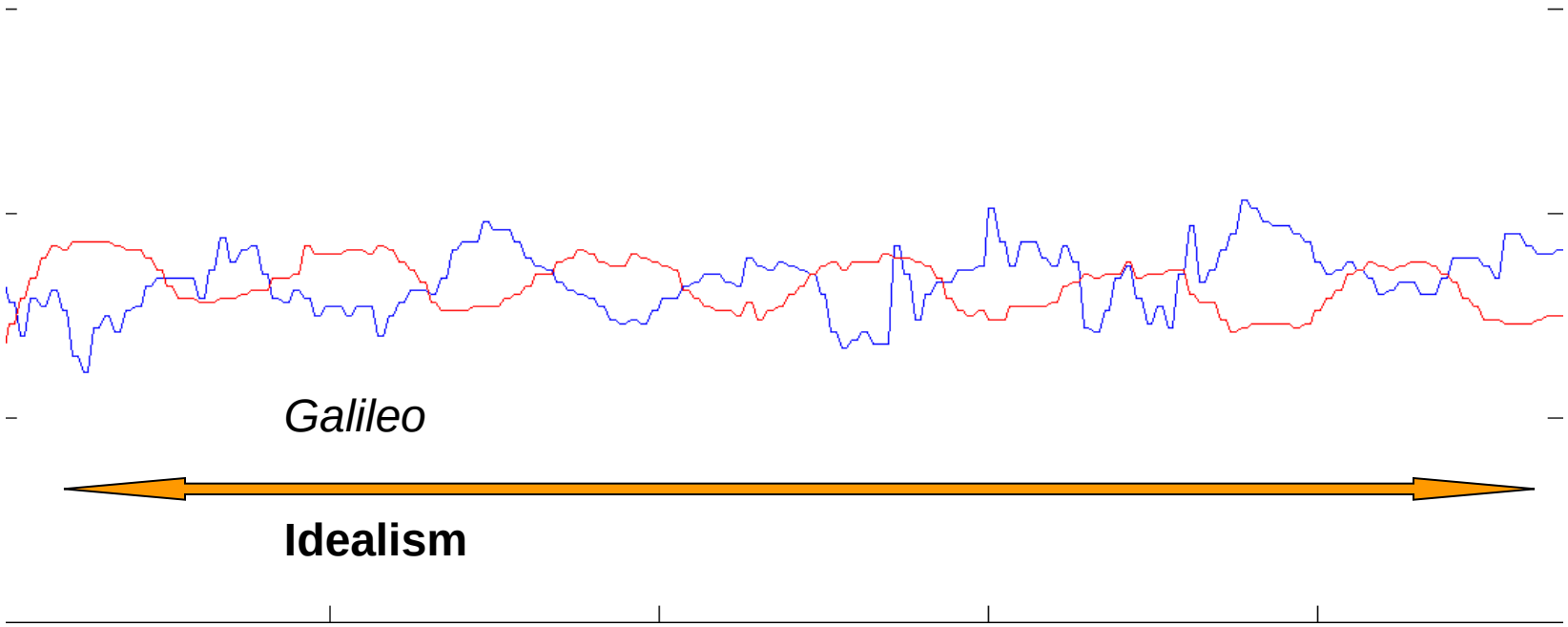
請以時間主軸排列出不同時間點的代表人物及其主要論點!

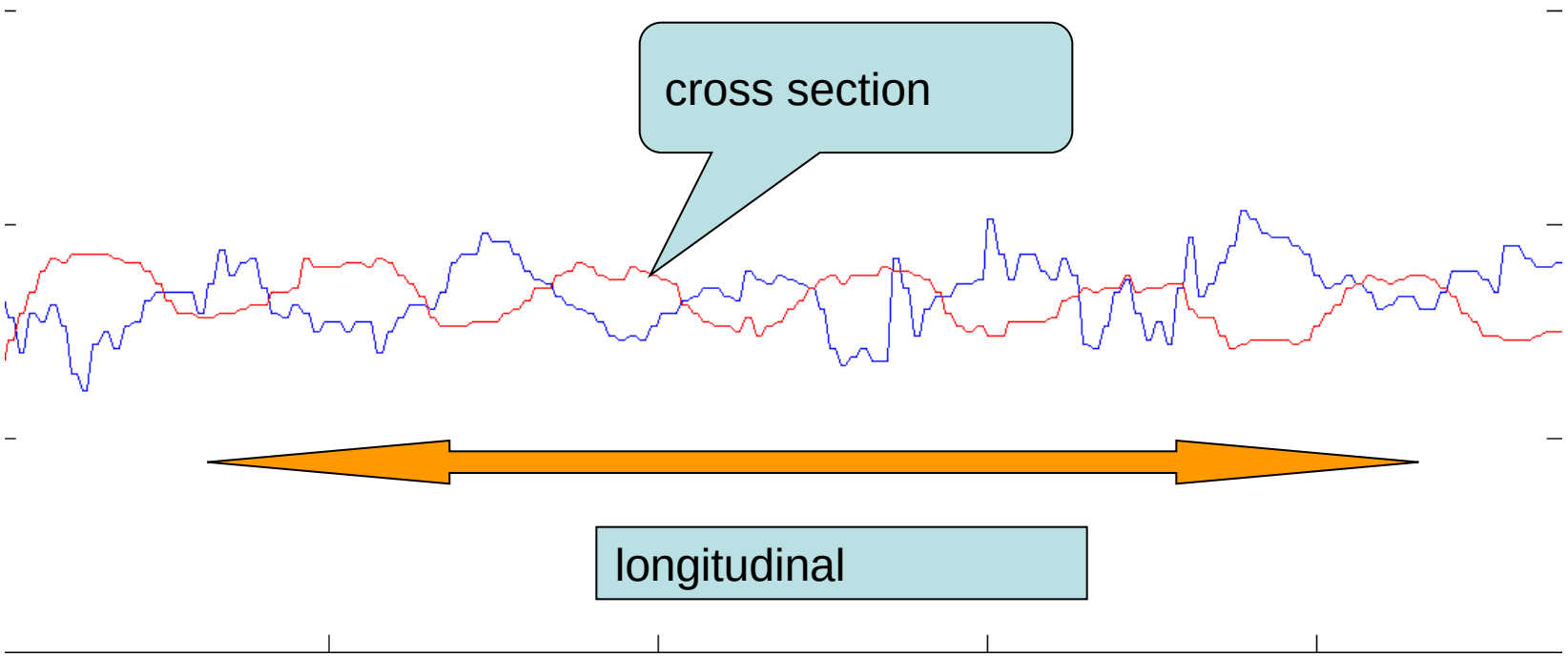
Aristotle, Galileo……?(1.4--1.9)

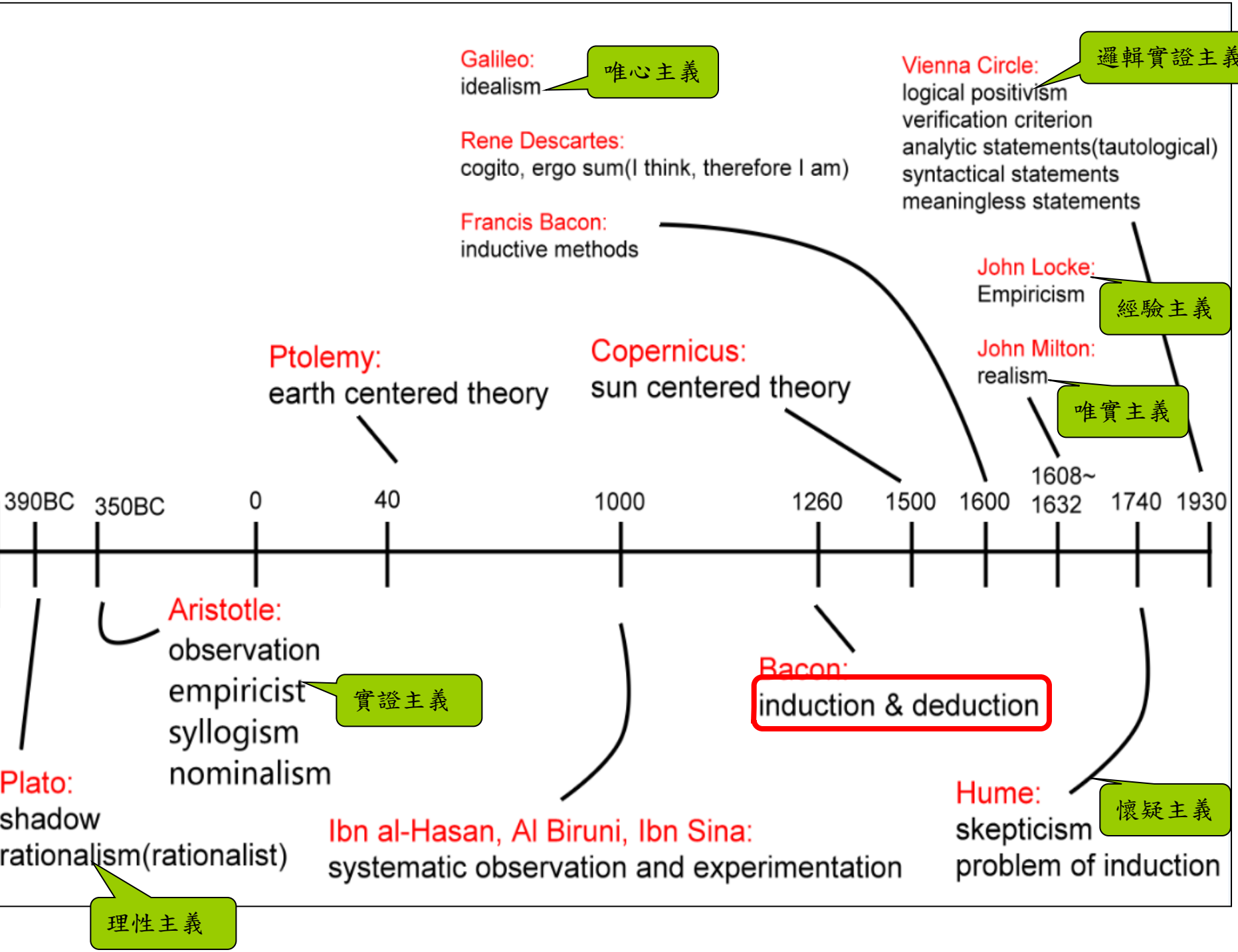
哲學思考發展的時間性

longitudinal



研究的時間性




Galileo:
idealism
唯心主義
Rene Descartes:
cogito, ergo sum(I think, therefore I am)
Francis Bacon:
inductive methods
Vienna Circle:
logical positivism
verification criterion
analytic statements(tautological)
syntactical statements
meaningless statements
邏輯實證主義
John Locke:
Empiricism
經驗主義
John Milton:
realism
唯實主義
Ptolemy:
earth centered theory
Copernicus:
sun centered theory
390BC
350BC
0
40
1000
1260
1500
1600
1608~
1632
1740
1930
Aristotle:
observation
empiricist
syllogism
nominalism
實證主義
Bacon:
induction & deduction
Plato:
shadow
rationalism(rationalist)
理性主義
Ibn al-Hasan, Al Biruni, Ibn Sina:
systematic observation and experimentation
Hume:
skepticism
problem of induction
懷疑主義

客觀主義

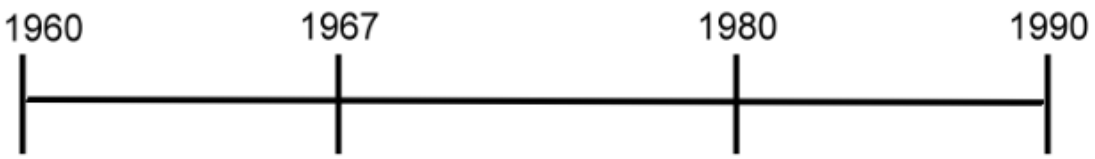
建構主義

建構實證主義

Ayn Rand:
objectivism

Jean Piaget:
constructivism

Bas van Fraassen:
constructive empiricism



Karl Popper:
A statement is meaningful only if it's falsifiable.
The hypothesis is provisionally supported, only if contradictory evidence is absent.

Willard van Orman Quine:
No hypothesis can be tested in isolation,
there are always background assumptions and supporting hypotheses.

Thomas Kuhn:
framework or paradigm

10/02 24:00 due
(Troncalss)

後面作者主要論述為何?他/她挑戰前面作者什麼論述?

請指出各領域知識如何產生?

