



## Towards introducing a geocoding information system for Greenland

Siksnans, J.; Pirupshvarre, H. R.; Lind, M.; Mioc, Darka; Anton, François

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# Towards introducing a geocoding information system for Greenland

Janis Siksnans<sup>^</sup> Hans R. Pirupshvarre\*, Morten Lind\*\*, Darka Mioc<sup>^</sup>, François Anton<sup>^</sup>  
<sup>^</sup> DTU, Denmark; \* ASIAQ, Greenland;  
\*\* MBBL, Denmark

Kortdage 2011, Kolding, Jylland, Danmark  
Geoforum Danmark

## Background – The Issue (1/5)

### Greenland Police department

Ambiguity in referencing the location leads to a situation where the incident had not been handled.

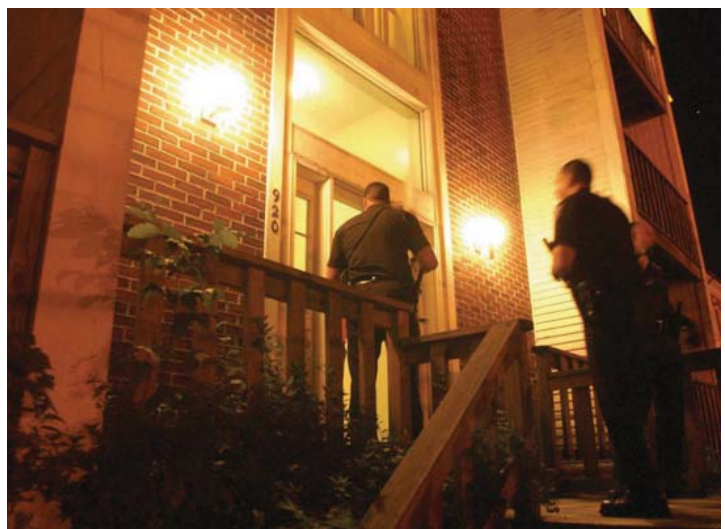


Figure Ref: [1]

## Background – Physical Addresses (2/5)

In Greenland, there are **several names for the same place**:

- According to the historical function – this is very common in Greenland.

Example Ref [2]:

- Tuapannguit 7-104;
- Tuapannguit (7), former block Q.



Figure Ref: [3]

- Some of the former Danish road names are still used (Jagtvej).
- It is usually pointed out, that certain buildings or functions are next to the address in question:

Example:

- Next to the former KNR (Greenlandic Broadcasting Channel).

## Background – Land And Area Allotments (3/5)

- In Greenland, the land is not owned by anyone. Instead, a citizen, the municipality, or a company can apply for an area allotment for their property.
- The registry for all area allotments is called NIN and this register is separate from the register for building number registry (B-number registry).



Figure Ref: [4]

## Background – Buildings (4/5)

In Greenland, you can own buildings and other property. For object identification they have:

- Building numbers (equivalent to title numbers, B-numbers).

There is no official Greenlandic dwelling register. Data can be retrieved from Danish personal identification registry (CPR).

Data should be systematized and combined.



Figure Ref: [4]

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Denmark

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## Background – Roads (5/5)

- In Greenland, not all the roads have been digitalized. Some roads do not have a name. Road features have a simpler structure than in DK (road name = point).
  - Worth to notice that cities and settlements are not interconnected by roads.
- Missing roads should be digitized.
- Road names are barely labels placed on fixed points on the roads. They should be attributes of road segments or composite features composed of one or more base features.
- Electronically manageable road infrastructure would help in:
  - Waste management,
  - Street lighting,
  - Snow removal, street cleaning.

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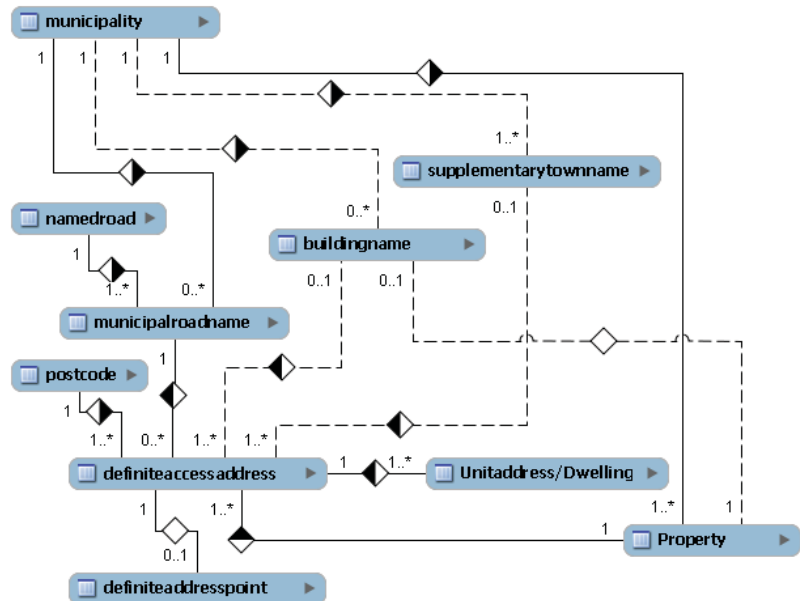
# Resemblance with Danish addressing system

