

# Structured Reporting

## - More Complex Examples



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NEMA SR Workshop

29th-30th March 2000

# Outline

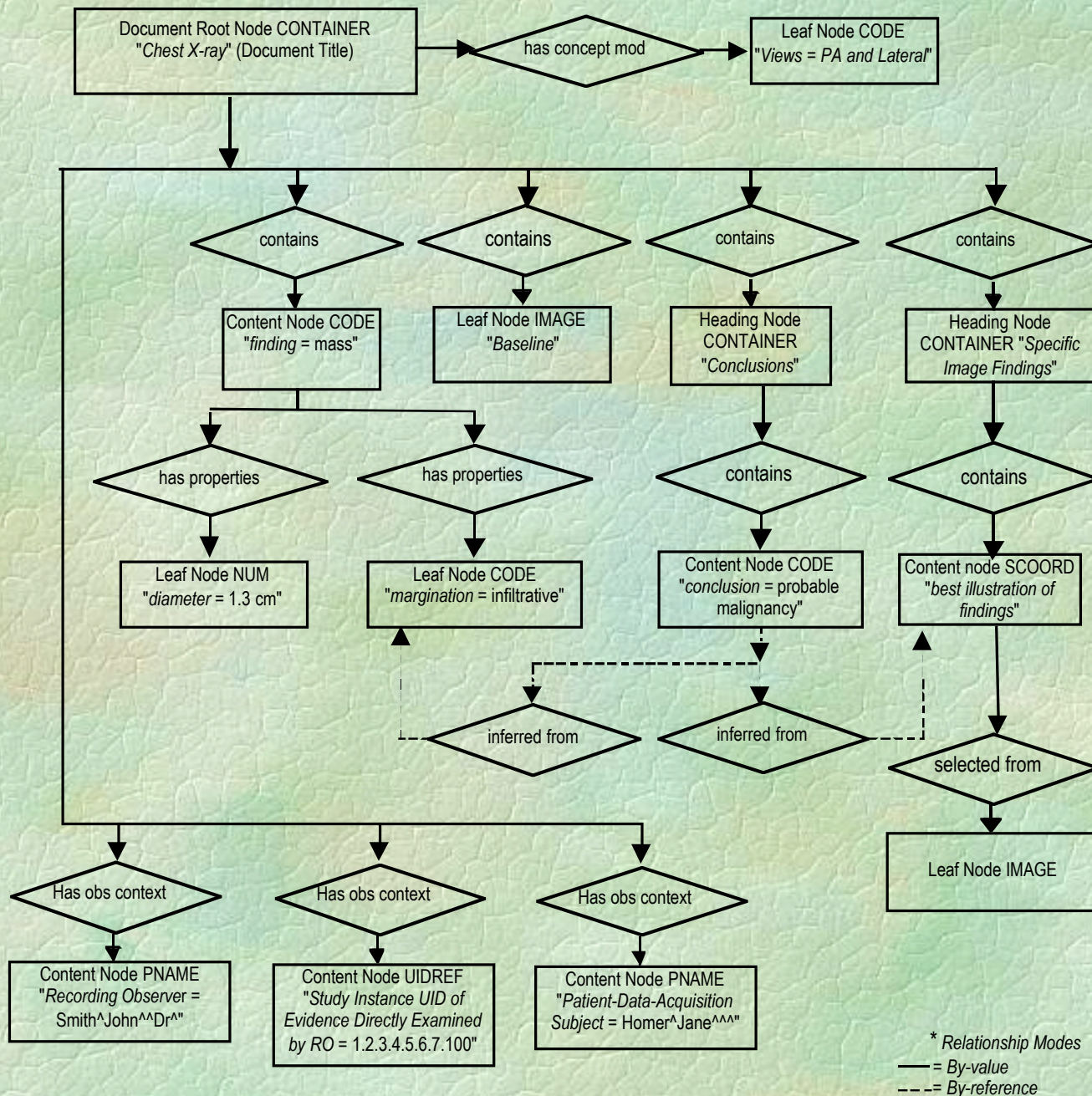
- ✧ Features of Sup 23 example
- ✧ Features not in example
- ✧ Textual equivalents of the example
- ✧ Fully annotated illustration of the example
  - Encoding of components of the example
- ✧ Inheritance of Observation Context
- ✧ Post-coordination of Concept Name
- ✧ Reference collection attributes up front

# Features of Example

- ❧ No plain text at all, everything coded
- ❧ Post-coordinated document title
- ❧ Inferences that lead to a conclusion are
  - documented
  - encoded by reference rather than by value
- ❧ References to image and coordinates
- ❧ Numeric measurement
- ❧ Observation context

# SR Features not in Example

- ✧ Post-Coordination of other content items
- ✧ Containers without Concept Name
  - i.e. containers that aren't "headings"
- ✧ Observation context extended in children
- ✧ "Inferred from" relationship *by-value*
- ✧ Temporal Coordinates




## Report of Chest X-Ray (PA and Lateral Views)

Patient Jane Homer

Study # 123456

Recorded by Dr. John Smith


The finding is a mass measuring 1.3 cm in diameter with an infiltrative margination.

The baseline image is shown at  [\(Click to view\)](#)

### **Conclusions**

The conclusion is a probable malignancy, *inferred from* the infiltrative margination of the mass and the appearance shown by the best illustration of findings.

### **Specific Image Findings**

The best illustration of findings is  [\(Click to view\)](#)

## Chest X-Ray

*has concept modifier* Views=PA and Lateral

Recording Observer=Smith^John^Dr^


Study Instance UID ...=1.2.3.4.5.6.7.100

Patient-Data-Acquisition-Subject=Homer^Jane^^

Finding=Mass

*has properties* diameter=1.3 cm

*has properties* margination=infiltrative (1.4.2)

Baseline Image 

## Conclusions

conclusion=probable malignancy

*inferred from* 1.4.2

*inferred from* 1.7.1

## Specific Image Findings

best illustration of findings(1.7.1)



.



