Thesauri of Historical Periods
A Proposal for Standardization

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What does "Period" mean?

Period definition by CIDOC CRM (ISO/CD21127):

"This class comprises sets of coherent phenomena or cultural manifestations bounded in time and space. It is the social or physical coherence of these phenomena that identify an E4 Period and not the associated spatio-temporal bounds. These bounds are a mere approximation of the actual process of growth, spread and retreat. Consequently, different periods can overlap and coexist in time and space, such as when a nomadic culture exists in the same area as a sedentary culture. …"

Problem

- Confusion of time with phenomenon in spacetime
- Confusion of definition and spatiotemporal approximation
- Vagueness of traditional definition
- Confusion of evidence and conclusion, definition and interpretation
- Confusion of general characteristics and distinct characteristics
- Lack of communication – different scientists use different definitions and different terminology

General models for thesauri (ISO2788) fail to capture period definition.

No satisfactory solution proposed so far. We have presented this approach CAA 2004/ CIDOC 2006

Related projects: PeriodO, AAT (Getty), Perseus, MIDAS, CLIO, CIDOC CRM.

Objectives

- Provide the specification of a comprehensive document structure for thesauri of periods based on archaeological theory, computer science and the CIDOC CRM.

- Provide a standard format for defining periods.

This will enable us to:

- *Standardize forms and templates*

- *Organize archaeological information in a computerized environment*

- *Classify museum objects more consistently by period of creation*

- *Identify better contemporary finds in archaeological research and excavations*

- *Make easier the communication and knowledge sharing between scientists*

The presented method and thesaurus

does not aim to analyze periods or to prescribe a correct scientific opinion about chronological problems!

Instead, it aims to provide :

- an overview of scientific opinions
- the relationships between multiple period definitions

via a methodical approach…

Approach

- A schema specification (for the creation and management of period thesauri) in the form of an XML DTD *for:*
  - ◆ *data acquisition and exchange*
  - ◆ *supporting a process of submission - redefinition*
  - ◆ *replacing missing linking possibility*

- A derived schema specification *for:*
  - ◆ *data storage*
  - ◆ *supporting linking (and possibly versioning)*

- an example (of period names within the Helladic period) as a proof of concept

Approach

- the schema describes a single period concept as a single document *that*
  - ◆ *may link to other period definitions,*
  - ◆ *places,*
  - ◆ *literature citations*
- *A period thesaurus = a set of linked period definitions*

Approach

An example of period names within the Helladic period as as proof of concept

: implemented in XML,

demonstrating problems of identification and classification.

