Study Period Report: Metamodel for On Demand Model Selection (ODMS)

Wang Jian,   He Keqing,
He Yangfan, Wang Chong

State Key Lab of Software Engineering,
Wuhan University, P.R. China

2008-11-18

Decisions on ODMS
in Wuhan meeting

- The research of ODMS is decomposed into four parts:
  - MFI-5: Registration of Process Model (WD)
  - MFI-7: Registration of Services
  - MFI-8: Registration of Role and Goal
  - ISO/IEC TR?: Using RGPS for on demand model selection (NWI type3 technical report)

MFI-7: Metamodel for service registration

Introduction (1/2)

- With the rapid development of SOA, more and more computing resources are presented in the form of Web services.

- Business integration based on Web services is becoming a popular application development method.

- Web service is a kind of Web based application, which encapsulates certain computing module and is designed to support interoperable machine-to-machine interaction over a network.
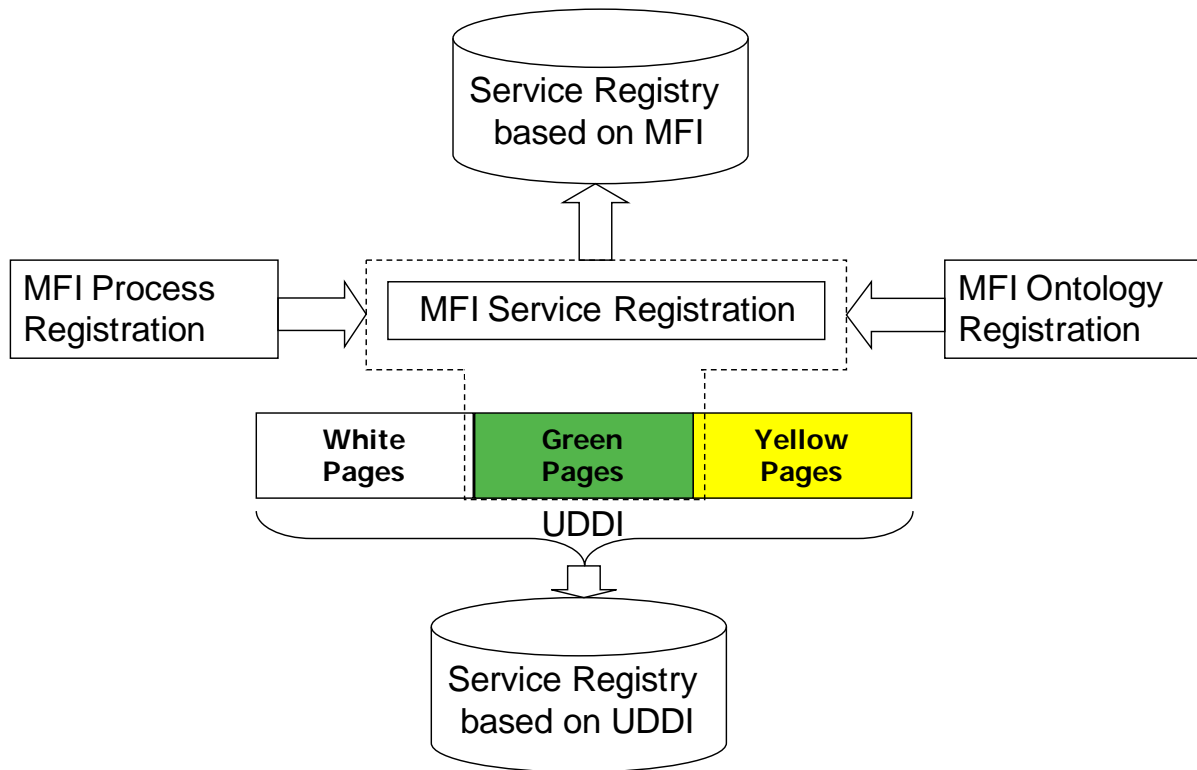
Introduction (2/2)

