Miriam Mariani

# Designing Complexity: Organizing Uncertainty through the Visualization of Non-Linear Processes

*Quasi-systems / Modelling / Language*

The awareness of the complex nature of society and its processes (social, cultural, educational, economic), and the inevitable reflection on the mutation that invests every scientific field, also involves the discipline of Design, which by its very nature is transversal in the issues it deals with, embracing a plurality of objectives, as well as processes and tools, sometimes specifically its own, sometimes sharing those of other disciplines. Design is therefore faced with new interpretative and planning challenges, and more deeply with reinterpreting and updating its methods and tools to adapt them to the contexts in which it operates.

«Can we design complexity? Is complexity not, literally, undesignable?» (Le Moigne, 2007, p. 60). Jean Louis Le Moigne's seemingly paradoxical question poses the main issue that links Design to Complexity Science, namely the issue of complex design. Given the interconnected and intertwined nature of design and communication, as well as the large number of sources from which data comes, it is necessary to consider the multiple variables that come into play in a process of data collection and information interpretation. Since logical openness is the necessary conceptual condition for complexity to take place, we can state that the fundamental characteristic of a complex system is its conceptual uncertainty and incompleteness, also referred to as "quasiness". A quasi-system is, in fact, a system that is chronically incomplete, non-procedural and non-linear (Minati, 2021), where the impossibility of acting according to procedures obliges one to approach the complex through strategies, models and theories that are compatible with the observed phenomenon or system. Unlike the "closed" systems typical of classical physics and empirical disciplines such as natural sciences, the processes that characterise complex systems cannot be described by a single formal model.

The need, in fact, to keep a complex system such as the design system open, while maintaining its definition and scientific nature, places the emphasis on how to organise and structure a dynamic and flexible design model that deals with the uncertainty, variability and disorder of the complexity of contemporary phenomena.

Together with the theme of uncertainty in the design of open systems, this contribution aims to explore the concept of abduction as a cognitive modality proper to the systemic approach and the designer who implements it. In this regard, Giorgio Giallocosta identifies abduction as a cognitive modality proper to a systemic approach: «The challenges to understanding - and managing - the phenomenologies of the contemporary era pose the need for new cognitive models, to be made available through reformulations and/or refinements of subsisting logical tools, and capable - at the same time - of adductions and simplifications of further levels and characters of complexity» (Giallocosta, 2006, p. 34). With "adductions", Giallocosta gives this particular cognitive mode the meaning of a "hypothetical model of relations" (Dorst, 2015) "not logically determined" as a speculative design (Pierce in Cross, 2006); and with "simplifications" he introduces the need to interpret and manage the rules of operation of complex scenarios that are constantly evolving. Giallocosta, in fact, cites Ernst von Glasersfeld's radical constructivism and reminds us that the rules of complexity itself, which we observe as "external", are actually generated by our experience and conceptualisation activity.

According to Second Order Cybernetics (Von Foerster, 1981), the organisational operation places the observer, known as the modeller, at the centre of the complex system, as the interpreter of the aforementioned complexity and the processor of dynamic and interconnected models (themselves complex) that enable their intelligibility. Le Moigne again specifies (and reassures): «The observation is familiar: many phenomena initially perceived as complex (almost unintelligible or not correctly represented) seem to suddenly become intelligible as soon as modellers change code to describe them [...]. As soon as or as soon as we describe them by means of that new, purely conceptual code (or language), it seems possible to consider intelligible, even simple, that phenomenon which yesterday was inextricably complex [...]. If constructed, the most inextricable complexity becomes literally designable» (Le Moigne, 2007, p. 65). This last statement is very important: the encoding of a language renders apparently unintelligible phenomena and concepts intelligible. Similarly, in information mapping (Information Design), the person who collects, interprets and re-processes data becomes part of the communication system itself through the encoding of a language (thus encoding a communication model).

Considering, in fact, the role of the observer-designer as a modeller (at the same time an observing system and part of the observed system) it is, therefore, possible to read again the information design process in terms of a complex process and to make some considerations on its modelling. Quoting Le Moigne again: «Such a renewed design of complexity leads to [...] questioning the very processes of design (Design) of an allegedly complex model» (Le Moigne, 2007, p. 74), in this contribution we intend to reflect on the concepts of quasiness and complex modelling applied to design, in particular on the link between the organisation of complexity and Information Design.