Period DTD Major Elements

1. metadata about the conception of the period
2. multilingual terminology naming the period
3. definition (defining criteria & events)
4. spatiotemporal extent, analysis and spatiotemporal relationships
5. further description : characteristic attributes and cultural influences
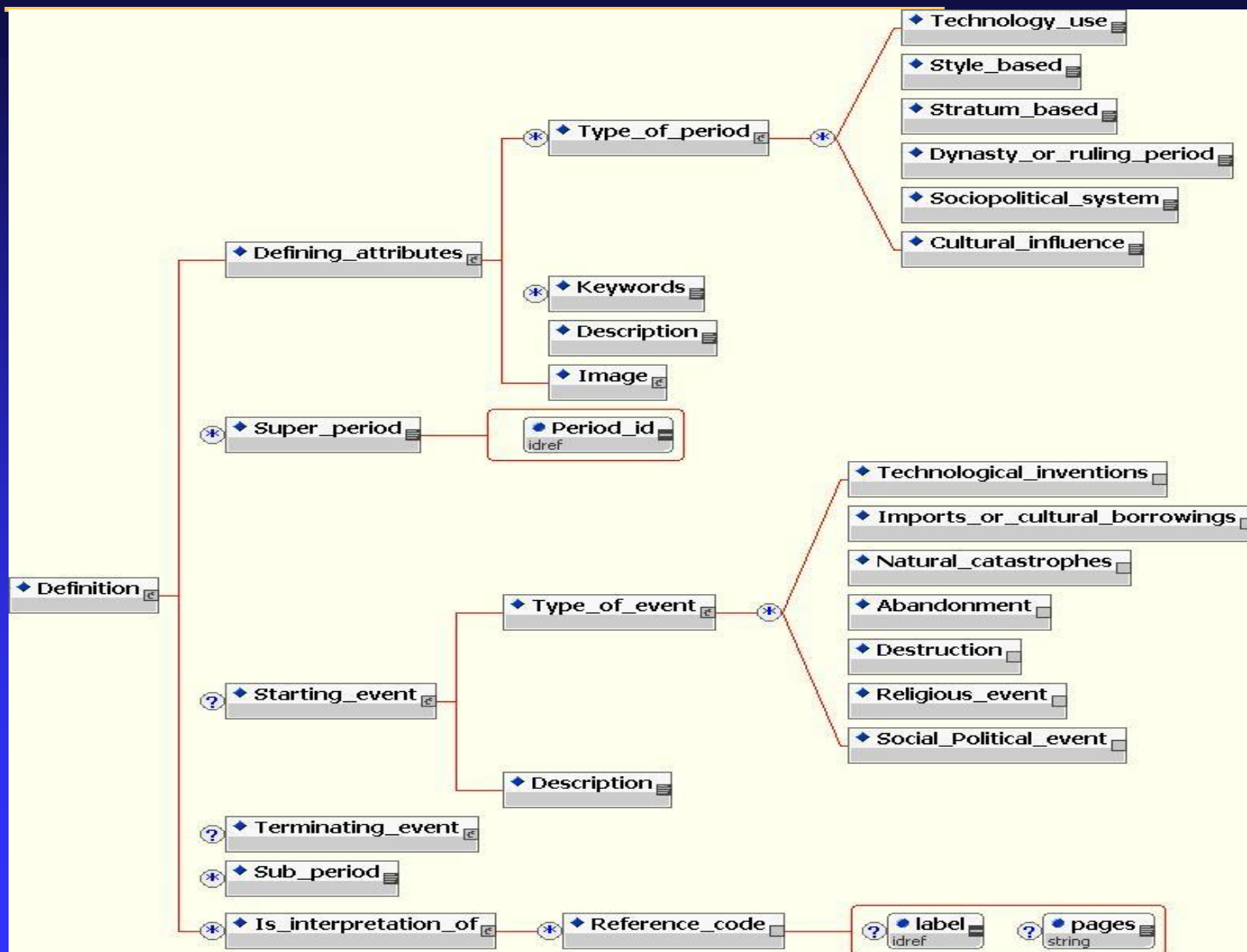6. literature citation

Definition of period

Period is defined by distinct ("defining")

criteria based on the archaeological contexts

rather than by time and place.

"Defining criteria" are: types of phenomena or interrelated phenomena that determine the unity and identify the cultural continuity of a period.

   - Their occurrence determines the spatiotemporal extent

"Defining criteria" are distinguished from the "general characteristics" that simply describe periods and other distinct characteristics ("Index fossil") that do not determine the spatiotemporal extent
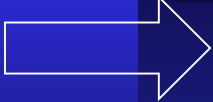
Period definition: DTD

Period definition and events

Events are related to period definition.They may mark limits of the temporal extent of a period.

Events may *happen* at the beginning or at the end of a period, but they *do not cause* a period. They are seen as occasion rather than cause.

