RESEARCH INVESTIGATIONS RELATED TO USER CENTERED DESIGN FOR GEOINFORMATION PRODUCTS

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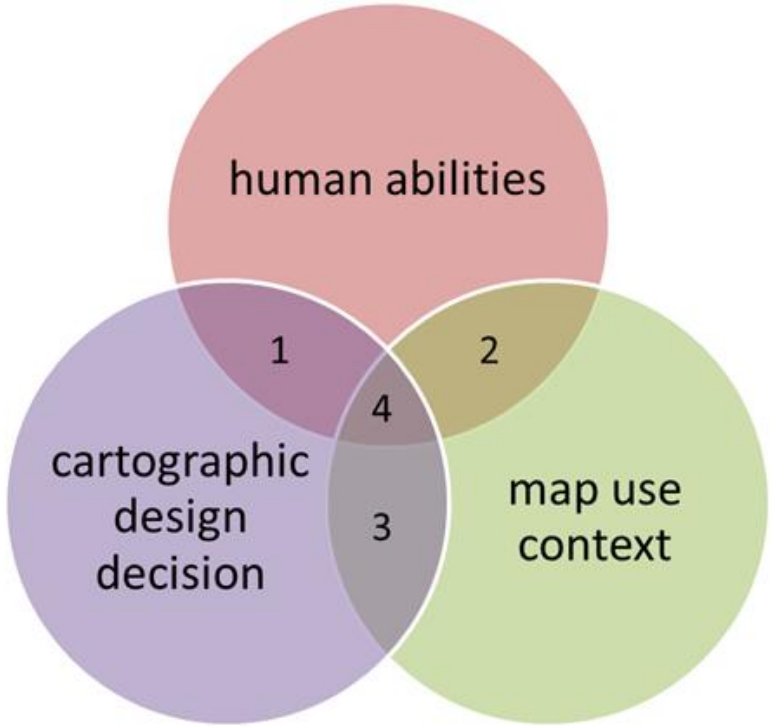

2 PhD dissertations

4 Master thesis

INVESTIGATIONS

1 research problem → visual perception and cognition

results discussion → improvements in map symbol design

2 research problem → cognition/knowledge schemata

results discussion → map design imbedded in VGI use context

3 research problem → defining map use context based on requirements engineering

results discussion → design decisions for geoinformation systems

4 research problem → cognition/knowledge schemata

results discussion → map design imbedded in experts use context

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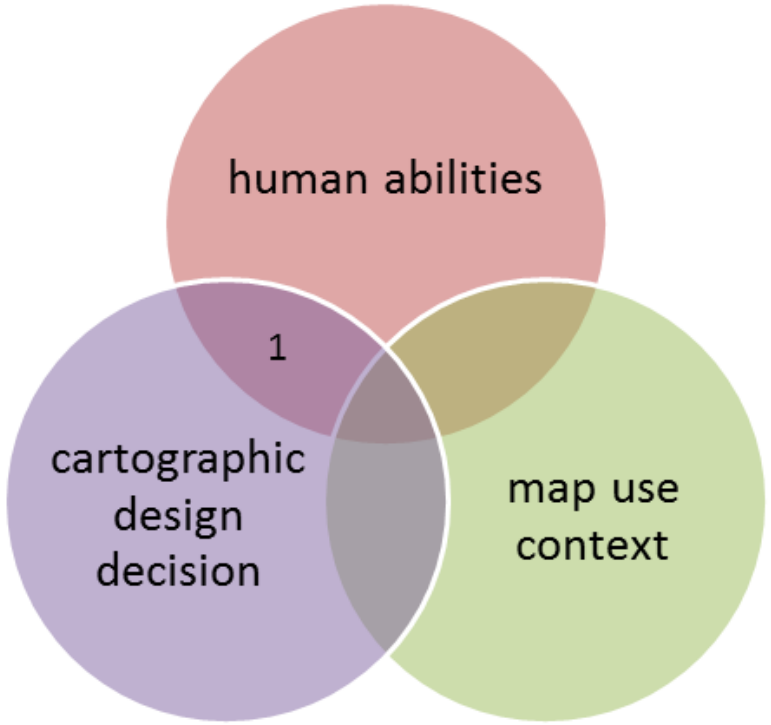

research problem

What is the visual perception result when the point and line symbols are designed from visual variables that stimulate the perceptual property called *selectivity*?

Gestalt laws - *proximity*, *similarity*, and *prägnanz*

conclusion

proximity is a key element in seeing groups of symbols, but *similarity* is the one that imposes the unity of symbols.

Santil, F.L.P. Análise da Percepção das Variáveis Visuais de acordo com as Leis da Gestalt para a Representação Cartográfica. PhD. UFPR, 2008.

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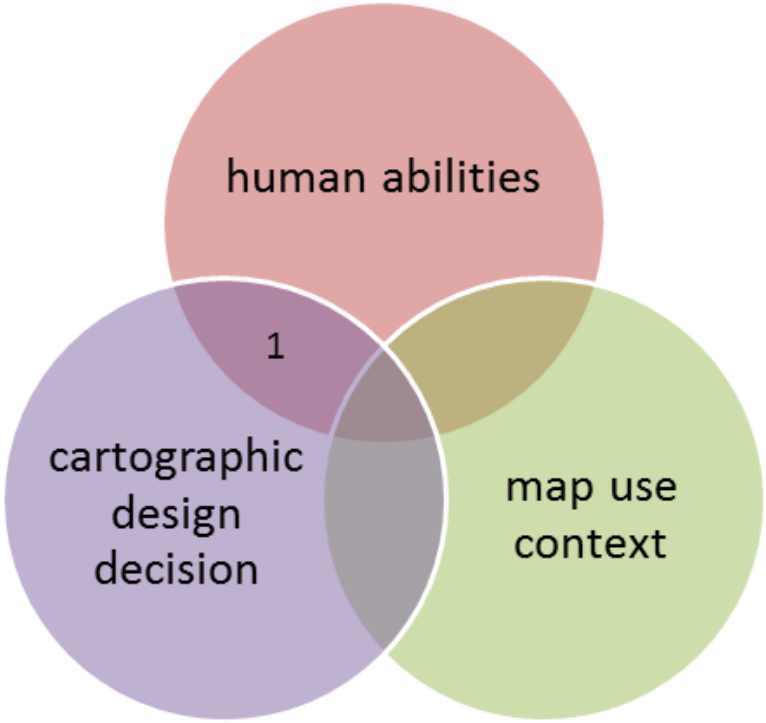


research problem

How visual perception of pictorial symbols can stimulate the acquisition of spatial knowledge by users of tourist maps?

