

INTERESTS –COORDINATION SOFT SYSTEMS METHODOLOGY (ISSM)

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- Why do we study methodology?

- What is the function of the methodology?



I. PREFACE

Methodology and rule – the function of methodology



- ❑ Rule function: rule is important, for example, when two people share a cake, the rational result should be half a cake for each one. But in order to reach this result, we should take the rule that who cuts the cake takes it last.
- ❑ The methodology refers to the steps and methods taken in doing things, which implies the rule that restricts softly people to act in a certain way.



II BACKGROUND OF ISSM



Systems Engineering (SE)

- ❑ The logical steps of Systems Engineering: problem definition - choice of goals - system synthesis - system analysis - system selection - system development - current engineering.
- ❑ The nature of SE is an optimization process.
- ❑ The successful application of SE in the Apollo project led to the system movement in which SE was applied to various socio-economic problems. However, the consequence surprisingly displayed its limitations in function.



Why?



Systems classification

Prof. Checkland

1. Systems need to be classified according to their beginnings
 2. Problems of different systems need to be tackled with different systems methodologies
- Natural system
 - Designed system (Man – Made system)
 - Human activity system (HAS)
 - Unknown system

natural system
beginning: the beginning of universe and its evolution
Including human, he can create...

designed physical
system
beginning: human &
purpose (often goal)

HAS
beginning:
human's self-
consciousness

designed abstract
system
beginning: human &
purpose (often goal)

Unknown system



SE and designed systems

- Engineering problems: designed systems problems-
SE
- socio-economic problems: HAS problems need new
systems methodology

New one - Soft Systems

Methodology By checkland (SSM)

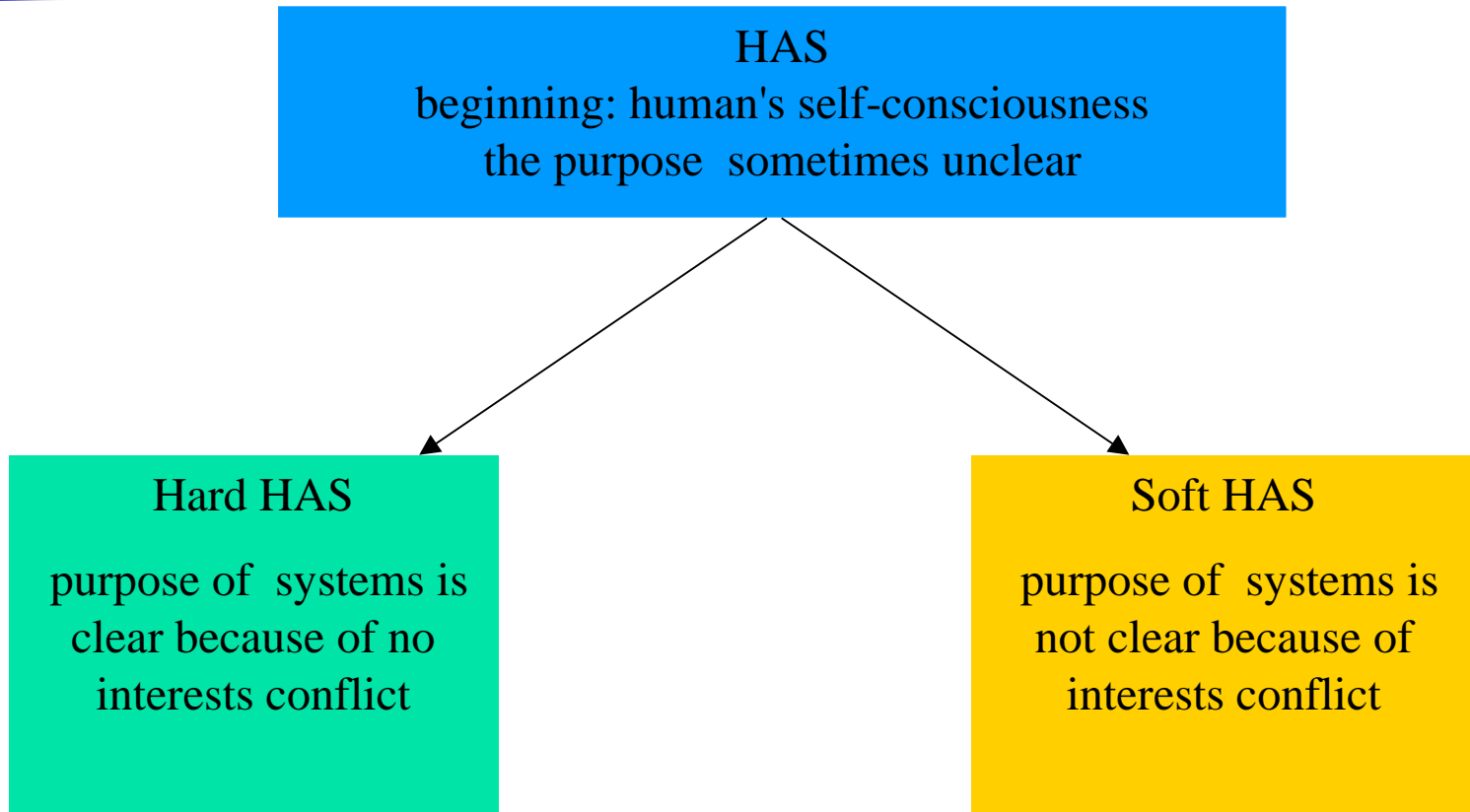
- Its logical steps: problem situation unstructured - the problem situation expressed - root definition (RD) of relevant system (RS) - conceptual model (CM) of RS - comparison of the CM with problem perception - feasible, desirable change - activity to improve the problem situation.
- The nature of SSM is a learning process.
- SSM is an effective tool for some problems of HAS, but it is not suitable to the conflict problems of HAS



