

# Visual Suggestiveness and Change Blindness in Dynamic Cartographic Visualizations

Paweł Cybulski

Department of Cartography and Geomatics,  
Adam Mickiewicz University in Poznań, Poland

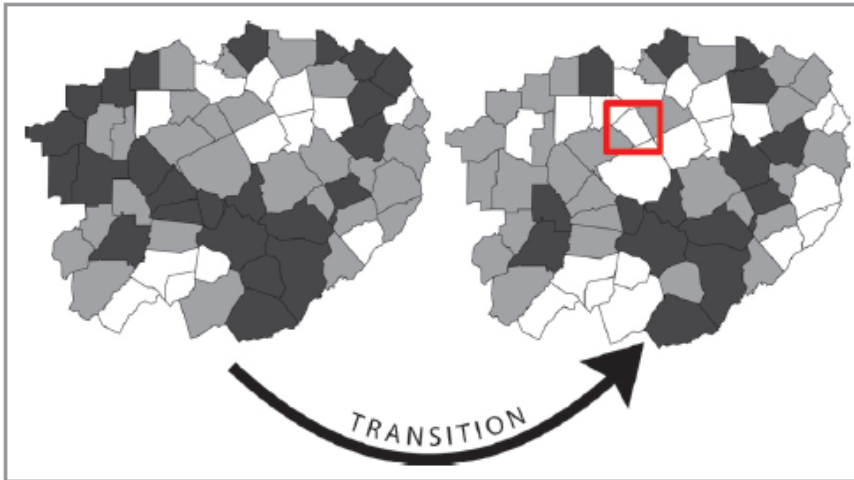
*1st ICA European Symposium on Cartography, Vienna 10–12 November 2015.*

- **Introduction**
- **Study objectives**
- **Description of the experiment**
- **Result of the experiment**
- **Conclusions**

# Introduction

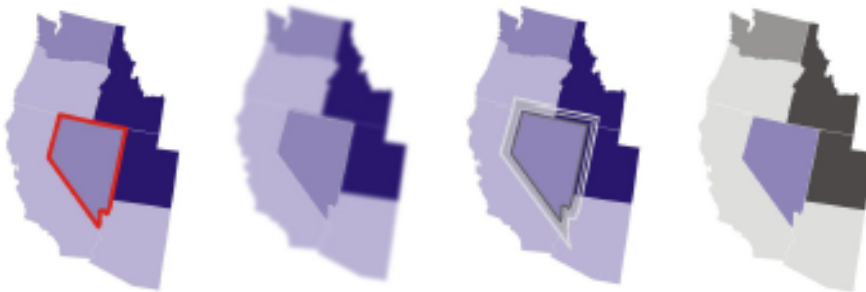
## Basic Concepts:

- **Change blindness** – in psychology, when observer does not see a major changes in the presentation (Simons and Chabris 1999).



Source: Fish, Goldsberry and Battersby (2011).

- **Visual suggestiveness** – influence on thoughts and beliefs of a user using different graphical manipulations (Lloyd 2005).



Source: Robinson (2009).

# Study objectives

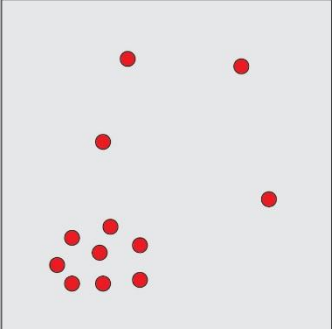
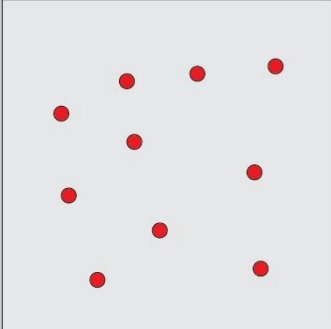