Gestalt laws - *figure-ground*, *prägnanz*, *proximity & similarity*, and *visual unification*

hypothesis

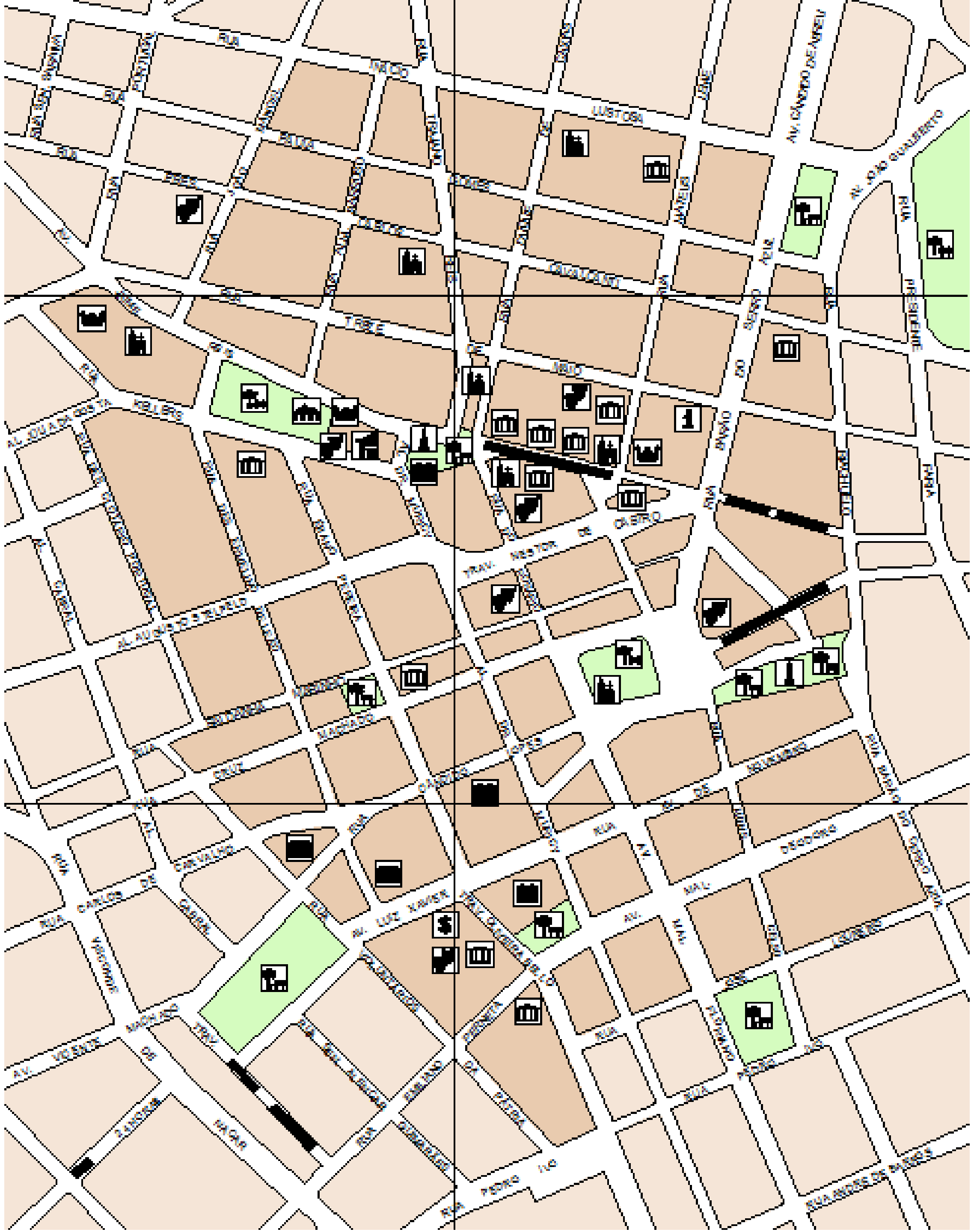
the design of a pictorial symbol must result in a semantic relationship between the symbols and their referents

the mimetic level of the pictorial symbol and the figure-ground relations must not drive people to an ambiguous interpretation

the picture (draw) of the symbol must be balanced and visually simple.

furthermore – when a pictorial symbol is near to other symbols it is more difficult to discriminate it from the others

Andrade, A.F. A Gestalt na avaliação da simbologia pictórica com base nas tarefas de leitura de mapas. PhD. UFPR, 2014.