Similar due to historical reasons

- Post code area, Municipal area

Practices to follow from DK addressing system

- Building numeration by road arc length
- Dwelling numeration

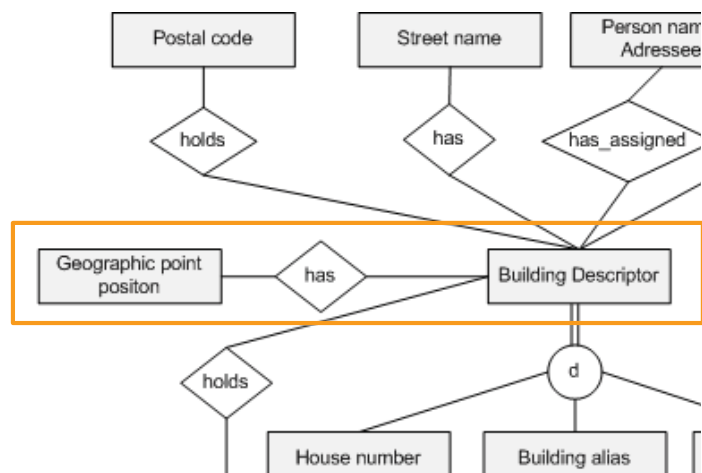


Modified entity relationship diagram of Danish addressing system Ref: [5]

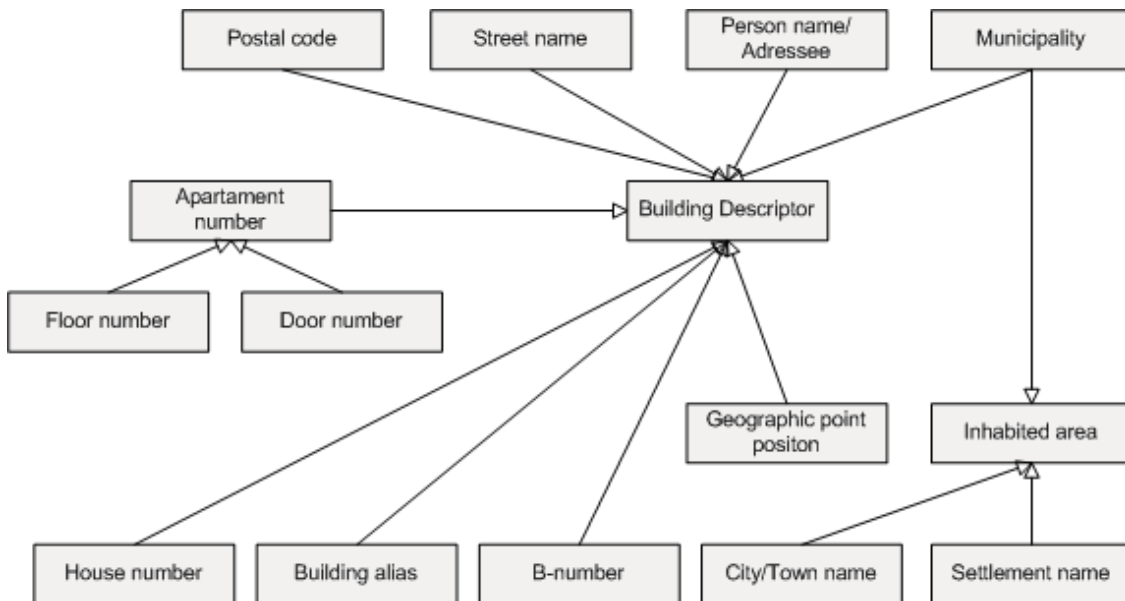
# Formalizing model of Greenland's addressing system

