

Topological Perspective – The Concept

Manuel Couceiro
Faculdade de Arquitectura
Universidade Técnica de Lisboa
Rua Prof. Cid dos Santos, Polo Universitário, Alto da Ajuda
1349-055 Lisboa, PORTUGAL
E-mail: m.coucy@ip.pt

Abstract

Linear Perspective became, from the moment it was reinvented, organized and structured during Renaissance, as the most powerful and efficient graphic instrument to express tridimensionality. Since then, a long path has been ranged over, during which *representation*, as close to visual human images as possible, what was the first and only goal of Linear Perspective corresponding to a development of its own theory, went through different stages – those brought flexibility to some of its initial postulates, which restricted it but, more important, reached *new goals*, going much further than the limits of a mere graphic technique and becoming an *instrument of the conceptual process* or even, a *way of thinking*, in the field of architecture, urbanism or design in general, where the potential for the use of its geometric structure is optimized [1].

In fact, the visual strength of Linear Perspective, comes from the possibility of relating the places of the observer and of the objects, function of the aim of the author and also because the geometric structure of the drawings in perspective, which induce a psychological effect of scale (Fig.1), what doesn't happen with any other projection system – these effects are concerned with *convergence*, or, in other words, with the existence of *vanishing points and lines*, as main elements for the visual understanding of the orientation or directional guidance of straight lines and planes [2].

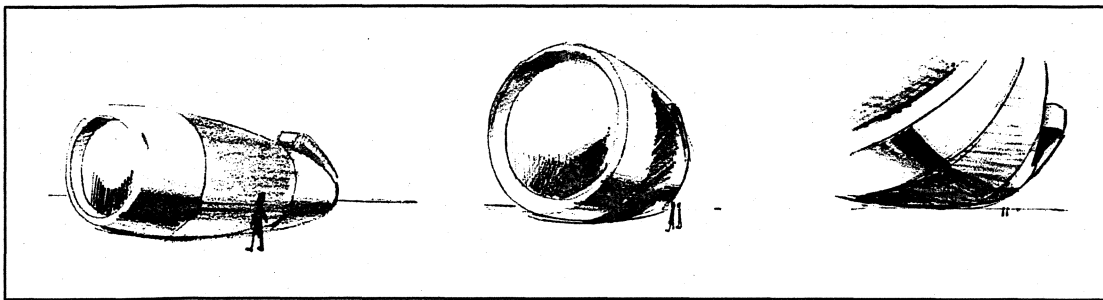


Figure 1:

Trying to go further, using the power of vanishing points and lines, allowing a greater flexibility of the visual field and of the form of the images that we can achieve, we come to *Topological Perspective*, the name we choose to identify a *concept* that we characterize and define over the following postulates and principles:

- Topological Perspective has two main goals:
 - to promote and improve the flexibility of the use of Linear Perspective, exploring its own topological graphic structure and so allowing implicit changeable levels of geometric rigorousness

- to optimize the use of Perspective, as a conceptual instrument and/or operative scale, in projectual (architecture, urbanism, design...) and artistic activities, through the synthesis intuition/geometric systematization and simplification [1].
- o the geometric mechanisms of Topological Perspective:
 - are characterized by corresponding to those of a *stretched out Linear Perspective*, which incorporates several discoveries, since the appearance of Renaissance Perspective until now, establishing a graphic referential that includes the observer, or in other words a center of projection at a finite distance, and a picture surface, plane or curve, in this case cylindrical [3] or spherical [4], what allows a greater flexibility of the visual field
 - are intended to systematize and make easier the drawing of perspective, starting from difference levels of knowledge of the forms and positions of the objects, namely *virtual* (mental), *visual, graphic* (drawings with stabilized elements or geometric structures, in any projection system, the own perspective included) or *mathematic*
 - are wished to be practical and consubstantiate in three main stages, eventually interactive, namely in orientation control, dimension control and position control
 - are organized in such a way that, their learning, will progress from the concrete to the abstract, from form to line and point, allowing, earlier in the learning process, the drawing of controlled perspectives and the induction of exploring more complex geometries [5] as, in parallel, they intend to be simple and time-saving and so to encourage, with implicit geometric control, the development of the skill of freehand drawing as an important instrument of the conceptual process.

That's the *concept of Topological Perspective*. In a new opportunity, the roots and systematization of its geometric principles will be presented.

References

- [1] Costa, Manuel Couceiro, *Perspectiva e Arquitectura – uma expressão da inteligência no trabalho da concepção* (Phd thesis), Lisboa, Faculdade de Arquitectura / Universidade Técnica de Lisboa, 1992.
- [2] Doblin, Jay, *Perspective – a new system for designers*, N.Y., Whitney Library of Design.
- [3] Ernst, Bruno, *Le Miroir Magique de M. C. Escher* (pp. 42-57), Fribourg, Medea Diffusion S.A., 1987.
- [4] Barre, André / Flocon, Albert, *La Perspective Curviligne – de l'espace visuel à l'image construite*, Paris, Flammarion, 1968.
- [5] Walters, Nigel / Bromham, John, *Principles of Perspective*, London, Architectural Press, Ltd., 1970.