Golden Agents/Data for History
Processing archival resources and preparing linked data for historical research

Golden Agents Conference 9-10 November 2022, Amsterdam City Archives/KNAW Trippenhuis
Golden Agents
Creative Industries and the Making of the Dutch Golden Age
Introduction

Charles van den Heuvel
Golden Agents Conference 9 November 2022, Amsterdam City Archives

NWO-Investment Large Grant 2017 – 2021 + 1 (2022)
Female Appraisers/Schatsers - Marleen Puyenbroek (UvA)
Yes I do Project/Ja ik wil - Tine de Moor (UU) - 17th C.
newspapers Nicoline van der Sijs (INT/RU) - Amsterdam
Corporate Portraits Norbert Middelkoop - (Amsterdam
Museum) Panpoeticum Batavum/Schrijversportretten/
Lieke van Deinsen (KUL) Ton van Strien (VU) etc. etc.
Understanding the dynamics in the creative industries of the Dutch Golden Age

By analyzing:
interactions between various branches of the creative industries
interactions between producers and consumers of the creative industries
Golden Agents: infrastructure requirements

- **Distributed collections** require to track the **provenance** and preferably the quality/uncertainties of the provided (meta-)data and of the annotations/enrichments.

- In every step of data-handling the **data changes**. Therefore users need to be informed and if possible allowed **interactions** to enable them to **keep track of the data** to see whether they still suite their research questions.

- Infrastructure serves users with different questions, actions and skills. This implies **multiple interfaces** to serve data specialists **to extract and analyse large datasets** and interfaces to **support** different users in their **explorations** by queries for which computer agent technology is brought in.
Golden Agents: infrastructure products

- Combines **semantic web** and **multi agents technologies** to analyze and to interact with heterogeneous existing and new data sets in **linked data** of the Dutch Golden Age

- Incorporating these dynamic interactions as **storylines** and **events in ontologies**

- Creating **interfaces for interaction** during all phases of data-handling

- Combines handwritten text recognition and crowdsourcing to **disclose 2 million scans** of notary acts of the 17th-18th centuries (probate inventories, testaments etc.)
Connecting Data of Archives, Libraries and Museums for historical research of the creative industries of Amsterdam in the 17th and 18th centuries

Jirsi Reinders (Huygens Institute) & Leon van Wissen (University of Amsterdam)
Golden Agents Conference 9 November 2022, Amsterdam City Archives
Amsterdam 1570-1750

- Production and consumption
- Specific producers:
  - Paintings: Painters, illustrators
  - Books: Writers (playwrights, poets), publishers/printers
  - Other: Gold- and silversmiths
- Generic consumption
  - Can be detected via (notarial) probate inventories, but:
    - Objects are not indexed;
    - HTR and index overlap only partly;
    - No off-the-shelf technique available to extract objects from (early modern) transcriptions;
    - The amount of producers that can be linked to objects is limited
  - Thus (due to time, complexity): start with validated data on consumption of cultural goods (in the meantime, experiment with object extraction)
- Persons rather than objects as starting point; index on the notarial archive as a connector between networks of producers and consumers
Dataset

Amsterdam Corporate Group Portraits
Amsterdam Corporate Group Portraits

Dataset description
Contains biographical information on persons depicted on institutional/corporate group portraits in the seventeenth and eighteenth century in Amsterdam.

Dataset statistics
- 6,395 Persons
- 231 Creative Artifacts
- 24,940 Roles

Links
- Wikidata, Rijksmuseum, Amsterdam City Archives, Occasional Poetry

Creator
- Golden Agents project (original data Norbert Middelkoop, UvA)
Schutters van Wijk 1 onder kapitein Joan Huydecoper en luitenant Frans van Waveren, Govert Flinck, 1648 – 1650, [http://hdl.handle.net/11259/collection.38463](http://hdl.handle.net/11259/collection.38463)
Joan Appelman (1608-1694)

About

- Various functions in the city
  - Member of several civic guards
  - Career
- Member of the Vroedschap

Timeline

- Birth (1608)
- Sergeant at Schutterij van wijk I (1648-1648)
- Luitenant at Schutterij van wijk XXIX (1650-1650)
- Luitenant at Schutterij van wijk XXIV (1658-1666)
- Regent at Nieuwezijds Huiszittenhuis (1651-1672)
- Counselor at the City Government (1672-1694)
- Alderman at the City Government (1673-1673)
- Captain at Schutterij van wijk XXV (1666-1681)
- Colonel at Unknown organization (1683-1683)
- Colonel at Schutterij van wijk XI (1681-1684)
- **Burgomaster** at the City Government (1688-1688)
- Death (1694)
Dataset
Rijksmuseum
Rijksmuseum

Dataset description
Europeana Data Model (edm) dump of the Rijksmuseum Collection data.

