Methods of the Orthographic System of Representation

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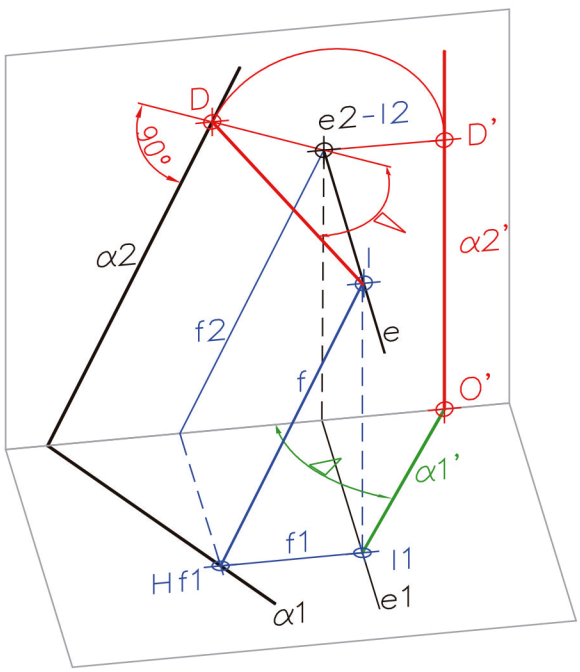

Editorial
Universitat Politècnica
de València

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ABOUT THIS BOOK: CODE OF COLOURS

To illustrate the different methods exposed in this book, graphic problems are described, commented, and solved. The graphic resolution of such problems usually involves several steps, which eventually lead to the solution. A different colour is used in order to group all the elements which have to be represented in the same resolution step, as follows:

Step 1 (representation of initial conditions): BLACK

Step 2: RED

Step 3: BLUE

Step 4: GREEN

Step 5: PINK

Step 6: ORANGE

Step 7: BROWN

GLOSSARY OF ACRONYMS

EL	Earth Line
HPP	Horizontal Projection Plane
VPP	Vertical Projection Plane
H1	First horizontal plane change
V1	First vertical plane change
B1	First bisector
B2	Second bisector
X	Distance to the origin of coordinates
Y	Remoteness
Z	Height
PP	Profile Projection Plane
TPP	Trace of the Profile Projection Plane
SUB-INDEX 1	Element of the HPP
SUB-INDEX 2	Element of the VPP
SUB-INDEX 3	Element of the PP
D	Distance to the earth line

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1. THE ORTHOGRAPHIC SYSTEM

A projection is a two-dimensional representation of a body, created by means of a set of projectors (projection lines or trays) that depart from a point of view, intersect with the geometry of the body and transfer that geometry to a projection plane. This plane could be behind the body or between the body and the point of view.

A representation system is made of a group of rules to create the projections of a body. With regard to the projection plane, there are oblique and orthographic representation systems. With regard to the point of view, representation systems could be conic (defined point) or cylindrical (point located in the infinite).

The orthographic system of representation is based on the employment of orthographic, cylindrical projections. In other words, all projectors depart from a point in the infinite and therefore they are parallel to each other; and meet the projection plane at 90º.

In order to simplify the representation, the body is previously oriented so that as many faces as possible are parallel to the projection planes.

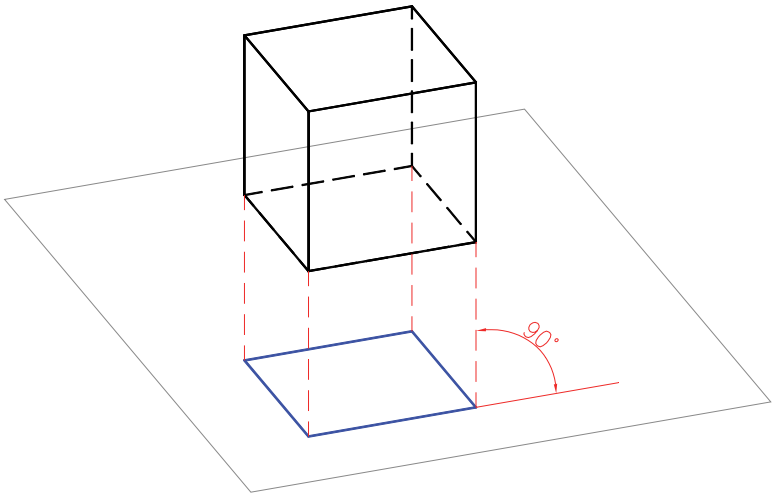

Fig. 1. *Horizontal orthographic projection of a cube*

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