- In Web service registration and management, UDDI is a widely applied specification, which provides basic support for publishing and discovering Web services within and across enterprises.
  - Keyword matching is the basic service discovery method in UDDI, thus the discovery results will be inevitably inaccurate, and the discovery process will be time-consuming.
- When business information interchange and integration become increasingly frequent, major work in service discovery should be processed by machine, it is necessary to
  - semantically describe service information including functional and non-functional information
  - provide corresponding registration and management mechanism.
- This part intends to provide a generic framework for registering functional and nonfunctional information of services in an explicit manner.
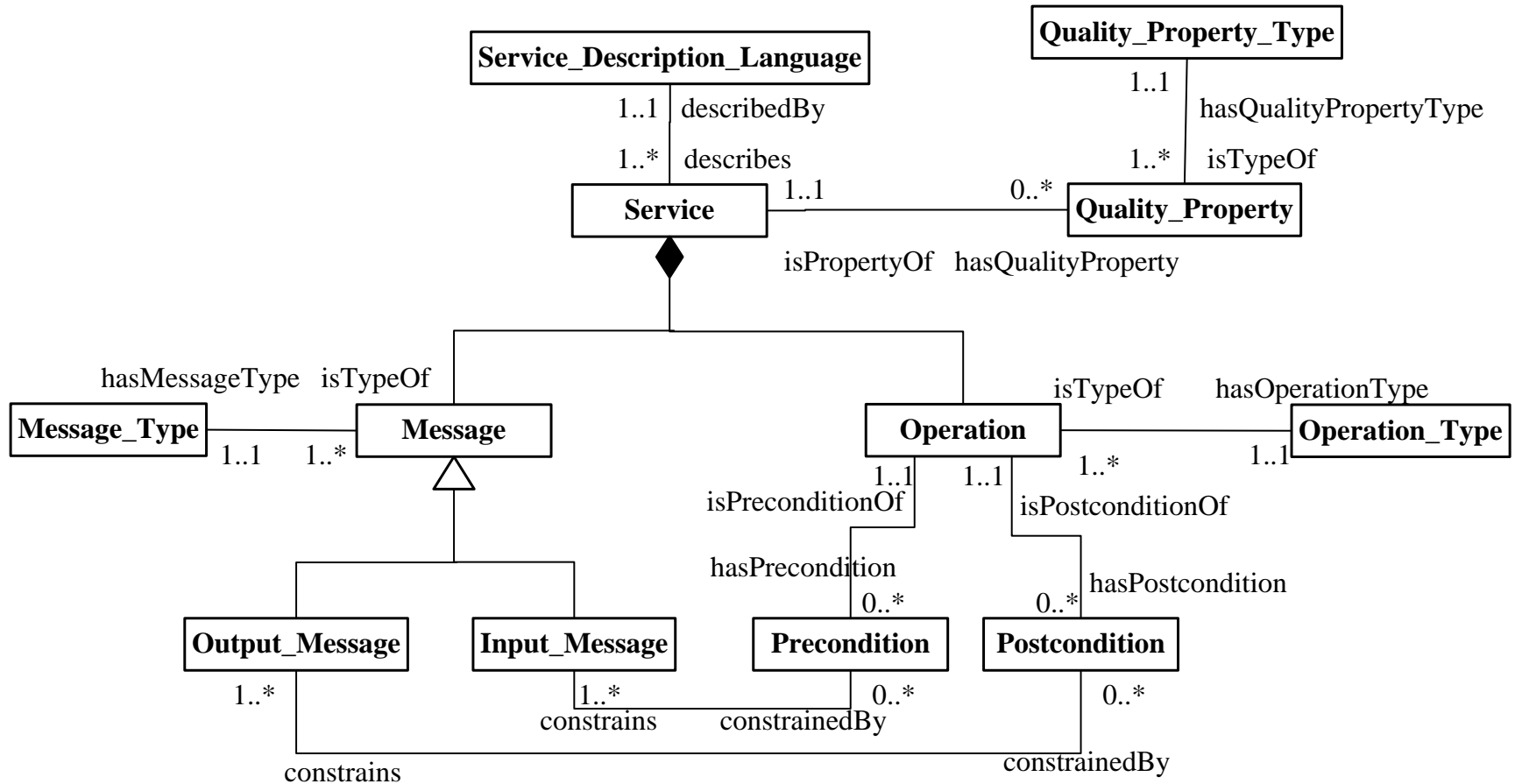
Scope (1/2)

- This part of ISO/IEC 19763 specifies a metamodel for registering services that can enable users to discover appropriate services.

