Data Systematics: The Metamodel of PSOA RuleML Illustrated by Grailog Visualization

Exemplify PSOA metamodel with 18 oidless/oidful,tupled/slotted,perspeneutral/perspectival wedding atoms.

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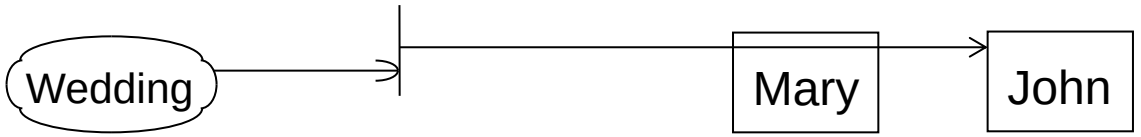
http://wiki.ruleml.org/index.php/PSOA_RuleML_Bridges_Graph_and_Relational_Databases
(syntactic realization for core interoperation path pv1-pv3-pv4-pn4, abridged by PSOA rule)

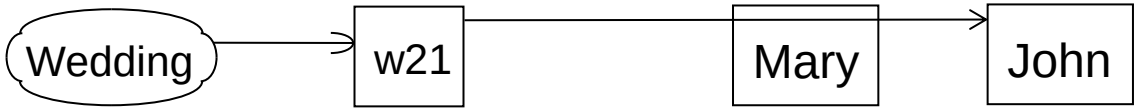
Core oidless/oidful, tupled/slotted atoms that are **p**erspe**n**eutral:

pn1



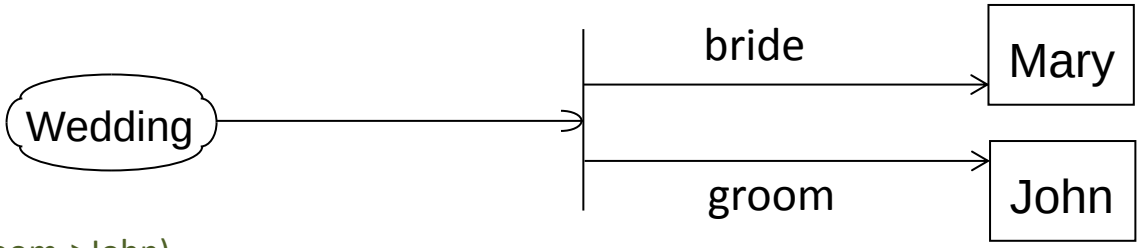
Wedding(-[Mary John])

pn2. single-tuple: shelves



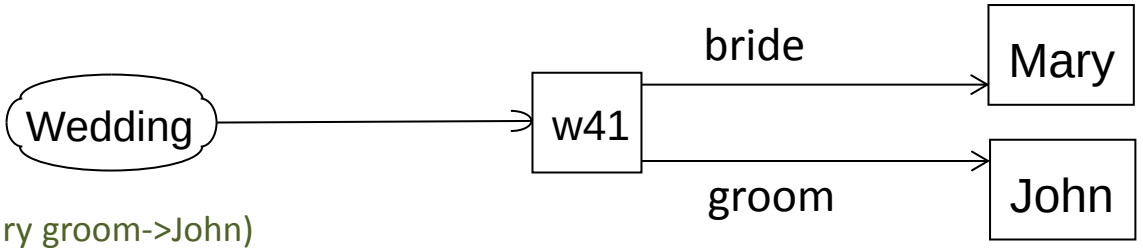
w21#Wedding(-[Mary John])

pn3



Wedding(bride->Mary groom->John)

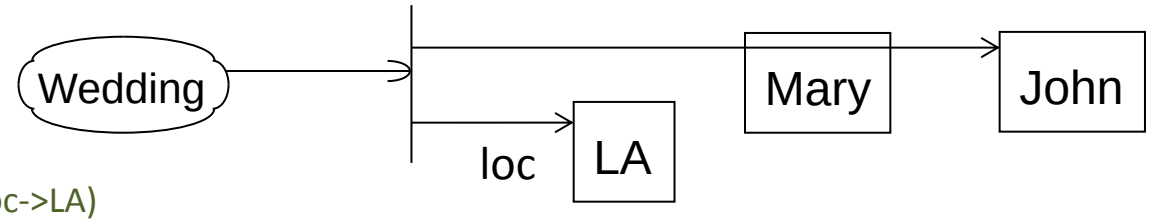
pn4: **frames**



w41#Wedding(bride->Mary groom->John)