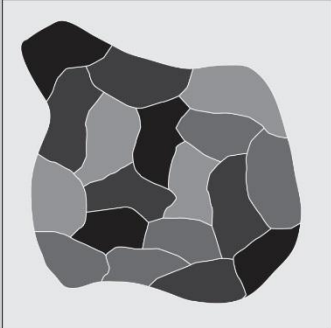
**Primary objective was to find an answers on two questions:**

- I. Is it possible to suggest spatial information in dynamic cartographic visualizations using visual and dynamic variables?*
- II. Can visual suggestiveness reduce change blindness in dynamic cartographic visualizations?*

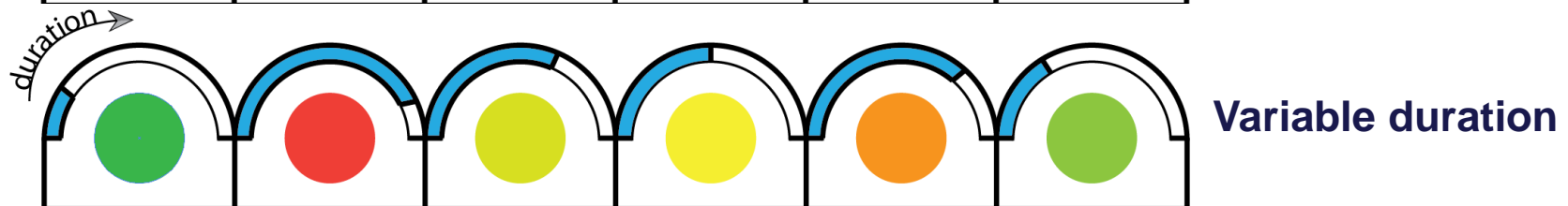
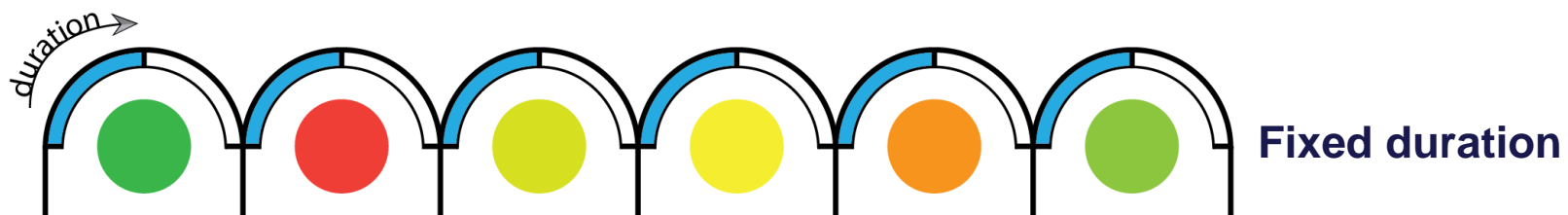
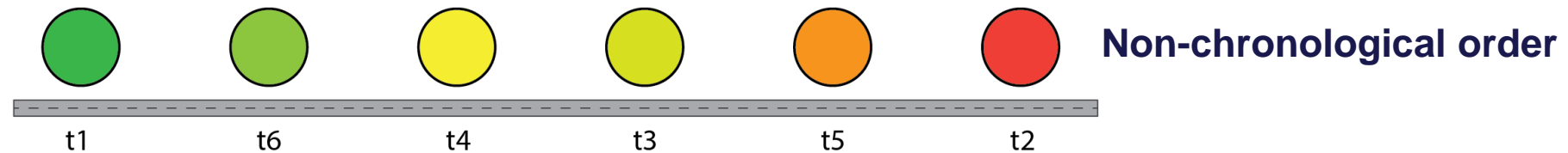
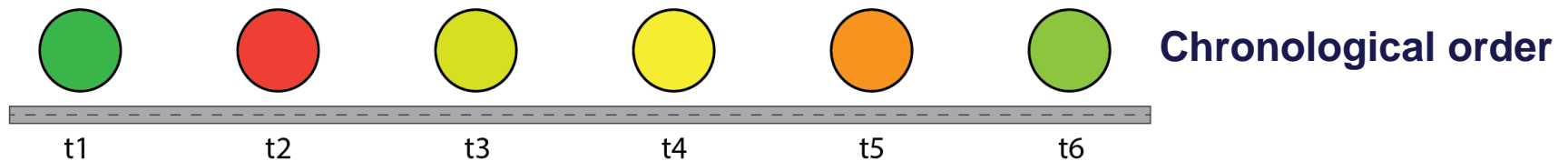
**Secondary objectives:**

