Modelling a local historical social network applying an object-oriented and event-based approach compatible with CIDOC-CRM

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# Stuttgart School Network: Art and Science in Practice

### Who and what is the Stuttgart School?

- The group of artists and researchers focused on generative aesthetics and the production of early computational artworks, mainly Bense, Nees, Nake, beginning in 1964 (Klütsch 2012)
- The group of researchers focused on information aesthetics, beginning in the late 1950s (Döhl 1997)
- Researchers working with Max Bense and protagonists of Concrete Poetry (Geulen 2008)
- => Information Aesthetics, Generative Art, Concrete Poetry





Figure 1: Using network metrics and filters to highlight substructures

## References

- Thought Collectives and scientific disciplines (Ludwik Fleck, Rudolf Stichweh)
- Social Media Analytics (#DHd2018)
- Compart Database Digital Art

Figure 2: Compart Database of Digital Art, University of Bremen, http://dada.compart-bremen.de/browse/news

## Main Entities

- Persons
- Institutions
- Events
- Publications
- Artworks

## Main Entities

- Persons
- Institutions
- Events
- Key Publications
- Artworks

## Data Sources and Data Types

#### Sources

- University of Stuttgart Archive, Max Bense Estate
- Historical Press
- Autobiographical accounts published by protagonists
- Interviews (Marion Röttgen)

### Data Types

- journalistic descriptions, autobiographical descriptions, university documents
- born-digital (webpages), PDF, audio
- => unstructured data

## Data collection and processing

- Bibliographical database (PUMA/Bibsonomy export formats)
- Data collection table (Google Doc export formats)
- Conversion Script konverter.py (csv suitable for direct Gephi import)
- Visualization (Gephi)



Figure 3: data flow

fx					
	Α	В	С	D	E
1	Person1 (ID)	Person2 (ID)	Relationstyp	Bemerkungen	Nachweis /Quelle
2	1	10	pp3		fehlt
3	1	22	pp4		messer1987_bense
4	15	22	pp4		messer1987_bense
5	16	22	pp4		messer1987_bense
6	17	22	pp4		messer1987_bense
7	23	22	pp4		messer1987_bense
8	1	2	pp0	verheiratet; Benses dritte Eh	efrau schröder 1994_ort
9	1	46	pp3		https://puma.ub.uni-stuttgart.de/bibtexkey/döhl1997 stuttgarter/annikahaag
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11	26	2	pp1		harig1995 die
12	26	48	pp1		harig1995 die
13	26	51	pp1		harig1995 die
14	26	49	pp1		harig1995 die
15	26	52	pp1		harig1995 die
16	26	53	pp1		harig1995 die
17	1	15	pp3		faltin1991_als, werden als Schüler beschrieben
18	1	16	pp3		faltin1991_als, werden als Schüler beschrieben
19	1	57	pp3		walther2001_promotionen
20	1	2	pp3		walther2001 promotionen
21	1	68	pp3		walther2001 promotionen
22	1	69	pp3		walther2001_promotionen
23	1	70	pp3		walther2001 promotionen
24	1	71	pp3		walther2001 promotionen
25	1	72	pp3		walther2001_promotionen
26	1	3	pp3		walther2001 promotionen
27	1	73	pp3		walther2001_promotionen
28	1	74	pp3		walther2001 promotionen
29	1	75	pp3		walther2001 promotionen
30	1	76	pp3		walther2001_promotionen
31	1	77	pp3		walther2001 promotionen
32	1	78	pp3		walther2001 promotionen
33	1	79	pp3		walther2001_promotionen
34	1	6	pp3		walther2001 promotionen
35	1	80	pp3		walther2001 promotionen
36	1	81	pp3		walther2001_promotionen
37	1	82	pp3	walther2001 promotionen	
38	1	10	pp3		walther2001_promotionen
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	15	22	ppa		messer1v0/_Dense	Person2 (ID) = ID aus der Personentabelle (numerisch)	
	10	22	ppa		messer 1767_Derse	Relationstyp = ID aus der Liste mit Relationen (siehe unten)	
	1/	22	ppa		messer1v0/_Dense	Bemerkungen = nicht numerisch codierbare Beobachtungen	
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#### Figure 5: Data collection table Netzwerk Stuttgarter Schule

### Data counts

- 135 persons
- 15 institutions (8 in Stuttgart)
- 16 events (1964-1970)
- 3 publications (2 journals, 1 book series)
- ~20 texts processed
- => Small level multimodal historical social network



## Data Model



Figure 6: Nodes and Relations

## Entities

#### Person

- Elisabeth Walther
- Max Bense
- Marion Röttgen
- Institution
  - Technical University of Stuttgart
  - Studiengalerie
  - Bookstore Niedlich
- Event
  - Aesthetic Colloquium
  - First exhibition of computer-generated art at the Studiengalerie
  - Georg Nees presents his generated sketches and aesthetics at the Aesthetic Colloquium
- Key Publication
  - Edition Rot
  - augenblick
  - Grundlagenstudien aus Kybernetik und Geisteswissenschaft

## Relations

- Person Person
- Person Institution
- Person Event
- Person Publication
- Event Institution



Figure 7: Nodes and Relations

### Relations

Person => Person [pp]

- 1. related to
- 2. friends with
- 3. superior (institution)
- 4. academic supervisor, e.g. Ph.D.
- 5. colleague (institution)
- 6. influenced by (secondary source)
- 7. influenced by (autobiographical)
- Person => Institution [pi]
  - 1. part of
    - Lecturer, Professor, Student
    - leading position

# Mapping to CIDOC-CRM

Initial model	CIDOC CRM
Person	E21 Person
Institution	E40 Legal Body
Event	E5 Event
Publication	(assessment ongoing)

# Mapping to CIDOC-CRM

- Person => Person
  - friendship

academic supervisor



Figure 8: Initial Model



Figure 10: CRMsoc solution

=> Use CIDOC-CRM extensions

# Mapping to CIDOC-CRM



Figure 11: CIDOC-CRM remapping data flow

## Next Steps

- 1. More empirical data
- 2. Data model iteration: CIDOC-CRM

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