The Philosophical Grounding of Design Research

- Ontology— fundamental assumptions about the nature of phenomenon
- Methodology—the nature of ways of study those phenomenon
- Epistemology—nature of knowledge about those phenomenon

The Philosophical Grounding of Design Research

- Ontology:

– Reality (real world exists but we are not seeking it)

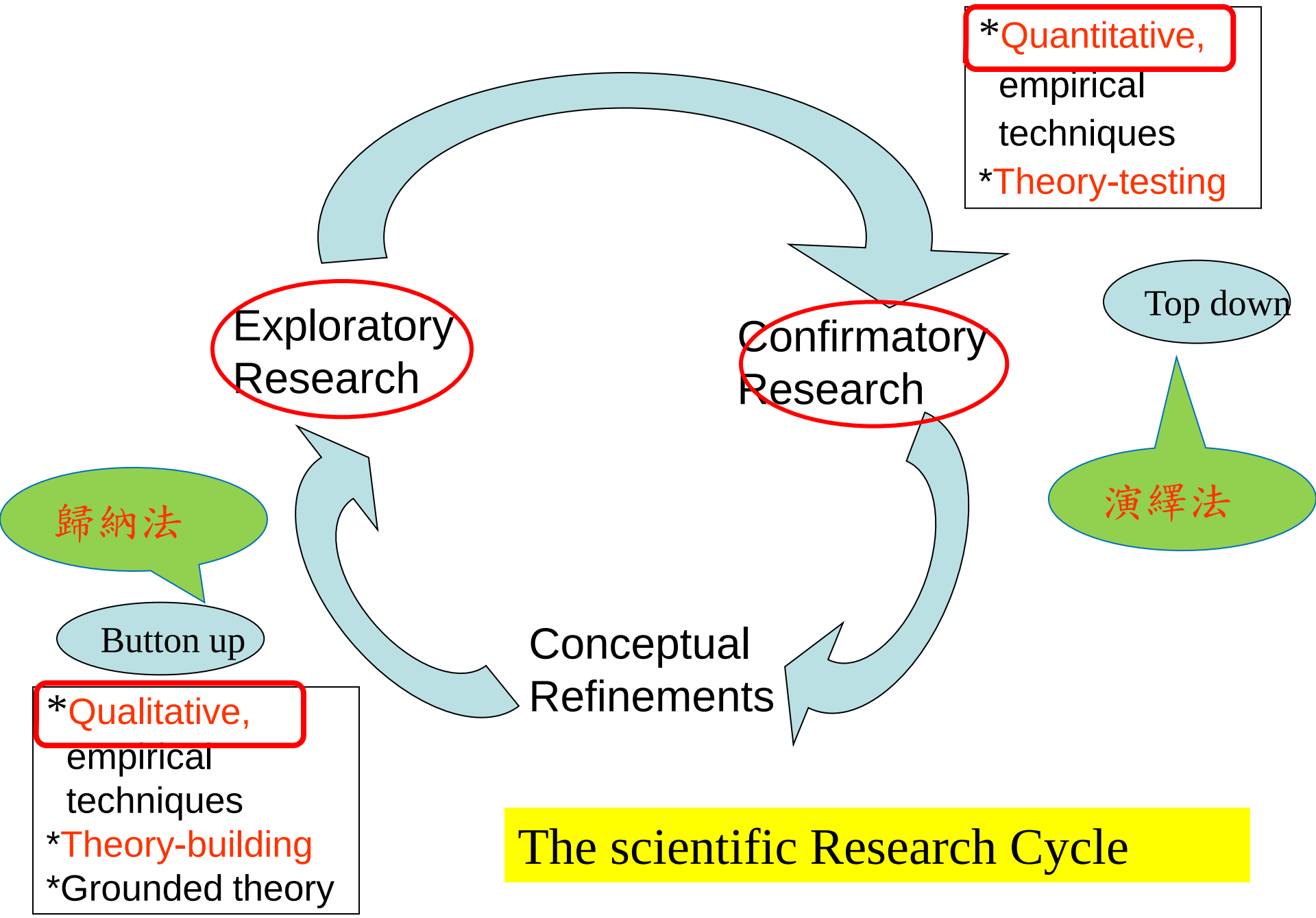
- Methodology:

– Development/Design of systems, models

– Qualitative and exploratory way of thinking, but could lead to quantitative confirmations

- Epistemology:

– We can intervene in the world to improve it



The scientific Research Cycle

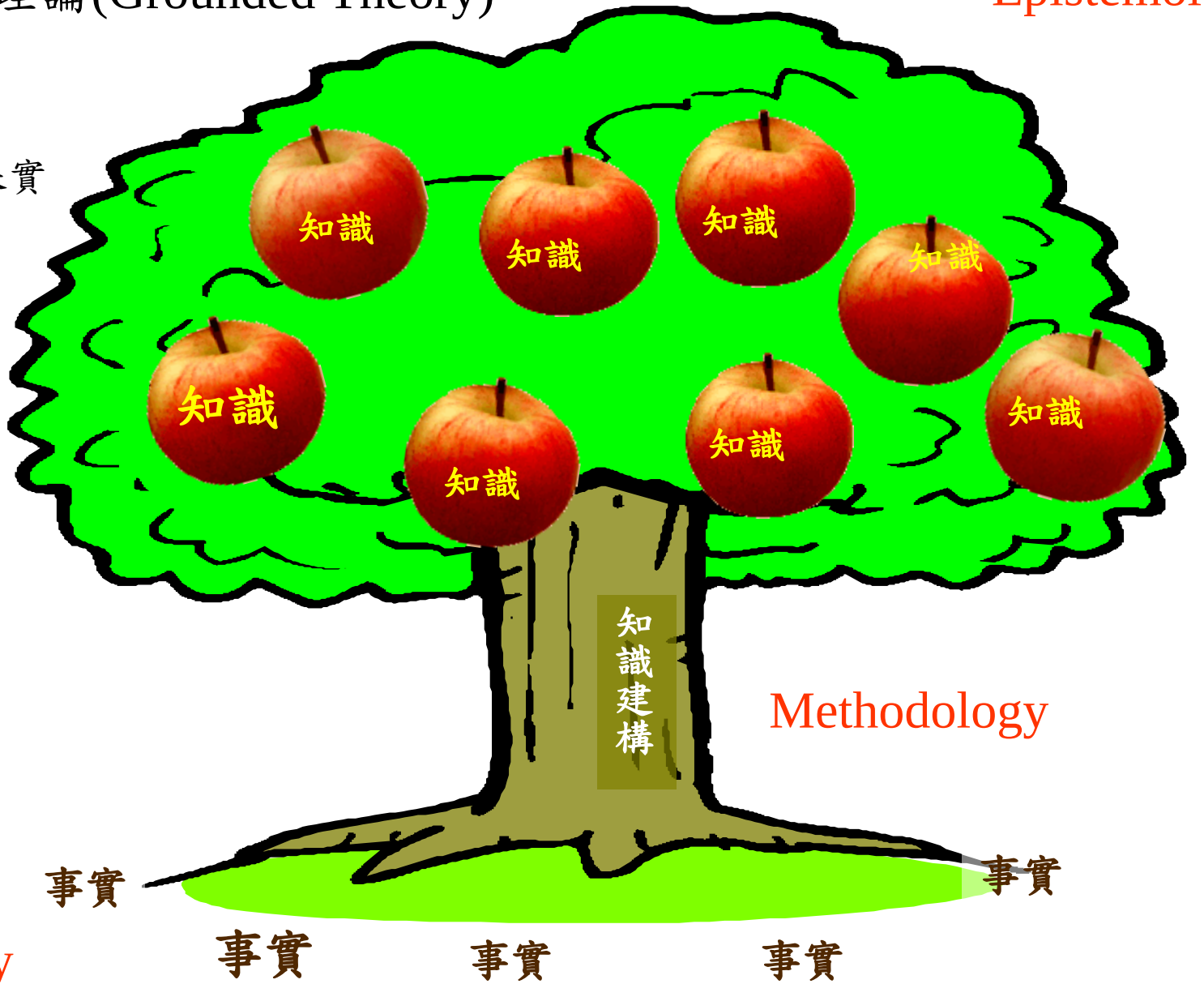
知識的形成 or 研究目的

- Ontology
- Methodology
- Epistemology

紮根理論(Grounded Theory)