- The metamodel that this part specifies is intended to promote interoperation between various services.

- It does not specify industry categorization of services and contact information of service providers, which are specified in UDDI.
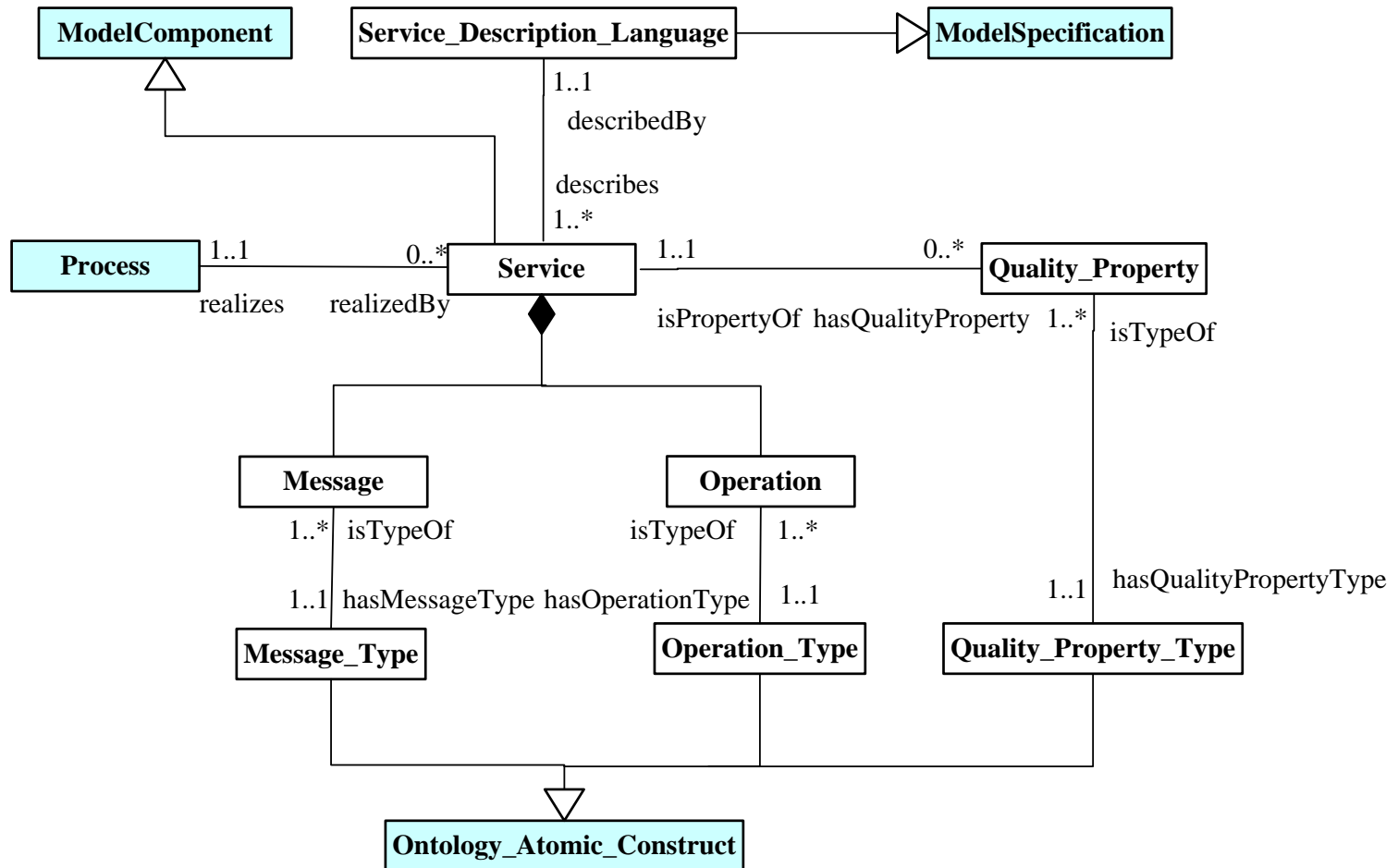
Scope (2/2)

