Annotating Narrative Images

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Jataka tale of the nine-colored deer

- It is a mural image and the original mural was located at No. 257 Mogao cave in Gansu province and painted during the Northern Wei dynasty of China

1. The nine-colored deer walked along a river

2. It saved a drowning person from the river

3. The drowning person gave his thanks to the deer on his knees,……

4. The queen talked about her dream about a nine-colored deer to the king

5. The Drowning person told the whereabouts of the deer to the king and the queen in the palace and snitched on the deer .

6. The king made an order to hunt the deer with his army

7. At the same time, the deer was sleeping

8. The deer got caught and confronted with the king. it told the cause and effect of the whole thing to the king

9. the drowning person got punished due to his dishonesty

The nine-colored deer saved a drowning person when it walked along a river. The drowning person gave his thanks to the deer on his knees, and the deer told the drowning person not to disclose its location. At the same time, in the palace, the queen talked about her dream about a nine-colored deer to the king. After the drowning person came back home, he told the whereabouts of the deer to the king and the queen in the palace and snitched on the deer. Then the king made an order to hunt the deer with his army. At last, the deer got caught and confronted with the king, and it told the cause and effect of the whole thing to the king. Finally the drowning person got punished due to his dishonesty.

VU

Plot

WHiSe II

The nine-colored deer saved a drowning person when it walked along a river. The drowning person gave his thanks to the deer on his knees, and the deer told the drowning person not to disclose its location. At the same time, in the palace, the queen talked about her dream about a nine-colored deer to the king. After the drowning person came back home, he told the whereabouts of the deer to the king and the queen in the palace and snitched on the deer. Then the king made an order to hunt the deer with his army. At last, the deer got caught and confronted with the king, and it told the cause and effect of the whole thing to the king. Finally the drowning person got punished due to his dishonesty.

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Plot

Entity

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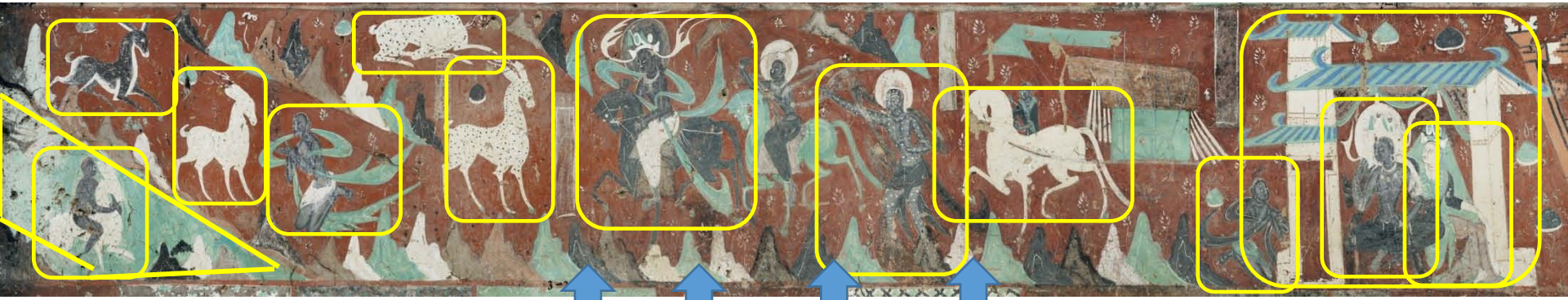

The nine-colored deer saved a drowning person when it walked along a river. The drowning person gave his thanks to the deer on his knees, and the deer told the drowning person not to disclose its location. At the same time, in the palace, the queen talked about her dream about a nine-colored deer to the king. After the drowning person came back home, he told the whereabouts of the deer to the king and the queen in the palace and snitched on the deer. Then the king made an order to hunt the deer with his army. At last, the deer got caught and confronted with the king, and it told the cause and effect of the whole thing to the king. Finally the drowning person got punished due to his dishonesty.