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AV. JOÃO GUALBERTO
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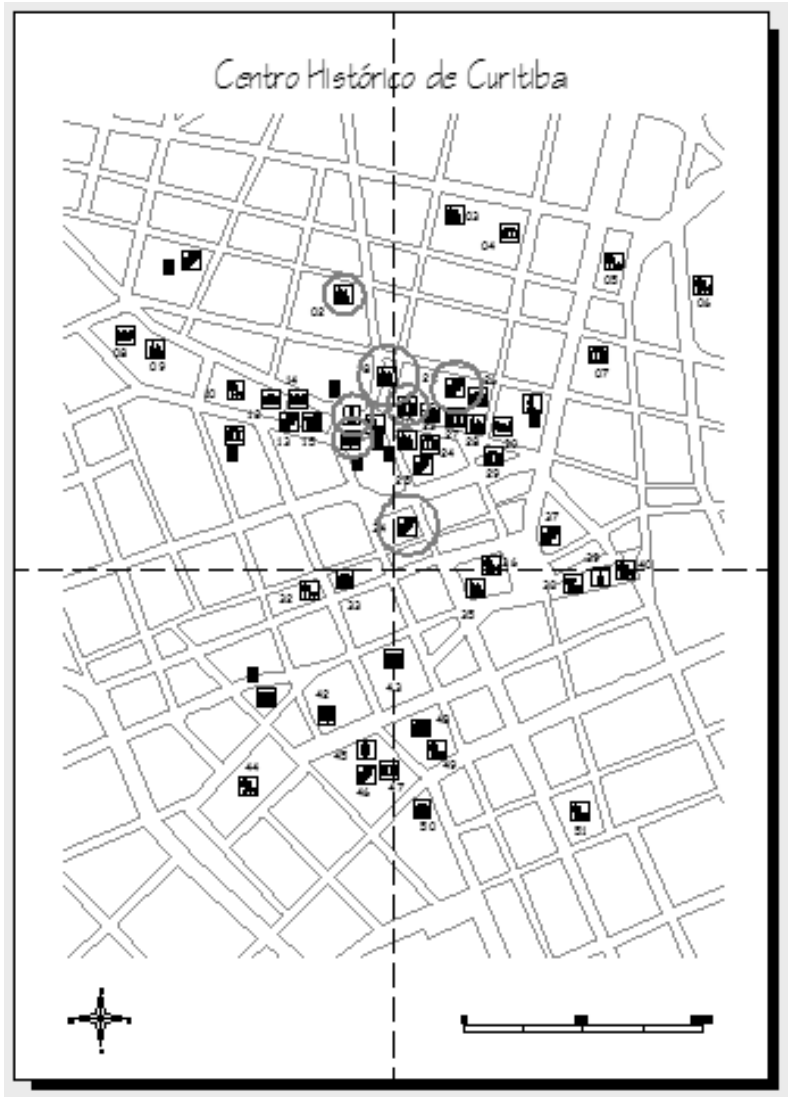
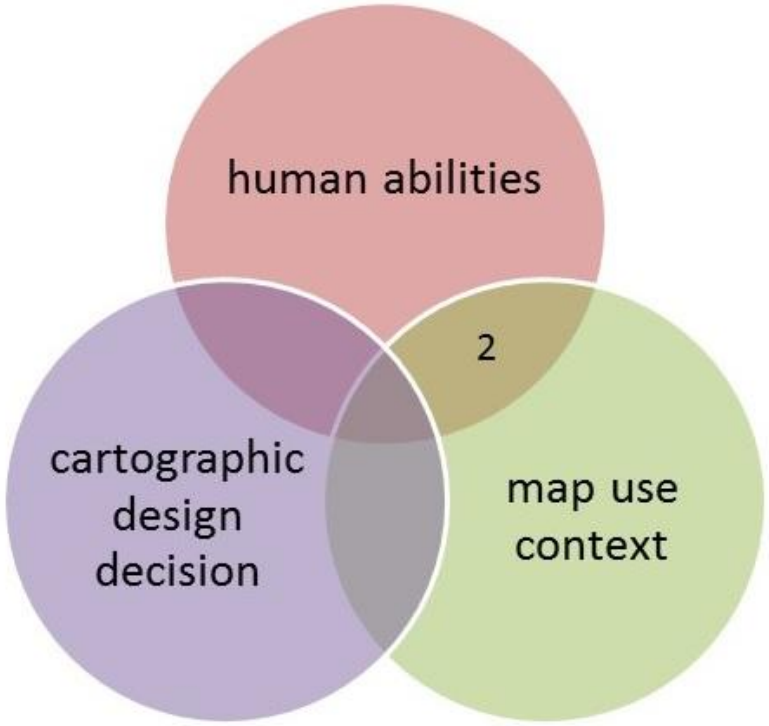


There are three locations on the map were the symbols were more seen: (1) in the central part, (2) in the main group of symbols (more number of symbols), and (3) near this main group of symbols

the mimetic level of the pictorial symbol and the figure-ground relations must not drive people to an ambiguous interpretation

the picture(draw) of the symbol must be balanced and visually simple.

the fact that the symbols that were firstly seen on the map are located inside the main group of symbols agrees with the Gestalt laws related to the perceptual grouping by proximity and the visual unity



research problem

How do the human mental process for acquiring spatial knowledge influence the reliability on volunteered geographic information?

hypothesis

Assuming that human mental categorization process are influenced by the knowledge schemata, the human mental categories drive the geospatial knowledge that are used in deciding the reliability of volunteered geoinformation

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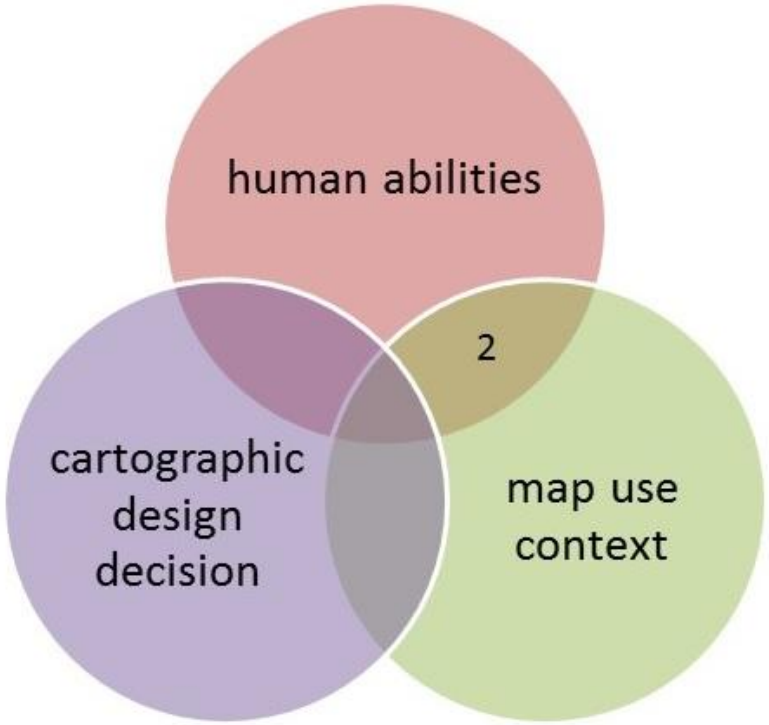


Scenario 1 - One of your friend asked you to help to plan a vacation trip. He have never travelled abroad and therefore he does not know any touristic places by their names. You want to use a collaborative map as wikimapia in order to identify, to define and to describe places that could be of your friend`s interest.

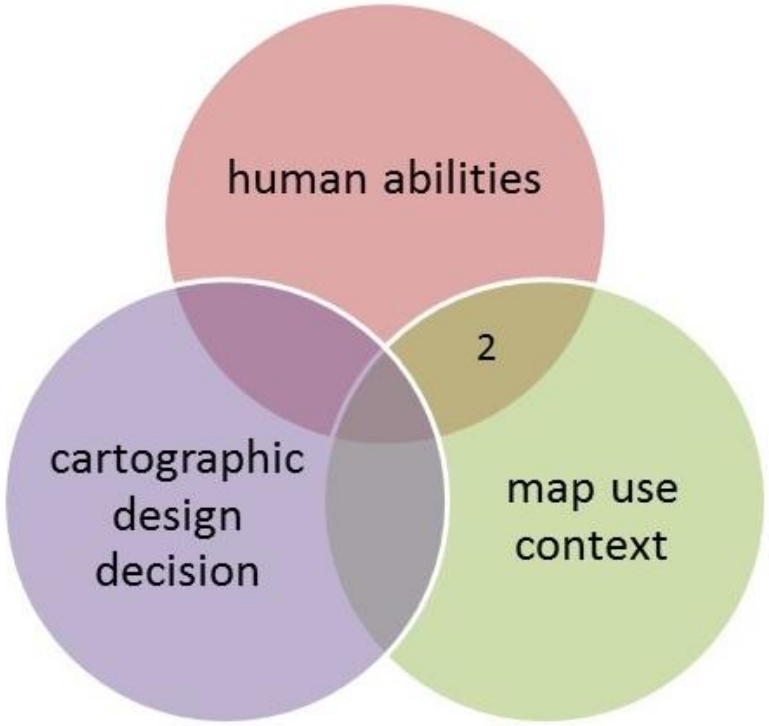
Map reading tasks – search, identify and describe

Scenario 2 - You want to travel in your vacation time. A friend offered you to prepare a travel route with some interesting touristic places. He made you a map of the route. Based on this map e some information your friend gave to you find those touristic places by internet search. Afterwards you have to compare those places and to point out at least 2 similarities between those places and 2 differences between them. After finishing these tasks we ask you to answer 3 questions: (1) do the way you friend described those touristic places helped you to find them? (2) Which words he used you would prefer to describe those places? (3) Which one you would change and why?