Epistemology

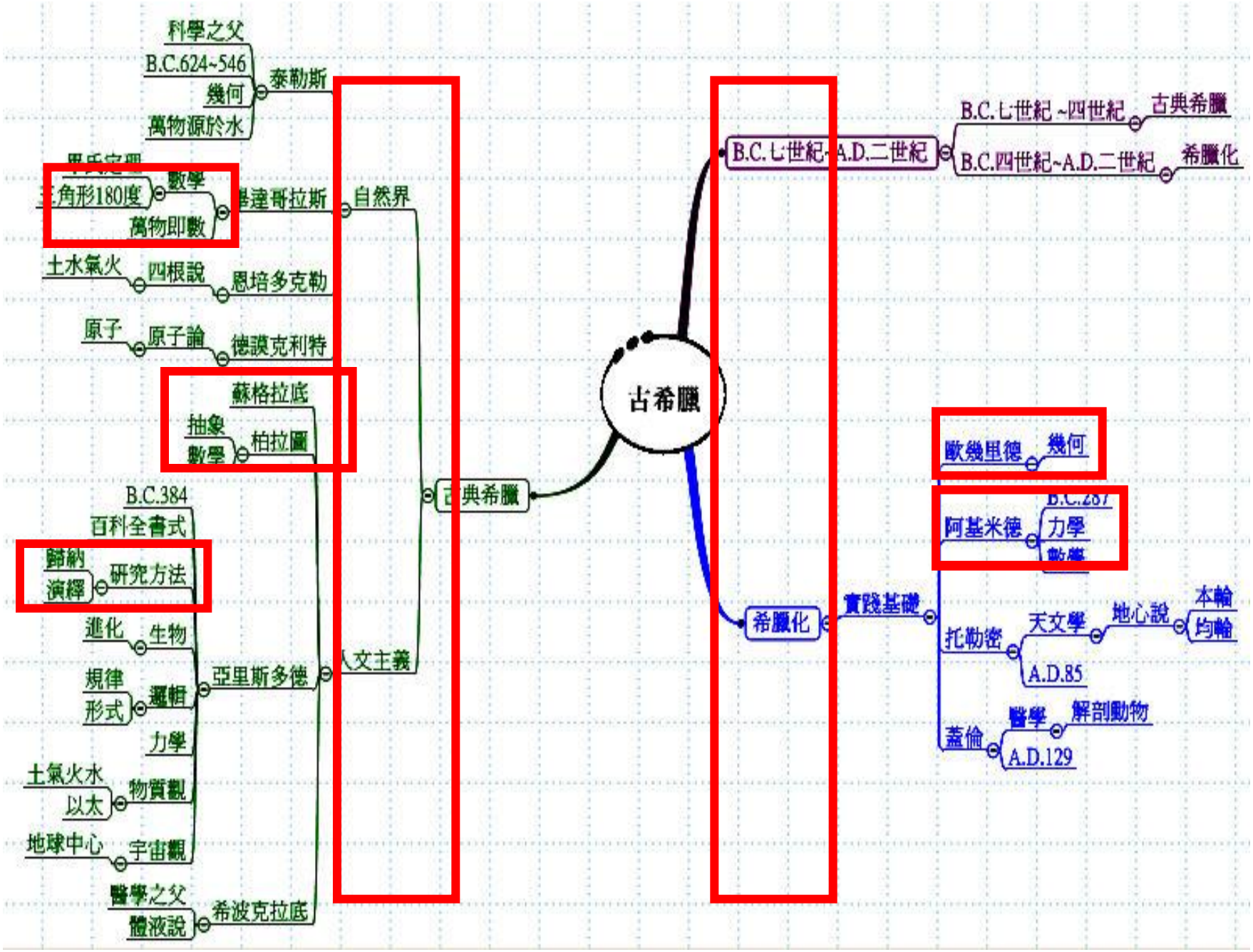
知識的果實

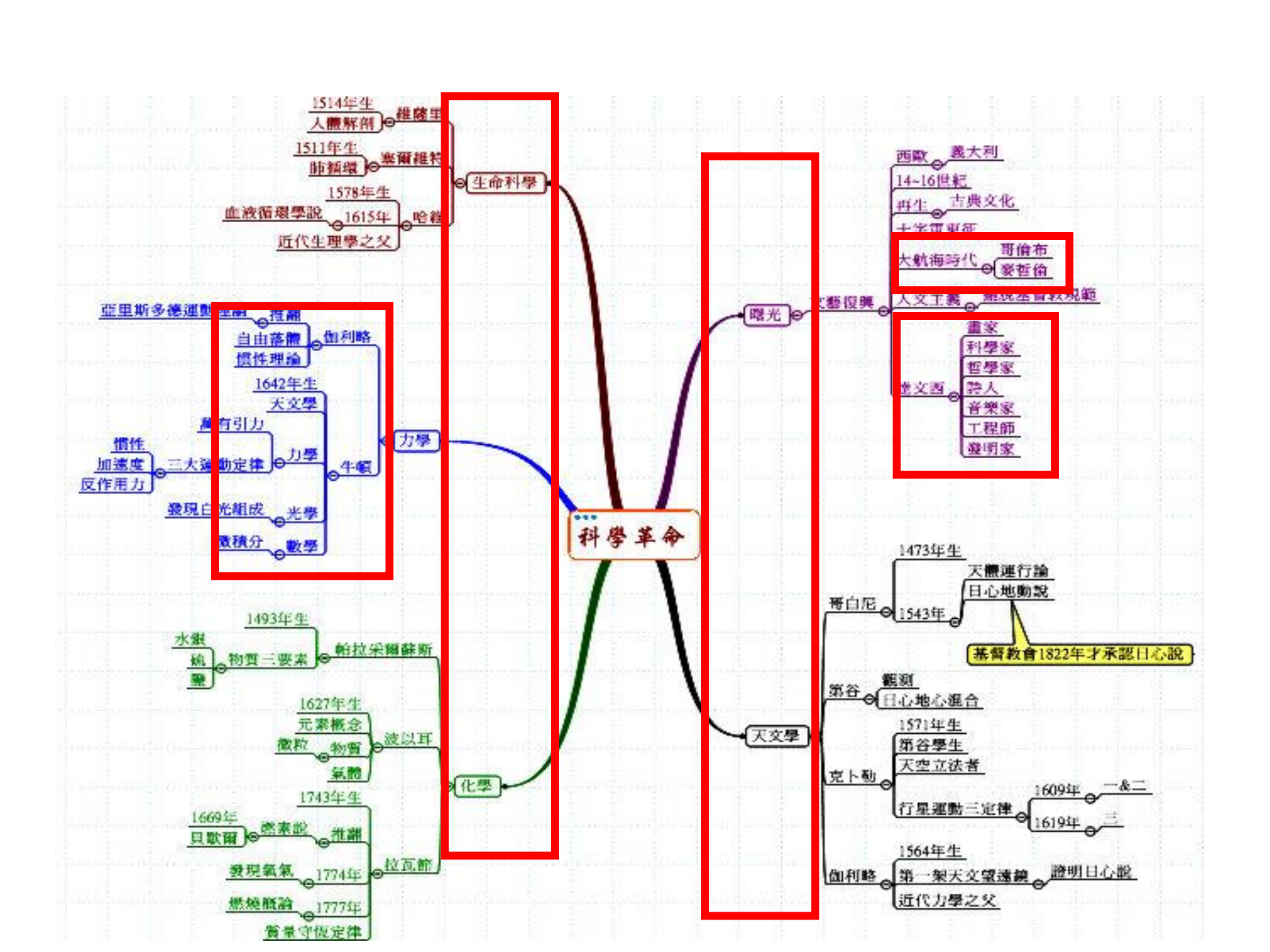


Methodology

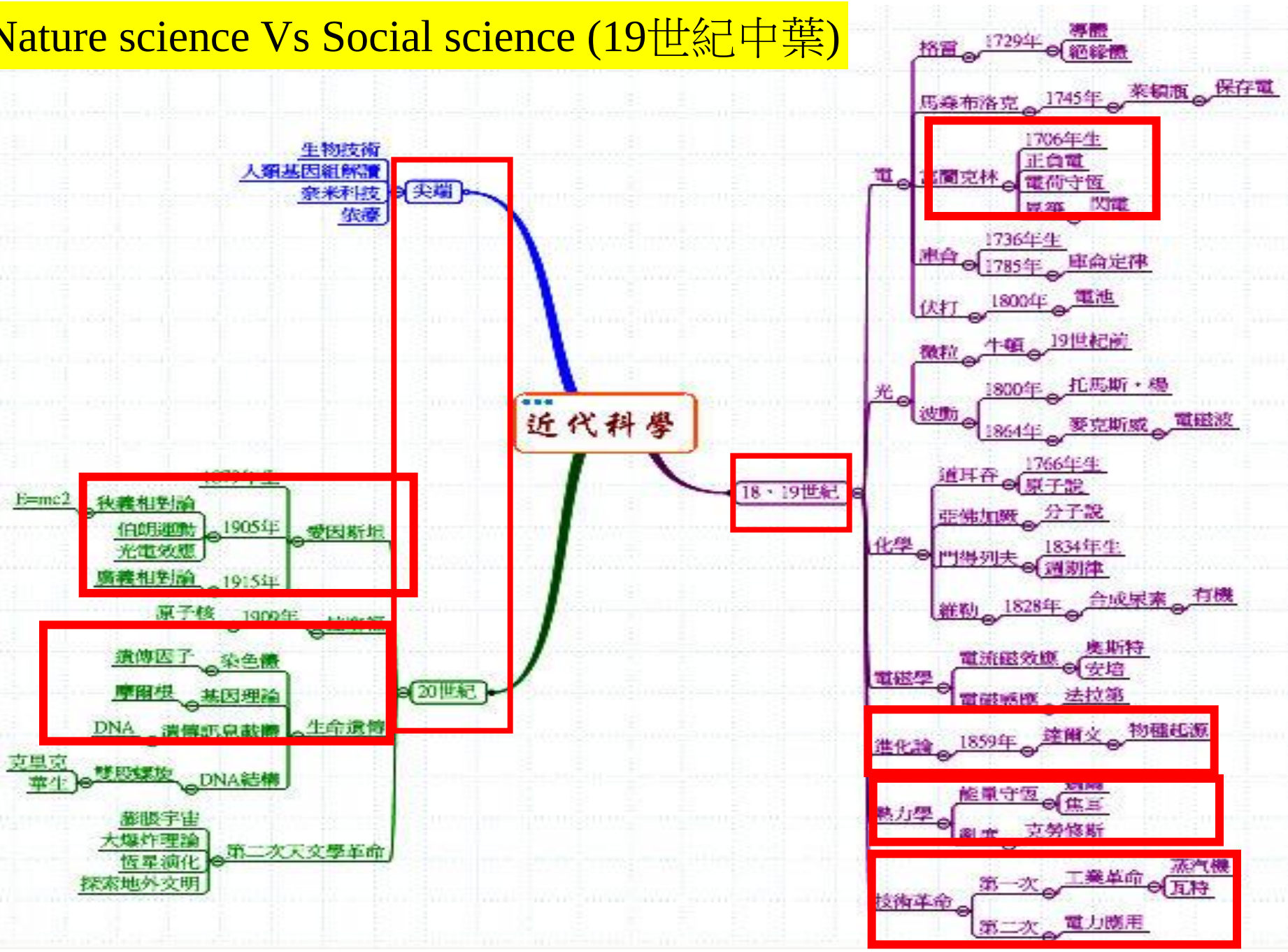
Ontology

事實比作為土壤


古希臘
B.C.七世紀~A.D.二世紀
古典希臘
B.C.七世紀~四世紀
B.C.四世紀~A.D.二世紀
希臘化
自然界
人文主義
泰勒斯
科學之父
B.C.624~546
幾何
萬物源於水
畢達哥拉斯
數學
三角形180度
萬物即數
恩培多克勒
四根說
土水氣火
德謨克利特
原子論
原子
柏拉圖
蘇格拉底
抽象
數學
亞里斯多德
B.C.384
百科全書式
歸納
演繹
研究方法
生物
進化
邏輯
規律
形式
力學
物質觀
土氣火水
以太
宇宙觀
地球中心
希波克拉底
醫學之父
體液說
實踐基礎
歐幾里德
幾何
阿基米德
B.C.287
力學
托勒密
天文學
地心說
本輪
均輪
A.D.85
蓋倫
醫學
解剖動物
A.D.129


科學革命
生命科學
1514年生
人體解剖
維薩里
1511年生
肺循環
塞爾維特
1578年生
血液循環學說
1615年
哈維
近代生理學之父
力學
亞里斯多德運動
推翻
自由落體
慣性理論
伽利略
1642年生
天文學
萬有引力
力學
慣性
加速度
三大運動定律
反作用力
牛頓
發現白光組成
光學
微積分
數學
化學
1493年生
水銀
硫
鹽
物質三要素
帕拉采爾蘇斯
1627年生
元素概念
微粒
物質
氣體
波以耳
1743年生
1669年
貝歇爾
燃素說
推翻
發現氧氣
1774年
拉瓦節
燃燒概論
1777年
質量守恆定律
曙光
文藝復興
西歐
義大利
14~16世紀
再生
古典文化
大航海時代
哥倫布
麥哲倫
人文主義
脫離基督教規範
達文西
畫家
科學家
哲學家
詩人
音樂家
工程師
發明家
天文學
哥白尼
1473年生
1543年
天體運行論
日心地動說
基督教會1822年才承認日心說
第谷
觀測
日心地心混合
克卜勒
1571年生
第谷學生
天空立法者
行星運動三定律
1609年
一&二
1619年
三
伽利略
1564年生
第一架天文望遠鏡
證明日心說
近代力學之父

Nature science Vs Social science (19世紀中葉)



資管研究

發現　VS　發明

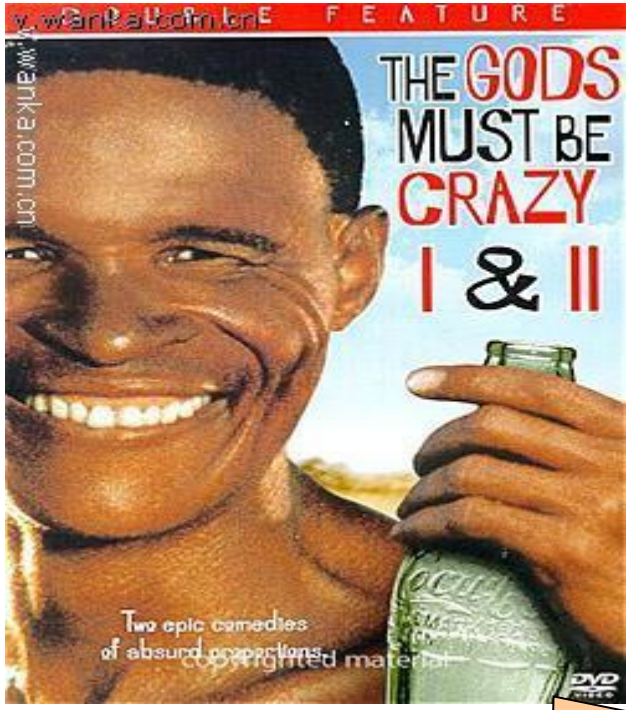
心智枷鎖的產生

- 實証主義@nature science→成立；

- 實証主義@social science→不成立(不客觀)

WHY？

上帝也瘋狂



Reality *is* in effect a mental construct

social science

笛卡兒： 我思，故我在

- I think , therefore I am.