Those events do not define the periods themselves as cultural phenomena.
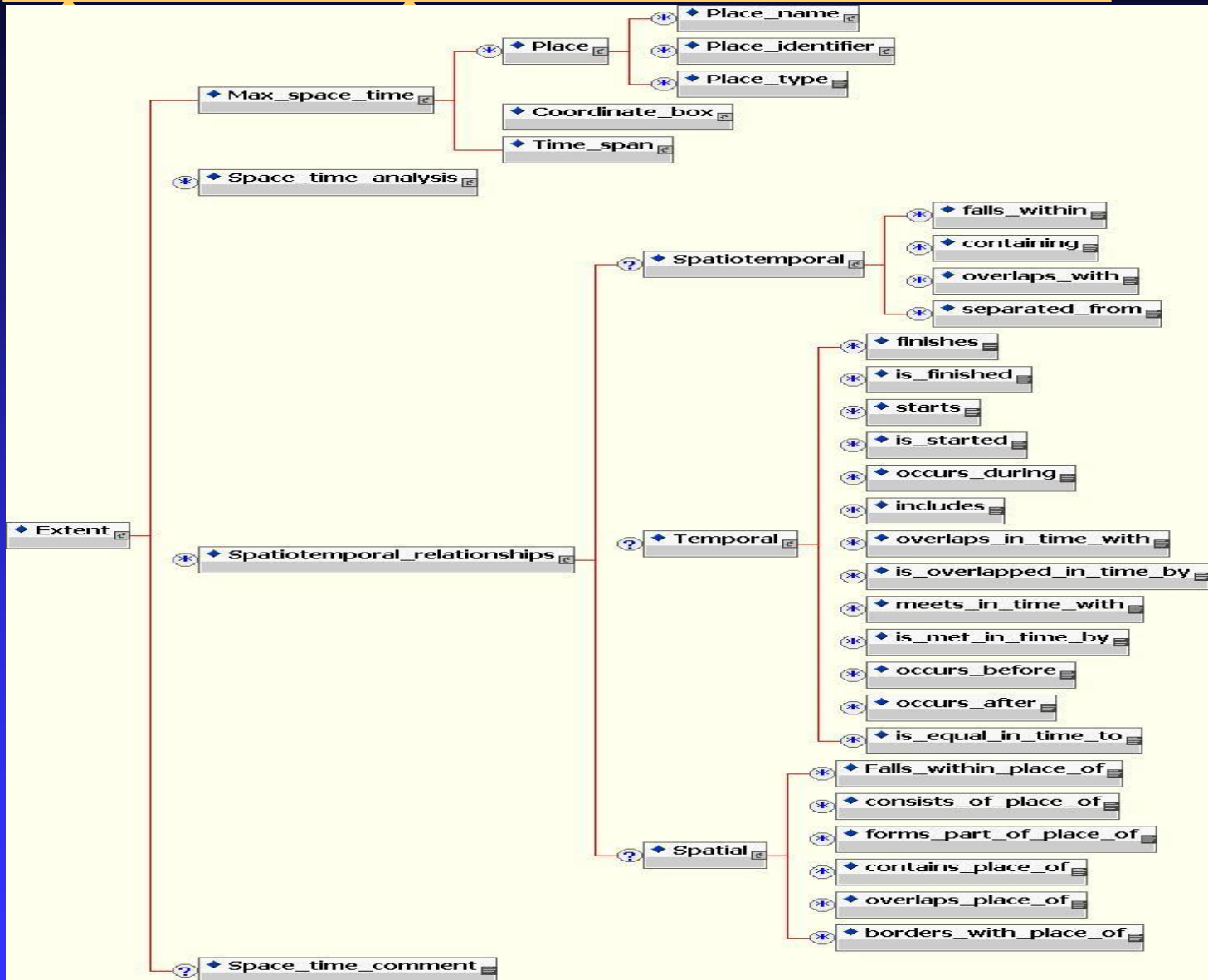
Spatiotemporal extent

The extent of a period (in time and space) is
approximated by a description of spatial and
temporal outer bounds ("box").