“contains” relationship not shown

## Chest X-Ray

*has concept modifier* Views=PA and Lateral  
Recording Observer=Smith^John^Dr^  
Study Instance UID ...=1.2.3.4.5.6.7.100  
Patient-Data-Acquisition-Subject=Homer^Jane^^  
Finding=Mass

*has properties* diameter=1.3 cm

*has properties* margination=infiltrative (1.4.2)

Baseline Image 

## Conclusions

conclusion=probable malignancy

*inferred from* 1.4.2

*inferred from* 1.7.1

## Specific Image Findings

best illustration of findings(1.7.1)





## Concept Name /Value pairs used

### Chest X-Ray

*has concept modifier* Views=PA and Lateral

Recording Observer=Smith^John^Dr^

Study Instance UID ...=1.2.3.4.5.6.7.100

Patient-Data-Acquisition-Subject=Homer^Jane^^

Finding=Mass

*has properties* diameter=1.3 cm

*has properties* margination=infiltrative (1.4.2)

Baseline Image



### Conclusions

conclusion=probable malignancy

*inferred from* 1.4.2

*inferred from* 1.7.1

### Specific Image Findings

best illustration of findings(1.7.1)



# Concept Name without a value used as a heading (container)

## Chest X-Ray

*has concept modifier* Views=PA and Lateral  
Recording Observer=Smith^John^Dr^  
Study Instance UID ...=1.2.3.4.5.6.7.100  
Patient-Data-Acquisition-Subject=Homer^Jane^^  
Finding=Mass  
*has properties* diameter=1.3 cm  
*has properties* margination=infiltrative (1.4.2)

Baseline Image



## Conclusions

conclusion=probable malignancy  
*inferred from* 1.4.2  
*inferred from* 1.7.1

## Specific Image Findings

best illustration of findings(1.7.1)



# Concept Name without a value used as Purpose of Reference for IMAGE, SCOORD

## Chest X-Ray

*has concept modifier* Views=PA and Lateral

Recording Observer=Smith^John^Dr^

Study Instance UID ...=1.2.3.4.5.6.7.100

Patient-Data-Acquisition-Subject=Homer^Jane^^

Finding=Mass

*has properties* diameter=1.3 cm

*has properties* margination=infiltrative (1.4.2)

Baseline Image



Conclusions

conclusion=probable malignancy

*inferred from* 1.4.2

*inferred from* 1.7.1

Specific Image Findings

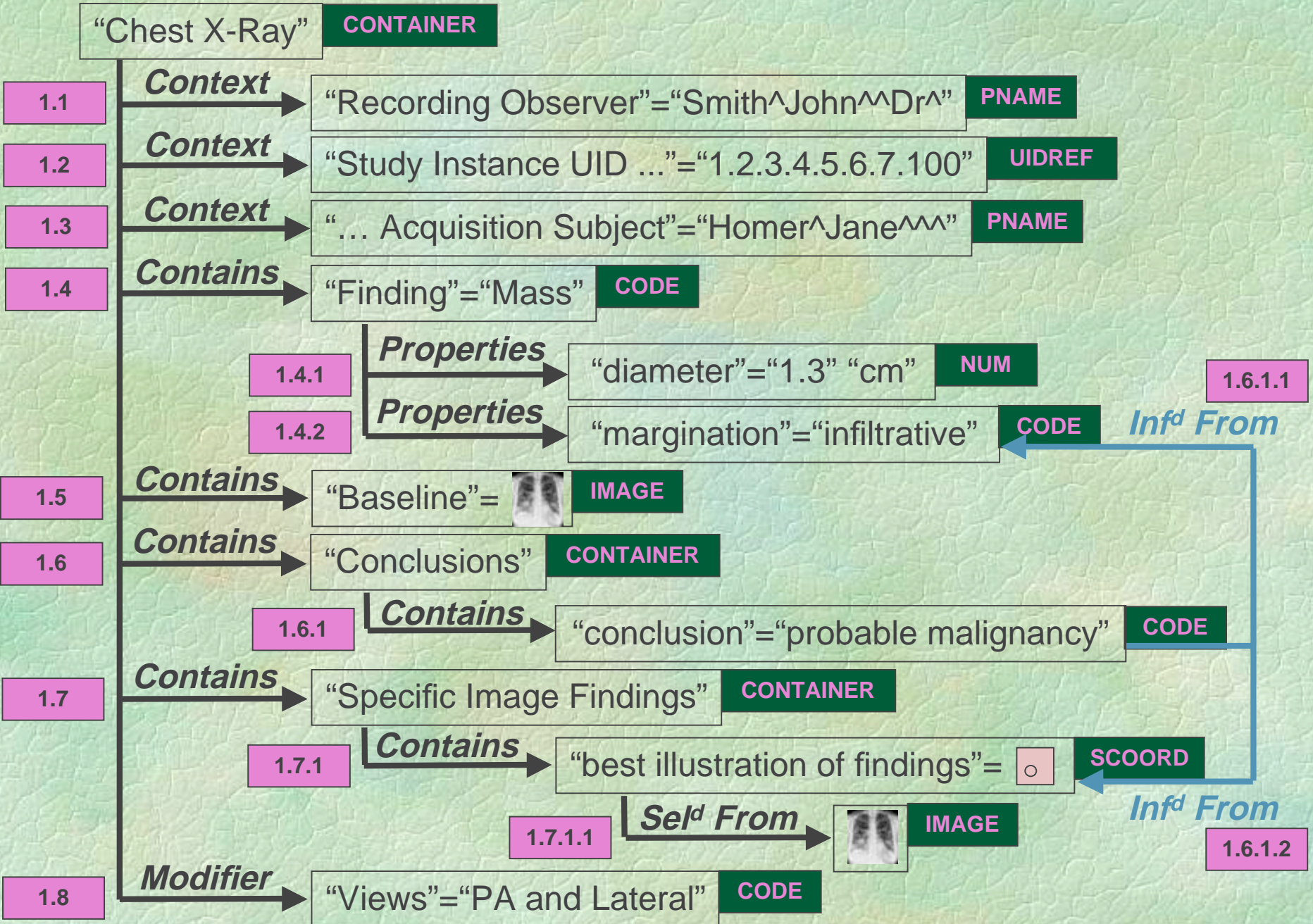
best illustration of findings(1.7.1)