Dataset statistics
- 667,890 Works
- 62,897 Agents

Links
- Limited/None

Creator
- Rijksmuseum
Painting characteristics

- **Title:** Six Regents and the Beadle of the Nieuw Zijds Institute for the Outdoor Relief of the Poor, Amsterdam, 1657
- **Extent:** canvas, oil paint
- **Dimensions:**
  - height: 143 cm
  - width: 192 cm
- **Date:** 1657-07-24

Portrayed

- Cornelus Metsue
- Jan Appelman
- Abraham Ernst van Bassen
- Joachim Jansz Scheepmaker
- Jan van Halewijn
- Tyman Veeneman.

Zes regenten en de bode van het Nieuwe Zijds Huiszittenhuis te Amsterdam, 1657, Ferdinand Bol, 1657

[http://hdl.handle.net/10934/RM0001.COLLECT.6108](http://hdl.handle.net/10934/RM0001.COLLECT.6108)
Dataset

Occasional Poetry
[=Gelegenheidsgedichten]
Occasional Poetry

Dataset description
Contains information on poetry written for a particular occasion (e.g. marriage, death, profession), including information on author, printer, beneficiary, and the event itself.

Dataset statistics
- 15,459 Persons
- 6,906 Works / poems
- 5,677 Events

Links
- STCN, ECARTICO, Wikidata
- 5,149 links to NTA
- 15,688 links to Amsterdam City Archives

Creator
- Golden Agents project
  (original data supplied by Koninklijke Bibliotheek)
Zegen-Wensch aan de Stadt Amsterdam

http://data.bibliotheken.nl/id/dataset/ggd/event/1688-02-01-1

- Persons:
  - Joannes Hudde (http://data.bibliotheken.nl/id/thes/p108676064)
  - Joan Appelman (http://data.bibliotheken.nl/id/thes/p237543486)
  - Nicolaes Witsen (http://data.bibliotheken.nl/id/thes/p06844530X)
  - Cornelis Geelvinck (http://www.wikidata.org/entity/Q176071)

- Author:
  - Jan Norel (http://data.bibliotheken.nl/id/thes/p072754362)

- Printer:
  - Dirk Boeteman (http://data.bibliotheken.nl/id/thes/p075539543)

Zegen-wensch, aan de stad Amsterdam, onder't gezag van de weledele grootachtbare heeren burgemeesteren, Joannes Hudde, Cornelis Geelvink, heer van Castricum. Mr. Nicolaes Witsen. Jean Appelman.

https://data.goldenagents.org/datasets/ggd/897
Dataset

Short Title Catalogue of the Netherlands (STCN)
**STCN**

**Dataset description**
Expert descriptions of books printed in the Netherlands between 1473-1801 with information on authors, titles, imprints, size, collation formula, subject keywords and typographical features.

**Dataset statistics**
- 229,883 Books/prints
- 37,898 Authors
- 11,031 Printers

**Links**
- NTA, KB Printers

**Creator**
- Koninklijke Bibliotheek (with advice from Golden Agents project)
Nicolaes Witsen (1641-1717)

Standard work on Shipbuilding

Important for growth of Amsterdam
Panpoëticon Batavûm

**Dataset description**
Collection of portraits of Dutch writers with information on painters and the people portrayed.

**Dataset statistics**
- 340 Portraits
- 339 Persons
- 28 Artists

**Links**
- DBNL, Rijksmuseum

**Creator**
- Golden Agents project (original data Lieke van Deinsen, Ton van Strien)

Jan Norel (1635-1700)

Relatively unknown, yet included in the Panpoëticon with portraits of 338 others

Contributor of 61 works in the Rijksmuseum

Wrote 25 works in the STCN/GGD as author

3D reconstruction
http://schrijverskabinet.nl/
Dataset ECARTICO
ECARTICO

Dataset description
Structured biographical data concerning painters, engravers, printers, booksellers, gold- and silversmiths and others involved in the ‘cultural industries’ of the Low Countries in the 16-17th centuries.