Service Registry based on MFI

MFI Process Registration → MFI Service Registration ← MFI Ontology Registration

| White Pages | Green Pages | Yellow Pages |

UDDI

Service Registry based on UDDI

Metamodel of MFI service registration

Relationship with other parts in MFI

MFI-8: Metamodel for role and goal registration

Introduction (1/2)

- Business goals pave the way for describing business processes in a higher abstraction level.

  - Effective managing goals will be helpful for reusing information resources such as business processes in a larger granularity.

- A goal is a descriptive statement of business intent of a user or an organization, and it can be viewed as an objective that the business system under consideration should achieve.

- Roles are abstract characterizations of organizational behaviours and responsibilities within specified organizational context.

  - Description of roles will be helpful in characterizing goals in a more complete and correct way.
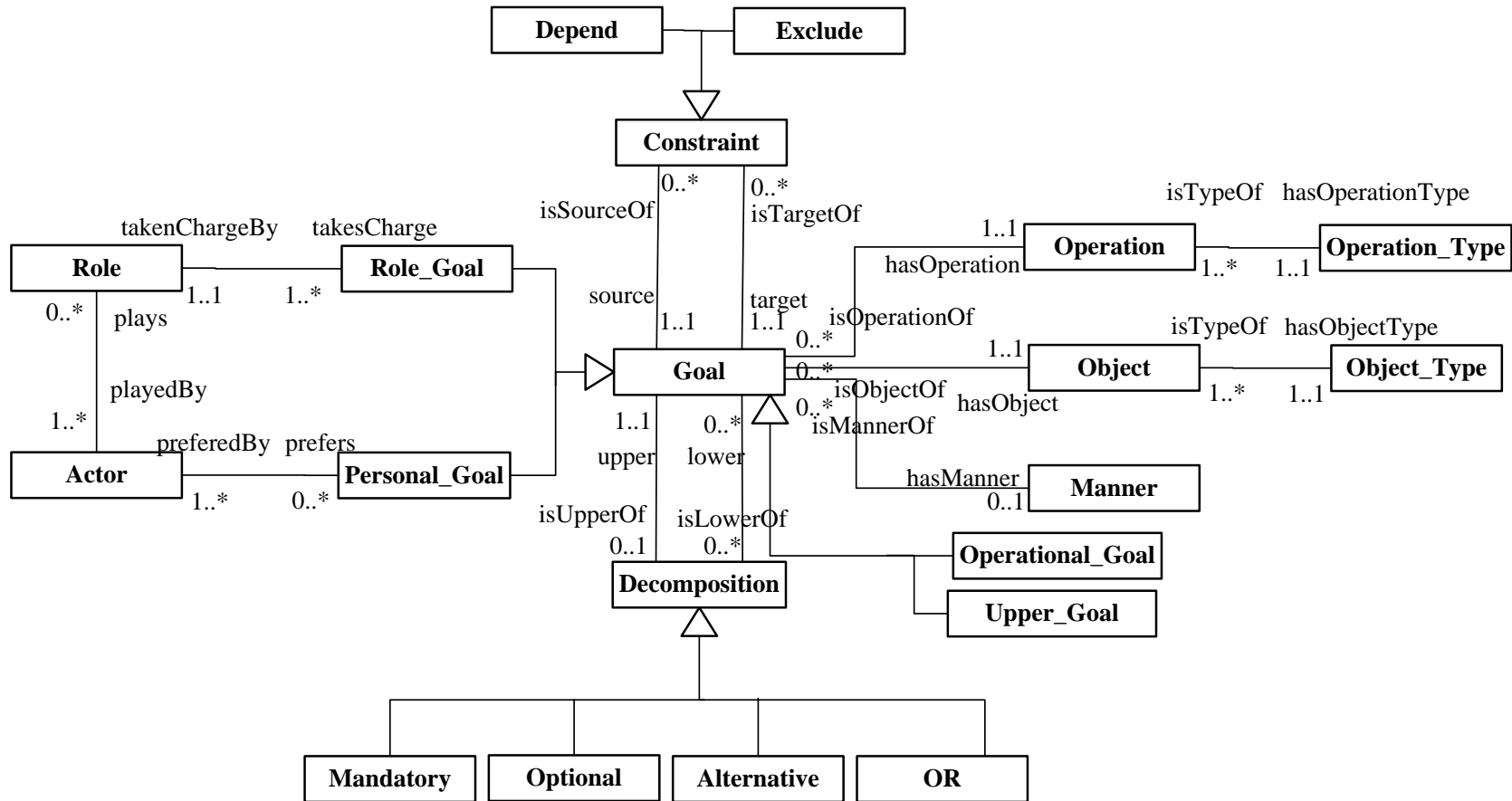
Introduction (2/2)