# Concept Name Conditions

## DOCUMENT CONTENT MACRO ATTRIBUTES

Concept Name Code Sequence	(0040,A043)	1C	<p>Code describing the concept represented by this Content Item. Also conveys the value of Document Title and section headings in documents. Only a single Item shall be permitted in this sequence.</p> <p>Required if Value Type (0040,A040) is TEXT or NUM or CODE or DATETIME or DATE or TIME or UIDREF or PNAME.</p> <p>Required if Value Type (0040,A040) is CONTAINER and a heading is present, or this is the Root Content Item.</p> <p>Note: That is, containers without headings do not require Concept Name Code Sequence</p> <p>Required if Value Type (0040,A040) is COMPOSITE, IMAGE, WAVEFORM, SCOORD or TCOORD, and the Purpose of Reference is conveyed in the Concept Name.</p> <p>See C.17.3.1 for further explanation.</p>
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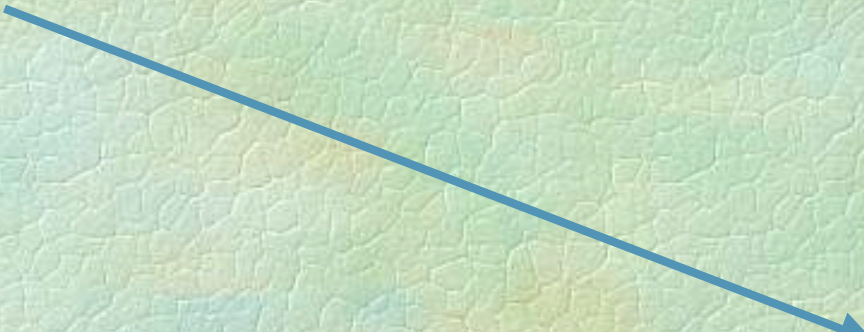
# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	ffffff	
		...				
1	%endseq					

“Chest X-Ray”

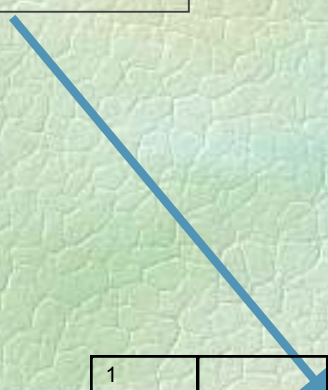
CONTAINER



1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	ffffff	
		...				
1	%endseq					

# “Chest X-Ray”

## CONTAINER

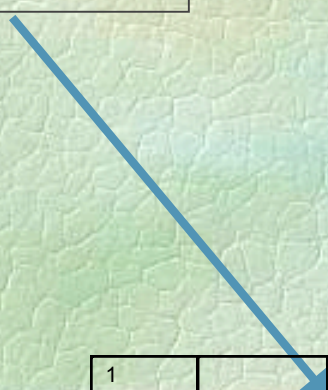


1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1	%endseq					



“Chest X-Ray”

CONTAINER



1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1	%endseq					

*The choice of code is defined by the combination of Value and Scheme Designator !*

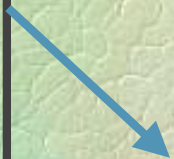
-

*Code Meaning is for convenience only !*

# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	ffffff	
		...				
1	%endseq					



“Chest X-Ray”

CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	ffffff	
		...				
1	%endseq					

“Chest X-Ray”

CONTAINER

1.8

*Modifier*

“Views” = “PA and Lateral”

CODE

# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1.8	%item					
1.8	>	Relationship Type	(0040,a010)	CS	0010	HAS CONCEPT MOD
1.8	>	Value Type	(0040,a040)	CS	0004	CODE
1.8	>	Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123456
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	0006	Views
1.8	%enditem					
1.8	%endseq					
1.8	>	Concept Code Sequence	(0040,a168)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123457
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	000e	PA and Lateral
1.8	%enditem					
1.8	%endseq					
1.8	%enditem					
1	%endseq					

1.8

**Modifier** →

“Views” = “PA and Lateral”

**CODE**

# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1.8	%item					
1.8	>	Relationship Type	(0040,a010)	CS	0010	HAS CONCEPT MOD
1.8	>	Value Type	(0040,a040)	CS	0004	CODE
1.8	>	Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123456
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	0006	Views
1.8	%enditem					
1.8	%endseq					
1.8	>	Concept Code Sequence	(0040,a168)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123457
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	000e	PA and Lateral
1.8	%enditem					
1.8	%endseq					
1.8	%enditem					
1	%endseq					

1.8

**Modifier**

“Views” = “PA and Lateral”

**CODE**

“Chest X-Ray”

CONTAINER

*The Relationship is always encoded  
inside the child Content Item !*

1.8

**Modifier** →

“Views”=“PA and Lateral”

CODE

# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1.8	%item					
1.8	>	Relationship Type	(0040,a010)	CS	0010	HAS CONCEPT MOD
1.8	>	Value Type	(0040,a040)	CS	0004	CODE
1.8	>	Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123456
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	0006	Views
1.8	%enditem					
1.8	%endseq					
1.8	>	Concept Code Sequence	(0040,a168)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123457
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	000e	PA and Lateral
1.8	%enditem					
1.8	%endseq					
1.8	%enditem					
1	%endseq					

1.8

**Modifier**

“Views” = “PA and Lateral”

**CODE**



# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1.8	%item					
1.8	>	Relationship Type	(0040,a010)	CS	0010	HAS CONCEPT MOD
1.8	>	Value Type	(0040,a040)	CS	0004	CODE
1.8	>	Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123456
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	0006	Views
1.8	%enditem					
1.8	%endseq					
1.8	>	Concept Code Sequence	(0040,a168)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123457
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	000e	PA and Lateral
1.8	%enditem					
1.8	%endseq					
1.8	%enditem					
1	%endseq					

**Modifier**

1.8

“Views” = “PA and Lateral”

**CODE**

# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	ffffff	
		...				
1.8	%item					
1.8	>	Relationship Type	(0040,a010)	CS	0010	HAS CONCEPT MOD
1.8	>	Value Type	(0040,a040)	CS	0004	CODE
1.8	>	Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123456
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	0006	Views
1.8	%enditem					
1.8	%endseq					
1.8	>	Concept Code Sequence	(0040,a168)	SQ	ffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123457
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	000e	PA and Lateral
1.8	%enditem					
1.8	%endseq					
1.8	%enditem					
1	%endseq					

1.8

**Modifier**

“Views” = “PA and Lateral”