VU

Plot

Entity

Action

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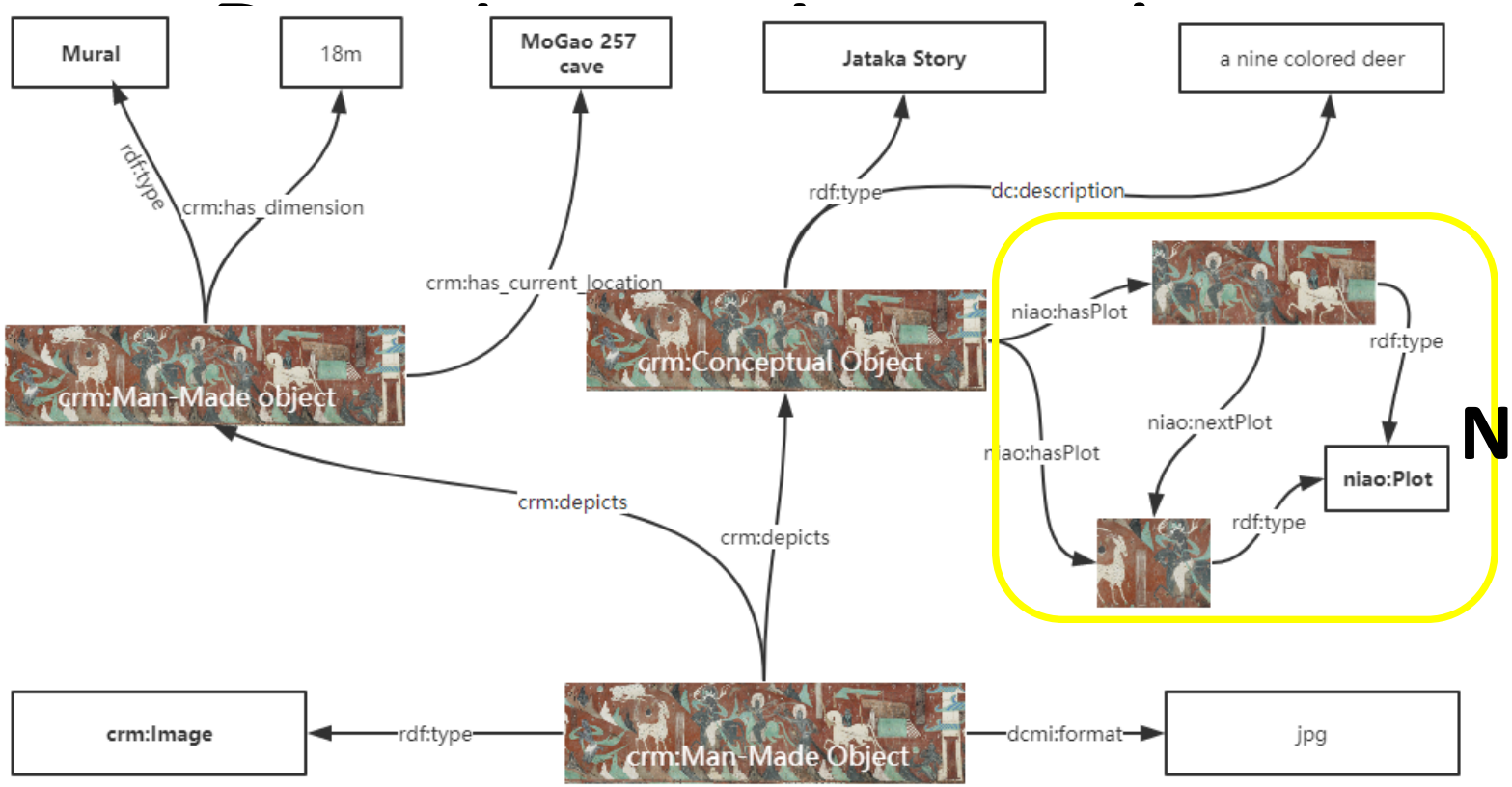

Mural
18m
MoGao 257 cave
Jataka Story
a nine colored deer
rdf:type
crm:has_dimension
rdf:type
dc:description
crm:has_current_location
crm:Man-Made object
crm:Conceptual Object
niao:hasPlot
rdf:type
niao:nextPlot
niao:hasPlot
niao:Plot
rdf:type
crm:depicts
crm:depicts
crm:Image
rdf:type
crm:Man-Made Object
dcmi:format
jpg