- User-centric mechanism, that is providing personalized services for users, is becoming a kind of urgent requirements in IT industry.

- In goal description, OMG's Business Motivation Model (BMM) provides a characterization mechanism of business intent and motivation. However,
  - BMM is absent in directly relating business plan with business implementation
  - The relationships among goals described in BMM are insufficient for complex goal decomposition, reasoning and reusing.

- This part of ISO/IEC 19763 intends to provide a generic framework for registering descriptive information of roles and goals.

Scope

- This part of ISO/IEC 19763 specifies a metamodel for registering users' roles and goals in specific domains that can be used to describe users' intention.

- The metamodel that this part specifies is intended to promote the reuse of domain information resources with greater granularity.

- It does not specify the business model for the elements of business plans, which is the focus of BMM.

Metamodel of MFI role and goal registration

Relationship with other parts in MFI
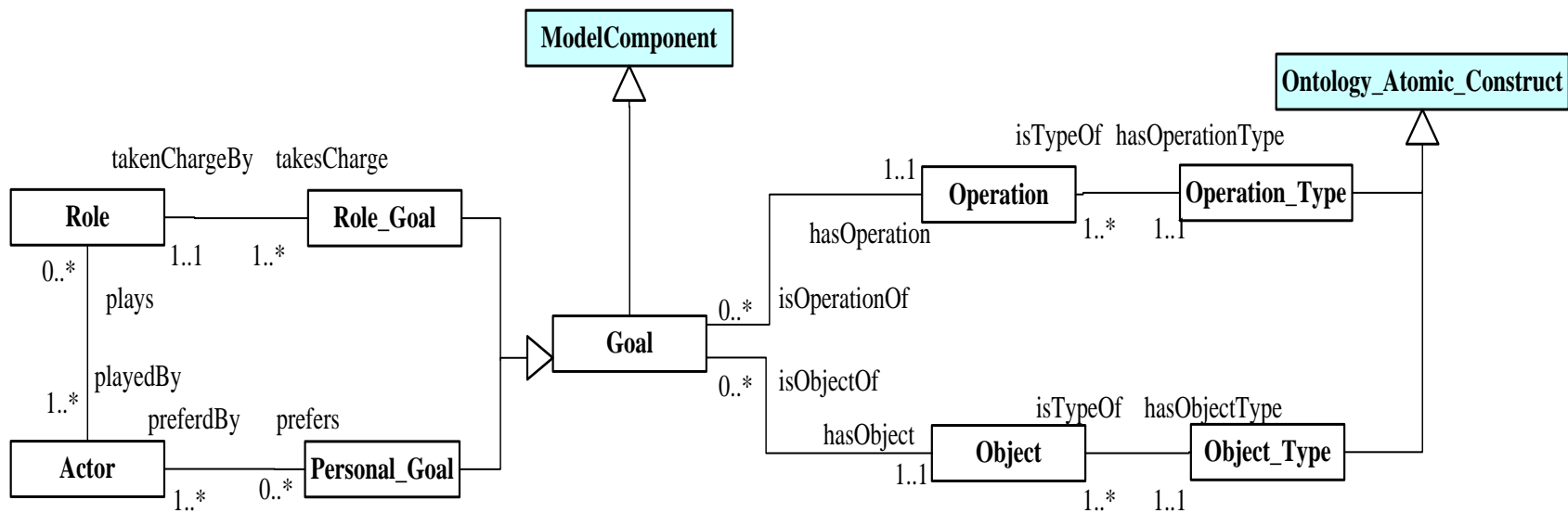
# MFI-TR: Using RGPS for on demand model selection