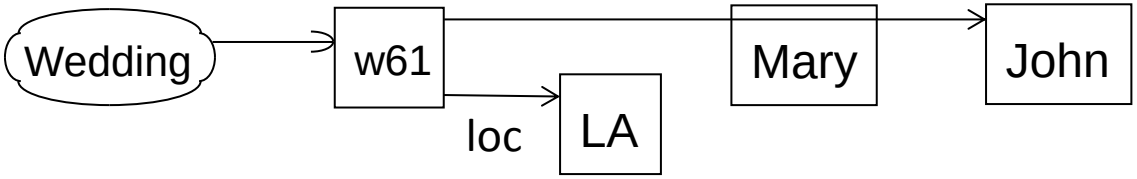
Extra oidless/oidful, combined tupled+slotted atoms that are **p**erspe**n**eutral:

pn5



Wedding(-[Mary John] loc->LA)

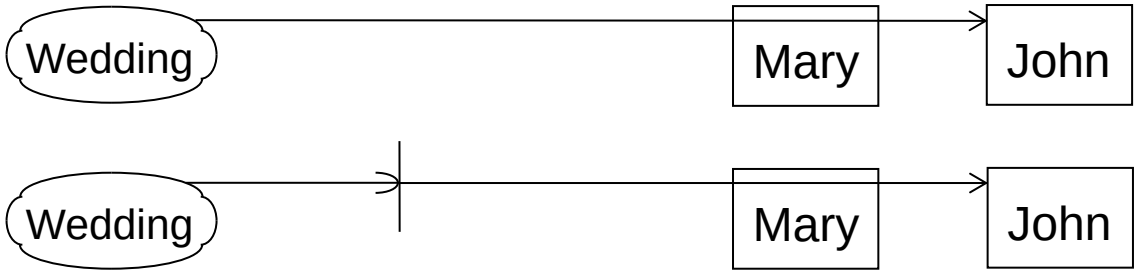
pn6. single-tuple: shelframes



w61#Wedding(-[Mary John] loc->LA)

Core oidless/oidful, tupled/slotted atoms that are **p**erspecti**v**al:

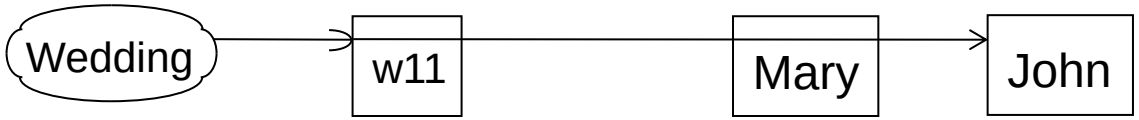
pv1. single-tuple:
relationships



or

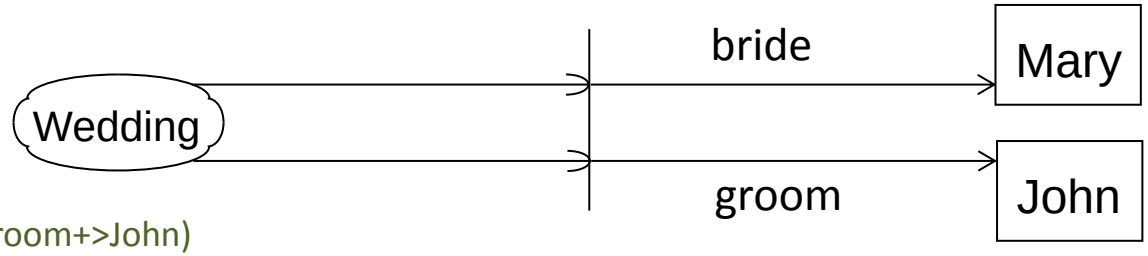
Wedding(Mary John) *or* Wedding(+[Mary John])