- III. Implementation of visual and dynamic variables in visual suggestiveness in dynamic cartographic visualization.*
- IV. Examination of the influence of geographical arrangement on change blindness in dynamic cartographic visualizations.*

# Description of the experiment

spatial model		variable type	version of map
concentrated	dispersed	visual	
		size	MAP A
		size + colour	MAP B
		dynamic	
		chronological order + fixed duration	MAP H
		non-chronological order + fixed duration	MAP I
		non-chronological order + variable duration	MAP J
		visual	
		colour	MAP D
		colour + size	MAP E
		dynamic	
		chronological order + fixed duration	MAP K
		non-chronological order + fixed duration	MAP L
		non-chronological order + variable duration	MAP M
		visual	
		colour	MAP F
		colour + size	MAP G
		dynamic	
		chronological order + fixed duration	MAP N
		non-chronological order + fixed duration	MAP O
		non-chronological order + variable duration	MAP P

# Description of the experiment

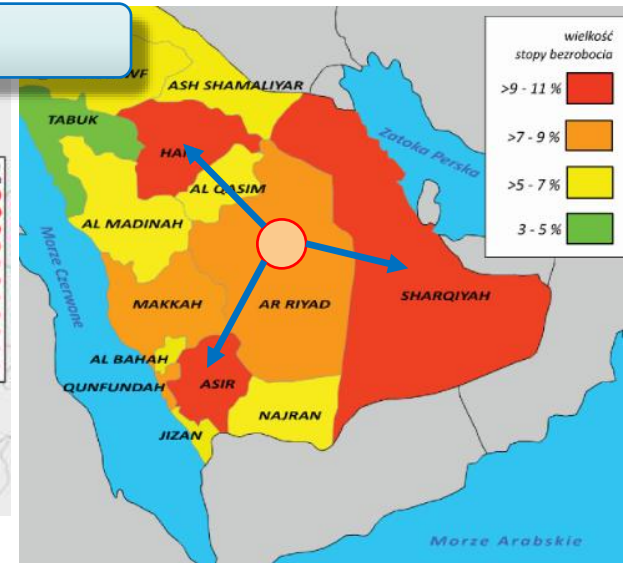
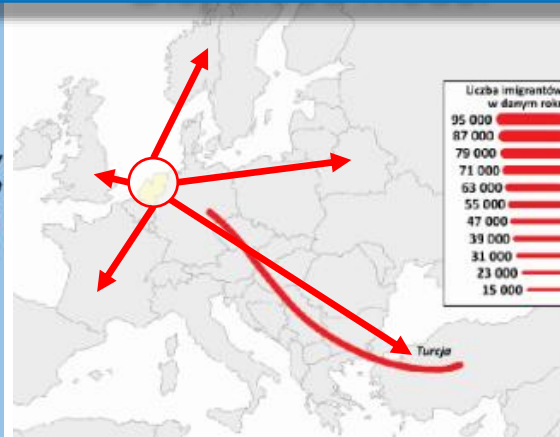