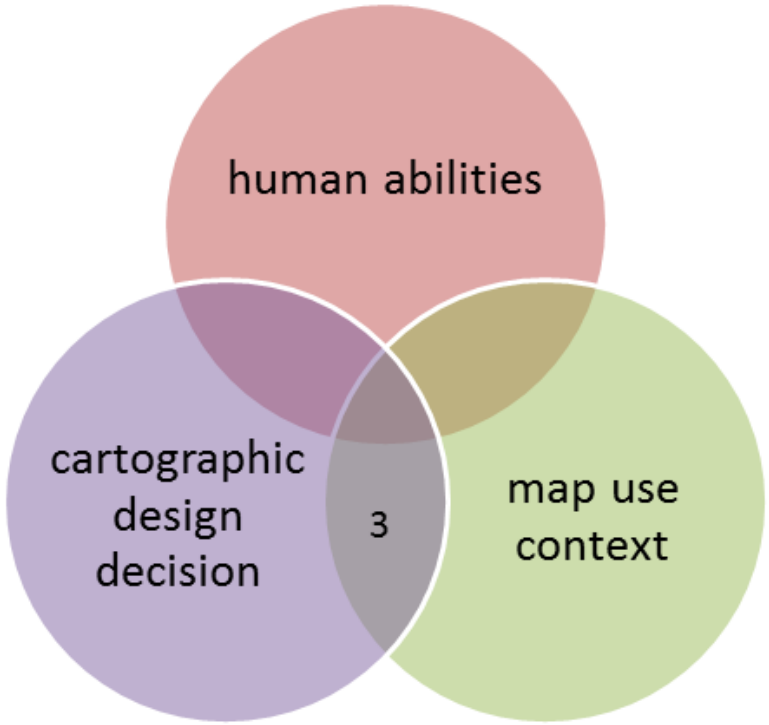
Map reading tasks – compare, verify, recognize, prefer and like

Scenario 3 - You are a travel agent. One of your client asked you for evaluating a travel route that one friend made for him. Your client show you the wikimapia (the system your client`s friend used). You can also access all the information your client have about the travel route. Now please answer the followed questions: (1) do you like the touristic places descriptions? Do you think you client you will enjoy his vacation based on the places he is going to visit? (3) If you answer is “yes” and based on the places information, which characteristics of those places you could say your client can rely on? If you answer is “no” which information about those places are not reliable?

Map reading tasks – Like and rely on



the mental categorization of spatial knowledge that also uses semantic relations based on taxonomy and partonomy is a key element when people judge the reliability of volunteered geographic information



Requirements Survey and Documentation of a Geo-information System Applied to Land Value Capture Policies

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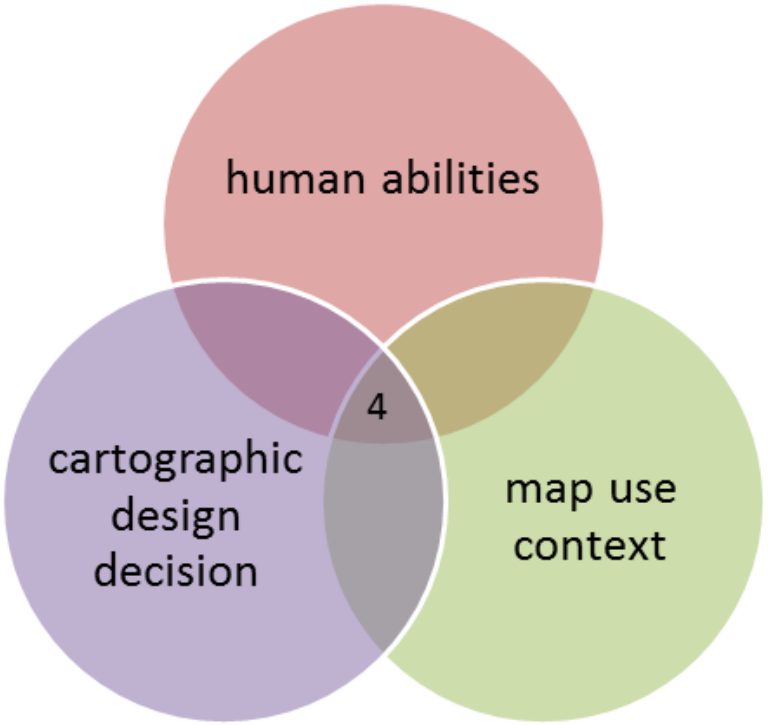

research problem

How are the urbanists mental schemata when they define, describe and represent urban public spaces?

hypothesis

If the urbanists define and describe public spaces in accordance with their professional experiences (repetitive processes) at a precognitive and global level (Pinker, 1990)

↓

Then their knowledge schemata of public spaces should lead to a categories relationships that represent a particular understanding of the urban landscape.

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Moreover the public spaces definition, description and consequently representation should be mutual equivalent and they should be based on the same categories