pv2



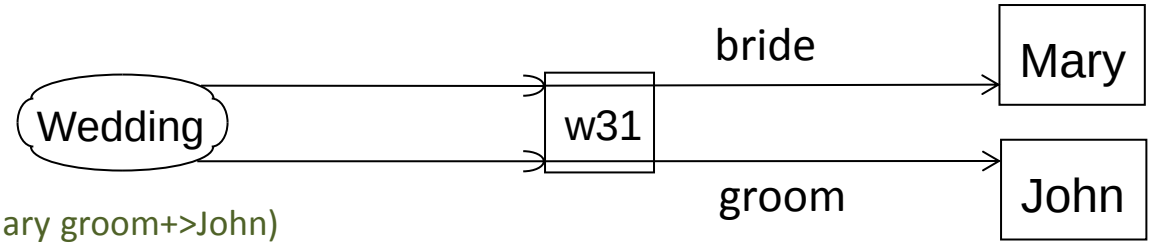
w11#Wedding(+[Mary John])

pv3: pairships



Wedding(bride+>Mary groom+>John)

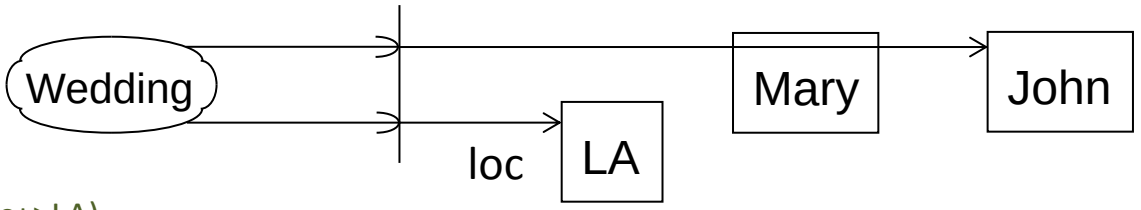
pv4



w31#Wedding(bride+>Mary groom+>John)

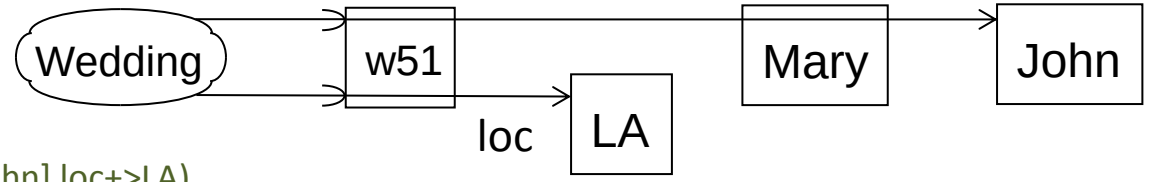
Extra oidless/oidful, combined tupled+slotted atoms that are **p**erspecti**v**al:

pv5. single-tuple: relpairships



Wedding(+[Mary John] loc+>LA)

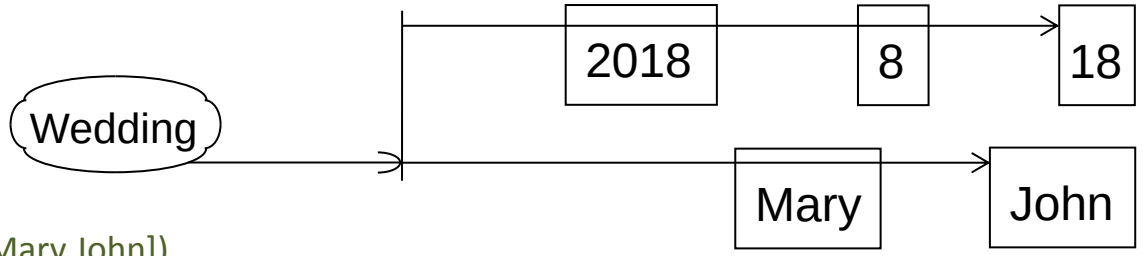
pv6



w51#Wedding(+[Mary John] loc+>LA)