*References*

- Cross, N. (2006). Designerly Ways of Knowing, London: Springer-Verlag Limited
- Dorst, K. (2015). Frame innovation: Create new thinking by design, Cambridge: MIT Press.
- Giallocosta, G. (2006). La concezione sistemica in architettura: esperienze e contributi fondativi di area tecnologica. In Di Battista, V., Giallocosta, G. & Minati, G. (eds). Architettura e Approccio Sistemico, Milano: Polimetrica, pp. 27-35
- Le Moigne, J.L. (2007). Progettazione della complessità e complessità della progettazione. In Bocchi, G. e Ceruti, M. (eds.), La sfida della complessità, Milano: Bruno Mondadori, pp. 60-78
- Minati, G. (2021). Parole di Sistemica, Quaderni dell'AIEMS, n. 1, 2021
- Von Foerster, H. (1981). Observing Systems, Seaside Calif: Intersystems Publications

---

Gonzalo Morales

## Rationalism and cartoonism in post-war Chilean infographics

*Infographics / Post-war / Chile / History / Rationalism*

This monograph exhibits part of the results of a long-standing research on the history of infographics in Chile. Its corpus is composed of images extracted from printed graphic supports, such as brochures, books and newspapers, among others. These publications were qualitatively analyzed and complemented with the

study of bibliographic sources and interviews with experts on the subject. The main objectives of this research are to help think about the influence of the sociopolitical context on the graphic development of a territory, as well as to initiate a dialogue with other local histories, many of which have not yet been documented. In the same way, this work offers a cadastre of visual references that are part of the material culture of a historical moment that hasn't gone through enough systematized record.

More specifically, this part of the research focuses on the period between 1945 and 1960, known internationally as the early postwar period. Although Chile did not actively participate in the armed conflict, it was equally affected by it in multiple dimensions. During those years, the teaching of design was not part of the curricula of any local university. For this reason, the graphic panorama was defined mainly by two aesthetic currents that had started to develop in the previous decades and that, in a certain sense, represented diametrically opposed values.

The first of these styles was conceived under the principles of incipient modern architecture, which, in Chile, had begun to revolutionize the discipline since the 1930s thanks to the influence of a generation of professionals who, by separate paths, had had the opportunity to get formal training in Europe, in the heart of the movement (Aguirre, 2008, p. 14). During the years following their return to their homeland, these same people were responsible for the proliferation of academic journals with an evident rationalist inspiration. After a short time, the mechanistic aesthetics inherited from the Bauhaus crossed the frontiers of architecture and found their place in publications on a wide variety of subjects, present above all in the use of statistical charts. Its transcendence can be explained to a great extent by the scarce offer of careers that provided training in drawing in a modern sense.

On the other hand, the so-called "good neighbor policy", enacted in 1933, was a set of official measures from the United States government that encouraged cultural interventionism in Latin American nations as a political strategy (Purcell, 2010, p. 491). In this context, it did not take long for the first comic magazines starring Walt Disney characters to arrive in Chile, which began to be marketed during the same decade. Shortly thereafter, in 1941, Disney himself and his team traveled to the country, a visit that caused excitement and a stir in the press of the time. The studio's influence permeated the local entertainment industry, to the point that several of its most recognizable visual codes began to be seen in graphic assets of different kinds, mainly in the advertising field.

Thus, both the aseptic, functionalist and anti-historicist graphics of European origin and the expressive and popular aesthetics of American tradition coexisted in the visual culture of Chilean infographics in the immediate post-war period. Although at the beginning both languages were intuitively used for independent purposes, the international political scenario brought about the emergence of new themes of public interest, some of which lent themselves to experimentation and syncretism. On the one hand, the main institutions devoted to industrial development, such as CORFO (Corporación de Fomento de la Producción) and SOFOFA (Sociedad de Fomento Fabril), proud of their performance in times of international crisis, invested a good part of their resources in communicating the results of their work through printed memoirs. In a similar vein, a type of cartographic representation that emphasizes the abundance and variety that each region boasts in terms of raw materials started becoming popular. This map logic, in which each zone exhibits something that characterizes it, was also used in the nascent tourism industry, at a time when paid vacations had little more than a decade of being recognized by law (Cortés, 2014, p. 20).

Another type of printed material that abounded during this period were the instructional design manuals for the correct use of household appliances and merchandise that emerged in an unprecedented way in the local market. Pressure cookers, electric washing machines and garbage disposers are just a few examples of the kind of unprecedented appliances that required the elaboration of didactic explanations for a more effective business positioning.

Other popular themes that gave life to the infographics of the time were, of course, military exploits and military culture, however, none of them allowed the confluence of the rationalist and cartoonish graphic styles in the same way that the statistical memories, resource maps and user manuals did during the period between 1945 and 1950 in Chile.