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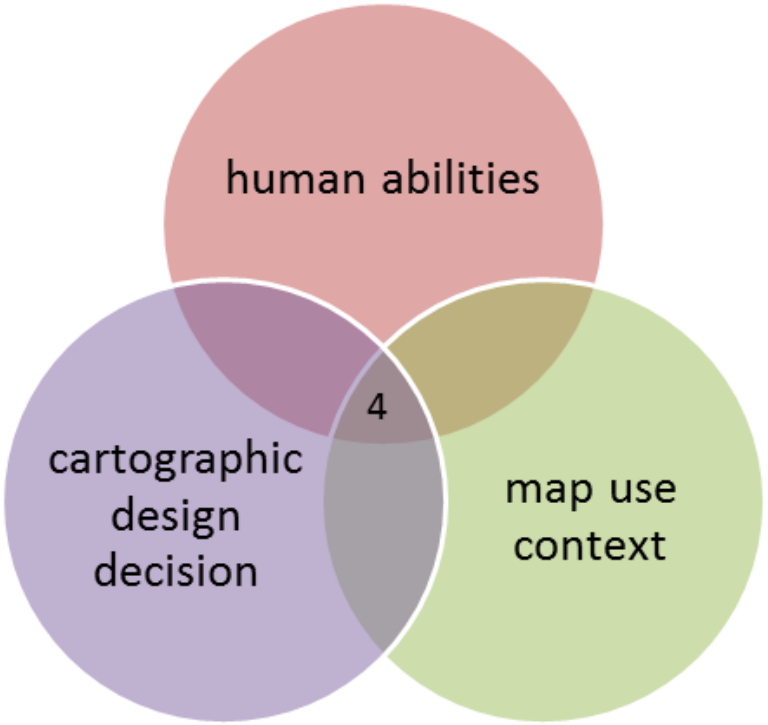