- being--事實(ontology)
- become—如何看待事實，事實就會變成我所想像的。

Paradigm shift

Paradigm shift

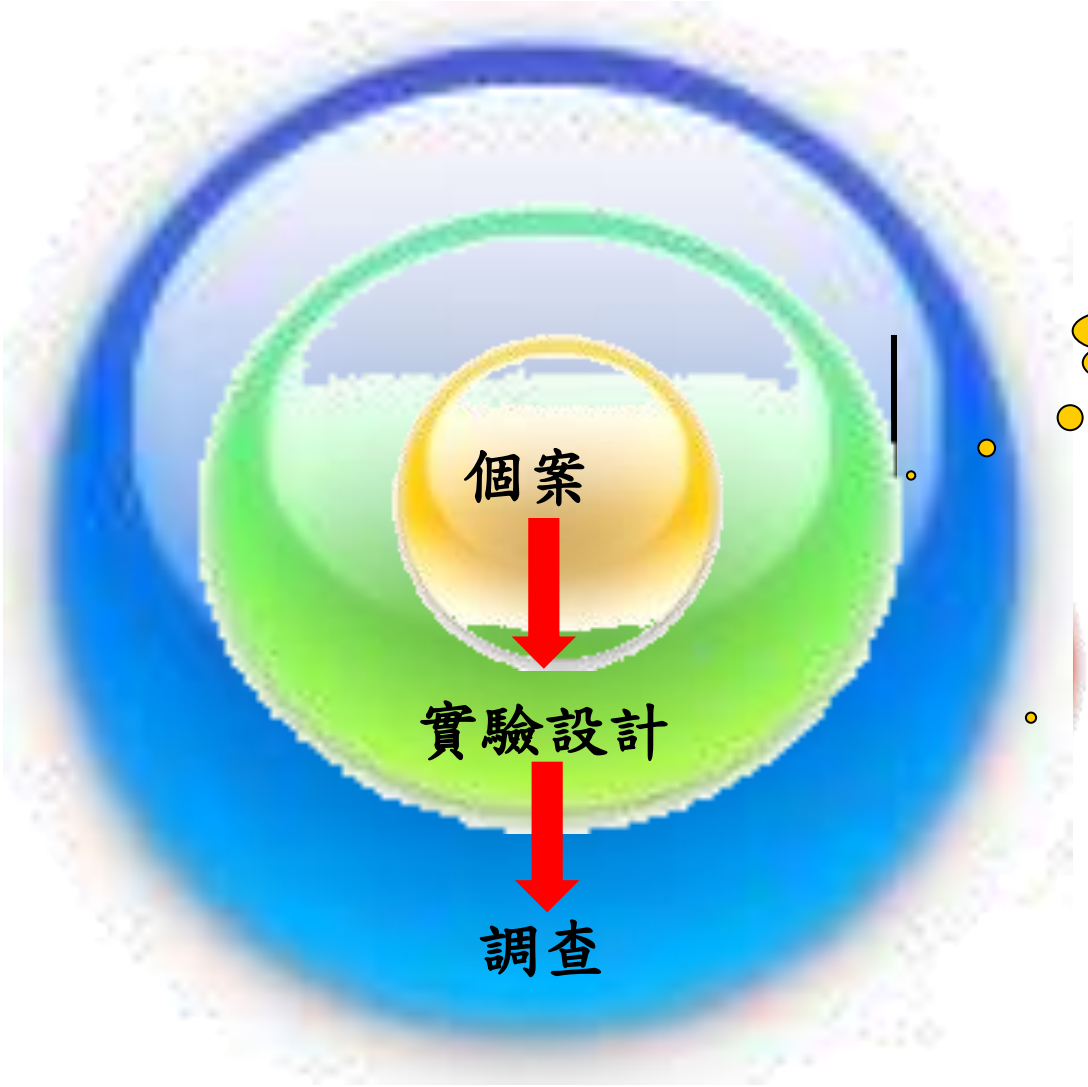
管理學之研究認識論	實證論 (positivist philosophy)	詮釋說明論 (interpretive philosophy)	批判論 (critical philosophy)
對自然與社會真相的信念	. 真實世界是客觀的(與個人差別無關) . 研究者試圖建立一個一對一的模式，藉以衡量並發現真相	. 強調主觀價值的重要 . 著重人事物之交互影響及其意義	. 任何事情都有可改善的潛力存在 . 整體觀：事件發生之觀察與了解不可片面分割去了解
對知識的信念	. 可以找出一個放諸四海悟準的原則 . 此原則可以來解釋、預測及控制有關現象	. 必須親身到真實世界中觀察與體驗 . 將觀察結果加以描述、解釋、分析，以便理解。	. 知識系根基於社會與歷史的演進過程的了解很重要 . 必須經由長期性的觀察才可以獲得
研究方式	. 研究現象之間是否存在因果 . 主要目標：理論驗證 . 研究方法：是出假設 ->研究變數予以量化 ->假設檢定 ->母體推論	. 研究者將其主觀的見解表達出來，不試圖建立一個放諸四海悟準的原則 . 主要目標：了解現象的深層結構與動態問題 . 研究方法：以個案觀察為主	. 研究者以批評現況為己任 . 主要目標：藉由批判來導正事物之現況 . 對於一些早已“視為當然”的假設提出質疑，並用辯證法揭發疑點
優點	. 加強實證研究的品質 . 可用以累積相關知識 . 嚴謹、有標準	. 能從各方面的角[illegible]連結來發掘真相 . 能補實證主義的[illegible] . 注重人的互動	. 研究具有整體性及實際性 . 能提醒我們：事物應隨環境變遷而有所改變。注重文化、社會
缺點	. 不接受非實證的觀點 . 忽略文化、社會、政治、人性的影響 . 劃地自限	. 沒有考慮動機與實際行為的不一致 . 沒有考慮時間、歷史的構面	. 並非所有事物都互相對立而必須加以批評 . 本身知識、理論不明確，沒標準、不確定、難評估

廣

對話

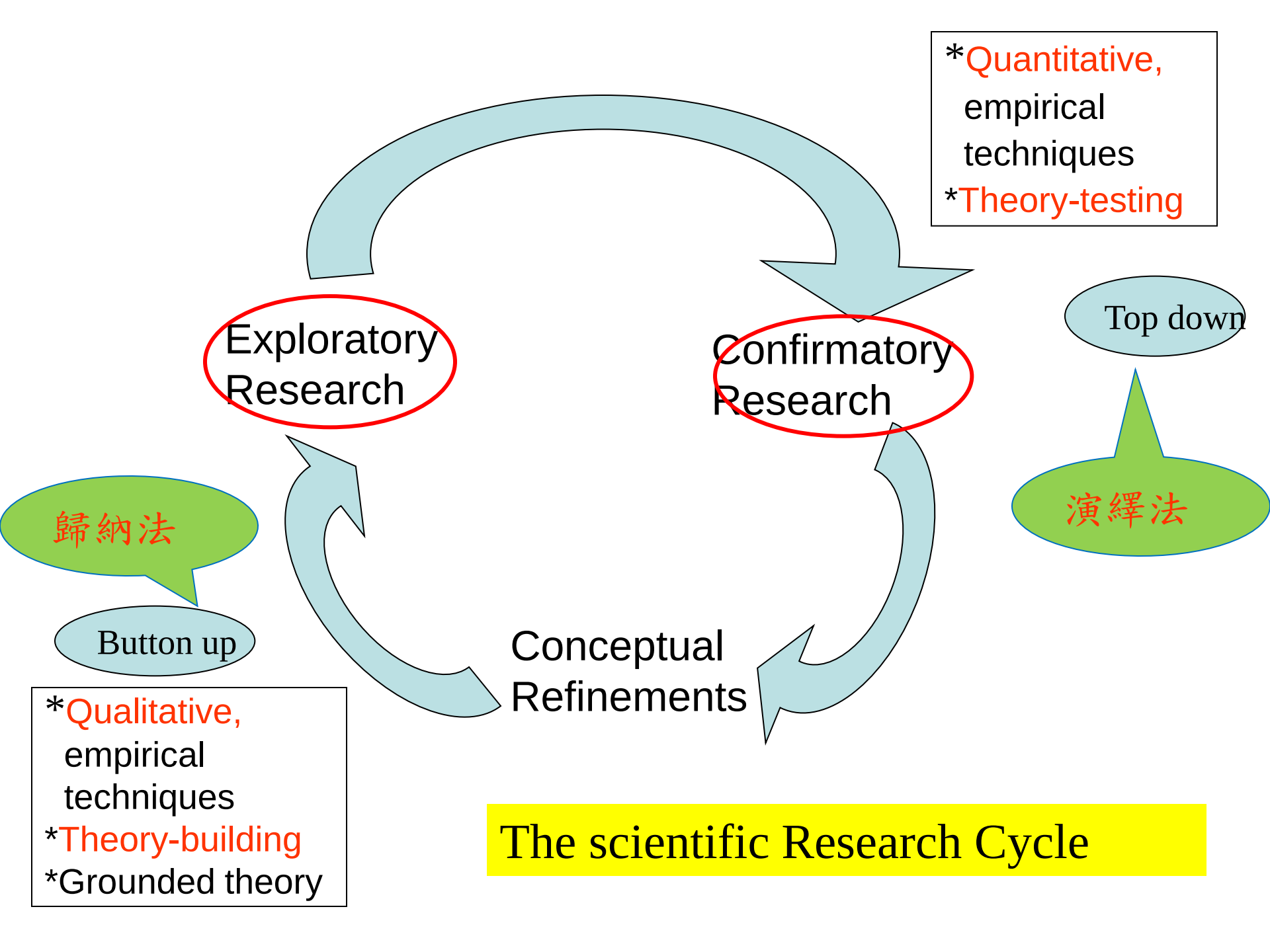
深

研究方法的範圍



變數多寡

研究對象
範圍



The scientific Research Cycle

演繹法(induction)與歸納法(deduction)

紅龜模型

Epistemology

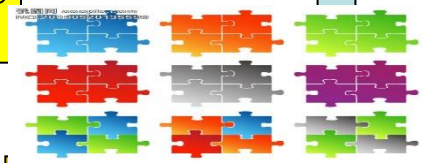
演繹法

歸納法

General rules or hypothesis

理論架構

理論架構



中距理論

Methodology

拼圖

假設檢定

假設經驗通則

根基的理論

概念形式經驗通則

經驗的社會實相

經驗的社會實相

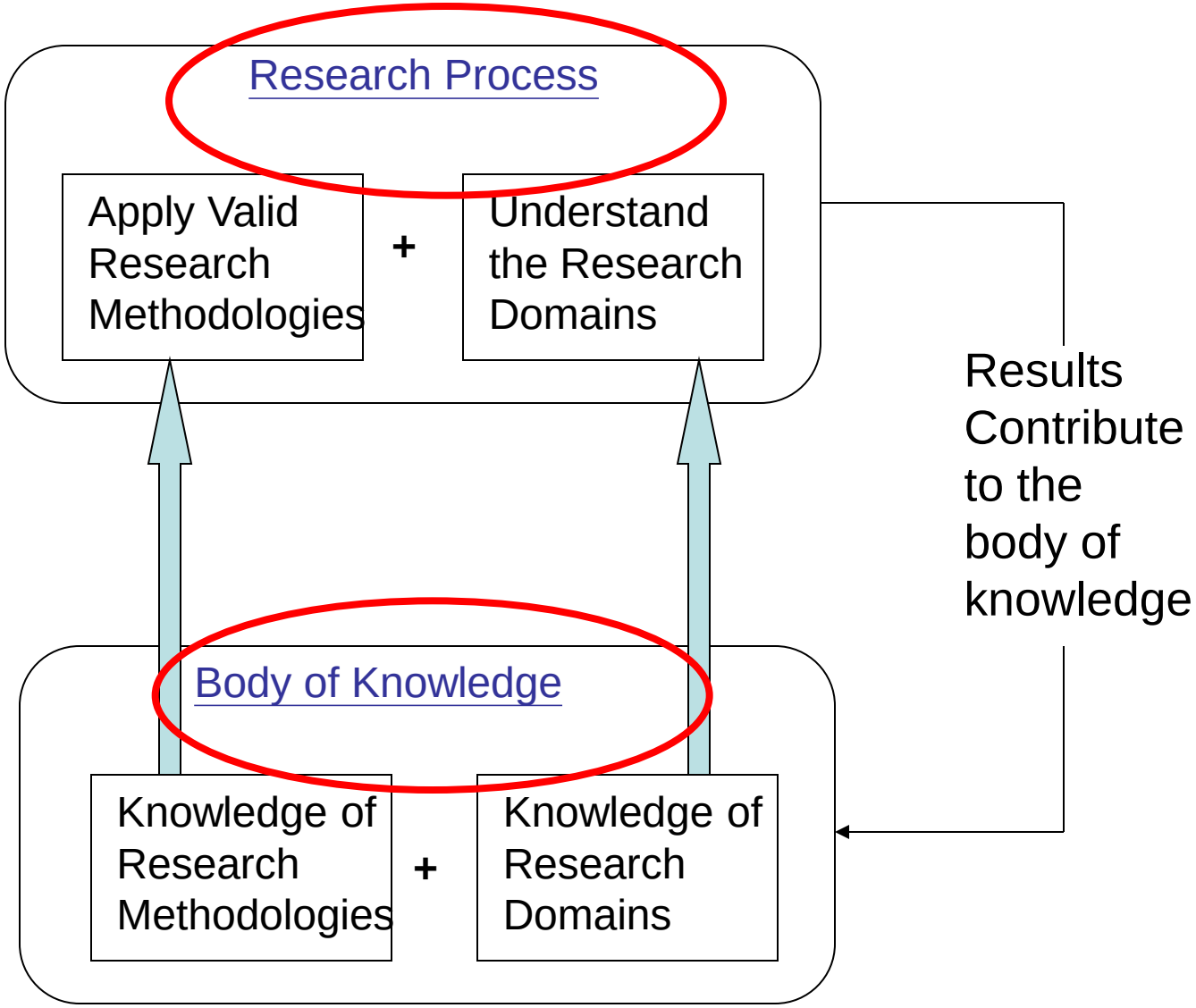
Hold on new specific instance

Ontology

Paradigm (ideology)