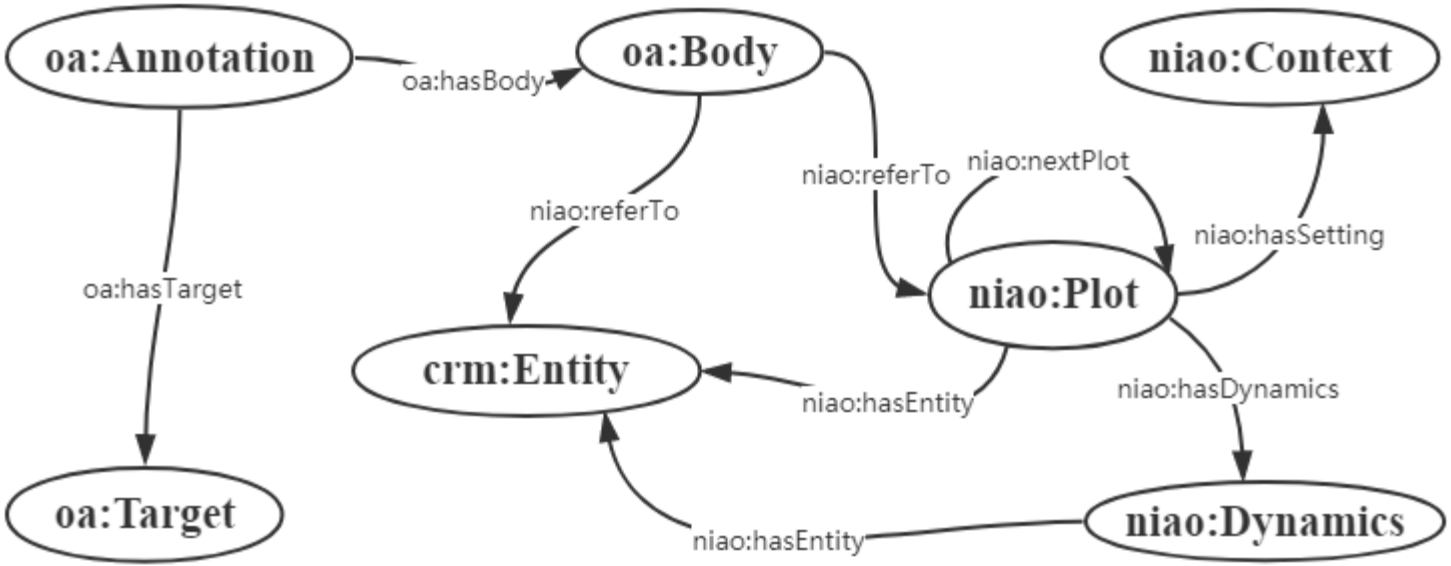
NIAO

Models	Main classes and core properties between events
Event ontology [4]	Event, Agent, TemporalEntity, SpatialThing sub_event(Event, Event)
Tuffield[5]	Fabula, Story, Narrative
Stories Ontology[6]	EventList, EventSlot, Interpretation, Story events(Story, EventList), item(EventSlot, Event) slot(EventList, EventSlot), sub_story(Story, Story)
Storytelling Ontology[7]	Story, Scene, Agent, Event, Role, Concept
Fabio Ciotti[8]	Actant, Action, Actor, Event, Quality, Object, Place
Rossana[9]	Story, Entity, GeographicalPlace, Dynamics TemporalCollocation, Artifacts
ABC Ontology[10]	Entity, Actuality, Temporality, Abstraction Event, State, Action, Agent Situation as an intermediary and properties like follows and precedes are designed
BBC storyline ontology[11]	Event, Storyline, StorylineSlot, Topic follows(StorylineSlot, StorylineSlot)
SEM[12]	Type, Actor, Object, Role, Temporary, Even, Place Time, hasSubEvent(Event, Event)
Activity ontology[13]	Activity, Person, PhysicalEnity, Area hasSubActivity(Activity, Activity)
Event Pattern [14]	Event, SpatioTemporalExtent, ParticipantRole InformationObject, SubEventOf(Event, Event)
LODE[15]	Event, TemporalEntity, Space, Participation
Event-model F[16]	Event, Situation, Role, Quality, Object, Description isEventIncludedIn(Event, Situation)
WikiTimes Ontology[17]	Story, Event, Entity, Storyline, Location subEvent(NewsEvent, NewsStory) superEvent(NewsEvent, NewsStory) belongstoStory(NewsEvent, NewsStory)

