model. Time can be one of the axes of the representational field, but it can also be a social representation itself, subject to the processes of understanding, language and collective and subjective assimilations. In this way, we can think that understanding the passage of time is associated with the process of becoming aware of sharing a representation that is socialized. Linear time is thus constituted as consciousness through language and culture.

Finally, it is possible that our ability to perceive time is directed by the social representation of linear, constant and sequential time. Although we may have elements that encourage us to understand time as inconstant and simultaneous, the social and subjective need for continuity restricts our perception to looking to physical data to confirm the symbolic elements that construct the concept of time. Access to digital technologies is putting a strain on this representation, providing us with elements for the production of new social knowledge about time.

## Conclusions

To write this essay, we started from the provocation that time is the master of all social representations. With the aim of unsettling understandings of the construct of time, we sought to deepen reflections on it in the field of social psychology, starting from two theses developed in the TRS, that of Toblerone and the Rose of the Winds.

We began our writing by exploring the concept and phenomenon of social representations, the fact that they are constituted through an articulation that is social and subjective and takes place in the communicative triangle (Subject-Other-Object). We also present the Toblerone and Rose of the Winds Models, which propose an understanding of time as a project axis in the representational field.

We then reviewed the different ways of understanding time. We return to the historicity of the understanding of time, going through the pre-industrial processes of observing time associated with the phenomena of nature until the Industrial Revolution, when modern time was established as an imposer of the routine of repetitions of work and standardization of lives. With the advent of mechanical clocks, time disciplines bodies and integrates the formation of the social being and education of subjects. Time is established in the constancy of seconds and in the destiny of the sequentiality of time.

Einstein's Theory of Relativity represents a scientific paradigm shift in the understanding of time. It made it possible for divergent and complementary theories to exist in the field of physics. In addition, the Theory of Relativity presented the possibility that events that occur simultaneously for one observer can be asynchronous for another, depending on the speed with which they move. By thinking about the break in the understanding of the linearity of time, we propose to reflect on how humans come to represent time also under the effect of this new paradigm, in other words, how common sense is articulated in the understanding of this new perspective on time.

To corroborate our reflections on understanding this new perspective on time, we can see that the linearity of time perception is being disrupted in digital culture through the establishment of a cyber-time. The internet, connectivity, fluidity and the vastness of digital data have demanded new understandings of time. These are associated with transformations in language, through the configuration of hypertext and multimedia. Text is now fragmented in a multidimensional way,

allowing it to be directed to other texts and associated with images and sounds. The dynamics of cybertime evoke another dimension of time: the relevance of the moment.

In view of the resumption of the articulation of time as an axis in the representational process, as proposed in the Toblerone and Rose of the Winds Models, we suggest a complementary proposal: time understood as a social representation that has its meanings produced in social relations and is subjectively internalized. Throughout history, time has gone through the processes of anchoring and objectification, being observed as a strange phenomenon that is selected, figured, naturalized and named. As shared knowledge, it imposes itself on our way of understanding the world, living the world and even experiencing our body (reity) - an issue that still deserves attention in future reflections.

That said, the observation and relativization of time permeate the social fabric and are experienced in human societies. While the Theory of General Relativity revolutionizes our understanding of space and time, cyberspace transforms the temporal experience of contemporary society, promoting new social representations. Digital memory in this cyberspace relativizes space and time, accelerating the dissemination of information through a global web that connects humans from different time zones. This time, which seems globally connected, creates layers of overlapping routines and schedules, resembling a curvature of space-time, as if there were a force of gravity in digital footprints.

But as a social representation, time doesn't impose itself without leaving gaps for our creativity, for a dynamic interaction that makes new understandings possible. Whether in Einstein's Theory of Relativity, in cybertime or in cultural expressions, to paraphrase the composer Caetano, our understanding of time can be inventive. After all, time is what makes up destinies, it is the instrument of all rhythms.

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