Introduction

- Each part in ISO/IEC 19763 provides corresponding registration mechanism for different kinds of information resources in business domain, such as ontology, role, goal, process, and service.

- Users in a specific domain may express their requirements in various ways since they have different background.

- Based on the registration metamodels in ISO/IEC 19763, this part describes an instructive method for on demand model selection so as to satisfy users' requirements.

Scope

- This ISO/IEC Technical Report specifies a technical guideline on how to use R, G, P, and S metamodels to select appropriate combinations of models and/or services to meet users' goals.

- It also specifies how to use the RGPS infrastructure to support operational harmonization and interoperability within and between industries.

Relationships in RGPS
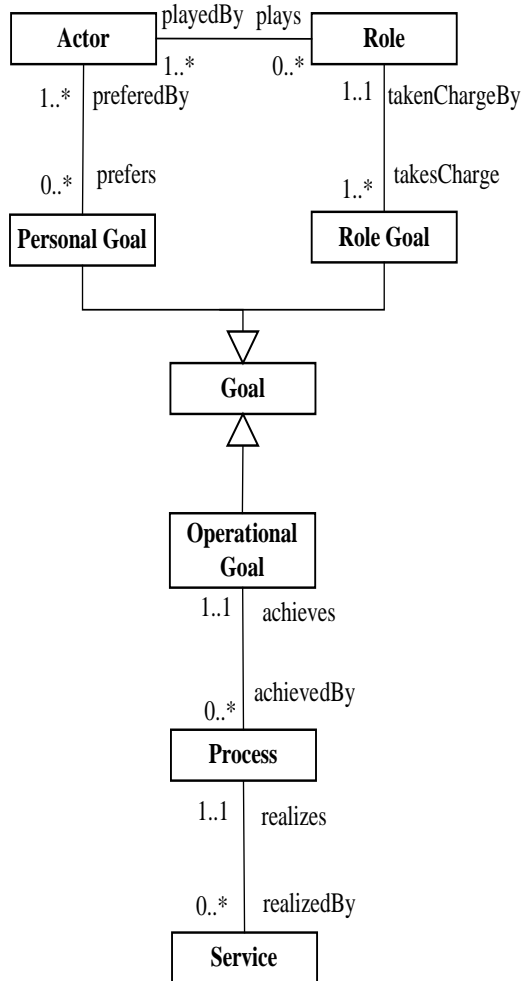
- An actor can play zero or more roles.
- A role must be played by at least one actor.
- An actor can prefer zero or more personal goals.
- A personal goal must be preferred by at least one actor.
- A role must take charge of at least one role goals.
- A role goal can be taken charge by exactly one role.
- Operational goals have the type of goal.
- An operational goal can be achieved by zero or more processes.
- A process must achieve exactly one operational goal.
- A process can be realized by zero or more services.