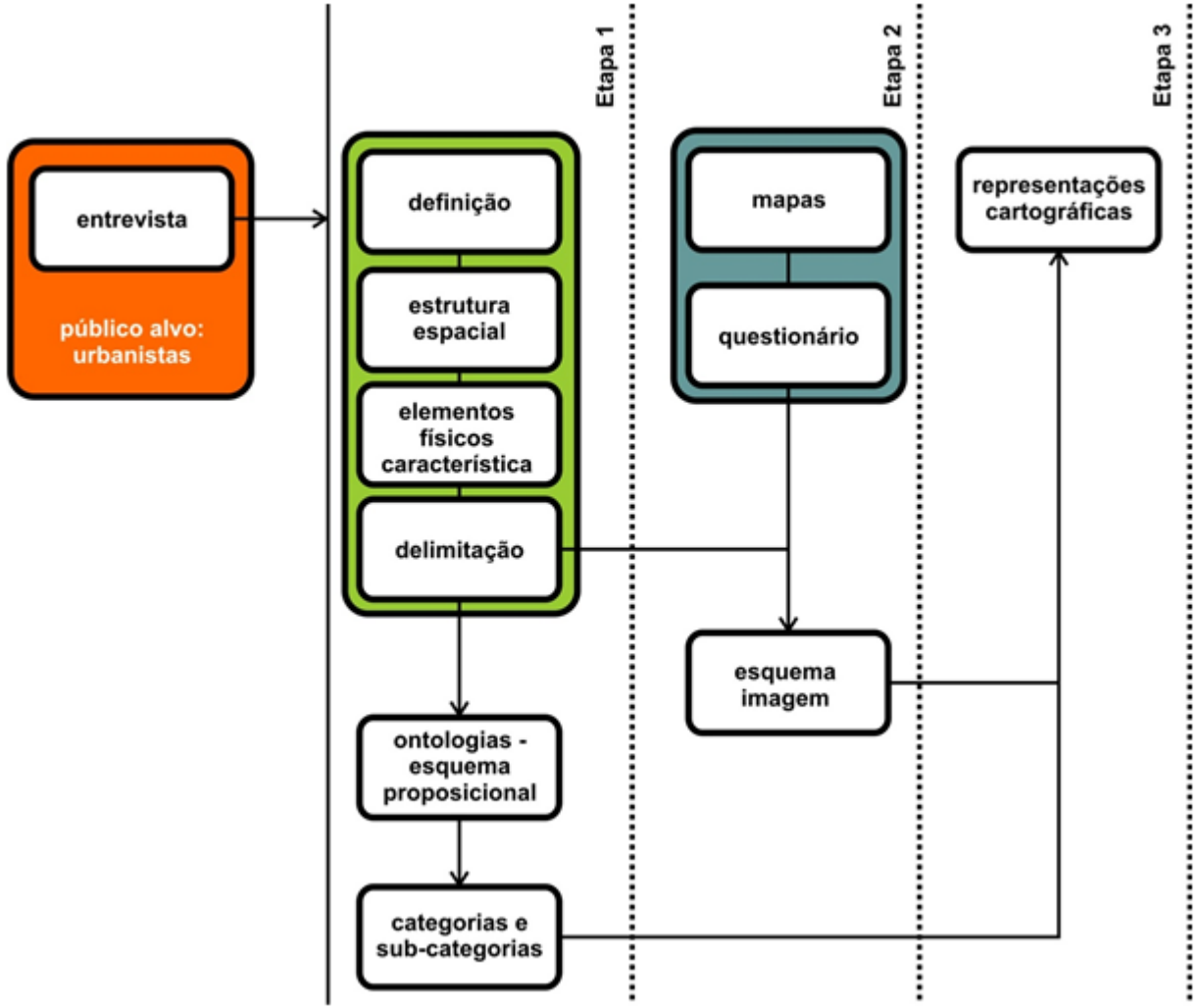
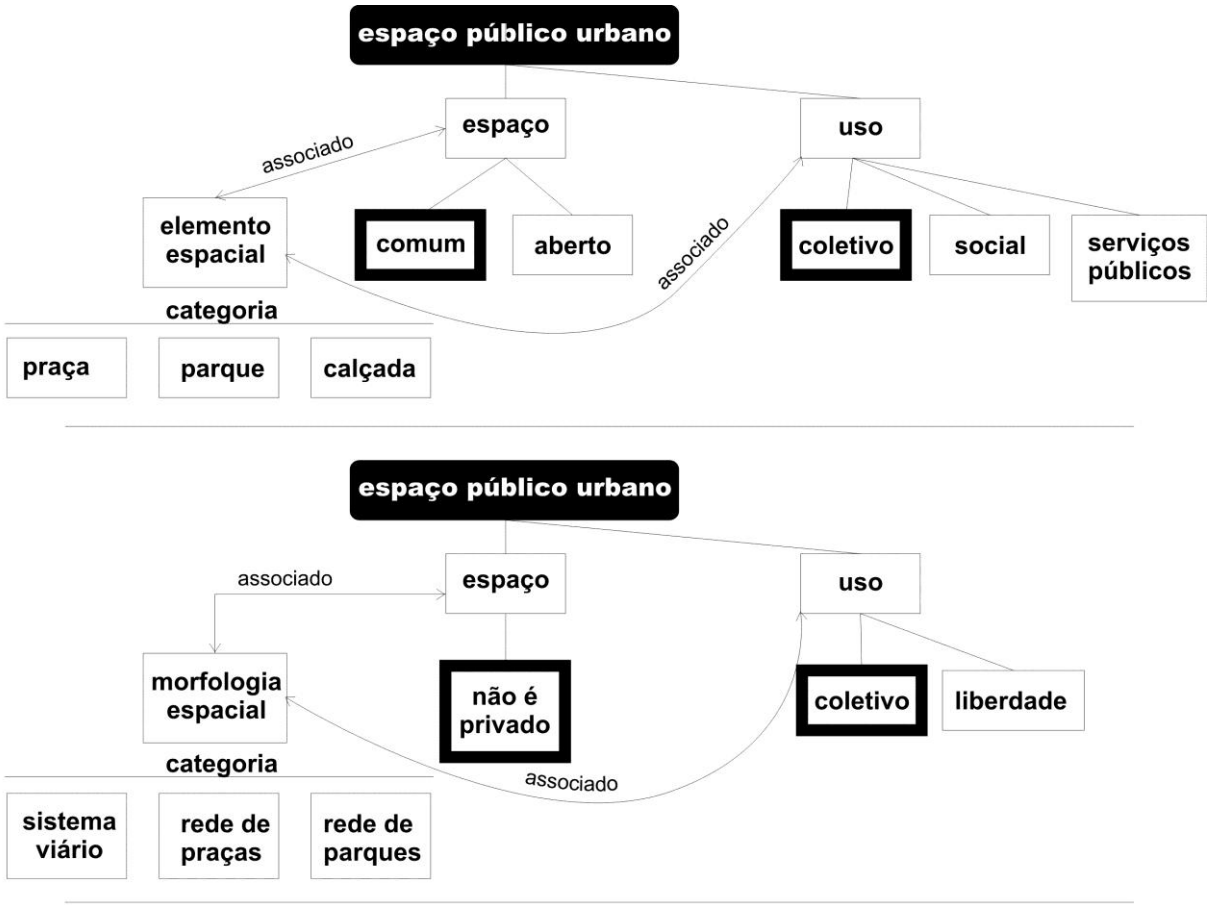
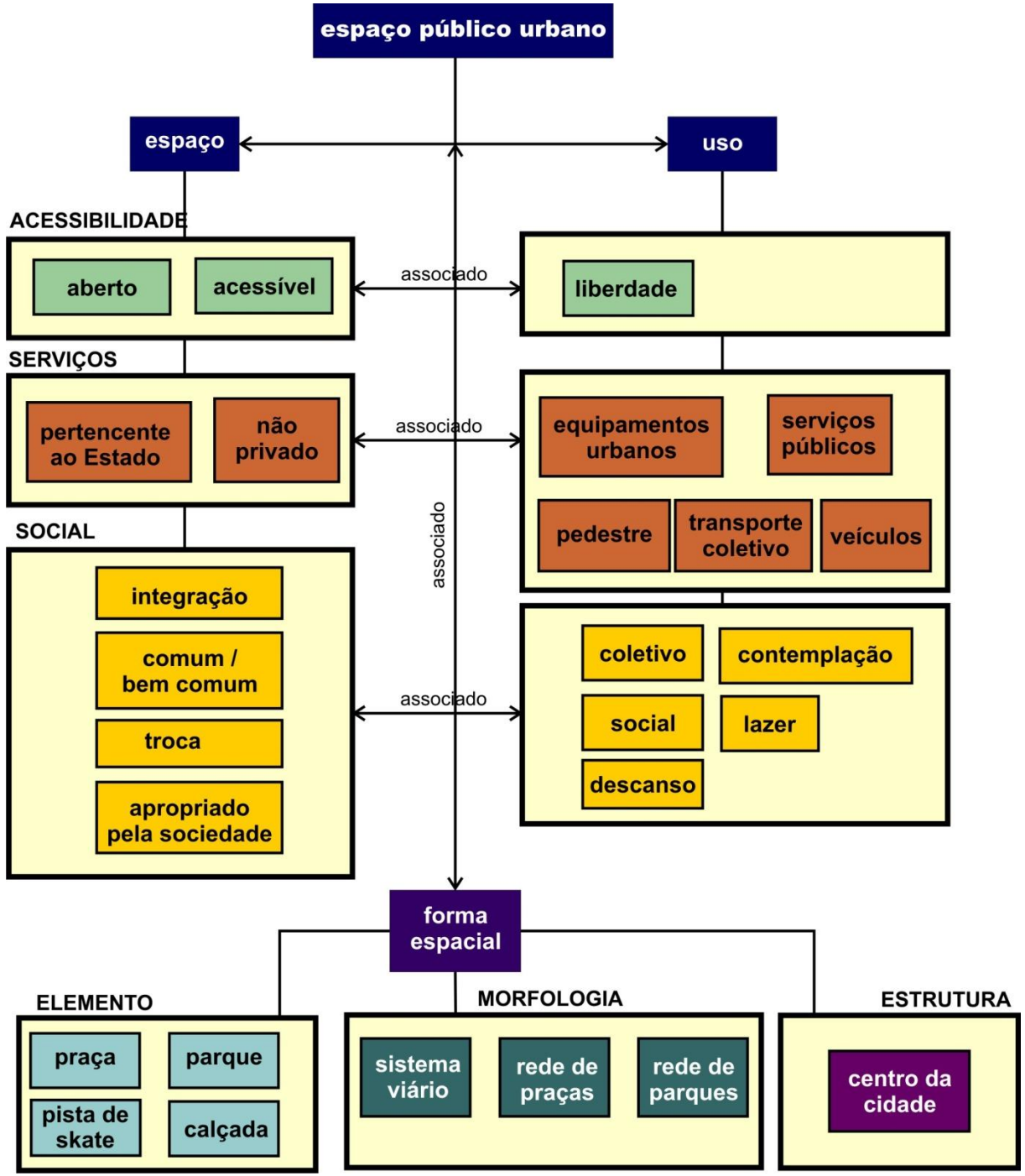