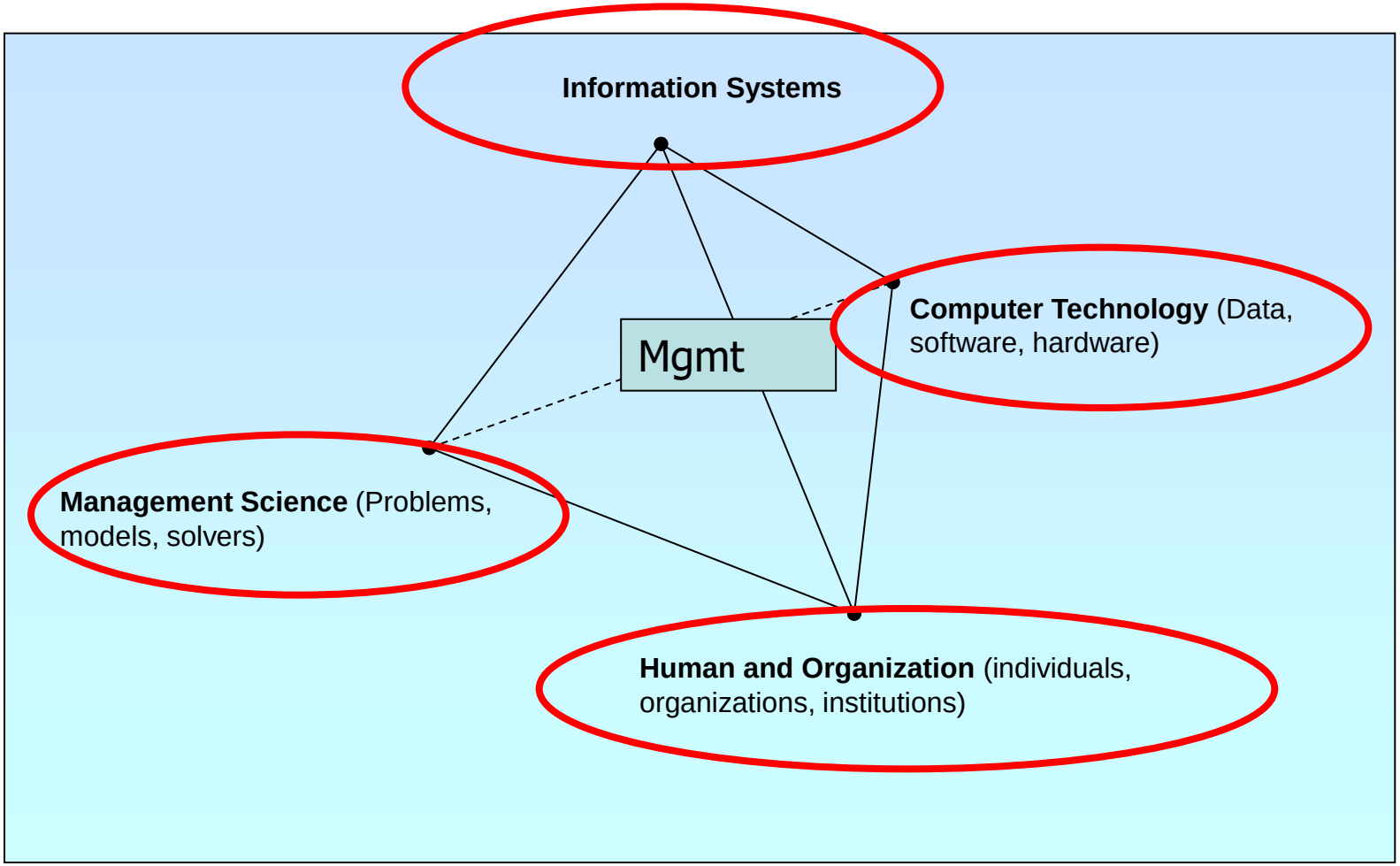
- Belief: personal understanding
- Value: personal preference
- Zealots (who carries ideology too far)
- Paradigm shift

如何充實資管領域的知識?



A Framework of Research

資管的構成要素


Information Systems
Mgmt
Computer Technology (Data, software, hardware)
Management Science (Problems, models, solvers)
Human and Organization (individuals, organizations, institutions)

點、線、面、趨勢考量

點：IS keywords

variables

線：IS themes

related between variables

面： IS theories

model

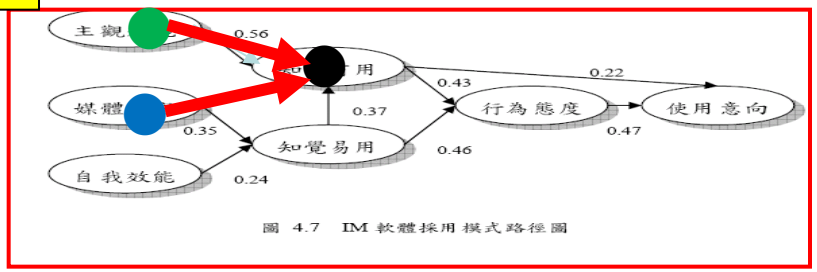
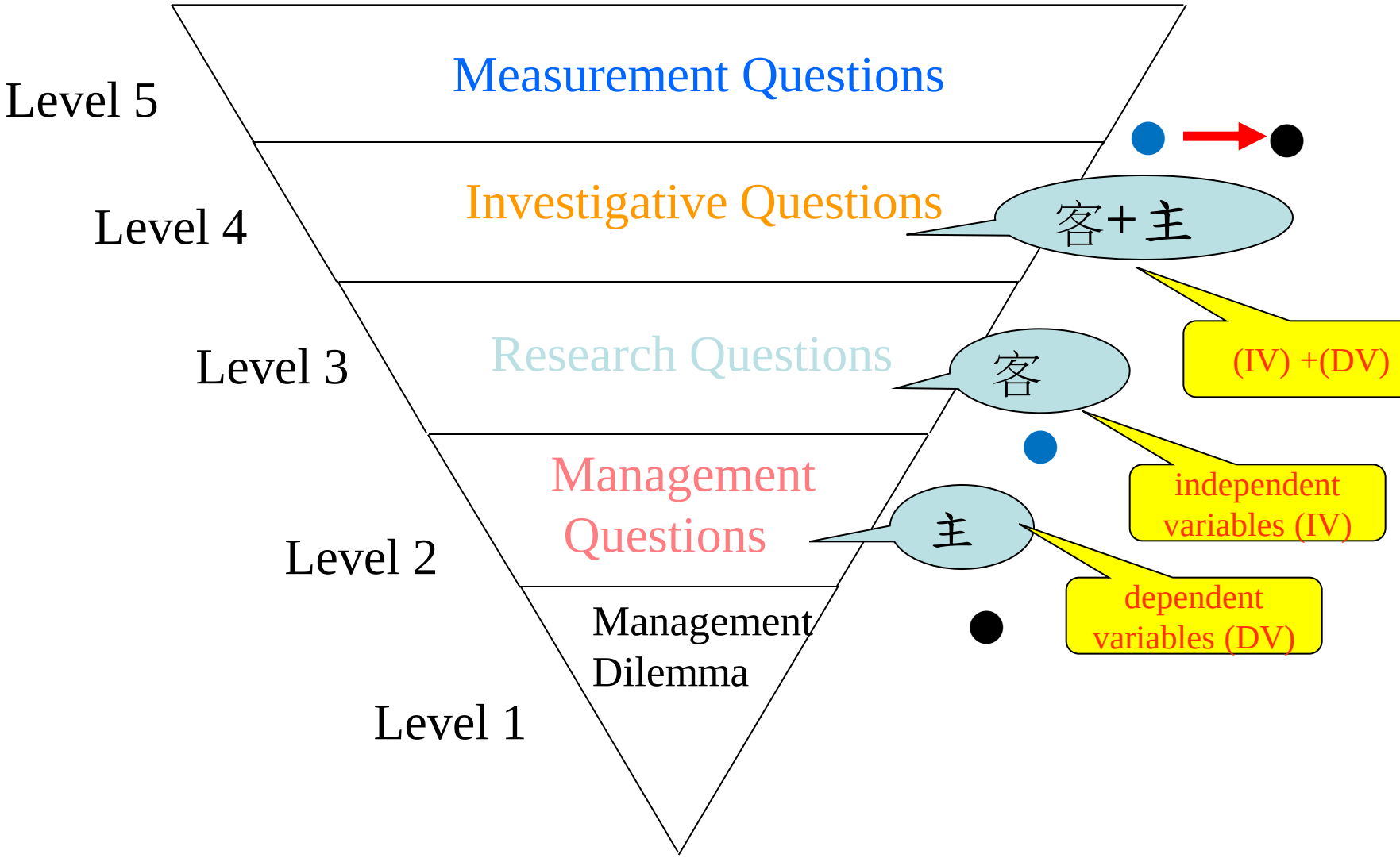


圖 4.7 IM 軟體採用模式路徑圖

趨勢： IS Key Issues

trend



Management-Research Question Hierarchy

MIS Quarterly, 1993

- 1987—1992

- MIS Quarterly, JMIS, Information & Management, Management Science, & Communication of ACM.(1300)

A Keyword Classification Scheme for IS Research Literature

A REFERENCE DISCIPLINES
B EXTERNAL ENVIRONMENT
C INFORMATION TECHNOLOGY
D ORGANIZATIONAL ENVIRONMENT
E IS MANAGEMENT
F IS DEVELOPMENT AND OPERATIONS
G IS USAGE
H INFORMATION SYSTEMS
I IS EDUCATION AND RESEARCH

E IS Management

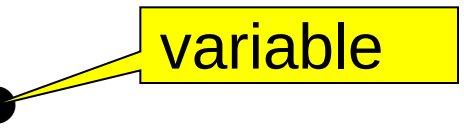
- EA Data Resource Management
- EB Personnel Resource Management
- EC Hardware Resource Management
- ED Software Resource Management
- EE IS Project Management
- EF IS Planning
- EG Organizing IS

E IS Management

- EH IS Staffing
- EI IS Evaluation
- EJ IS Control
- EK IS Security
- EL IS Management Issues

EI02 EVALUATI0N CRITERIA (1/4)

- E10201 Effectiveness
  UF System effectiveness ●
- E10202 Efficiency
  UF System efficiency ●
- E10203 User friendliness
  UF User orientation
- E10204 IS performance
  UF EDP performance
  UF Performance incentives
- E10205 Productivity
  E10205.01 Programmer productivity
  E10205.02 Managerial productivity
  E10205.03 Office productivity
  E10205.04 Organizational productivity
  E10205.05 Group performance



EI02 EVALUATI0N CRITERIA(續) (2/4)

- E10206 Quality
  - E10206.01 System quality
    - UF Software quality
  - E10206.02 Information quality
    - USE Information attributes
  - E10206.03 Service quality
- E10207 User satisfaction
  - UF User information satisfaction
- E10208 IS Utilization
  - UF IS Use
  - UF System use
  - UF Computer use
  - UF Information utilization
- E10209 IS Reliability
  - UF Software reliability
- E10210 IS flexibility

EI02 EVALUATI0N CRITERIA (續) (3/4)

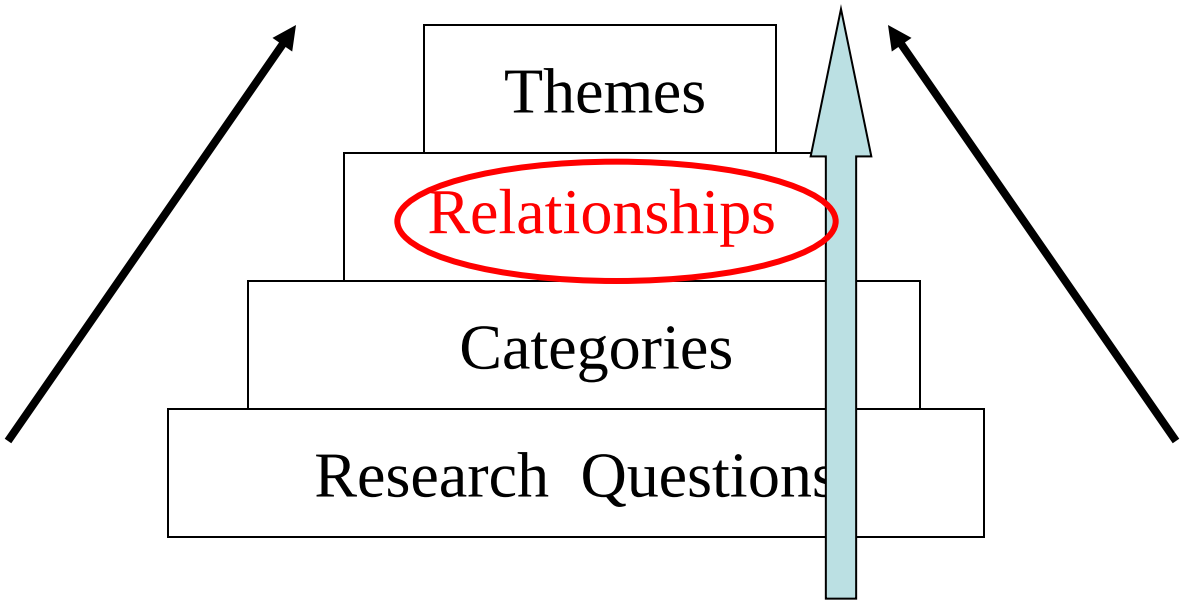
- E10211 IS impacts
  - E10211.01 Organizational impacts
  - E10211.02 Social impacts
- E10212 Size of backlog
- E10213 Cost
- E10214 Computer performance
  - E10214.01 Response time
    - UF Turnaround time
- E10215 Ease of learning
- E10216 Information overload
- E10217 System errors
  - E10217.01 Program correctness
- E10218 IS development time
  - UF Software development time
- E10219 Semantic integrity
- E10220 IS development effort
  - UF Software development effort