*References*

- Aguirre G., M. (2008). Para una historia de la difusa arquitectura moderna en Chile. Revista De Arquitectura, 14(17), 12–17. https://doi.org/10.5354/0719-5427.2008.28174
- Cortés, M. (2014). Turismo y arquitectura moderna en Chile: guías y revistas en la construcción de destinos turísticos (1933-1962). ARQ Eds.
- Purcell, F. (2010). CINE, PROPAGANDA Y EL MUNDO DE DISNEY EN CHILE DURANTE LA SEGUNDA GUERRA MUNDIAL. Historia (Santiago), 43(2), 487-522. https://dx.doi.org/10.4067/S0717-71942010000200005

Stuart Medley

## Third-person Second: a narratological explanation of an infographic

*Infographic / third-person / second-person / narratology / visual narrative / comics contracts / service design / complexity*

This paper focuses on an infographic which depicts a service design for homeless people. The infographic is discussed in narratological terms, with a focus on third and second-person characters, audience identification with characters, and the temporal, story-telling aspects of visual timelines. The infographic in focus, called No Wrong Door, is emblematic of an approach taken by the service designer and illustrator to communicate clearly and as simply as possible a complex service system aimed at multiple audiences.

The client, a consortium of government agencies and NGOs, required that the information about the service be highly accessible to and clearly understood by their intended audiences. A timeline as a hybrid set of visual narratives was developed as an infographic. While the infographic was created with a reliance on the tacit knowledge of the service designer and illustrator, a means was sought to retro-actively explain how the visual narratives contained within it were intended and how they should be received. The need for making the tacit explicit was to communicate the strategy to the client funding the service. That explanation is recapitulated in this paper describing how No Wrong Door reveals the complexity of the service design.

In the SECI model (Nonaki, 1994; de Castro Peixoto et al, 2022) tacit knowledge is made explicit through an "externalisation" process. The most appropriate way of externalising our design process, given that the infographic has a temporal dimension as well as clearly depicted personas (or characters), was to see the work through the theoretical lens of narratology. Through this lens, the No Wrong Door infographic is a mix of telling (the text) and showing (the pictures and a beholder's control of reading direction) (Weber, 2020) of the multiple timeline tracks.

Furthermore, narratology is appropriate in explaining how the infographic embodies a complex blurring between third and second person. We wanted particular audiences to identify with particular characters, to understand that "this is a

service for you", and to heed a call to action.

Narratologist, Monika Fludernik, uses Italo Calvino's "If on a winter's night a traveller" as an example of second person narrative that evolves into a third person form (2009, p31). In our design we go in the other direction: At first glance, the beholder of the timelines may assume these are third persons, objectified on the page through depiction. Upon closer inspection, as the beholder becomes also a reader, it becomes clear that at least one of these characters is more closely aligned with the reader's position and subjective view of the world. While the text may initially support the view that the characters are third persons (an extra-diegetic narrator in the text is describing the emotional states of two of the characters), we offer enough information for the reader to identify with a specific character (Tal-Or & Cohen, 2010; Chen & Bell, 2022) and to begin to understand that this service is offered to them: an implied 'you' in the info-graphic.

We explain how our approach is a point along a continuum, at the extreme of which lies the comics contract. Lawyer, Robert de Rooy, summarizes comics contracts as 'contracts written in pictures': legally binding contracts where parties are represented by drawn characters; terms of the agreement are shown in sequential pictures; and parties to the agreement sign the comic. In the case of the comics contracts, the third person object must be inferred as a second person subject; subject to the terms of the agreement. This understanding will ultimately be legally binding.

Understanding the narratological aspects of a particular design may be of use to other designers and design academics, especially where an implied second person is necessary to the understanding of infographics which have a call to action or a legally binding implication.

*References*

- Chen, M., & Bell, R. A. (2022). A meta-analysis of the impact of point of view on narrative processing and persuasion in health messaging. Psychology & Health, 37(5), 545-562.
- de Castro Peixoto, L., Barbosa, R. R., & de Faria, A. F. (2022). Management of regional knowledge: knowledge flows among university, industry, and government. Journal of the Knowledge Economy, 13(1), 92-110.
- Fludernik, M. (2009). An introduction to narratology. Routledge.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. Organization science, 5(1), 14-37.

- Tal-Or, N., & Cohen, J. (2010). Understanding audience involvement: Conceptualizing and manipulating identification and transportation. Poetics, 38(4), 402-418.
- Weber, W. (2020). Exploring narrativity in data visualization in journalism. Data visualization in society, 295-311.