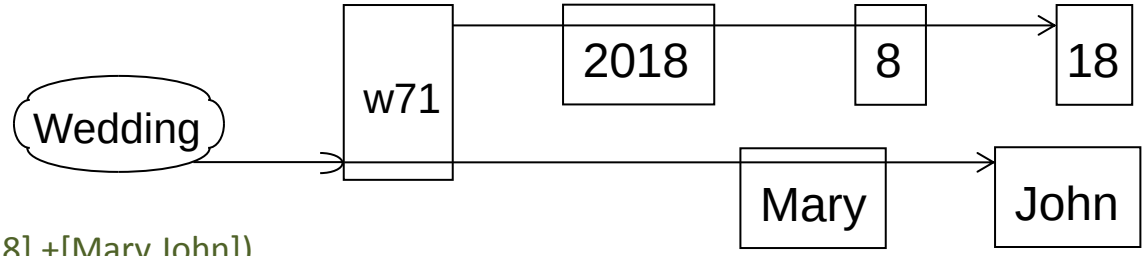
Adding oidless/oidful, tupled/slotted, combined **p**erspeneutral+**p**erspectival atoms:

pp1



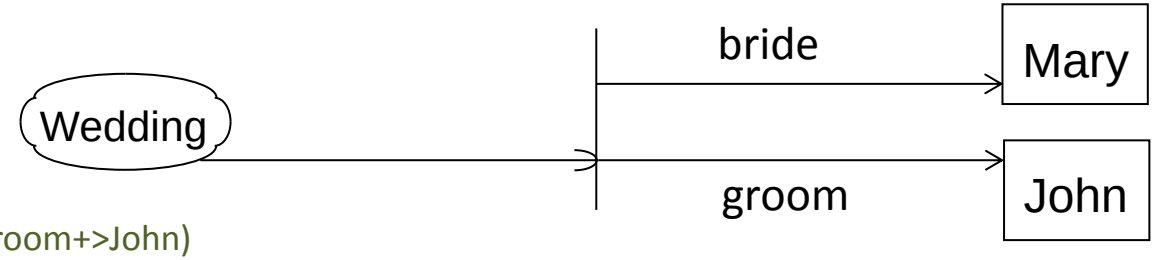
Wedding(-[2018 8 18] +[Mary John])

pp2



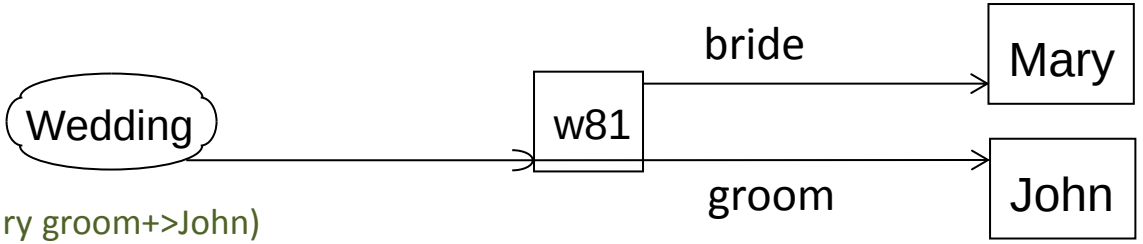
w71#Wedding(-[2018 8 18] +[Mary John])

pp3



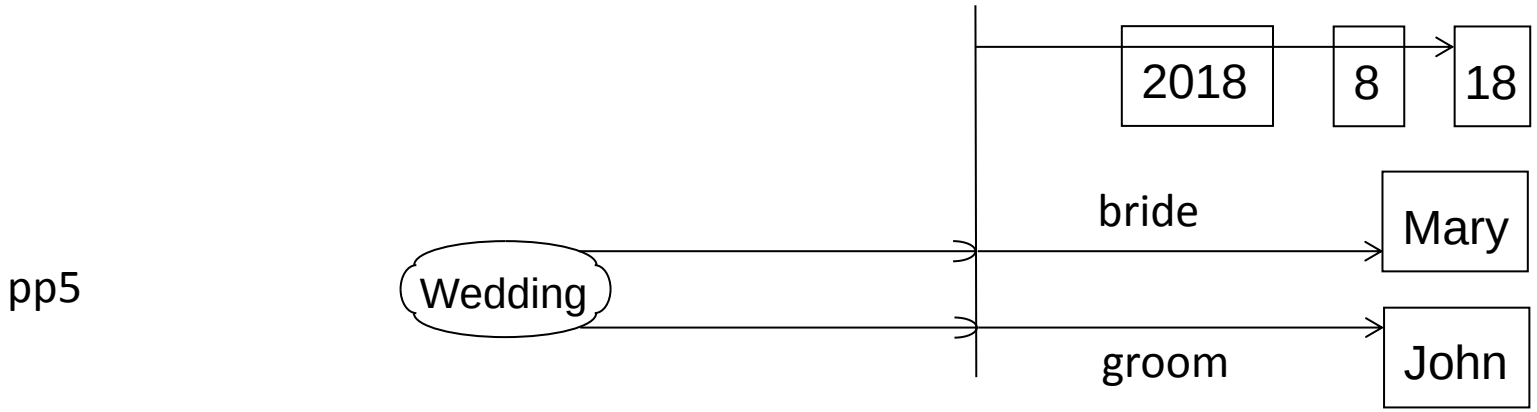
Wedding(bride->Mary groom+>John)