Dataset statistics
- 59,649 persons
- 3,552 places
- 1,490 occupations

Linksets
- Wikidata, NTA, RKD Artists, DBNL, VIAF, etc.
- 105,439 external links (hub)

Creator
- Harm Nijboer, Judith Brouwer, Marten Jan Bok (UvA)
Schutters van Wijk 1 onder kapitein Joan Huydecoper en luitenant Frans van Waveren, Govert Flinck, 1648 – 1650, http://hdl.handle.net/11259/collection.38463
Joris de Wijse

Name: Joris de Wijse
Gender: male
Born: Amsterdam baptized on 1621-01-07
Died: Utrecht 1666-02-07
Father: Juriaan de Wijse (? - 1645)
Mother: Trijntje Joris (? - ?)

Marriages:
- Adriana van Heusden (1623 - 1673), Amsterdam 1642-12-20

Children:

Occupation(s):
- art dealer
- playwright
- ontvanger
- notary (1644-1663)
- soldier (1666-1666)

Occupational address(es):
- Amsterdam (1642-1663)

Attributes

https://www.vondel.humanities.uva.nl/ecartico/persons/23653
Dataset
ONSTAGE
ONSTAGE

Dataset description
Contains information on repertoire, performances, popularity and revenues of the cultural program in Amsterdam's public theatre during the period 1637 - 1772.

Dataset statistics
- 107,750 Events/Performances
- 2,977 Works
- 1,699 Persons

Links
- NTA, STCN, ECARTICO

Creator
- Harm Nijboer, Flans Blom, Rob van der Zalm (UvA)
Voorzigtige dolheit

Monday 25th January 1649

Internal id: 1074
Venue: Schouwburg
Place: Amsterdam
Performances: 1. Voorzichtige Dolheijt
Revenue: 201:13:8 (201,675) guilders
Notes:

https://www.vondel.humanities.uva.nl/onstage/plays/48
Dataset
Notary Network
[=Notarissennetwerk]
Notary Network

Dataset description
RDF version of https://notarissenetwerk.nl/, contains biographical information on notaries and the inventories they authored.

Dataset statistics
- 31,854 Inventories
- 892 Notaries
- 2,854 Events

Creator
- Golden Agents project
  (original data by City Archives Amsterdam)

Dataset
- https://doi.org/10.5281/zenodo.7278142
Notary Network - Joris de Wijse

Bridge

- Connects inventories to index data in Amsterdam City Archives Notarial Archive

Useful for entity linking

- Used in Bredius excerpt disambiguation
- Narrowing possible matches through notaries

https://notarisserennetwerk.nl/notaris/2204
Dataset

Bredius Excerpts
Bredius Excerpts

**Dataset description**
Index on persons (mostly artists) in archival documents, among other from the Amsterdam City Archives. Type of deed, date, persons, locations and roles are indexed.

**Dataset statistics**
- 11,117 Excerpts
- 29,370 Persons
- 3,771 Places

**Links**
- Amsterdam City Archives, RKD Artists
- 860 links to Amsterdam City Archive

**Creator**
- Golden Agents project
  (original data RKD)

https://doi.org/10.5281/zenodo.7271871
Ontology for archival sources: ROAR++

- **Reconstructions and Observations in Archival Resources**
  - Model what you observe, interpret and infer
  - Then, you make a reconstruction based on two or more observations

**Levels:**

1. Collection (cf. EAD / RiCO)
2. Observation: Content (from HTR/transcription)
3. Observation: Direct interpretation (cf. traditional index)
4. Observation: Indirect interpretation
5. Reconstruction into one ‘individual concept’ (cf. thesaurus/biography)

Information within Documents (e.g. registries) mention entities (e.g. RoleBearers as persons or places) observed in a context (e.g. groom or address).

Reconstructions are entities observed in more than one Document.

Inferences are not explicitly mentioned in a Document, but are derived from other Observations.
The Role class

- Storing **perdurant information**
- Allows for inclusion of information such as someone's age
- Connect to an 'individual concept' (umbrella concept)
Dataset

City Archives of Amsterdam (SAA)
- Inventories
- Indices
- HTR
City Archives of Amsterdam (SAA)

Dataset description
Based on the inventories, indices and HTR of the Amsterdam City Archives. It features the persons that are indexed by the archive in relation to the registration event that they are mentioned in.

