RDFS semantics : standard inference rules to derive additional triples from known statements.

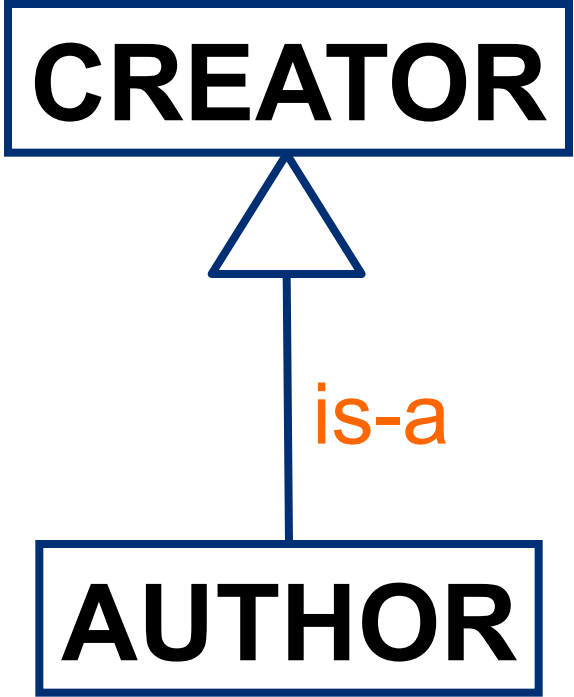## *type propagation*

IF $(c_2, \text{subClassOf}, c_1)$
AND (x, type, c_2)
THEN (x, type, c_1)

IF   (Report, subClassOf, Document)
AND   (ReportXYZ, type, Report)
THEN   (ReportXYZ, type, Document)

subClass transitivity

IF $(c_2, \text{subClassOf}, c_1)$
AND $(c_3, \text{subClassOf}, c_2)$
THEN $(c_3, \text{subClassOf}, c_1)$

IF (Document, subClassOf, Artefact)
AND (Report, subClassOf, Document)
THEN (Report, subClassOf, Artefact)

property propagation

IF $(p_2, \text{subPropertyOf}, p_1)$
AND (x, p_2, y)
THEN (x, p_1, y)

IF $(\text{author}, \text{subPropertyOf}, \text{creator})$
AND $(\text{Tom}, \text{author}, \text{Report123})$
THEN $(\text{Tom}, \text{creator}, \text{Report123})$

subProp transitivity

IF   (p_2, subPropertyOf, p_1)
AND   (p_3, subPropertyOf, p_2)
THEN (p_3, subPropertyOf, p_1)

IF (parent, subPropertyOf, ancestor)
AND (father, subPropertyOf, parent)
THEN (father, subPropertyOf, ancestor)

domain inference

IF $(p_1,$ domain$, c_1)$
AND (x, p_1, y)
THEN $(x,$ type$, c_1)$

IF $($author$,$ domain$,$ Person$)$
AND $($Tom$,$ author$,$ Report123$)$
THEN $($Tom$,$ type$,$ Person$)$

range inference

IF $(p_1,\ \text{range},\ c_1)$
AND $(x,\ p_1,\ y)$
THEN $(y,\ \text{type},\ c_1)$

IF $(\text{author},\ \text{range},\ \text{Document})$
AND $(\text{Tom},\ \text{author},\ \text{Report123})$
THEN $(\text{Report123},\ \text{type},\ \text{Document})$