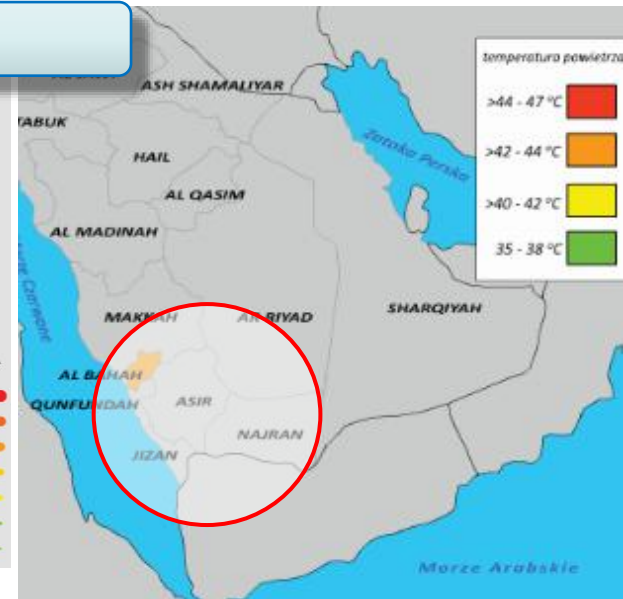
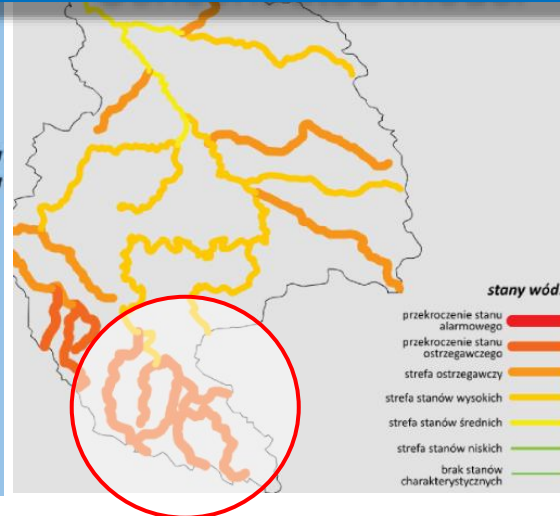
# Description of the experiment