Why?



Further classification of HAS





Another new one - ISSM

- ❑ Problems of Hard HAS – systems methodology : SSM
- ❑ Problems of Soft HAS – systems methodology : ISSM



III. FOUNDATION OF ISSM



✓ Prof. Checkland SSM

✓ soft HAS

□ Interests – man (model of man in soft HAS)



Definition of Interests-man (IM)

- Maximize: Self-interests perceived by man
- Subject to:
 - . Subjectively bounded- rationality constraint
 - Bounded cognitive ability
(including the cost for searching information)
 - Bounded action ability
(including the action cost)
 - . Objectively natural- environment constraint
 - . Objectively social- environment constraint
 - The institution
 - The game equilibrium

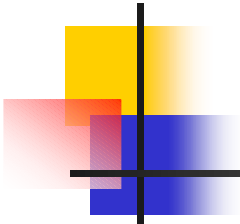


Meaning of IM

- ❑ The interests are defined according to Maslow's theory of man needs and desires, so the meaning of interests in IM is much wider than material interests and in a hierarchical structure and go upward one by one.
- ❑ The purpose, which is different from the goal, can not be quantified, so the measure of the interests as purpose is evaluated by the sense of man.



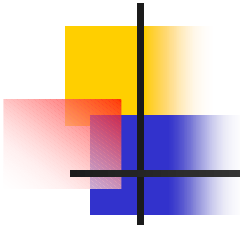
IV. LOGICAL STEPTS OF ISSM