**CODE**

# “Chest X-Ray”

## CONTAINER

1		Value Type	(0040,a040)	CS	000a	CONTAINER
1		Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1	%item					
1	>	Code Value	(0008,0100)	SH	0006	333300
1	>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1	>	Code Meaning	(0008,0104)	LO	000c	Chest X-Ray
1	%enditem					
	%endseq					
1		Continuity Of Content	(0040,a050)	CS	0008	SEPARATE
1		Content Sequence	(0040,a730)	SQ	fffffff	
		...				
1.8	%item					
1.8	>	Relationship Type	(0040,a010)	CS	0010	HAS CONCEPT MOD
1.8	>	Value Type	(0040,a040)	CS	0004	CODE
1.8	>	Concept Name Code Sequence	(0040,a043)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123456
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	0006	Views
1.8	%enditem					
1.8	%endseq					
1.8	>	Concept Code Sequence	(0040,a168)	SQ	fffffff	
1.8	%item					
1.8	>>	Code Value	(0008,0100)	SH	0006	123457
1.8	>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.8	>>	Code Meaning	(0008,0104)	LO	000e	PA and Lateral
1.8	%enditem					
1.8	%endseq					
1.8	%enditem					
1	%endseq					

1.8

**Modifier**

“Views” = “PA and Lateral”

**CODE**

“Chest X-Ray”

CONTAINER

1.4

*Contains*

“Finding”=“Mass”

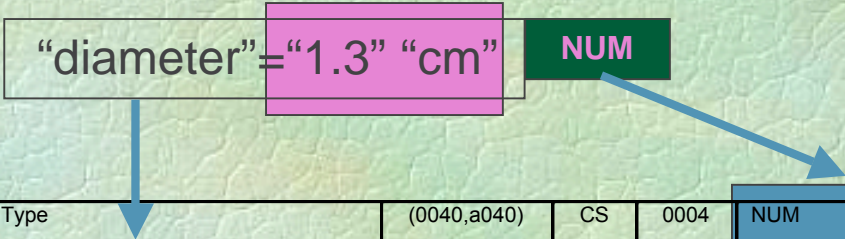
CODE

1.4.1

*Properties*

“diameter”=“1.3” “cm”

NUM



1.4.1	>>	Value Type	(0040,a040)	CS	0004	NUM
1.4.1	>>	Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1.4.1	%item					
1.4.1	>>>	Code Value	(0008,0100)	SH	0006	000222
1.4.1	>>>	Coding Scheme Designator	(0008,0102)	SH	0006	LNdemo
1.4.1	>>>	Code Meaning	(0008,0104)	LO	0008	Diameter
1.4.1	%enditem					
1.4.1	%endseq					
1.4.1	>>	Measured Value Sequence	(0040,a300)	SQ	ffffff	
1.4.1	%item					
1.4.1	>>>	Measurement Units Code Sequence	(0040,08ea)	SQ	ffffff	
1.4.1	%item					
1.4.1	>>>>	Code Value	(0008,0100)	SH	0006	000111
1.4.1	>>>>	Coding Scheme Designator	(0008,0102)	SH	0008	SNMdemo
1.4.1	>>>>	Code Meaning	(0008,0104)	LO	0002	cm
1.4.1	%enditem					
1.4.1	%endseq					
1.4.1	>>>	Numeric Value	(0040,a30a)	DS	0004	1.3
1.4.1	%enditem					
1.4.1	%endseq					

“Chest X-Ray”

CONTAINER

1.5

*Contains*

“Baseline”=



IMAGE

**Contains** →

“Baseline”=



**IMAGE**

1.5	%item					
1.5	>	Referenced SOP Sequence	(0008,1199)	SQ	ffffff	
1.5	%item					
1.5	>>	Referenced SOP Class UID	(0008,1150)	UI	0008	1.2.3.4
1.5	>>	Referenced SOP Instance UID	(0008,1155)	UI	000a	1.2.3.4.5
1.5	%enditem					
1.5	%endseq					
1.5	>	Relationship Type	(0040,a010)	CS	0008	CONTAINS
1.5	>	Value Type	(0040,a040)	CS	0006	IMAGE
1.5	>	Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1.5	%item					
1.5	>>	Code Value	(0008,0100)	SH	0006	333000
1.5	>>	Coding Scheme Designator	(0008,0102)	SH	0008	SNMdemo
1.5	>>	Code Meaning	(0008,0104)	LO	0008	Baseline
1.5	%enditem					
1.5	%endseq					
1.5	%enditem					

*Concept Name denotes the Purpose of Reference*

“Chest X-Ray”

CONTAINER

1.7

*Contains*

“Specific Image Findings”