The extent of a period may be refined as a temporal
evolution (analysis) over space.
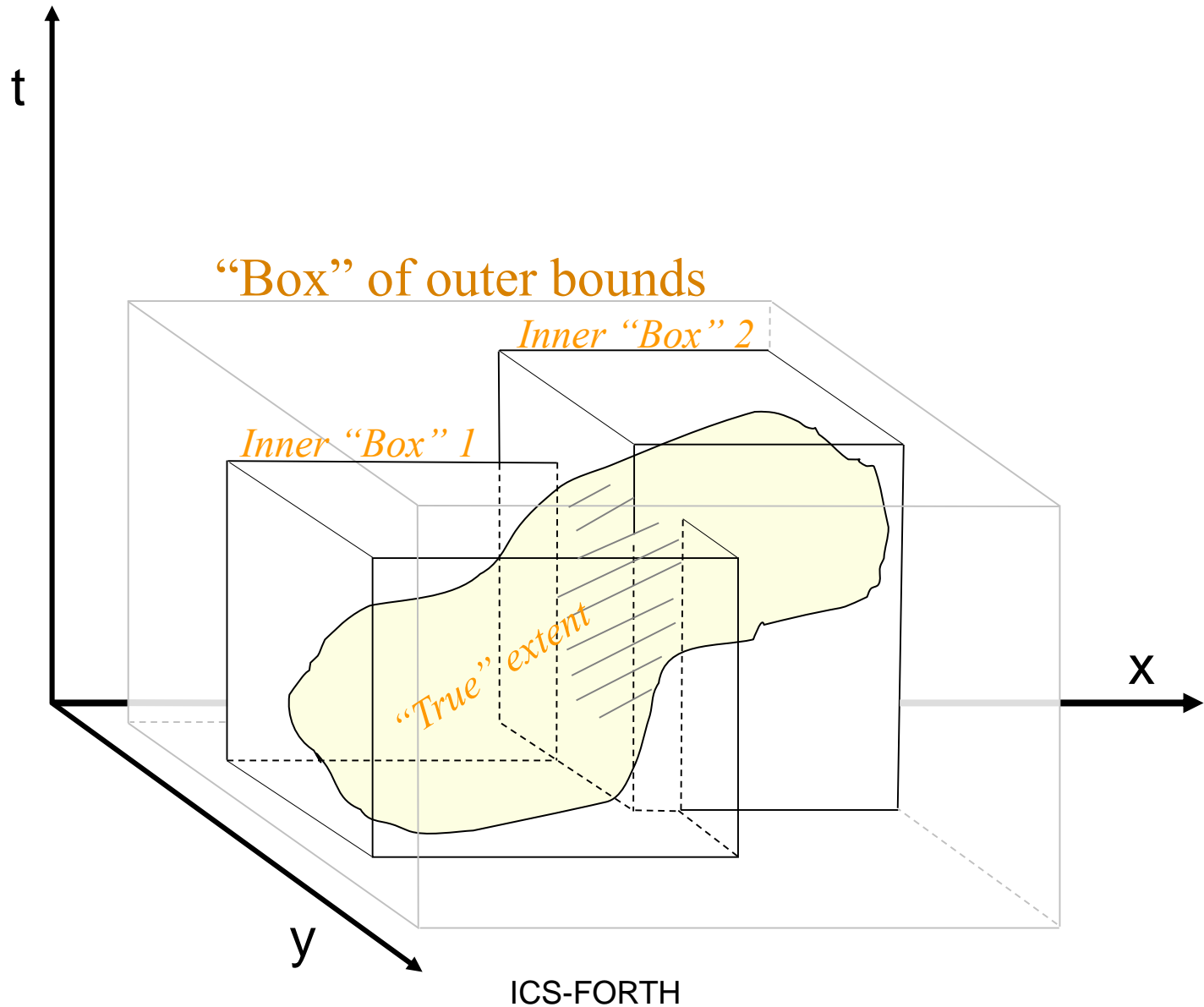
The spatiotemporal extent may also constraint by