- ***Event Detection, Representation and Exploitation***
- Dive+
- NewsReader
- Linked open piracy
- Event detection from YouTube videos, Wikipedia, Twitter , news articles…..

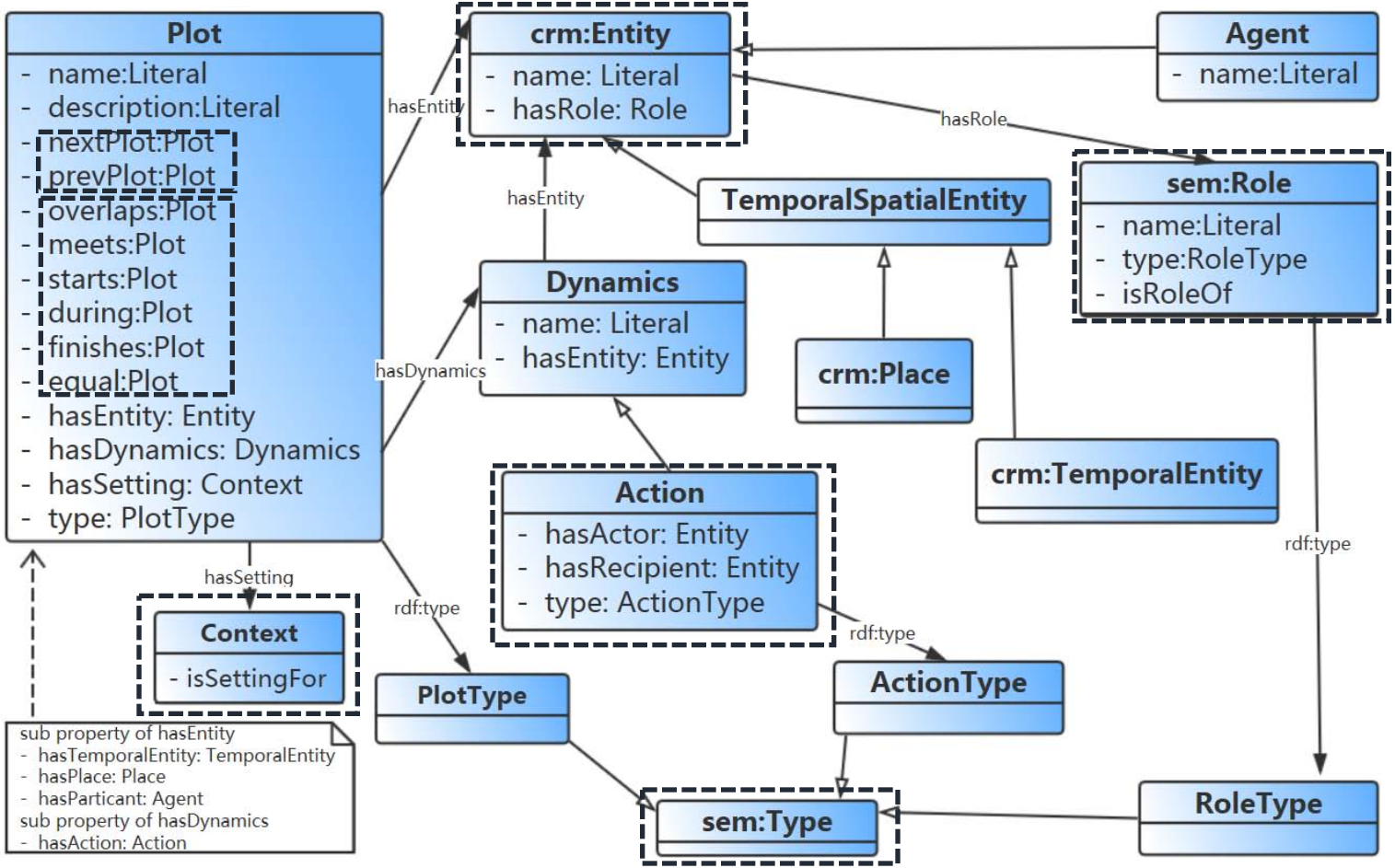
CIDOC-CRM, ODPs, OAC

Narrative Image Annotation Ontology



VU

WHiSe II



J. F. Allen, Maintaining knowledge about temporal intervals, Communications of the ACM 26 (1983) 832-843.