CONTAINER

1.7.1

*Contains*

“best illustration of findings” =

COORD

1.7.1.1

*Set From*



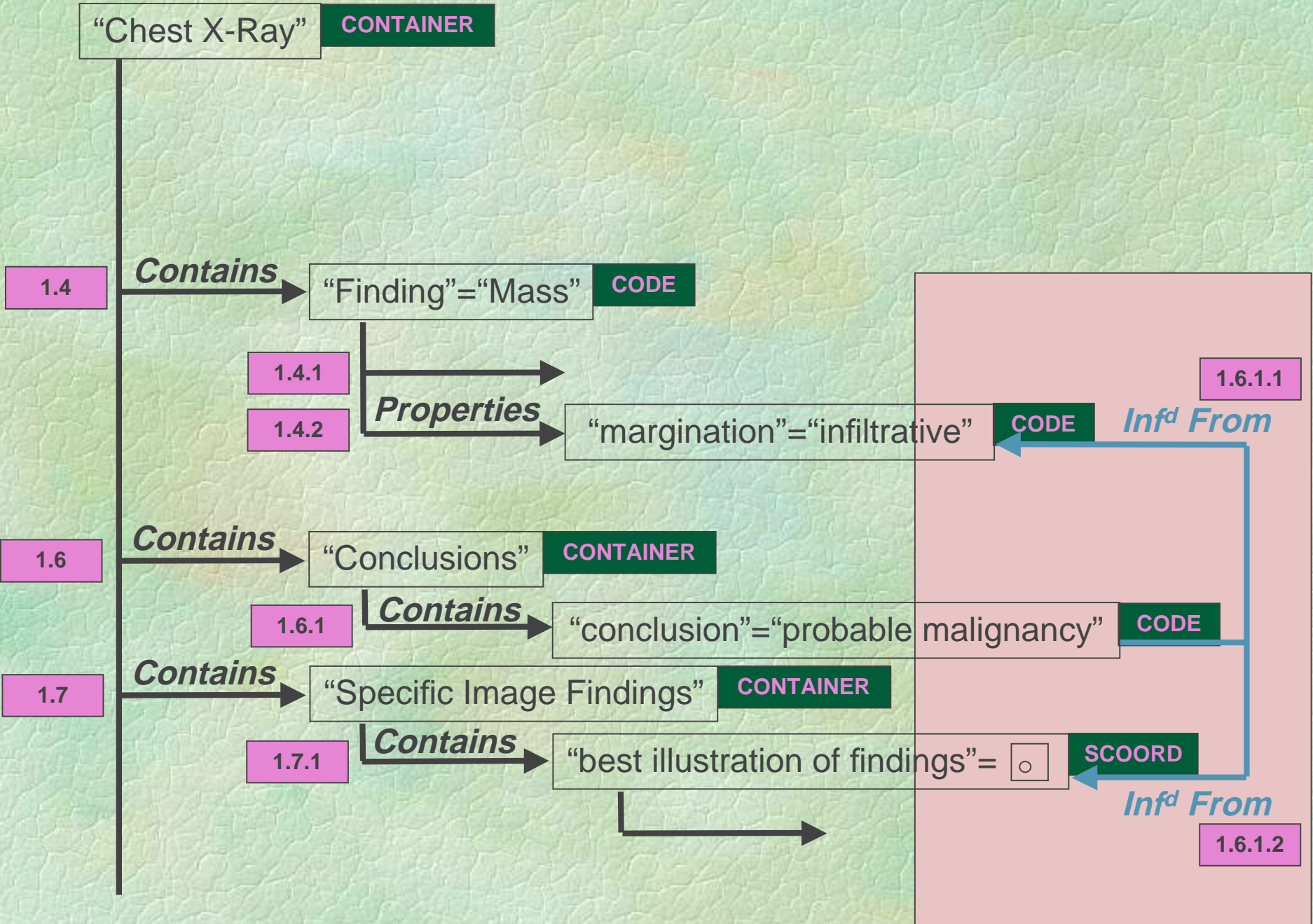
IMAGE





1.7.1	>>	Value Type	(0040,a040)	CS	0006	SCOORD
1.7.1	>>	Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1.7.1	%item					
1.7.1	>>>	Code Value	(0008,0100)	SH	0006	333001
1.7.1	>>>	Coding Scheme Designator	(0008,0102)	SH	0008	SNMdemo
1.7.1	>>>	Code Meaning	(0008,0104)	LC	001e	Best illustration of findings
1.7.1	%enditem					
1.7.1	%endseq					
1.7.1	>>	Content Sequence	(0040,a730)	SQ	ffffff	
1.7.1.1	%item					
1.7.1.1	...	...				
1.7.1.1	>>>	Relationship Type	(0040,a010)	CS	000e	SELECTED FROM
1.7.1.1	>>>	Value Type	(0040,a040)	CS	0006	IMAGE
1.7.1.1	%enditem					
1.7.1	%endseq					
1.7.1	>>	Graphic Data	(0070,0022)	FL	0020	0,0,0,0,0,0,0,0
1.7.1	>>	Graphic Type	(0070,0023)	CS	0008	POLYLINE

## *Purpose of Reference specified for SCOORD*



“Chest X-Ray”

CONTAINER

1.4.2

“margination”=“infiltrative”

CODE

*Inf<sup>d</sup> From*

1.6.1.1

1.6

*Contains*

“Conclusions”

CONTAINER

1.6.1

*Contains*

“conclusion”=“probable malignancy”

CODE

1.7.1

“best illustration of findings”=



COORD

*Inf<sup>d</sup> From*

1.6.1.2

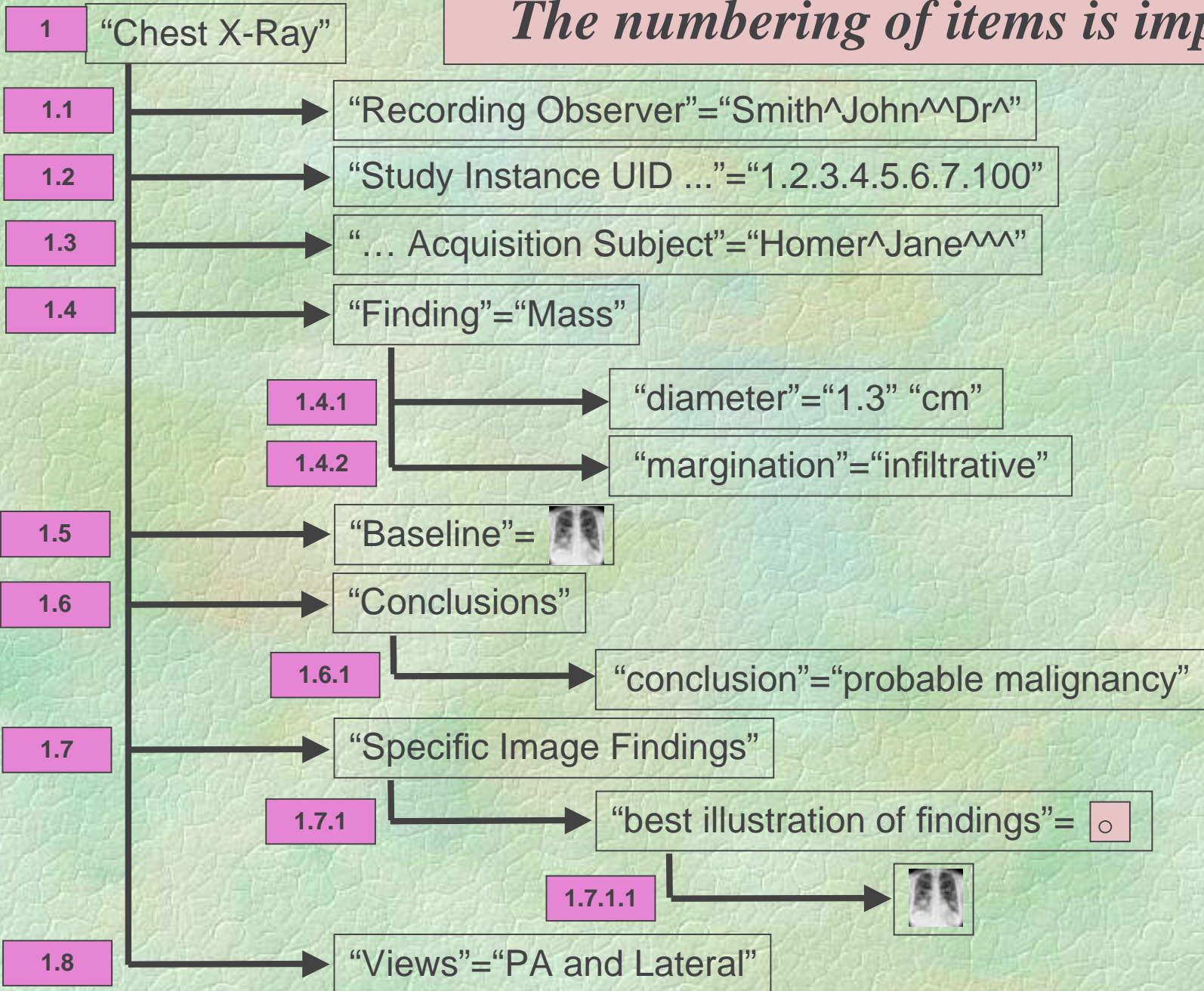
“conclusion”=“probable malignancy”