pp4

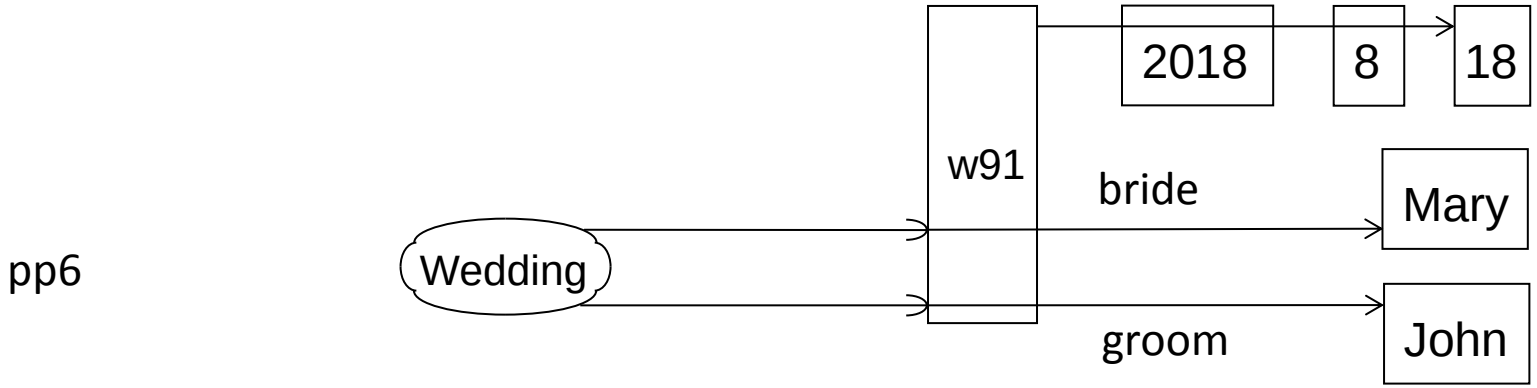


w81#Wedding(bride->Mary groom+>John)

Also oidless/oidful, combined tupled+slotted, combined **p**erspeneutral+**p**erspectival:



Wedding(-[2018 8 18] bride+>Mary groom+>John)



w91#Wedding(-[2018 8 18] bride+>Mary groom+>John)

Opening Up the PSOA Metamodel Cube

- Metamodel given as 18 kinds of atoms
  populating (elementary) subcubes p*xi* (*x*=n,v,p; *i*=1,…,6)
- Usually arranged in 3 layers, each with 6 subcubes:
  - 6 perspeneutral subcubes (*x*=n) vs. 6 perspectival subcubes (*x*=v) vs.
    6 perspeneutral+perspectival subcubes (*x*=p)
- Core metamodel has 8 subcubes arranged in 2 layers with pn1-pn4 and pv1-pv4
  - Contain pivotal subcubes for frame (pn4) and relationship (pv1) atoms
- Other arrangements of all 18 (according to the OID and descriptor dimensions):
  - 9 oidless subcubes (*x*=n,v,p; *i*=1,3,5) vs. 9 oidful subcubes (*x*=n,v,p; *i*=2,4,6)
  - 6 tupled subcubes (*x*=n,v,p; *i*=1,2) vs. 6 slotted subcubes (*x*=n,v,p; *i*=3,4) vs.
    6 tupled+slotted subcubes (*x*=n,v,p; *i*=5,6)