- A service can realize exactly one process.
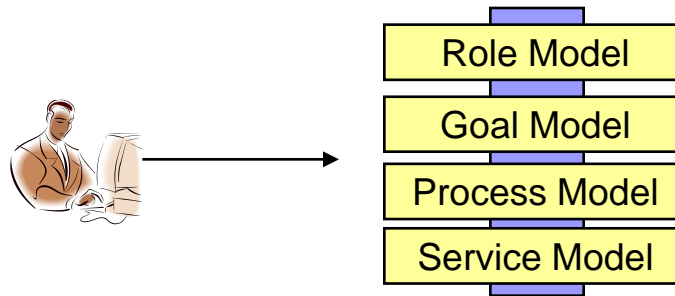
Typical Cases of RGPS based Model Selection
- from goal to process
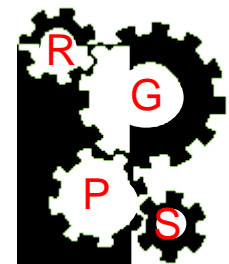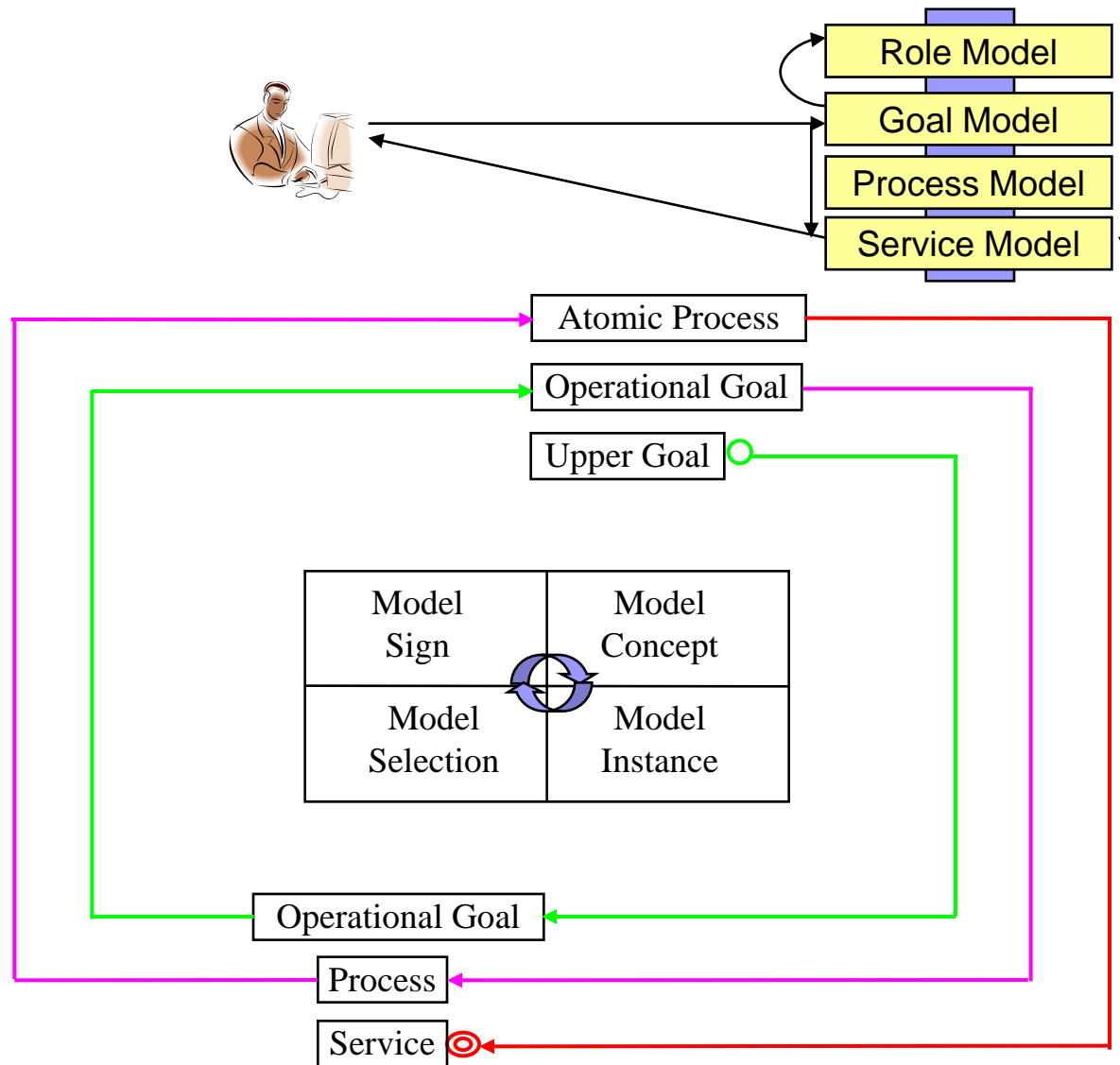
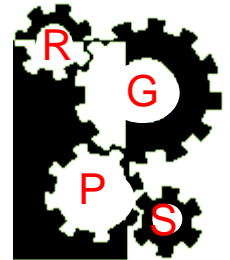# Typical Cases of RGPS based Model Selection
- from process to service
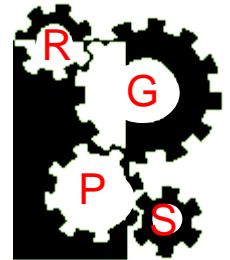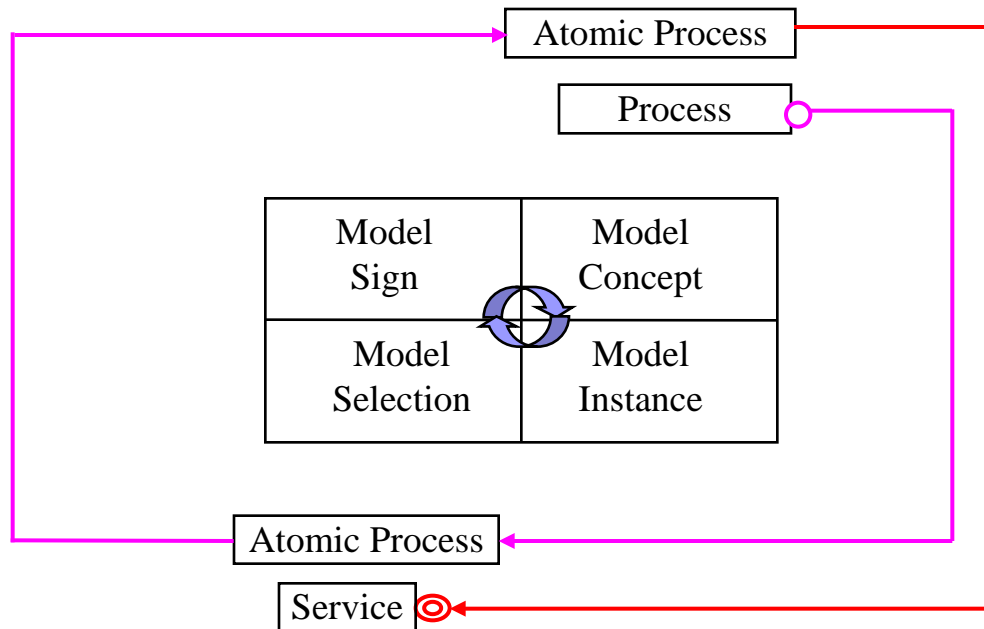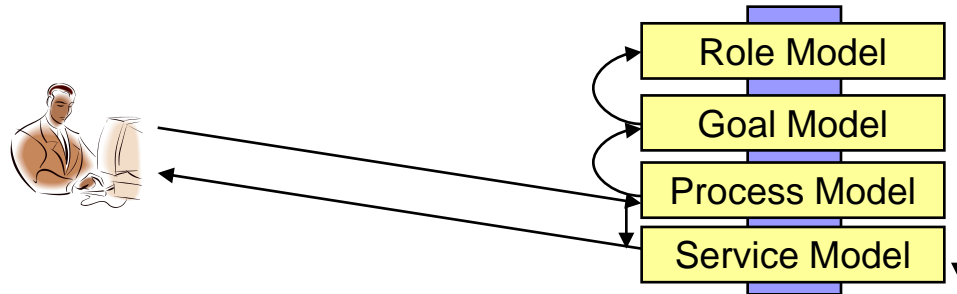
Typical Cases of RGPS based Model Selection
- other cases

Role Model
Goal Model
Process Model
Service Model

Depend on

• how users' requirements are represented

• what is the expected result of users

Model Sign	Model Concept
Model Selection	Model Instance

Thank you!