CODE



1.6.1	>>	Value Type	(0040,a040)	CS	0004	CODE
1.6.1	>>	Concept Name Code Sequence	(0040,a043)	SQ	ffffff	
1.6.1	...	...				
1.6.1	>>>	Code Meaning	(0008,0104)	LO	000a	Conclusion
1.6.1	%endseq					
1.6.1	>>	Concept Code Sequence	(0040,a168)	SQ	ffffff	
1.6.1	...	...				
1.6.1	>>>	Code Meaning	(0008,0104)	LO	0014	Probable malignancy
1.6.1	%endseq					
1.6.1	>>	Content Sequence	(0040,a730)	SQ	ffffff	
1.6.1.1	%item					
1.6.1.1	>>>	Relationship Type	(0040,a010)	CS	000e	INFERRED FROM
1.6.1.1	>>>	Referenced Content Item Identifier	(0040,db73)	UL	000c	0001,0004,0002
1.6.1.1	%enditem					
1.6.1.2	%item					
1.6.1.2	>>>	Relationship Type	(0040,a010)	CS	000e	INFERRED FROM
1.6.1.2	>>>	Referenced Content Item Identifier	(0040,db73)	UL	000c	0001,0007,0001
1.6.1.2	%enditem					
1.6.1	%endseq					

*The numbering of items is implicit !*



# Inheritance of Context

## ∞ Observation Context

- includes top-level attributes of Composite IOD
- may be attached to root node CONTAINER
- is inherited along *by-value* relationships
- is not inherited along *by-reference* relationships
- may be extended (but not replaced) in children
- may be attached to any content item, not just CONTAINER

## General Patient Module:

“Patient Name”=“Homer^Jane^^”

“Patient ID”=“234567”

“Patient Sex”=“F”

“Patient DOB”=“19991109”

SR Comprehensive  
SOP Instance

## General Study Module:

“Accession Number”=“123456”

“Study ID”=“345678”

“Chest X-Ray”

**Context**

“Recording Observer”=“Smith^John^Dr^”

**Context**

“Study Instance UID ...”=“1.2.3.4.5.6.7.100”

**Context**

“... Acquisition Subject”=“Homer^Jane^^”

**Contains**

“Finding”=“Mass”