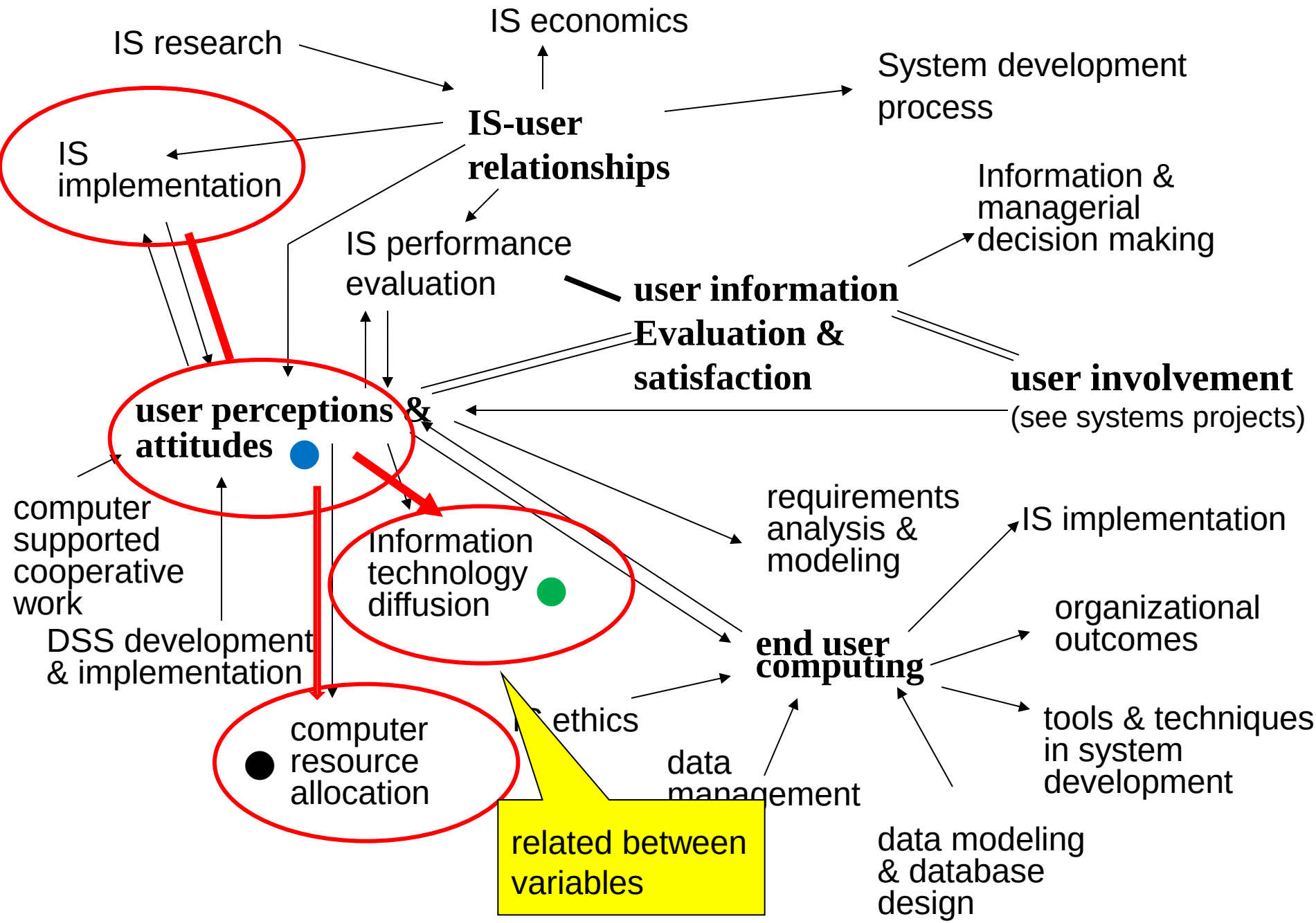
Information System Research, 1993

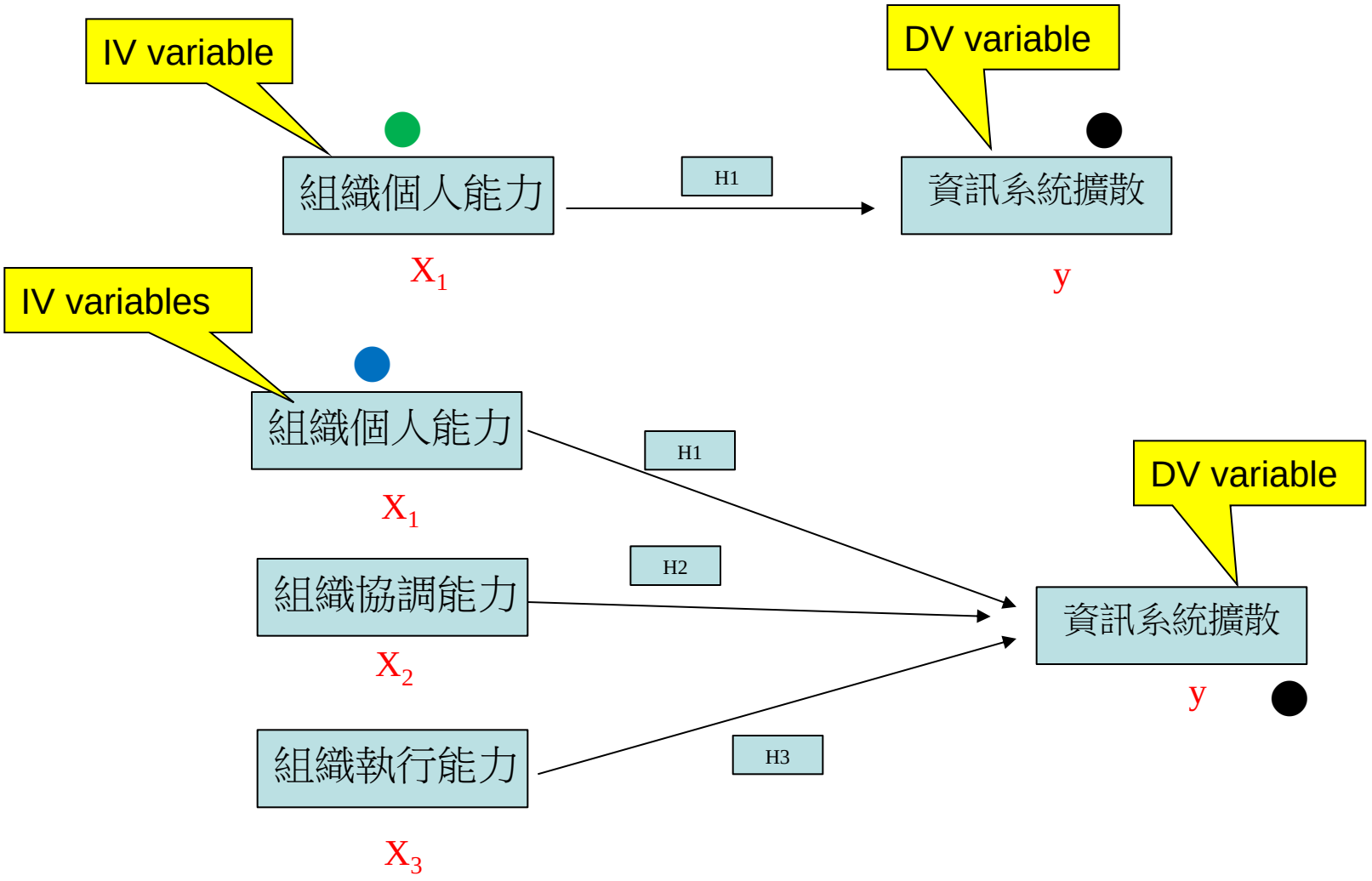
- 1987—1992

- ISR submissions (397)

Information Systems Research Thematics



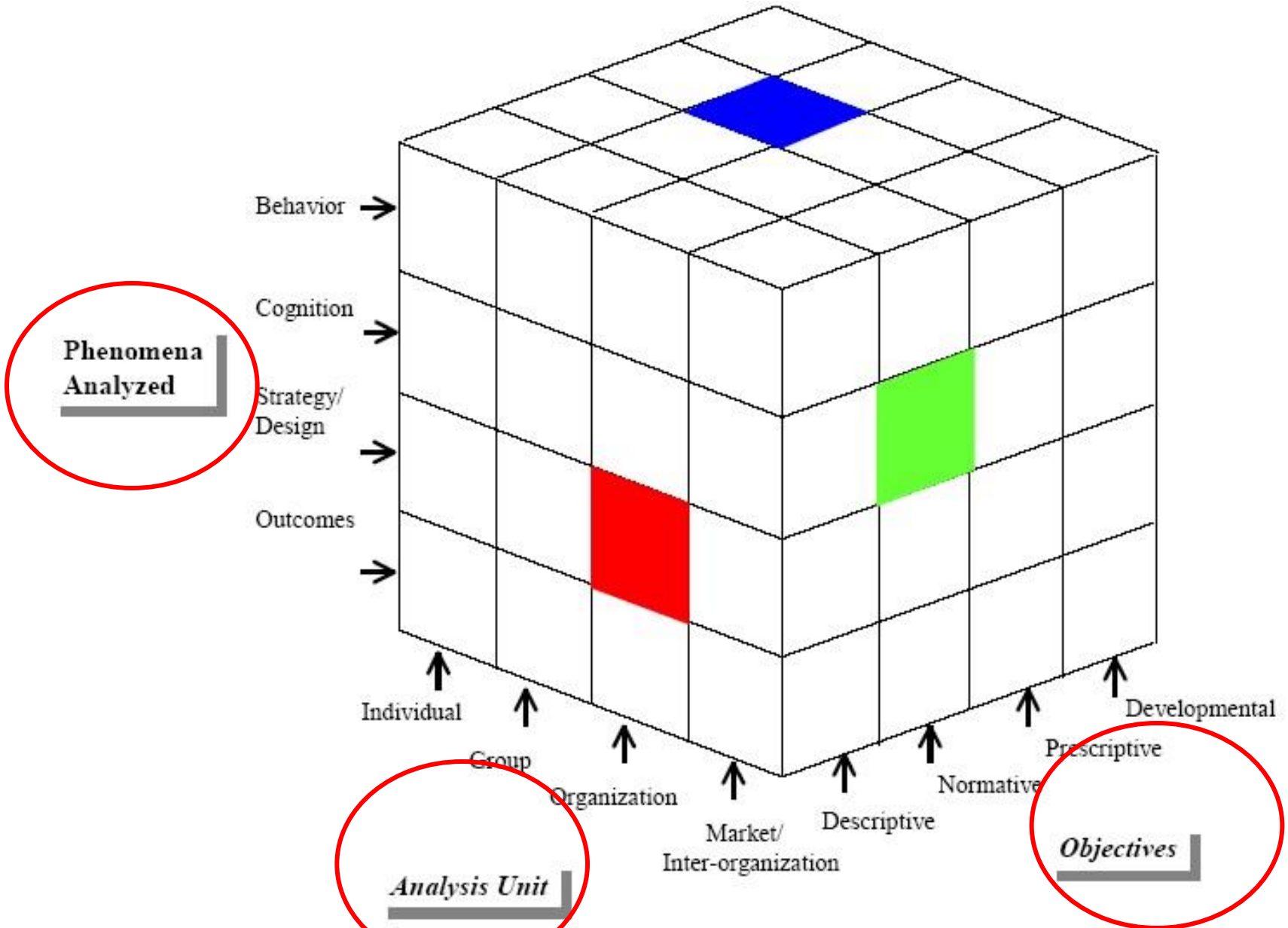

IS research
IS economics
System development process
IS implementation
IS-user relationships
Information & managerial decision making
IS performance evaluation
user information
Evaluation & satisfaction
user involvement
(see systems projects)
user perceptions & attitudes
computer supported cooperative work
DSS development & implementation
Information technology diffusion
requirements analysis & modeling
IS implementation
organizational outcomes
end user computing
IS ethics
tools & techniques in system development
computer resource allocation
data management
data modeling & database design
related between variables


IV variable
DV variable
組織個人能力
H1
資訊系統擴散
X1
y
IV variables
組織個人能力
H1
DV variable
組織協調能力
H2
資訊系統擴散
X1
X2
y
組織執行能力
H3
X3

CAIS (Communication of the Association for Information Systems), 2004

- 1991--2000
- ISR, MISQ, JMIS, MS, Decision Science(993)
- 203 theories

An Ontology of IS Theories



List of IS Theories

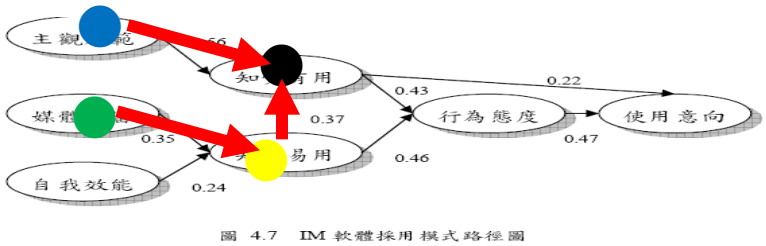


圖 4.7 IM 軟體採用模式路徑圖

model

	THEORY	Origin of Theory	Theore-tical Frame-work	Pheno-mena Analy-zed	Analy-sis Unit	Objec-tives	Reference
1	Absorptive Capacity Theory	SOC/OB	26	O	O	P	Boynton et al. (1994)
2	Action Theory	SOC	27	O	N/A	D	Clemons et al. (1994)
3	Activation Theory of Learning and Recall	PSY	2	C	I	D	Hsinchun and Kim (1995)
4	Activity Based Accounting Theory	ACC	25	O	O	N	Stuchfield and Weber (1992)
5	Actor-Network Theory	SOC	7	D	N/A	DV	Walsham and Sahay (1999)
6	Adaptation Level Theory	IS/OB	10	O	I/O	D	Kettinger and Lee (1994)
7	Adaptive Structuration Theory	OB/SOC	26	O	O	P	Gopal et al. (1993)
8	Agency Theory	ECON/FIN	1	B	O	N	Choudhury and Sampler (1997)
9	Alienation Theory	OB	5	O	O	D	Abdul-Gader and Kozar (1995)
10	Alignment Theory	OB	5	O	M	P	Reich and Benbasat(2000)
11	Amabile-4P model	OB	8	O	O	P	Couger et al. (1993)
12	Anonymity Theory	PSY	2	B	I	D	Pinsonneault and Nelson (1998)
13	Assimilation Theory	OB	10	B	I/O	D	Davis and Bostrom (1993)
14	Attribution Theory	PSY/ETHIC	30	B	I	D	Igbaria and Baroudi (1995)
15	Auction Theory	ECON/MKG	1	O	I	N	Kauffman and Wang (2001)