Narrative Image Annotation

×

	name	cave	dynasty	annotator	resource	加一列
original.jpg	九色鹿本生故事壁画	莫高窟第257窟西壁中部	北魏	Lei	http://baike.baidu.com/item/	

localhost:5000

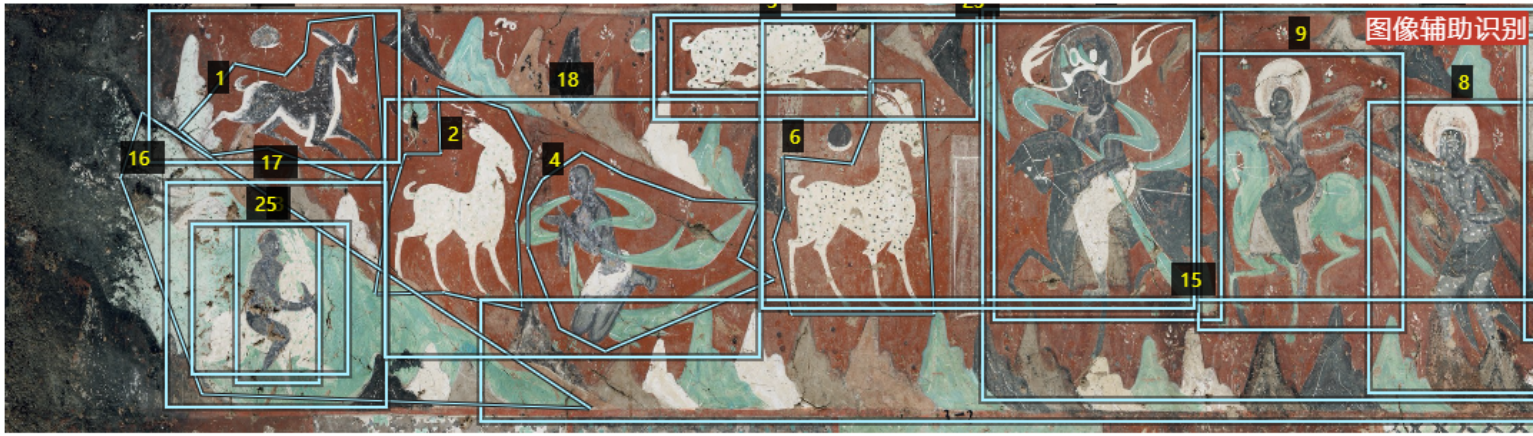
首页 图片(Image) 标注(Annotation) 视图(View) SPARQL 帮助(Help) ← → ☰ − + = c v a ×

标注形状(Shape)

已载图片(Loaded Image)

图片描述(Image Text)