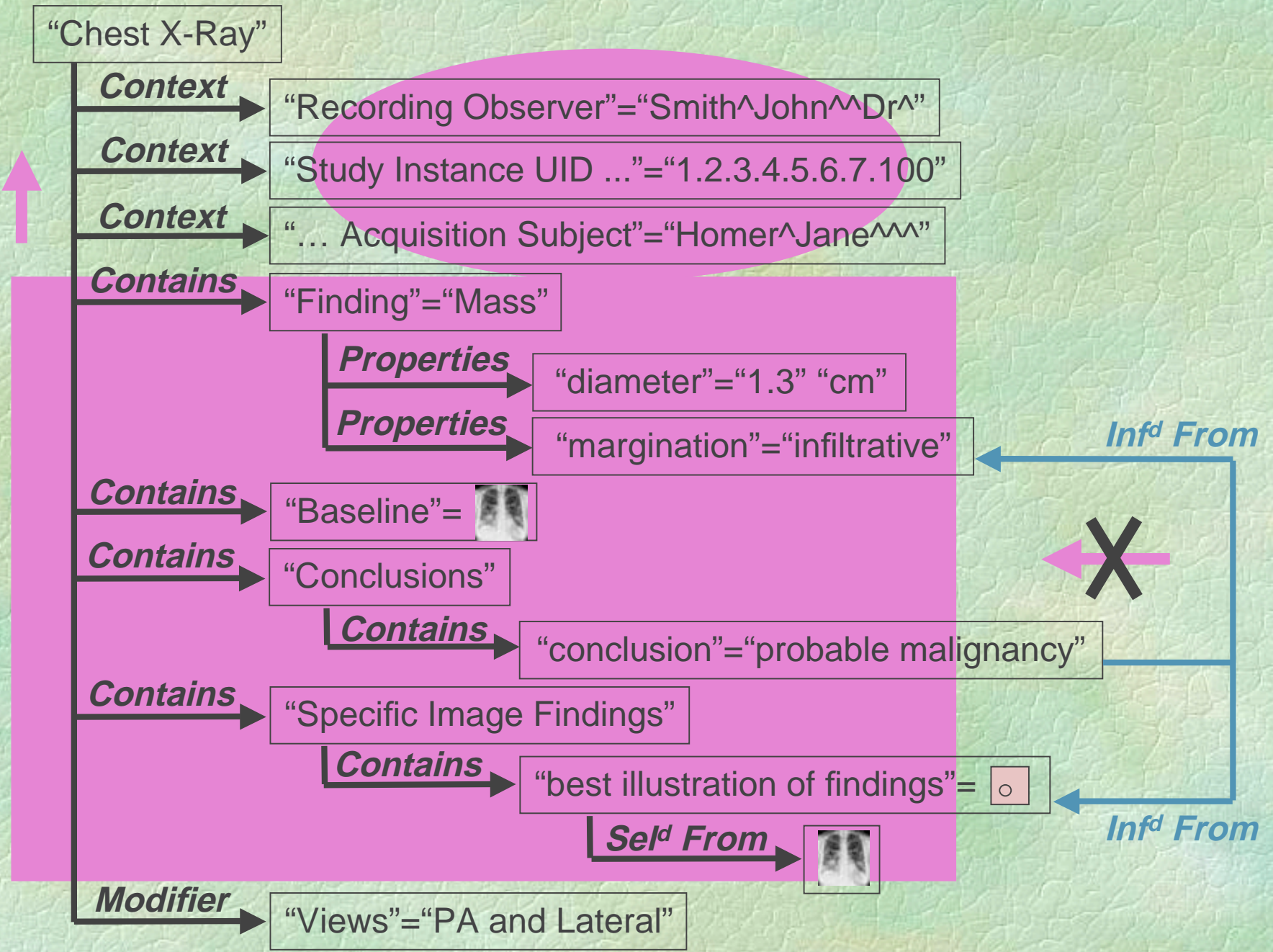


# Inheritance of Context

## ∞ Observation Context

- includes top-level attributes of Composite IOD
- may be attached to root node CONTAINER
- is inherited along *by-value* relationships
- is not inherited along *by-reference* relationships
- may be extended (but not replaced) in children
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# Inheritance of Context

## ∞ Observation Context

- includes top-level attributes of Composite IOD
- may be attached to root node CONTAINER
- is inherited along *by-value* relationships
- is not inherited along *by-reference* relationships
- may be extended (but not replaced) in children
- may be attached to any content item, not just CONTAINER

“Obstetric Ultrasound”

*Obs<sup>n</sup> Context*

“Mother of Fetus”=“Homer^Jane^^”

*Contains*

“Findings for Fetus”

*Obs<sup>n</sup> Context*

“Fetus Identifier”=“Fetus A”

*Properties*

“Gestational Age”=“16” “weeks”

*Inf<sup>d</sup> From*

“BPD”=“27” “mm”

*Contains*

“Findings for Fetus”

*Obs<sup>n</sup> Context*

“Fetus Identifier”=“Fetus B”

*Properties*

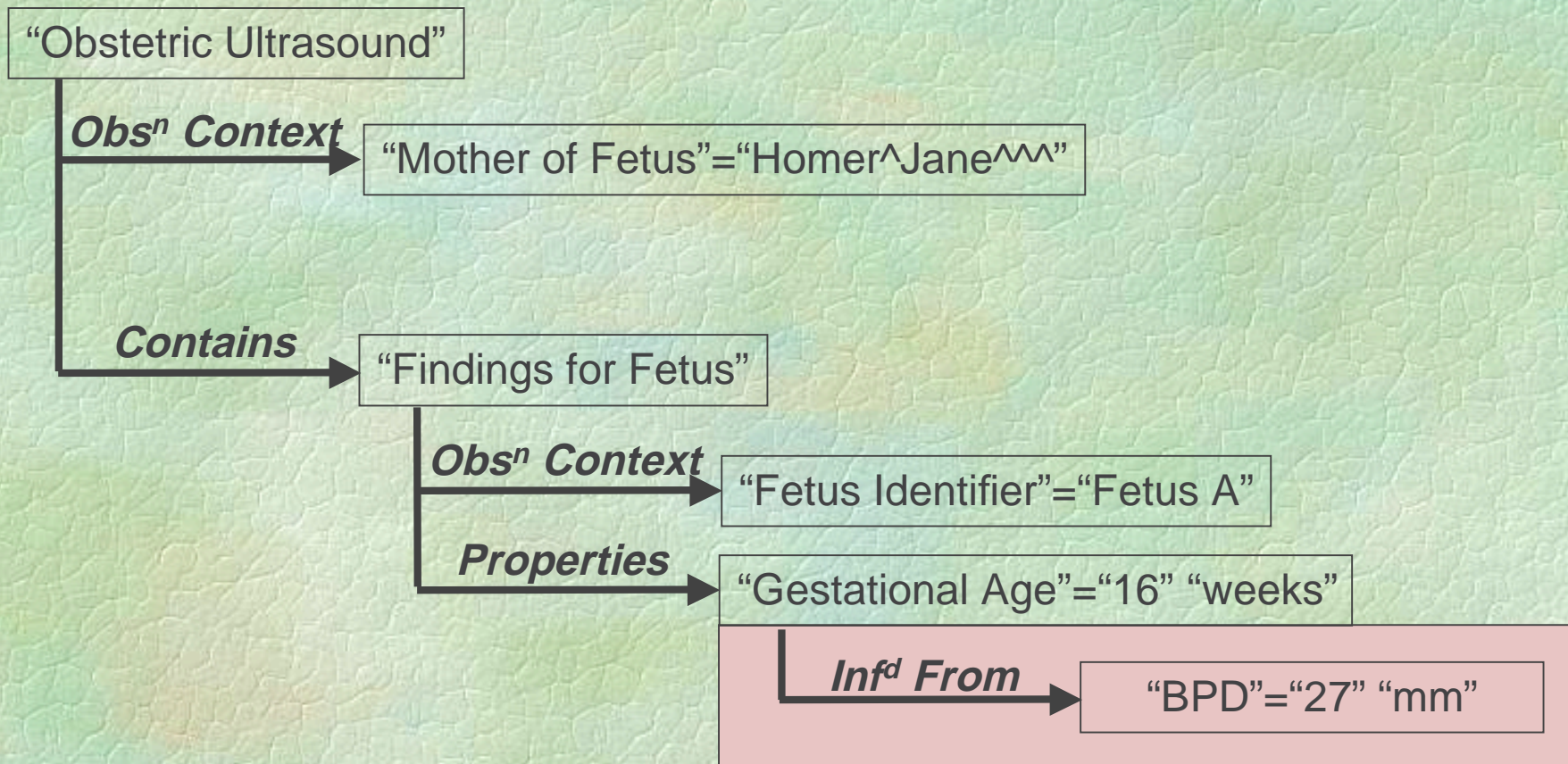
“Gestational Age”=“16” “weeks”

*Inf<sup>d</sup> From*

“BPD”=“28” “mm”



# *Inferred From* Relationships



*“Inferred from” relationships may be by-value as well as by-reference, and are often more appropriate than “has properties” or “contains.”*

# Post-Coordination: *HAS CONCEPT MOD*

∞ Elaborates on meaning of Concept Name in

- CONTAINER (headings)
- CODE, TEXT, NUM ...