Dataset statistics
- 11,840,515 Persons
- 4,082,324 Records/Events
- 645,523 Locations

Links
- Thesaurus, Adamlink
- 225,384 person links to Ja, ik wil!
- 28,556 person links from other datasets

Creator
- Golden Agents project
  (original data City Archives Amsterdam)
Indices:

- DTB
  - Baptism
  - Marriage
  - Burial
- Notarial (+ HTR)
- Miscellaneous
Schutters van Wijk 1 onder kapitein Joan Huydecoper en luitenant Frans van Waveren, Govert Flinck, 1648 – 1650, [link](http://hdl.handle.net/11259/collection.38463)
Marriages of **Govert Flinck (1615-1660)**
Yes, I do! [=Ja, ik wil!]
Ja, ik wil!

Dataset description
Extra information for the SAA Marriage Banns on ages, occupations, residential addresses, places of origin and relations of the brides and grooms to be.

Dataset statistics
- 342,876 Persons
- 84,457 Relations
- 43,679 Occupations
- 36,1052 Locations
- 94,302 Records

Links
- Amsterdam City Archives

Creator
- Golden Agents project
  (original data Tine de Moor (EUR), René van Weeren (UU))
Govert Flinck in de rol van Bruidegom

Types:
thes:Bruidegom

RDF Rank:
0

Marriage (extended) of Govert Flinck
Tool

Lenticular Lens

Al Idrissou
Lenticular Lens

Linking of datasets

- Between persons acting in notarial, DTB records, Occupational Poetry and Amsterdam corporate group portraits databases, Ja ik wil!, Wikidata, Bredius.

Selection

- (Sub)sets (selection of events, deeds)

Matching

- String similarities (ex. edit distance),
- Time deltas,
- Roles

Reduce search results afterwards to speed up validation with clustering and constraints on matching results

Source URI: https://data.goldenagents.org/datasets/corporatiestukken/person/poorters/636

Target URI: https://archief.amsterdam/indexen/deeds/9d6d21e3-a45a-666d-e053-b784100a1840?person=31af5b61-c535-38c1-8715-116da
e02f235

Source properties:
- pnx:literalName: Jan van de Poll
- dcterms:EarliestBeginTimeStamp: 1597-04-17
- 1632-01-01
- 1636-01-01
- 1637-01-01
- 1640-01-01
- 1641-01-01
- 1643-01-01
- 1645-01-01
- 1646-01-01
- 1648-01-01
- 1650-01-01
- 1653-01-01
- 1655-01-01
- 1658-01-01
- 1661-01-01
- 1663-01-01
- 1671-01-01
- 1678-01-01
- rdfs:label: Birth of Jan van de Poll (1597) • Death of Jan van de Poll (1678) • Geboorte van Jan van de Poll (1597) • Huwelijk tussen Jan van de Poll en Duijfje van Gerwen (?) • Jan van de Poll als Burgemeester bij de Stadsregering (1653-1653) • Jan van de Poll als Burgemeester bij de Stadsregering (1655-1655) • Jan van de Poll als Burgemeester bij de Stadsregering (1658-1658)

Target properties:
- pnx:literalName: Johan van de Poll
- dcterms:EarliestBeginTimeStamp: 1653-01-29
- rdfs:label: Registratie: Boedelinventaris (1653-01-29)
- pnx:literalName: Albrecht van Maren • Duijfje van Gherwen • Geertruijd van Dhere • Dula van Gherwen • Isaak van Gherwen • Jans van Dharen • Johan van de Poll • Johan van Maren • Uijsebten Martens • Matthijs van Gherwen • Niklaas van Gherwen • Pieter van Buren • Susanne Anthonis
Tool

Disembed

Jurian Baas
Graph Embeddings

*Unsupervised* method of entity disambiguation

- Works on the basis of overlap on entity context in the RDF graphs
- Produces clusters of related and duplicated entities

After Lenticular Lens

- First (manual) validation on 'core' figures
- Then automatic clustering on peripheral figures

Cluster of Schutters of Neighbourhood I
Cluster of a single couple
Cluster on religion
(Reformed)
Cluster on religion (Catholicism)
Example objects in probate inventory

https://archief.amsterdam/indexen/deeds/9d6d21e3-a45a-666d-e053-b784100a1840
Contact

Golden Agents
www.goldenagents.org

All members involved
https://www.goldenagents.org/staff/

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jirsi.reinders@huygens.knaw.nl