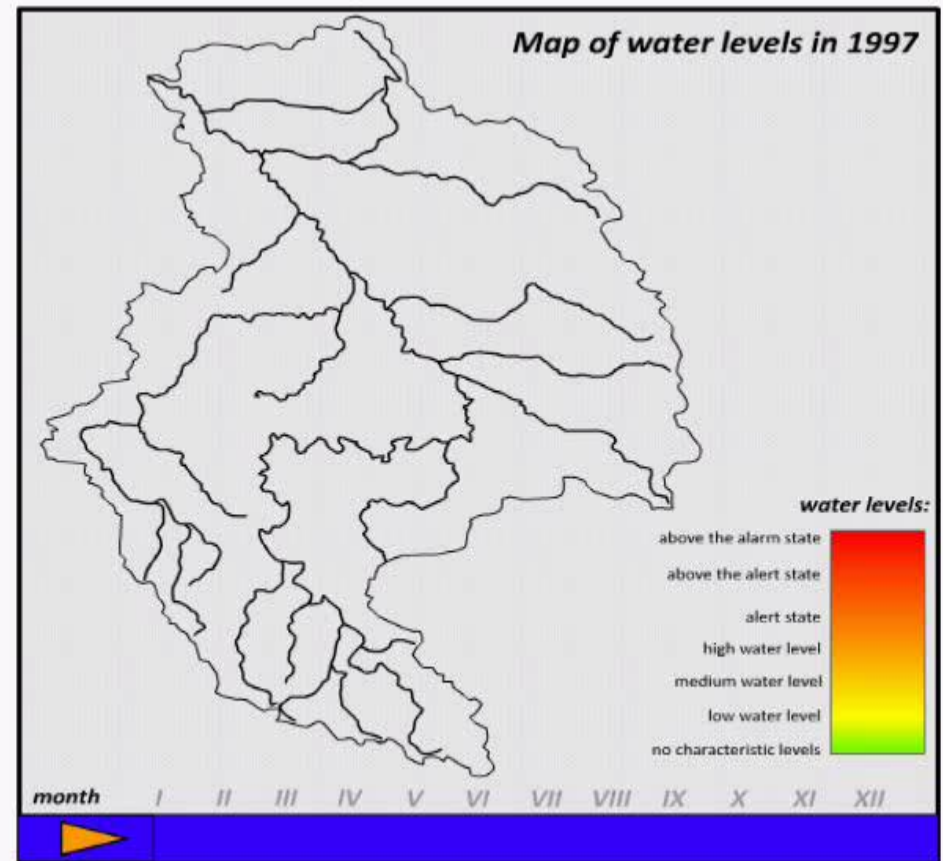
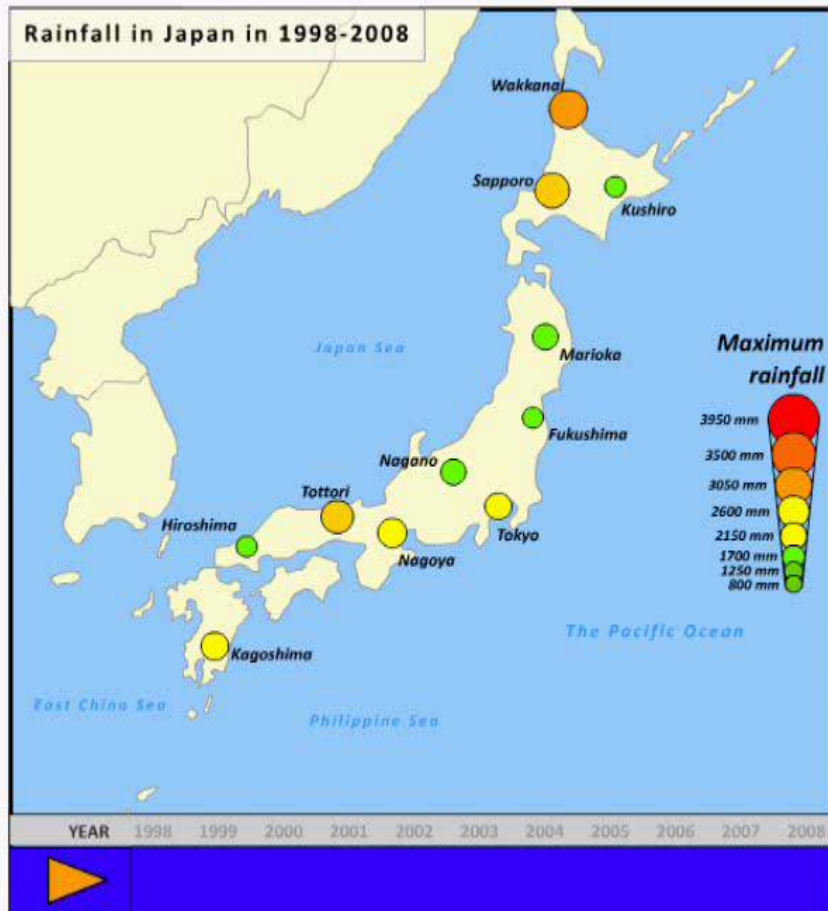
## Dispersed model