點、線、面、趨勢考量

點：IS keywords

variables

線：IS themes

related between variables

面： IS theories

model

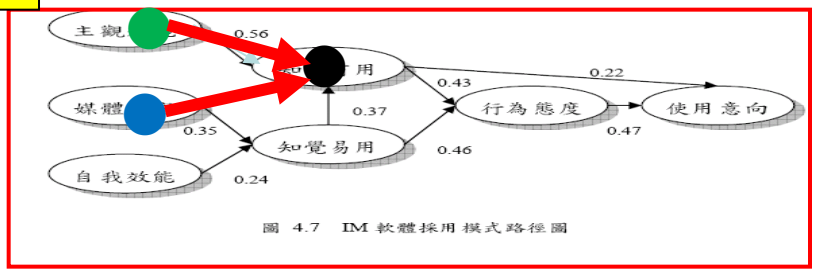


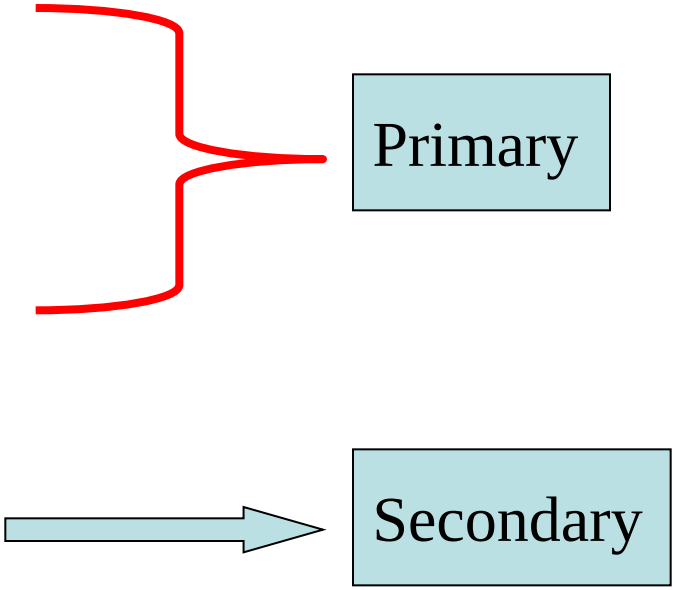
圖 4.7 IM 軟體採用模式路徑圖

趨勢： IS Key Issues

trend

博碩士班的研究層次

- 理論基礎
- 理論創新
- 方法創新



IS Key Issues

- Problems
- Challenges
- Opportunities

IS Key Issues Related Work

- 1982
- 1984
- 1986
- 1989
- 1992
- 1995
- 2000
- 2006
- 2010

key-Issue Framework in USA(1995)

軍方internet商業

Rank	Key Issue	Mean Rating	Standard Deviation
1	Building a Responsive IT Infrastructure	9.10	0.096
2	Facilitating and Managing Business Process Redesign	7.79	1.19
3	Developing and Managing Distributed Systems	7.73	1.38
4	Developing and Implementing an Information Architecture	7.62	1.50
5	Planning and Managing Communication Networks	7.58	1.40
6	Improving the Effectiveness of Software Development	7.50	1.86
7	Making Effective Use of the Data Resource	7.46	1.62
8	Recruiting and Developing IS Human Resources	7.31	1.70
9	Aligning the IS Organization Within the Enterprise	7.11	2.02
10	Improving IS Strategic Planning	6.82	2.02

影響資管研究的力量

- 資訊科技的發展
  - Mainframe, PC, Internet, Social Media
  - 3GL, 4GL, 5G Visual development, Web services
- 實務應用的演進
  - TPS, DSS, AI/ES,SIS, e-Business/EC /Mobile-Business
- 理論建立的需求
  - Generalization of observations

未來驅使研究方向

- 科技的變化與應用，如platform 的改變(Web services, mobile computing)
- 管理面的探討（如EC/MC對business的Impact, Internet marketing, Social Media).
- 理論（本土, 深耕）的深化發展

資訊管理的發展階段

時期	研究重點	研究方法	處境與關鍵因素
萌芽期 (1980—1984)	建立研究架構 發掘研究方向	架構分析 意見陳述 研究方法不慎重視	借用其他領域的理論
發展期 (1985—1991)	行為認知研究減少 系統面研究增加	引入個案支持論點 重視歸納性實證研究 方法嚴謹	研究的質與量增加 MIS交流園地成立，MIS Quarterly，ICIS，
茁壯期 (1992-1998)	創新性與影響性	選擇最適合的研究方法	研究主題、方法繁多 ISR出版
紮根期 (1999-20??)	一般性與科學性	多元研究方法 研究結果的嚴謹性	理論的建構與驗證 學域自主性與相關性的建立

請檢視自己生活周遭所面臨的問題

請問如何以研究的角度與程序解決上述的問題?

針對上述的問題，請進一步指出各種可能型態的變數?

Where does your problems come from?

- Researcher-oriented Study

- User-oriented Study

FB, IG

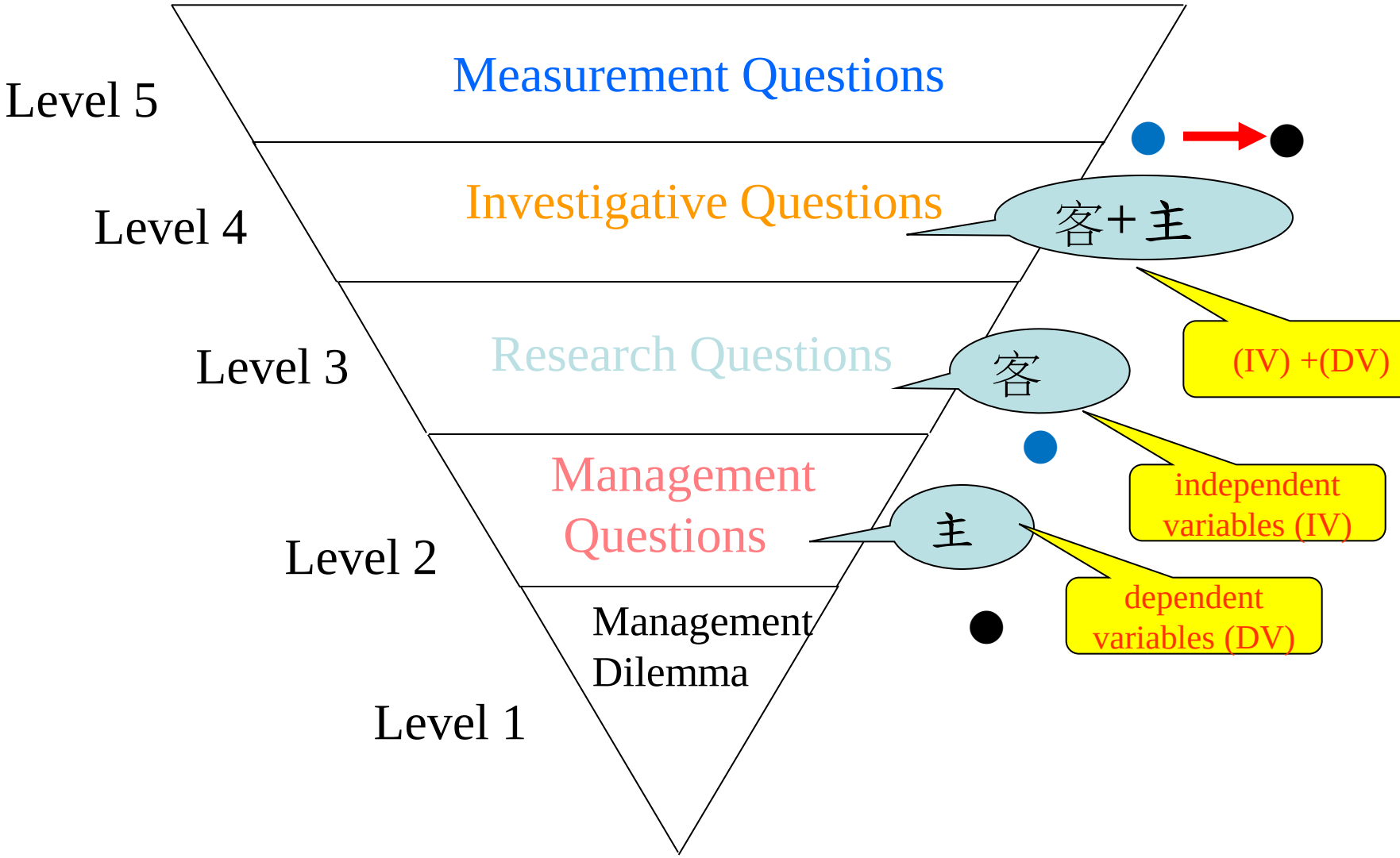
Online game

Blog, Line

以誰為師?

- 大自然提供了很多研究的靈感，只是被人們忽略了

- 身邊週遭有許多細節，都可以是研究巧思的來源



Management-Research Question Hierarchy

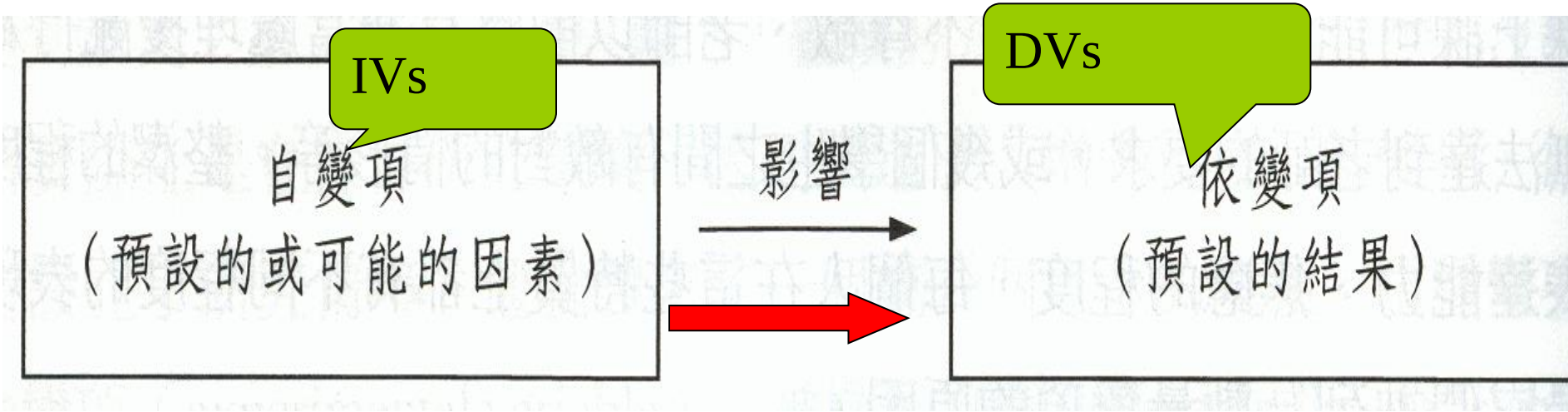
自變項 vs. 依變項

客-level 3

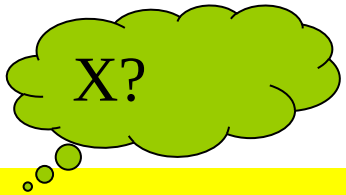
- 自變項（independent variables）：研究者選擇研究（常加以操弄）的變項，以評估它們對另一個或多個變項可能的影響。

- 研究者預設中會被影響的變項，則稱為依變項（dependent variables）（或結果變項）。

主-level 2

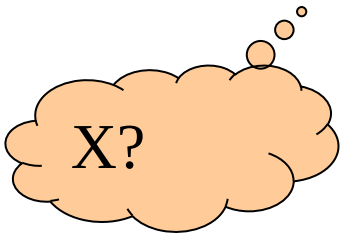

IVs
自變項
（預設的或可能的因素）
影響
DVs
依變項
（預設的結果）

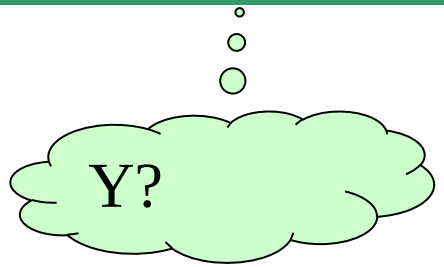
Where can find variables ?