Leon van Wissen
l.vanwissen@uva.nl
Agent Technology for Assisted Querying of the Data

Jan de Mooij (Utrecht University)
Golden Agents 9 November 2022, Amsterdam City Archives
Challenges for Users

Knowing the query language (SPARQL)

Knowing the terminology

Knowing how everything connects
Assisting the User

One entry point for all connected data sets

One unified ontology for all connected data sets

Show what is available

Assist user in formulating a (formal) query
An agent is a small computer program that can autonomously work towards its goals whilst cooperating with other autonomous agents.
User agents

Represents a user

“Negotiates” with broker

Provides feedback to user
1 \textbf{PREFIX} rdfs: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>  
2 \textbf{PREFIX} ga: <https://data.goldenagents.org/ontology/>  
3  
4 \textbf{SELECT DISTINCT} * \textbf{WHERE} \{  
5 \quad \texttt{?creativeAgent rdfs:type ga:CreativeAgent ,}  
6 \quad \texttt{?creativeAgent ga:hasName ?nameOfTheAgent}  
7 \}  

\textbf{Run Query}
Data Source Agent

Represents a data source

Handles translation of queries

Is unaware of other agents

Can be implemented by data owner to protect parts of the data while still exposing other parts
Broker Agent

Analyses and splits query

Selects capable data source agents

Combines results

Is aware of connections between data sources
Expertise Graph

By Can Kurtan

{ "query": "DELETE FROM person WHERE name = 'Jane Doe';" }
Query Builder

Existing query builders:

- Work only on a single data set
- Assume highly organized data
- Assume a narrow domain

Help a user to build step-by-step a query across multiple data sources while preventing empty results and allowing users to go back and change whenever needed.

Every time the query is updated, the next possible query extensions are calculated from the data.
Contact

All members involved
https://www.goldenagents.org/staff/

Jan de Mooij
a.j démooij@uu.nl

Golden Agents
www.goldenagents.org
Launch website Golden Agents

Bas Doppen (KNAW-Humanities Cluster - Digital Infrastructure)
Golden Agents Conference 9 November 2022, Amsterdam City Archives
Deliverables and Desiderata

Charles van den Heuvel (Huygens Institute/UvA) & Els Stronks (Utrecht University)
Golden Agents Conference 9 November 2022, Amsterdam City Archives
Notarial Deeds in City Archives still growing

Statistics

- 682,907 deeds (1,979,239 scans) checked and indexed
- 597,506 scans of notarial deeds HTR (end ‘22/begin ‘23: 900,000 scans)
- HTR - Models for 35 notaries in total ca. 100 models
Delivered Tools/Software and further developments in CLARIAH

**Tools**
- Lenticular Lens
- Disembed: Software for Entity Linking through Graph Embeddings
- Analiticcl
- Multi-agents query building system

**Development**
- Open source Data Stories

**Other**
- A link is made between Geo-Plugin for Golden Agents and the World Historical Gazetteer for the Dutch Global History collection
- Geo-plugin for Recogito allows for annotation of data, texts or scans as long the selection on the map can be addressed by an URL.
- Within CLARIAH a backend is in development to store and update these annotations (AnnoRepo)
Bredius - ongoing research into objects

Omstreden schets toch van Rembrandt

A olieverfschets uit het Haagse Museum Bredius blijkt na onderzoek en schoonmaakbeurt toch van Rembrandt.


Bredius had toch gelijk: een Rembrandt!

De laatste experts hebben het laatste woord. En dus heeft Museum Bredius met 'De oprichting van Jezus aan het kruis' een echte Rembrandt in huis.

NRC, 4 november 2022, https://www.nrc.nl/nieuws/2022/11/03/met-raadselen-omgeven-olieverfschets-blijkt-toch-van-rembrandt-a4147156
Further developments in historical cultural studies

Focus on:

- **Persons**
  - The most ‘datafied entity’ in our source materials
- **Networks of persons**
  - Our entry into patterns of production, distribution and consumption
- **Clustering**
  - Of their part in production, distribution and consumption
- **Infrastructure**
  - Need for a national register of historical persons!
Potential Future Research Themes

Amsterdam Corporate Group Portraits


Search this dataset

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The Power of the Anecdotal
Danielle van den Heuvel (UvA)

Keynote Golden Agents in the Data for History Lecture Series

Golden Agents Conference 9 November 2022, Amsterdam City Archives