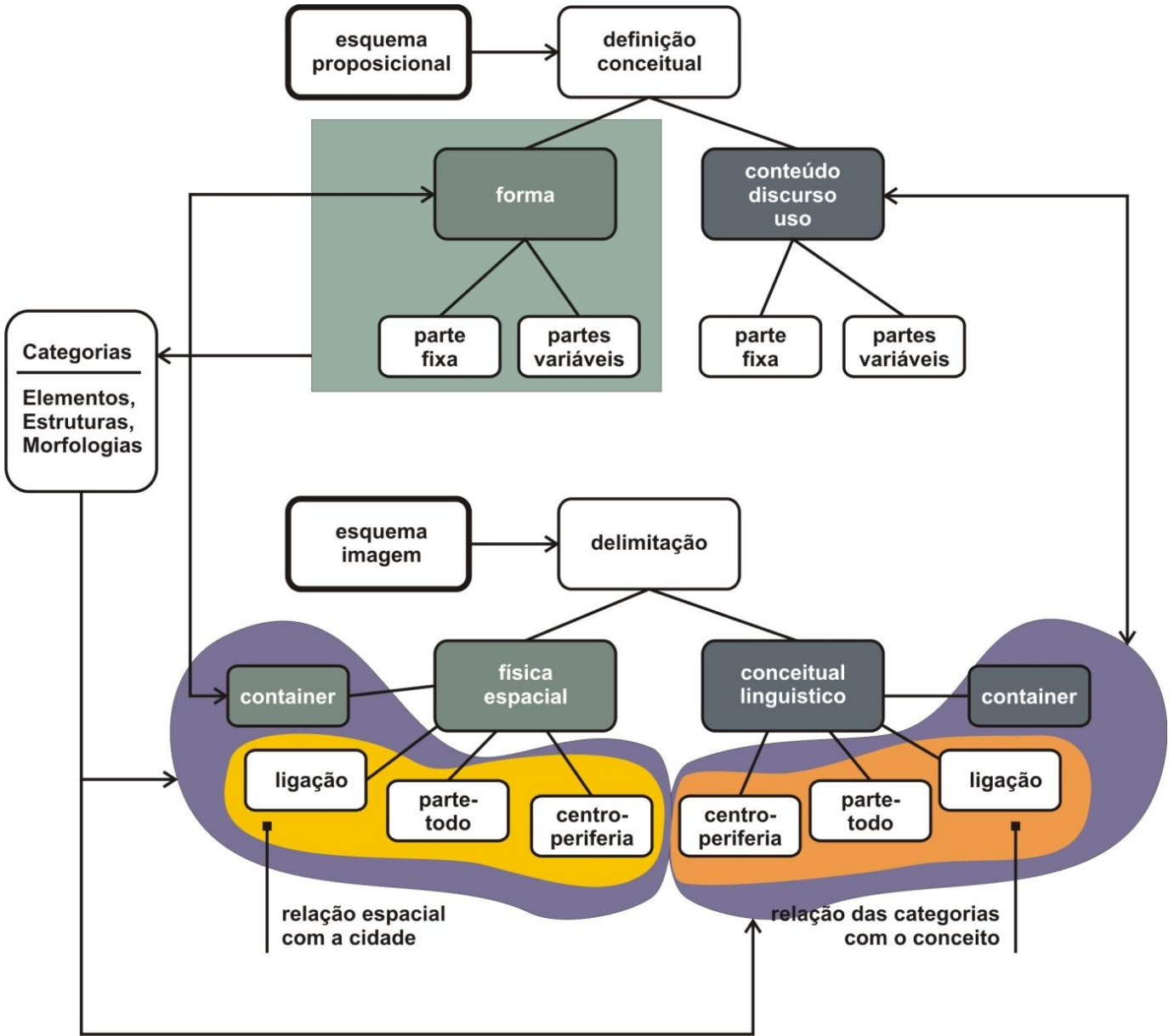


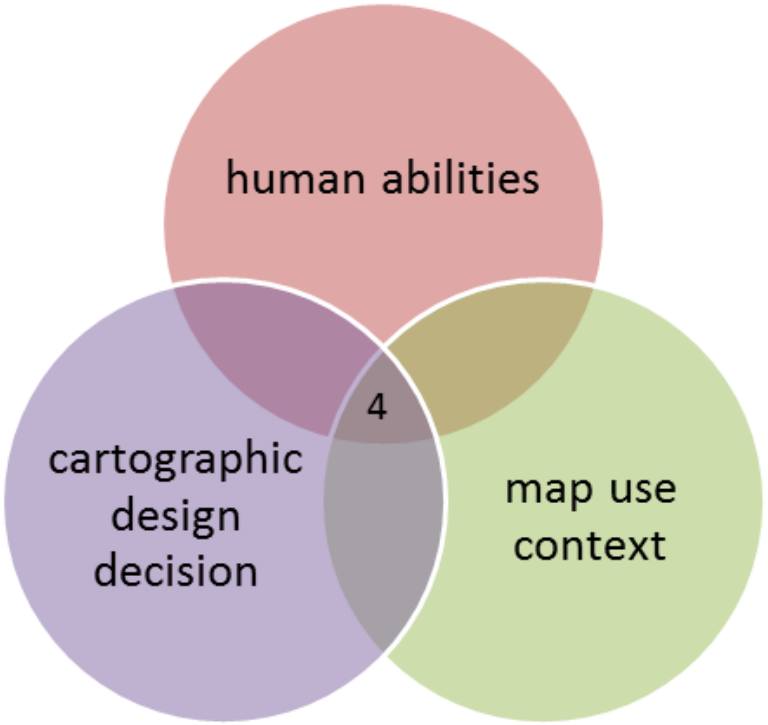
Propositional Schemata



Propositional Schemata




esquema proposicional
definição conceitual
forma
conteúdo discurso uso
parte fixa
partes variáveis
parte fixa
partes variáveis
Categorias
Elementos, Estruturas, Morfologias
esquema imagem
delimitação
container
física espacial
conceitual linguistico
container
ligação
parte-todo
centro-periferia
centro-periferia
parte-todo
ligação
relação espacial com a cidade
relação das categorias com o conceito



The subjects (urbanists) identified more elements about “urban public spaces” than those that can be seen on maps.

In the subjects propositional schemata there are a stronger influence of public spaces and vegetation areas than public services places – however in their thematic maps the public services places are more emphasized

So it is possible that the level of semantic simplification of public spaces concepts on maps lead to a not so efficient result of urban planning

One issue: how the knowledge about the users (experts) propositional schemata can help cartographers to better define, classify and visually represent (symbols) geoinformation in order to generate more efficient maps?