The paper includes (first iteration)

- Ontology shared vocabulary and taxonomy
- Ontology chart (concept dependency diagram)
- Logical model (EERD)

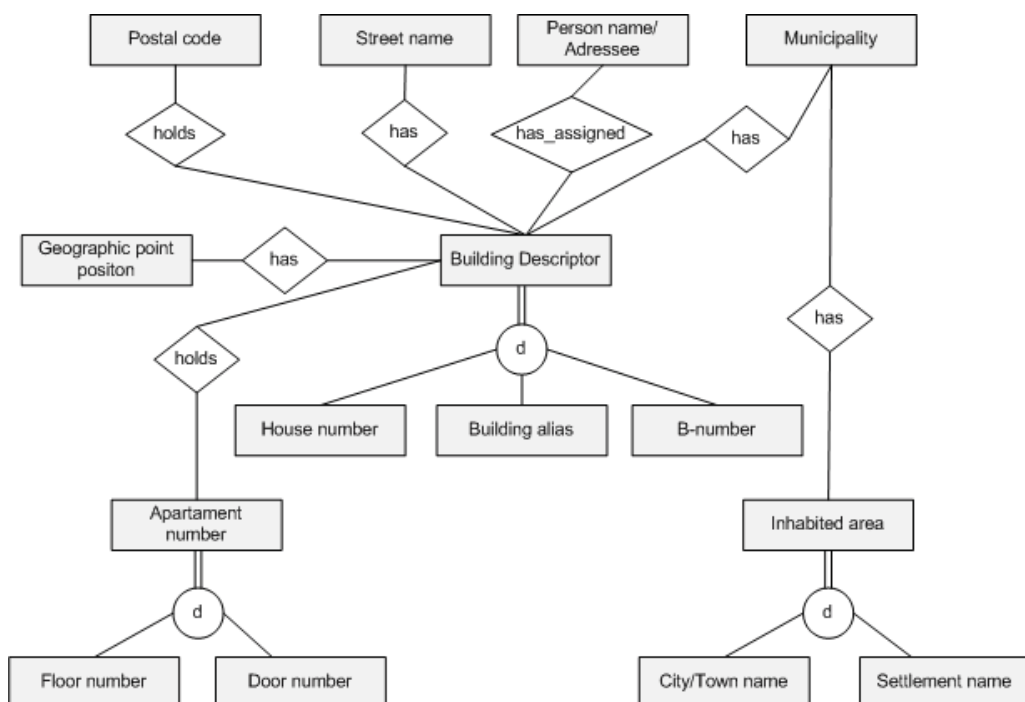


# Ontology chart (concept dependency diagram)



Some modifications regards dependencies have been made.

# Logical model (EERD)





## Benefits in the future

With an electronic address system the possibilities are numerous:

- The Greenlandic Emergency Management:
  - Police, Ambulance, Fire brigade
- Management
  - Construction planning
  - Maintenance/Supplies (road, building, sewage, water, heating)
  - Waste management
- Statistics:
  - Demography
  - Migration
  - Health

## Conclusions and further work

- Use of Danish addressing model as practice example
- Formalization of Greenland's addressing model
  - Geographic point introduction
- Road digitizing plan?
- How to efficiently re-use and interconnect currently available data sets?
  - Interconnection with Danish CPR registry?
  - NIN (land allotment register), GER (company register)
- Extendable model for future?
- Further user requirement engineering?
- Implementation possibilities?

# References

1. <http://www2.fbi.gov/publications/leb/2006/august2006/aug2006leb.htm>, Illustrative figure
2. [http://www.lantmateriet.se/upload/filer/fastigheter/fastighetsinformation/LINA/Nordiskt%20Adressm%C3%B6te/2011/Addressing\\_in\\_Greenland-Some\\_Challenges.ppt](http://www.lantmateriet.se/upload/filer/fastigheter/fastighetsinformation/LINA/Nordiskt%20Adressm%C3%B6te/2011/Addressing_in_Greenland-Some_Challenges.ppt), Addressing in Greenland – some challenges, Nordic Address Meeting. Uppsala, May 2011
3. <http://comawe.blogspot.com/2010/06/sankt-hans-i-nuuk.html>, Connie Maria Westergaards rejseblog, June 2010 Sankt Hans i Nuuk.
4. <http://en.nunagis.gl/>, NunaGIS - Greenland on maps.
5. Lind, M., May 2011. Draft description of the address system in Denmark, v2.0a pp. 5–21.

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