

## VIEWING OF GRAPHICAL INFORMATION

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**Abstract.** For better understanding of graphical information it is important how it is presented. The rule of thirds is a principle of composition that has been used for centuries by artists and more recently by photographers. This rule is also useful when we create drawings. We can use either 1<sup>st</sup> angle or 3<sup>rd</sup> angle projection methods for drawing creation. The 1<sup>st</sup> angle method is better match up to the rule of thirds. In this case we obtain the most natural for our perception front view, which is placed in the best place.

**Key Words:** Graphical information, the rule of thirds, 1<sup>st</sup> angle vs. 3<sup>rd</sup> angle projections.

### 1 Introduction

Over 20 years of work in Scientific Visualization, Human Factors, and Semiotics indicates that there exists a direct correlation between the data representation and the meaning we extract from it. Better representations mean better understanding [1]. Modern computer and communication technology includes the use of computers, multimedia, and other technological tools to enhance the teaching and learning processes. According to the dual coding theory 'recall/recognition is enhanced by presenting information in both visual and verbal form. Combining pictures, mental imagery, and verbal elaboration is even more effective in promoting understanding and learning from text by students ranging from grade school to university level' [2]. In today's world, information usually comes to us in the form of words. In the printed layout of a text, as the readers follow the left-to-right and the top-to-bottom sequence through the text, they usually work through the elements and ideas in the order the author intended. However, there are no similar sequencing constraints that apply to the exploration of pictures [3]. A key challenge for the learner is to determine which aspects of a picture indicate how its different elements are related to each other.

Humans have remarkable perceptual abilities:

- to scan, recognise, and recall images rapidly,
- to rapidly and automatically detect patterns and changes in size, colour, shape, movement, or texture [4].

### 2 Intensive Eye Scans Zones

Drawing Standards define using of specific line types and weights, which in consequence enable expressing particular characteristics of the described object. In order to separate different stages of drawing creation we can also use various colours, especially when we use for presentation such programs as Power Point or AutoCAD. Obviously, by using the line colour, weight and type it is not sufficient to obtain clear description of the sequence of creation

of graphic information. We must use the left-to-right, top-to-bottom sequence for graphic information creation as often as possible similarly as it is the rule used when presenting the text.

A picture to be used for instructional purposes should incorporate design features that deliberately draw attention to its critical features by making them more conspicuous [3]. The rule of thirds is a principle of composition that has been used for centuries by artists and more recently by photographers. The rule of thirds was developed based on the Golden Mean, which was used by ancient Greek sculptors and European painters since the Middle Ages. The rule deals with subject placement and was a proven formula for producing pleasing works of art. Renaissance painters found that the eye does not rest on the centre of a picture.

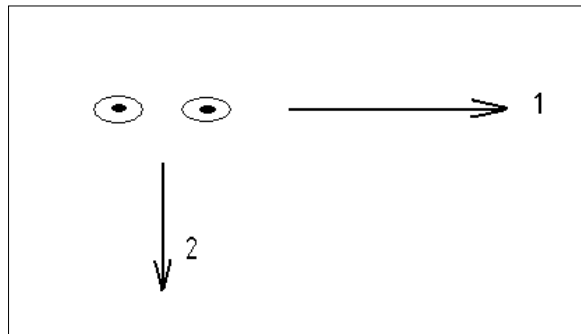


Fig.1: Eye movement directions

Research on eye movement states that people from western cultures tend to look at the upper left-hand area of a graphic or web page first. Eye movement then tends to move to the right and then to the bottom (Fig. 1).

The ‘rule of thirds’ is a principle of photographic and graphic composition in which a graphic is divided into thirds both vertically and horizontally and the centers of the viewer's attention are located near the intersections of these lines [5]. When taking a picture with horizontal lines, place the horizontal lines on one of the horizontal thirds, depending on the emphasis you want in the picture. Using the rule of thirds helps produce nicely balanced easy on the eye pictures.

The standard templates in PowerPoint are not composed by this rule. Therefore, we must take it into consideration when preparing presentations.

### 3 1<sup>st</sup> angle vs. 3<sup>rd</sup> angle projections

ISO Standard System defines possibility to use either 1<sup>st</sup> angle or 3<sup>rd</sup> angle projections for drawing creation. The 3<sup>rd</sup> angle technique is much more intuitive to the users. If we take a look at Figure 2 we can easily spot the difference between positioning the views in the 1<sup>st</sup> angle and 3<sup>rd</sup> angle projections according to the rule of thirds or golden section.

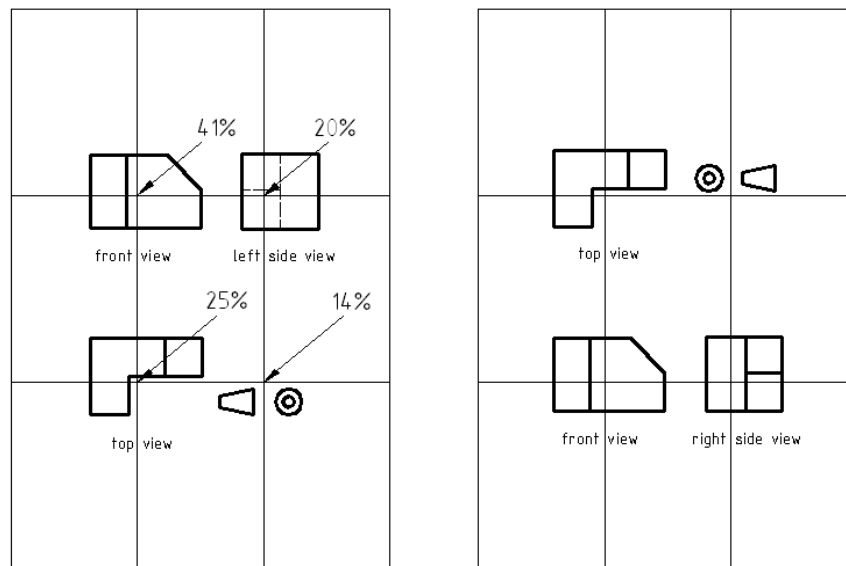


Fig. 2: 1<sup>st</sup> angle and 3<sup>rd</sup> angle projections and the rule of thirds

The 1<sup>st</sup> angle method is better match up to the rule of thirds. We have the most natural for our perception front view positioned in the best place.

#### 4 Conclusions

1. We must use the left-to-right, top-to-bottom sequence for graphic information creation as often as possible, as it is the rule used when presenting the text.
2. Rule of thirds is useful when we create drawings or in another way present graphical information.
3. The 1<sup>st</sup> angle projection method is better match up to the rule of thirds.

#### References

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## OBRAZOWANIE INFORMACJI GRAFICZNEJ

Czytelność przedstawionej graficznie informacji zależy od sposobu, w jaki zostanie ona przedstawiona. Autor artykułu proponuje zastosowanie znanej zasady kompozycji jaką jest tzw. „reguła trzech” lub „złotego podziału” do rozmieszczenia trzech rzutów prostokątnych danego obiektu. Dzieląc płaszczyznę rysunku czterema liniami, dwiema poziomymi i dwiema pionowymi na trzy równe poziome i trzy równe pionowe części wyznaczamy linie główne, na których należy umieścić główne elementy kompozycji, czyli poszczególne rzuty: rzut z przodu, rzut z góry, rzut z lewej strony (dla europejskiej metody rzutowania). Naturalna kolejność, w jakiej z reguły „czytamy” rysunek, czyli od strony lewej-do prawej oraz z góry-na-dół powoduje, że rozmieszczenie rzutów według zasady trzech ułatwia rozumienie i czytanie rysunku.