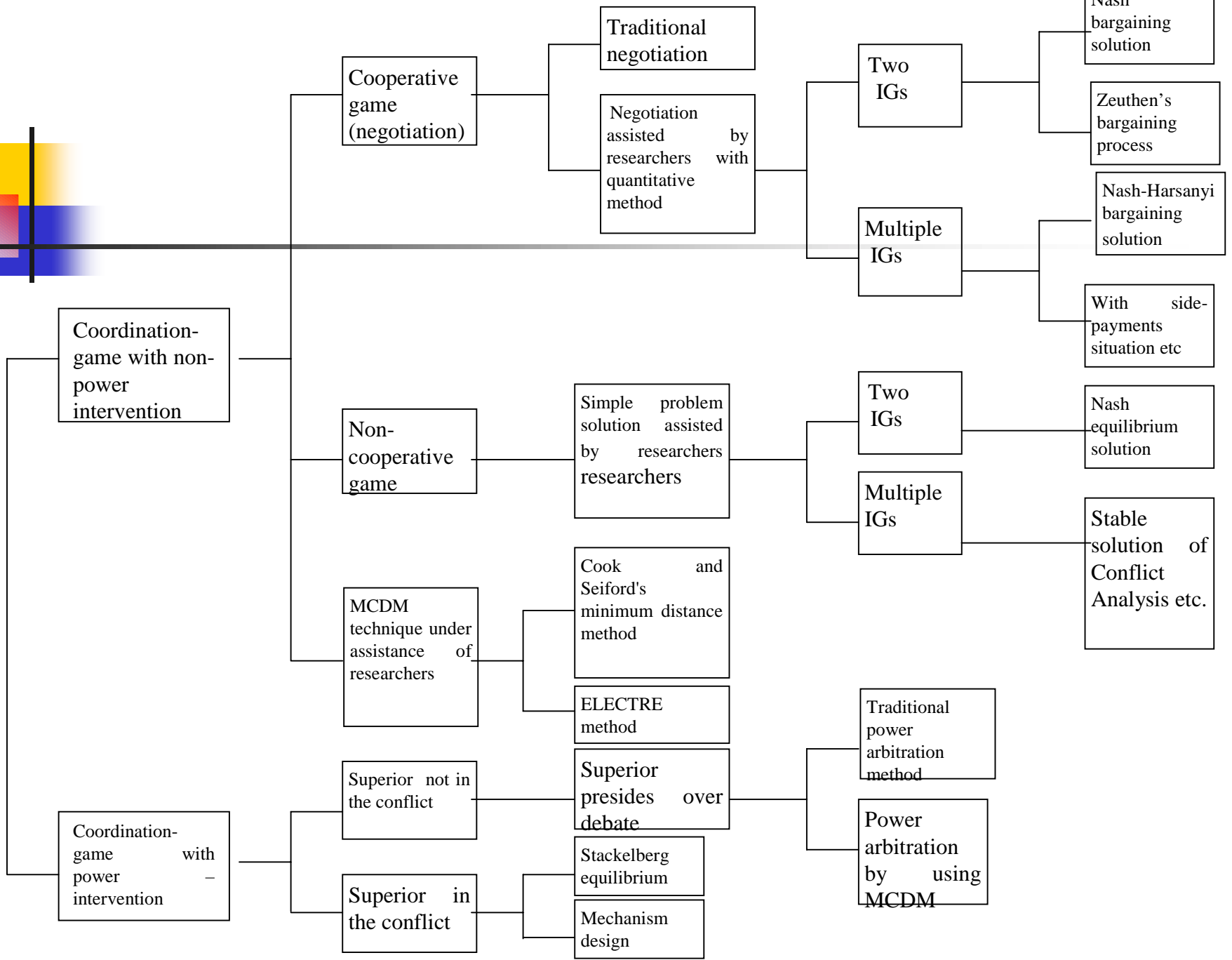
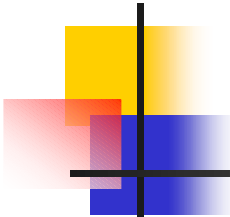


ISSM

1	2	3	4	5	6	7
the problem situation unstructured	the problem situation expressed 2.1 perception of interests conflict 2.1.1 finding out IGs and setting boundary	RDs of RSs 3.1 RDs of IGs 3.1.1 RD of researchers	CMs of RSs 4.1 CMs of IGs 4.1.1 CM of researchers	comparison of 4 with 2 5.1 desirable changes of each IG 5.1.1 desirable changes of researcher	feasible, desirable changes 6.1 process of coordination -game 6.1.1 SAST stage 6.1.2 coordination -game stage	action to improv the problem situation

Logical steps of the stage of coordination-game







V. CONCLUSION

System methodologies	SE	SSM	ISSM
Process or rules	Optimization	Learning	Coordination
Purpose or goal	Goal is clear	Purpose is clear	Purpose is not clear
Problems suitable to deal with (by system category)	Designed systems problems	Hard HAS problems	Soft HAS problems
Problems suitable to deal with (expressed in usual language)	Engineering problems	Non-conflict social economic problems	Conflict social-economic problems
Problems suitable to deal with (expressed by problem category)	Simple- unitary	Complex- pluralist	Complex- pluralist or coercive



Thank you!