IN CONCLUSION

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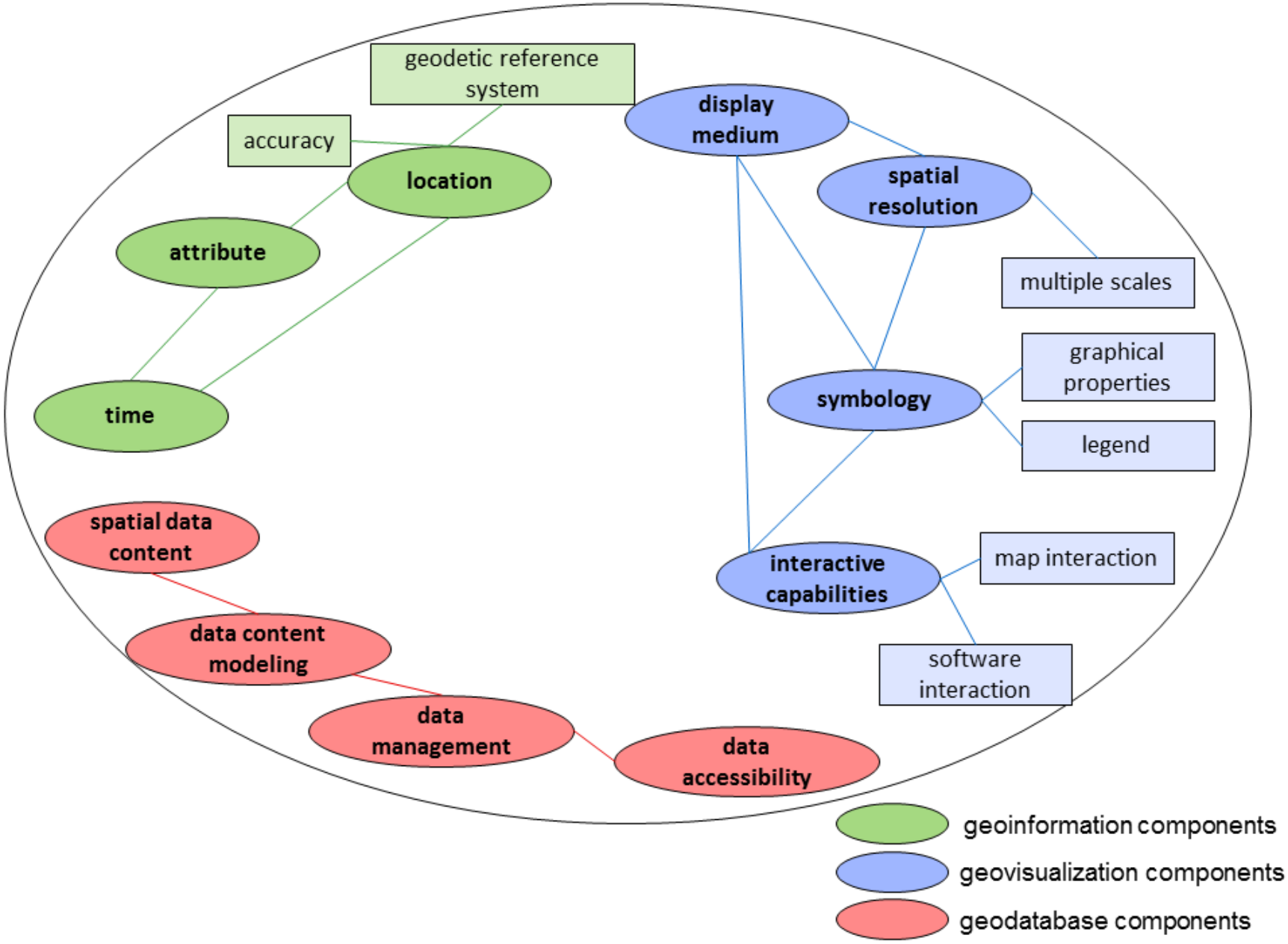

IN CONCLUSION

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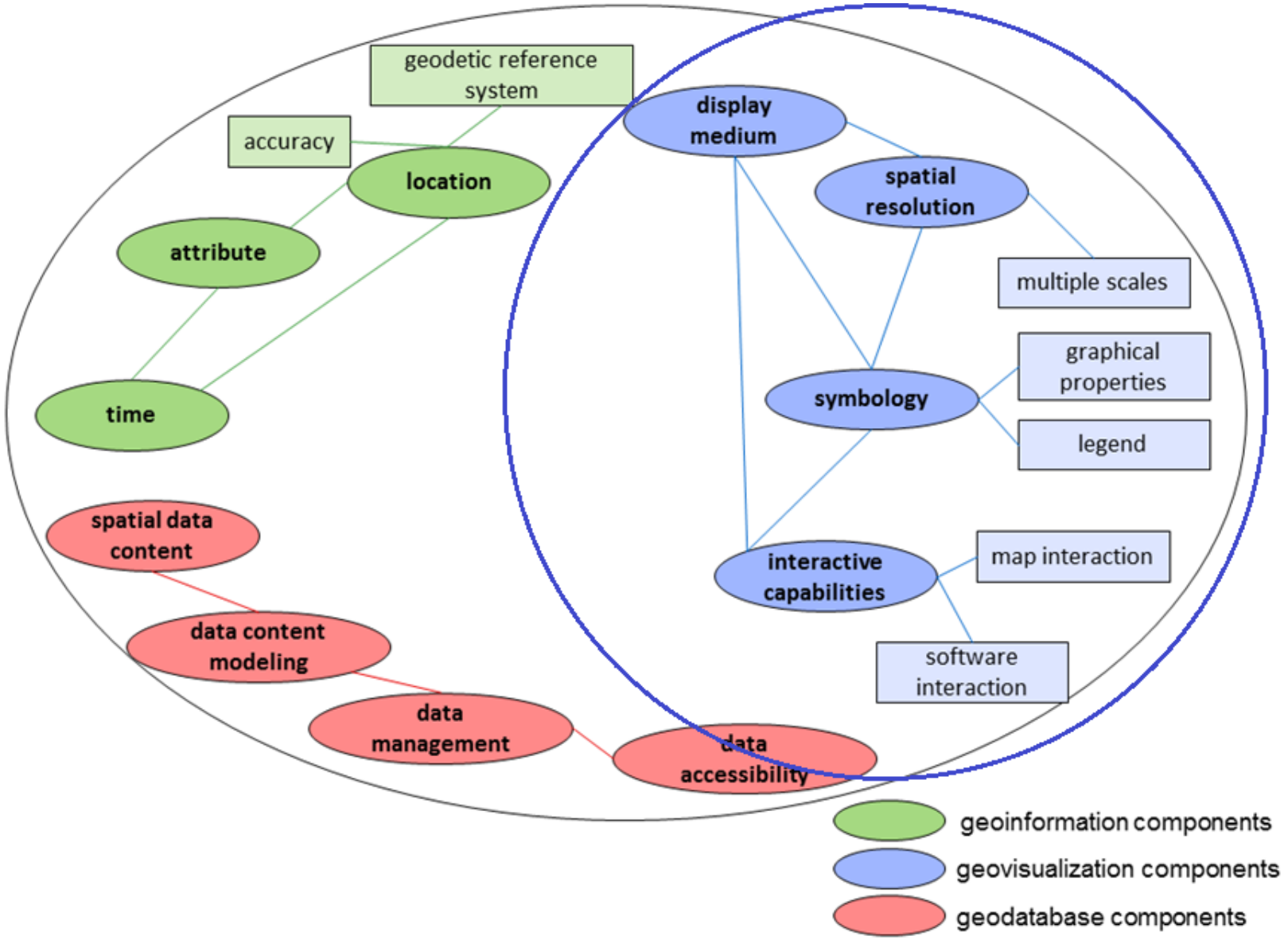

THANK YOU FOR YOUR ATTENTION!