## Concentrated model



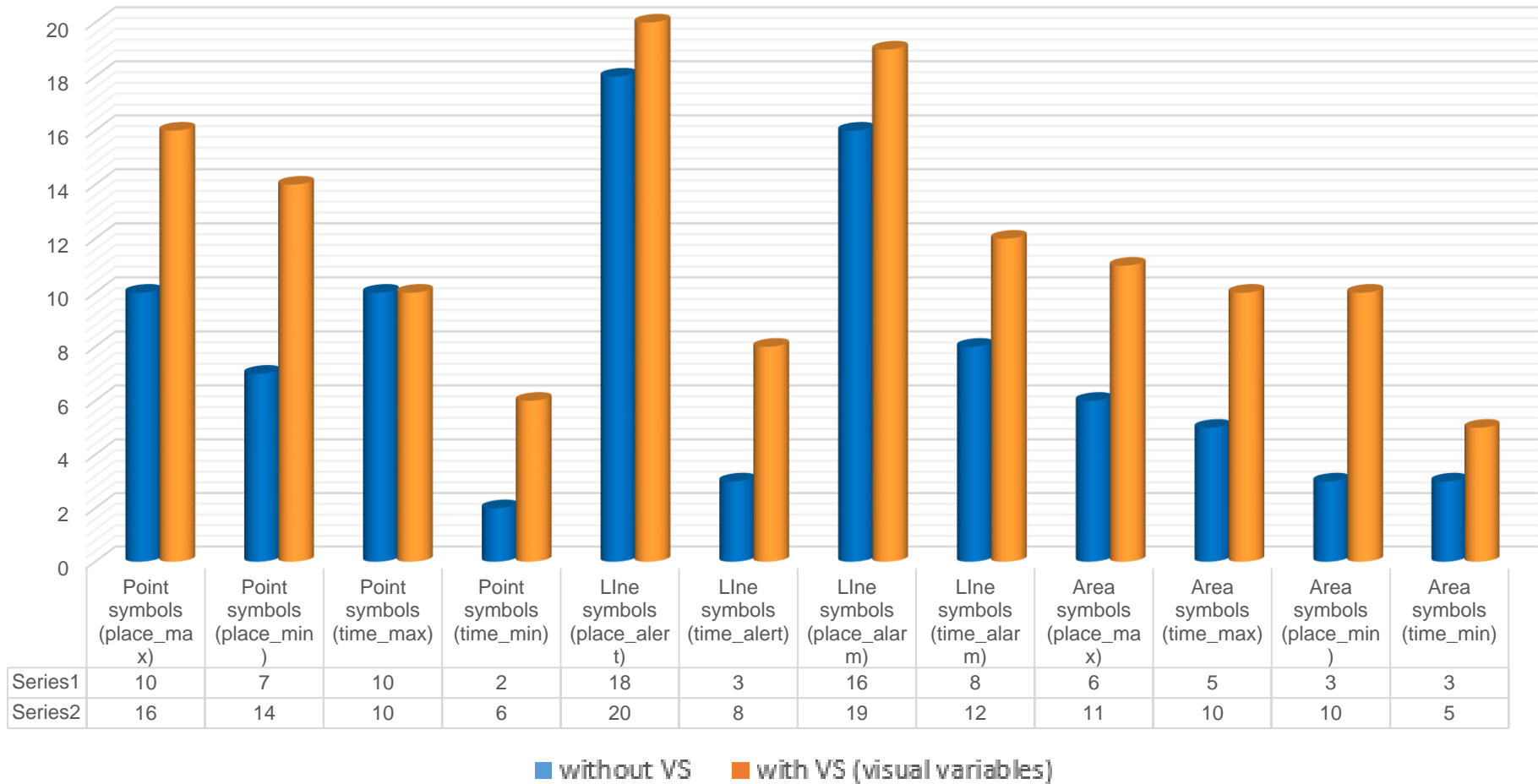
# Description of the experiment





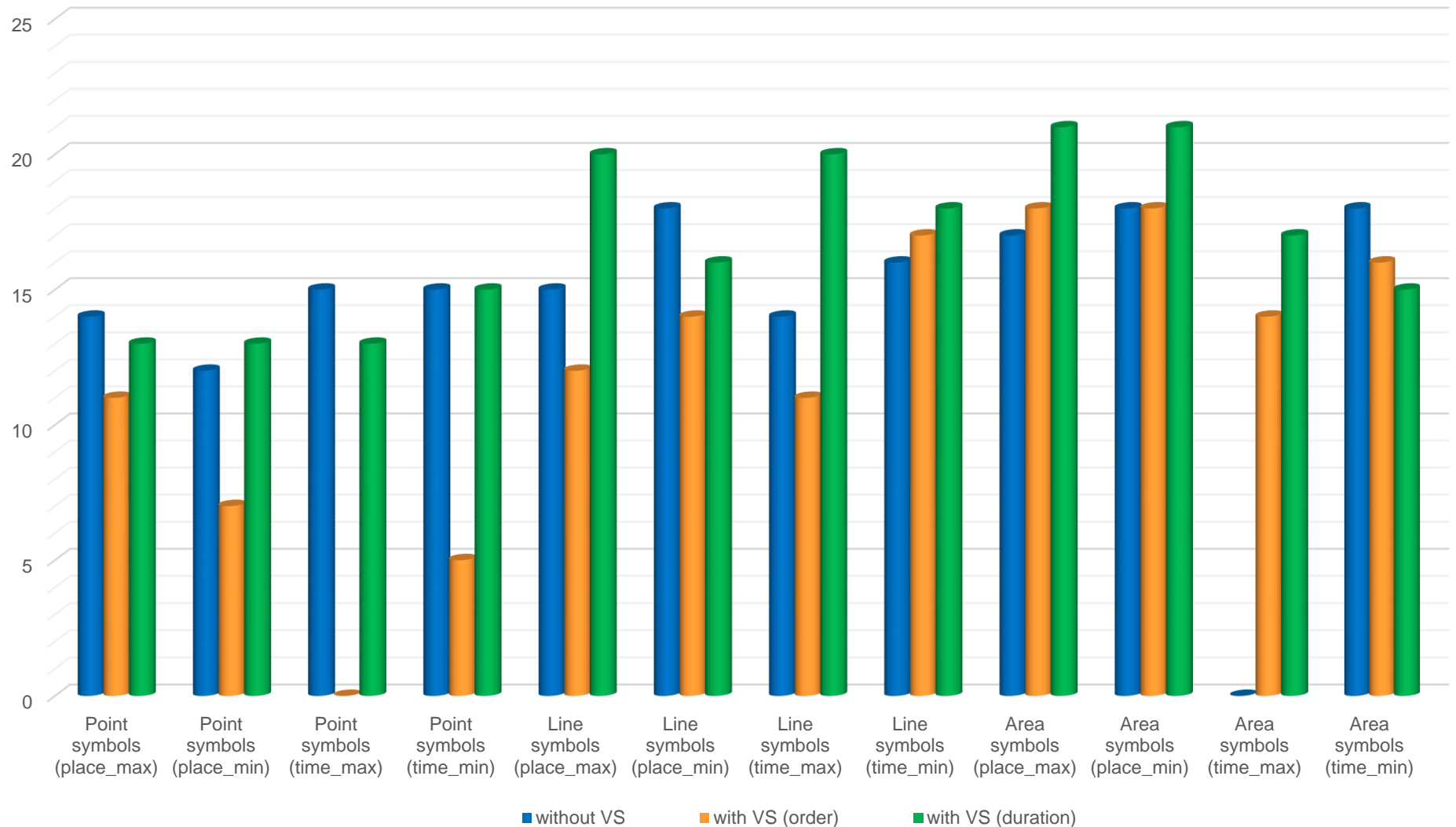
# Result of the experiment

Number of correct answers



# Result of the experiment

Number of correct answers



# Conlusions

*Is it possible to suggest spatial information in dynamic cartographic visualizations using visual and dynamic variables?*

**- Yes it is, however...**

*Can visual suggestiveness reduce change blindness in dynamic cartographic visualizations?*

**- Yes it can, however...**

*Can visual and dynamic variables be implemented in visual suggestiveness in dynamic cartographic visualizations?*

**-Yes they can, however...**

*Does geographical arrangement have influence on change blindness in dynamic cartographic visualizations?*

**-Yes it does, however...**

*Thank you  
for your attention!*