∞ May:

- qualify meaning further
- describe meaning
- provide translations

“Chest X-Ray”

**CONTAINER**

**Modifier** →

“Views”=“PA and Lateral”

**CODE**

**Modifier** →

“Full Description”=“This is a report on a two-view (PA and lateral) Chest X-Ray examination.”

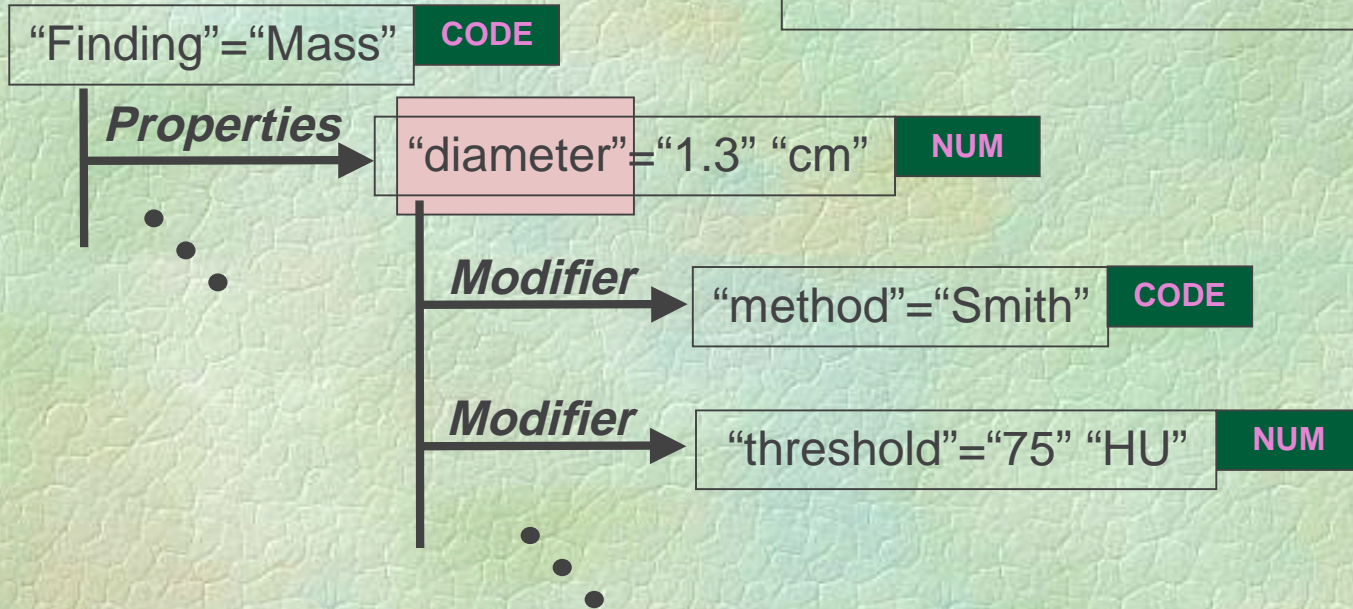
**TEXT**

**Modifier** →

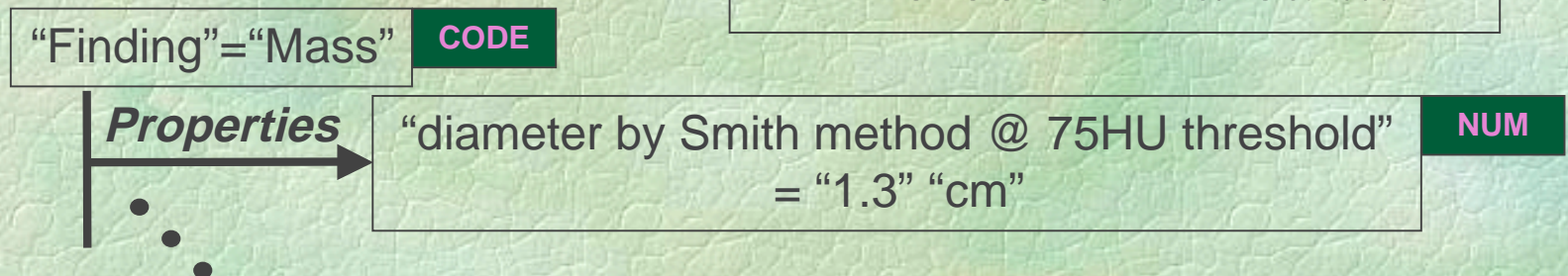
“Equivalent Meaning in Italian”=“Radiografia del ...”

**TEXT**

## *Post-coordinated ...*



## *Pre-coordinated ...*





# References to Images, etc.

☞ At reference:

- SOP Class and Instance UIDs (+/- Frame)
- Optionally, Presentation State reference

☞ What Study ? Series ?

- Complete list up front:
  - Current Requested Procedure Evidence Sequence
  - Pertinent Other Evidence Sequence
- UIDs, AETs, Media IDs

# Current Requested Procedure Evidence Sequence

- ☞ Everything (ALL images etc.) for the procedure the report is about
- ☞ Even if they are not explicitly referenced !
- ☞ Even if the report creator didn't look at them !

# Pertinent Other Evidence Sequence

- ❧ Stuff from other studies
- ❧ Priors that may (or may not) have been considered while generating this document
- ❧ Other synchronous studies satisfying other requests
  - E.g. another modality
  - E.g. another department (lab, path)

# Collected References ...

	Current Requested Procedure Evidence Sequence	(0040,a375)	SQ	ffffff	
%item					
>	Referenced Series Sequence	(0008,1115)	SQ	ffffff	
%item					
>>	Referenced SOP Sequence	(0008,1199)	SQ	ffffff	
%item					
>>>	Referenced SOP Class UID	(0008,1150)	UI	0008	1.2.3.4
>>>	Referenced SOP Instance UID	(0008,1155)	UI	000a	1.2.3.4.5
%enditem					
%endseq					
>>	Series Instance UID	(0020,000E)	UI	0012	1.2.3.4.5.6.7.200
%enditem					
%endseq					
>	Study Instance UID	(0020,000D)	UI	0012	1.2.3.4.5.6.7.100
%enditem					
%endseq					

# Summary

- ❧ Features of Sup 23 example
- ❧ Features not in example
- ❧ Textual equivalents of the example
- ❧ Fully annotated illustration of the example
  - Encoding of components of the example
- ❧ Inheritance of Observation Context
- ❧ Post-coordination of Concept Name
- ❧ Reference collection attributes up front