spatial

temporal, and

spatiotemporal relations to other periods

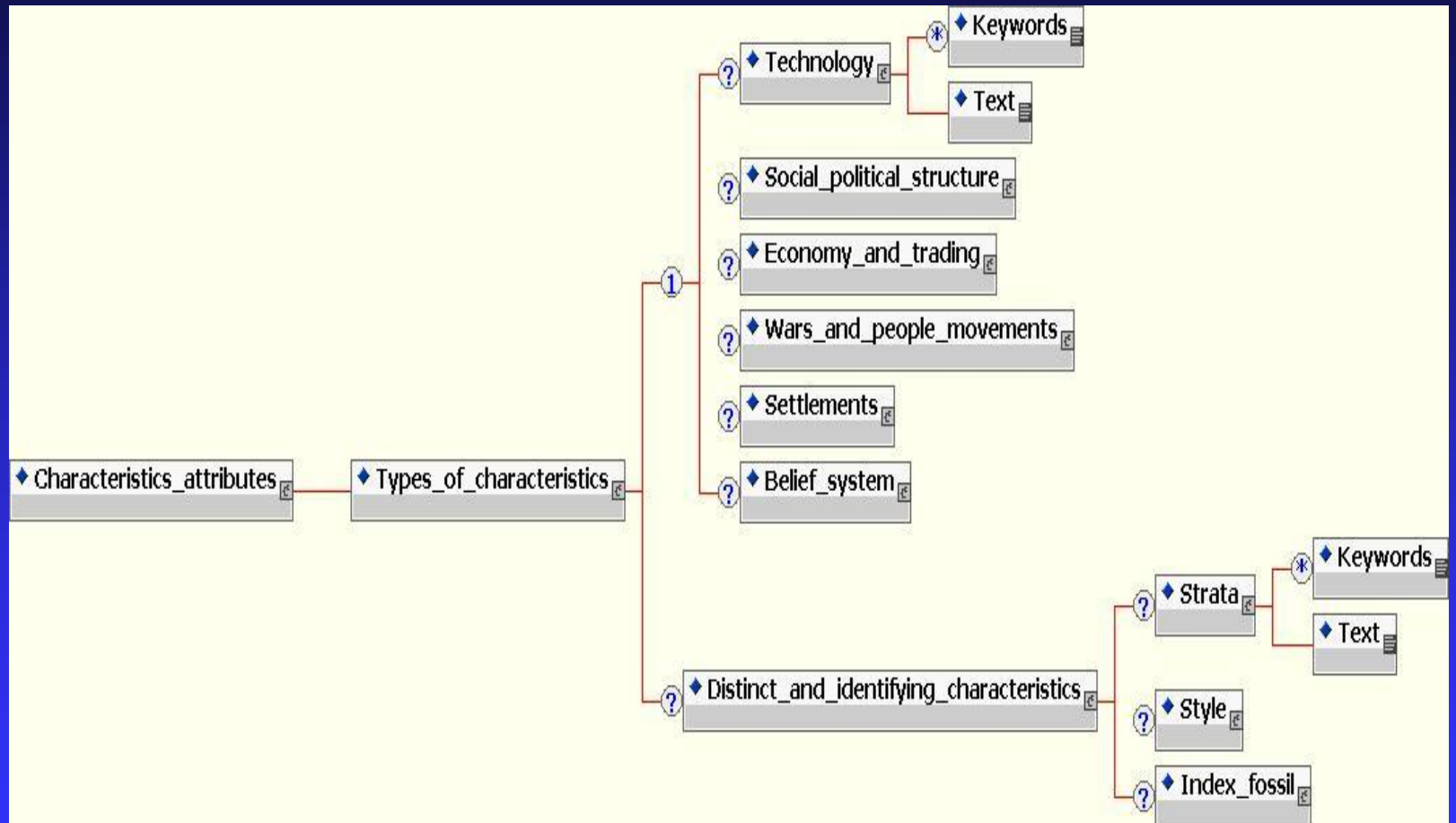resulting from archaeological evidence (not absolute dating)

Spatiotemporal extent: DTD

Space time analysis

"Box" of outer bounds

Inner "Box" 2

Inner "Box" 1

"True" extent

t

x

y

ICS-FORTH

Characteristics attributes: DTD

An example of period thesaurus

An example thesaurus of period names of Helladic prehistory has been developed.

Different types of periods have been selected in order to prove the complexity of period relationships and definition. They reflect different scientific opinions/ interpretations – definitions.

The example is used to confirm the structure of the schema.

Example of different "defining criteria"

Period (*stylistic*):

"MMIB"

Definition based on:

Pottery Style

Description: Development of MMIb Style (Barbotine, Dark on Light, growing polychromy on potterry)

Interpretation by: A.Evans 1921

Period (*social-political*):

"Old Palace"

Definition based on:

Social-political system

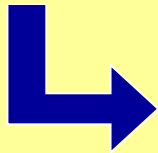Description:Foundation of palaces – palatial society (first destruction of palaces at the end of period)

Interpretation by: N.Platon 1958

Time-span (approximately): 2000/1900 B.C- 1700 B.C

Example of periods and events

Event ("terminating" or "starting"): The eruption of the volcano in Thera :

Date: 1646 or 1628 B.C

was used as a *chronological end mark* of Late Cycladic I period, now as *starting mark*.

LCI period is defined by a combination of cultural phenomena and not by the dramatic event of the eruption.

Conclusions

- A formal methodology has been developed to capture period definition and description – it provides the first specification of document structure for thesauri of periods, which goes beyond general models for thesauri. It is based on CIDOC specifications, archaeological reasoning and computer science.

- A schema is proposed as a guide to good practice (possible standard) for creating thesauri of periods.