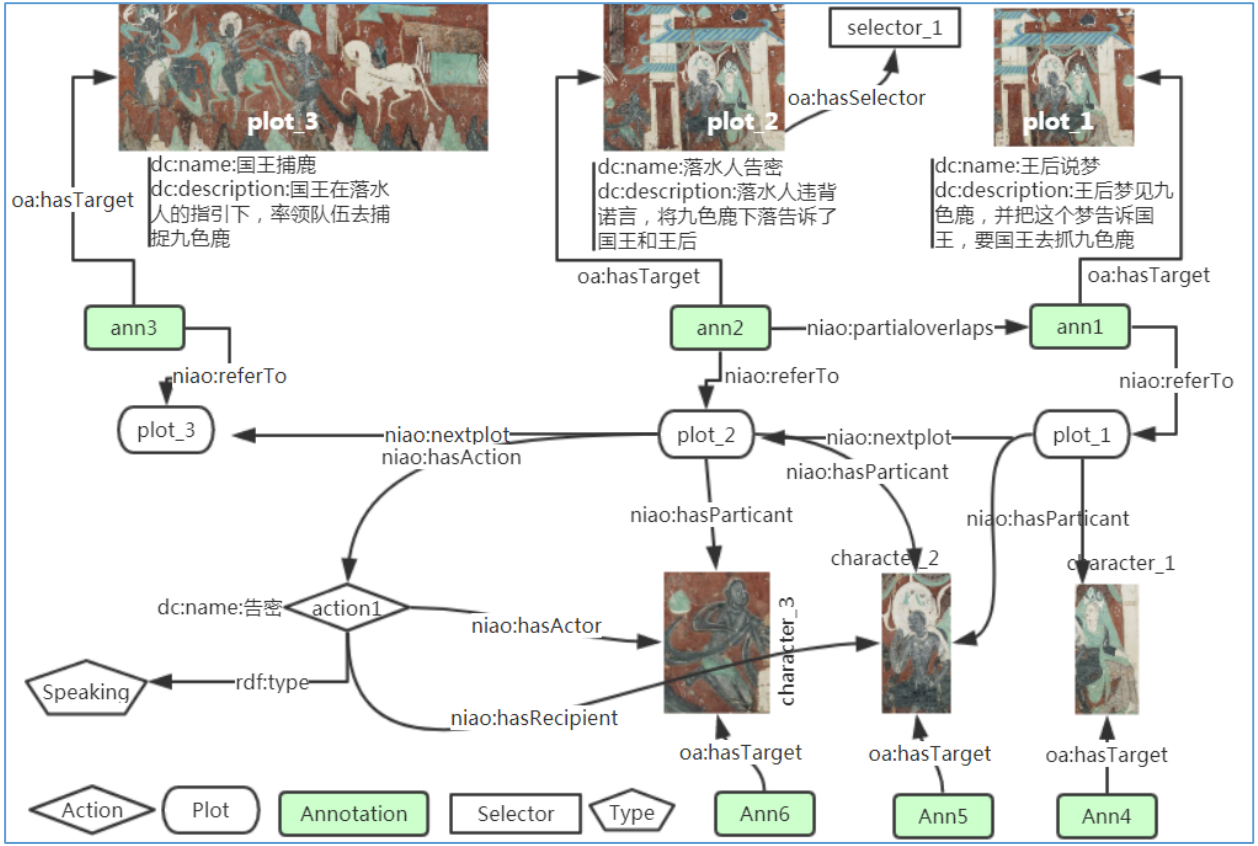
在一片景色秀丽的山林中，有一只鹿。它双角洁白如雪，身上有九种鲜艳的毛色，漂亮极了，人们都称它九色鹿。 这天，九色鹿在河边散步。突然，耳边传来“救命啊，救命！”的呼喊，只见一个人在汹涌的波涛中奋力挣扎。九色鹿立即纵身跳进河中，将落水人救上岸来 落水人名叫调达 得救



	number	type	name	hasRole	hasAction	nextPlot	hasEntity	overlaps	hasSetting	hasAction_2	plotorder
19	19	情节	王后说梦		说梦#13	20	12,13	20			4
20	20	情节	调达告密		告密#12	21	11,12,13	19			5
21	21	情节	国王追捕		追捕#14，指使	22	7,8,9,10	23			6

Add New

Annotation Results (Cont.)



Annotation Results

```
<http://niao.whu.edu.cn/anno1> a oa:Annotation;
    oa:hasBody <http://niao.whu.edu.cn/body1>;
    oa:hasTarget <http://niao.whu.edu.cn/thing1>;
<http://niao.whu.edu.cn/body1>
    niao:referTo <http://niao.whu.edu.cn/plot1>;
<http://niao.whu.edu.cn/plot1> a niao:Plot;
```

```
<http://niao.whu.edu.cn/anno2> a oa:Annotation ;
    oa:hasBody <http://niao.whu.edu.cn/body1> ;
    oa:hasTarget [
        oa:hasSource <http://niao.whu.edu.cn/thing1> ;
        oa:hasSelector [
            a oa:SvgSelector ;
            dcterms:conformsTo <https://www.w3.org/TR/SVG11/> ;
            rdf:value <svg><circle cx = "120" cy = "150" r = "10"/></svg>
            cx 120;
            cy 150;
            r 10]] .
<http://niao.whu.edu.cn/body1>
    niao:referTo <http://niao.whu.edu.cn/plot1>;
```

localhost:5000/sparql

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX niao: <http://niao.whu.edu.cn#>
PREFIX oa: <http://www.w3.org/ns/oa#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX iiif: <http://iiif.io/api/image/2.1/#>
SELECT ?name ?plotname ?plotregion WHERE{
    ?i niao:filename ?name.
    ?i niao:hasAnnotation ?a.
    ?a oa:hasBody ?b.
    ?b niao:referTo ?p.
    ?p niao:plotorder ?o.
    ?p niao:name ?plotname.
    ?a oa:hasTarget ?t.
    ?t oa:hasSelector [rdf:value ?plotregion].
}ORDER BY ?o LIMIT 50
```

Table | Image

Showing 1 to 8 of 8 entries

Search: Show 50 entries

	name	plotname	plotregion
1	original.jpg	九色鹿散步	"name":"rect","x":209,"y":11,"width":363,"height":220
2	original.jpg	九色鹿救落水人调达	"name":"rect","x":234,"y":260,"width":320,"height":326
3	original.jpg	落水人调达谢恩	"name":"rect","x":554,"y":139,"width":545,"height":374
4	original.jpg	王后说梦	"name":"rect","x":2872,"y":6,"width":602,"height":602
5	original.jpg	调达告密	"name":"polygon","x":[3511,3508,2865,2853,2694,2707,3511],"y":[586,16,3,351,358,598,586]
6	original.jpg	国王追捕九色鹿	"name":"rect","x":1422,"y":9,"width":1346,"height":567
7	original.jpg	乌鸦叫醒九色鹿	"name":"rect","x":944,"y":16,"width":469,"height":152
8	original.jpg	国王和九色鹿当面对质	"name":"rect","x":1102,"y":25,"width":627,"height":418

localhost:5000/sparql

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX niao: <http://niao.whu.edu.cn#>
PREFIX oa: <http://www.w3.org/ns/oa#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX iiif: <http://iiif.io/api/image/2.1/#>
SELECT ?name ?plotname ?plotregion WHERE{
    ?i niao:filename ?name.
    ?i niao:hasAnnotation ?a.
    ?a oa:hasBody ?b.
    ?b niao:referTo ?p.
    ?p niao:plotorder ?o.
    ?p niao:name ?plotname.
    ?a oa:hasTarget ?t.
    ?t oa:hasSelector [rdf:value ?plotregion].
}ORDER BY ?o LIMIT 50
```

Table | Image

No.1	name	plotname
1	original.jpg	九色鹿散步
2	original.jpg	九色鹿救落水人调达
3	original.jpg	落水人调达谢恩
4	original.jpg	王后说梦
5	original.jpg	调达告密
6	original.jpg	国王追捕九色鹿
7	original.jpg	乌鸦叫醒九色鹿
8	original.jpg	国王和九色鹿当面对质

Summary

- NIAO is suitable for modeling plot and action level content;
- NIA is designed to be used manually;
- Granularity of a plot's region in narrative image may be different by different annotators.

[1]. J. F. Allen, Maintaining knowledge about temporal intervals, Communications of the ACM 26 (1983) 832-843.

WHiSe II

Future Work

- Use computer vision technology to assist in identifying entities or plots;
- Further Evaluation.
- Import specific domain vocabularies and Wordnet.

VIST(Microsoft, 2016)

The dog was ready to go.

AVA(Google, 2017)



Thank you!


VIENNA AVSTRIÆ
Workshop on Humanities in the Semantic Web - WHiSe II
Co-located with the 16th International Semantic Web Conference (ISWC 2017) - Vienna, Austria, October 21-25