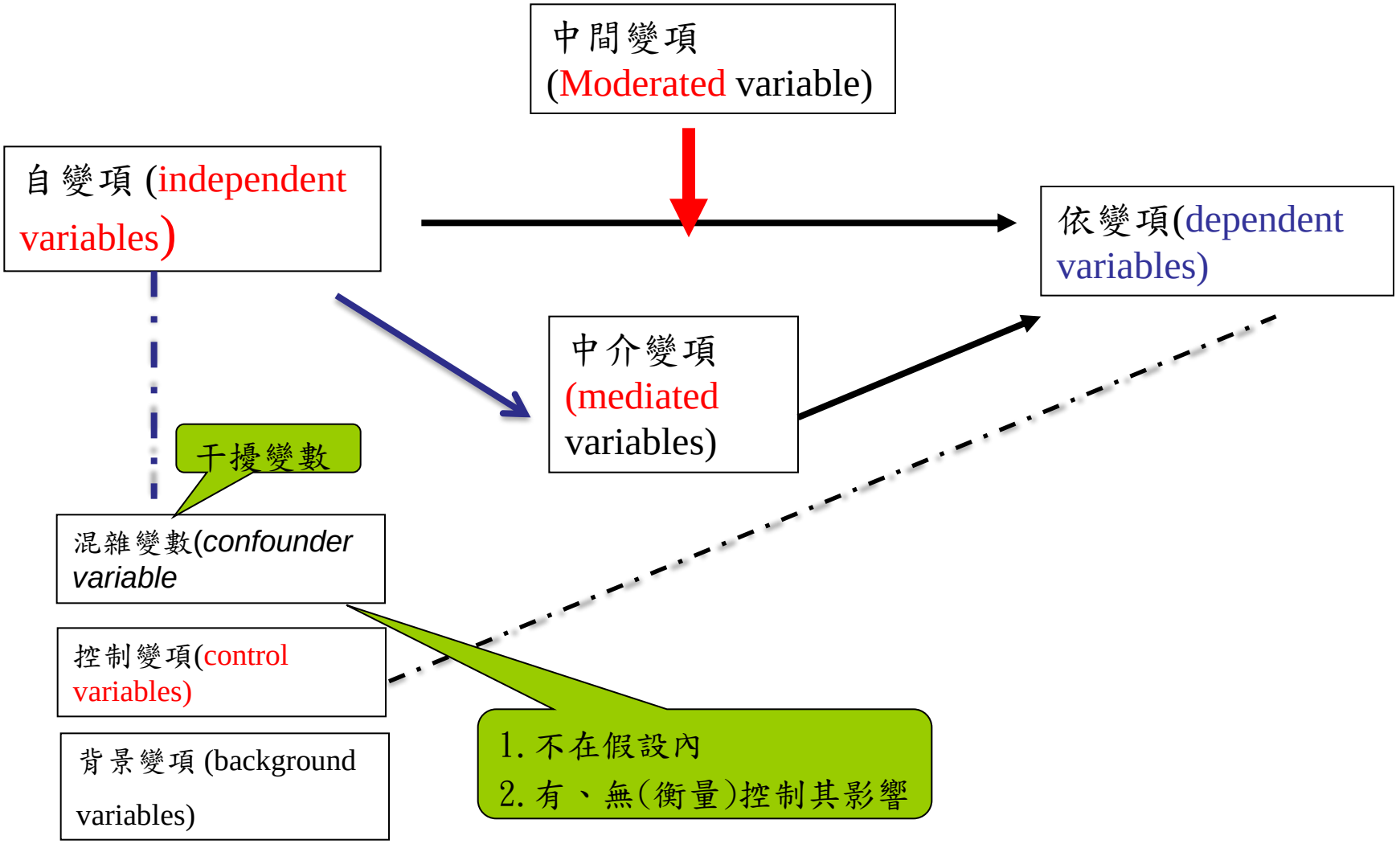
- In yourself

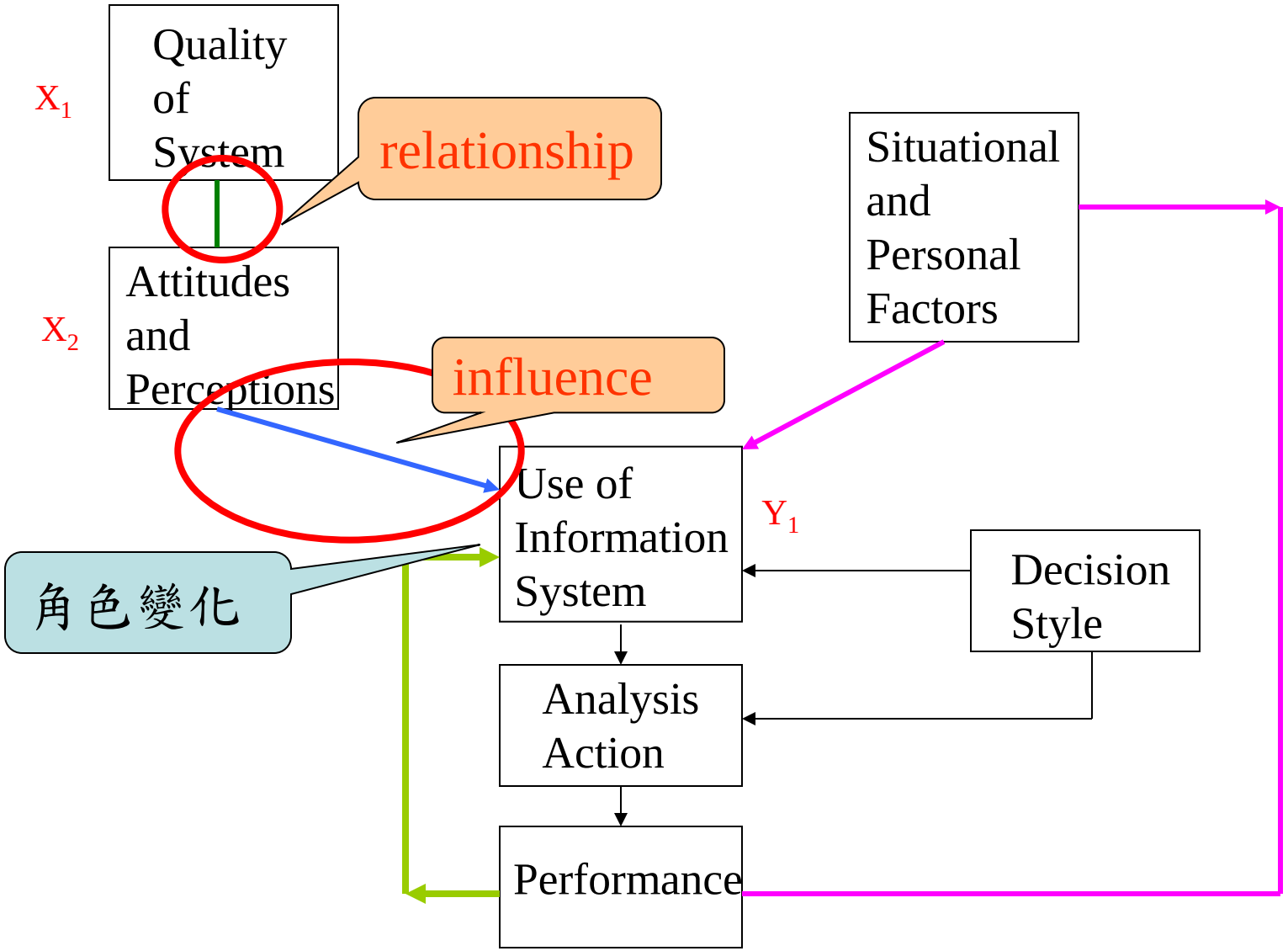
- In your society





研究的各種變數項


中間變項
(Moderated variable)
自變項 (independent variables)
依變項(dependent variables)
中介變項
(mediated variables)
干擾變數
混雜變數(confounder variable
控制變項(control variables)
背景變項 (background variables)
1. 不在假設內
2. 有、無(衡量)控制其影響


Quality of System
X_1
relationship
Attitudes and Perceptions
X_2
influence
Situational and Personal Factors
Use of Information System
Y_1
角色變化
Decision Style
Analysis Action
Performance

Level 5

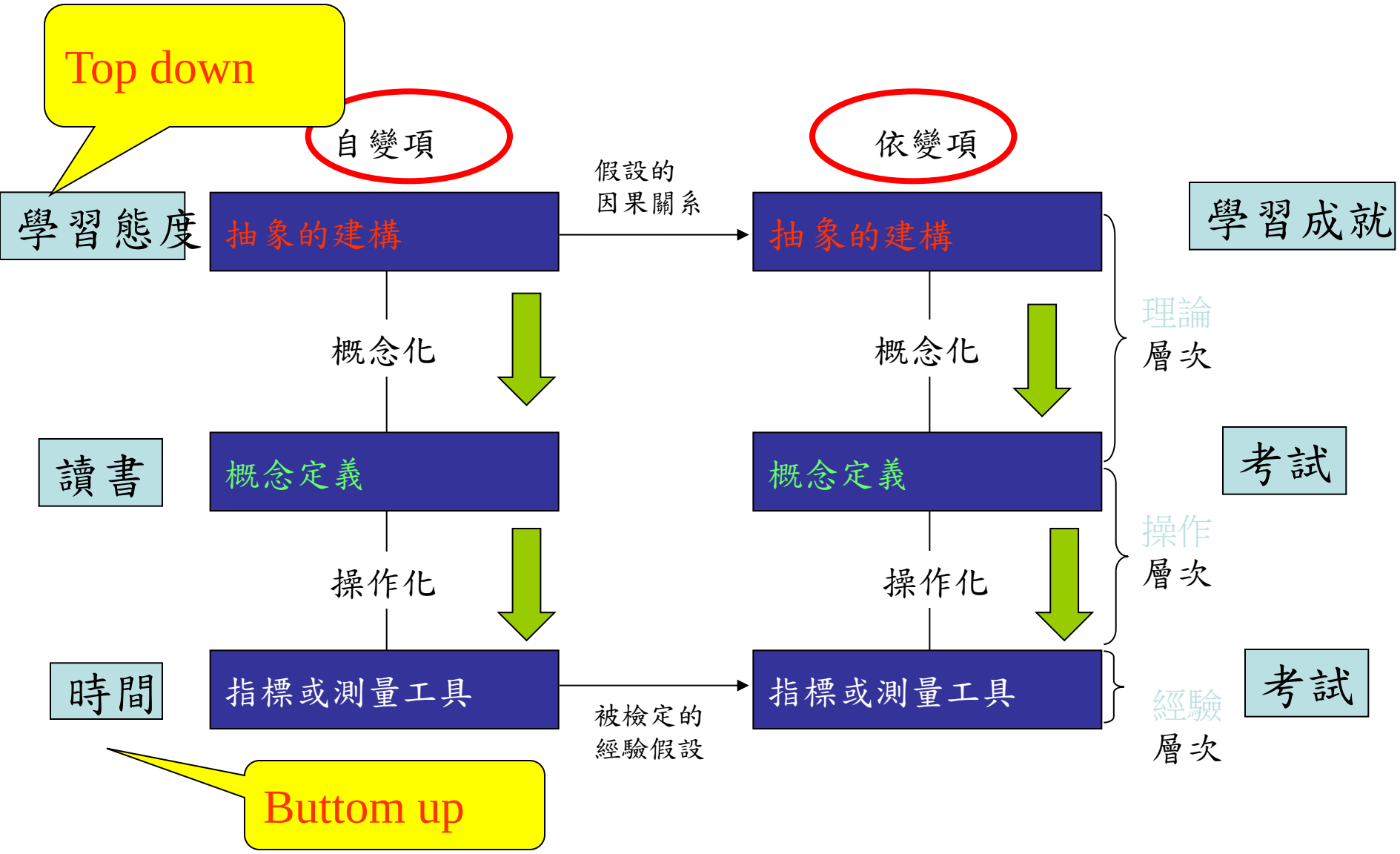
操作性定義
operational definition

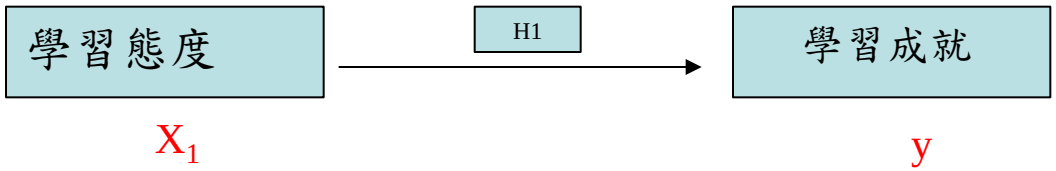
- 研究者提出研究假設後，須對研究變項或名詞提出一種可以測量、量化、具體、可重複試驗的基本說明與解釋，亦即將抽象的概念具體化

Variables—價格

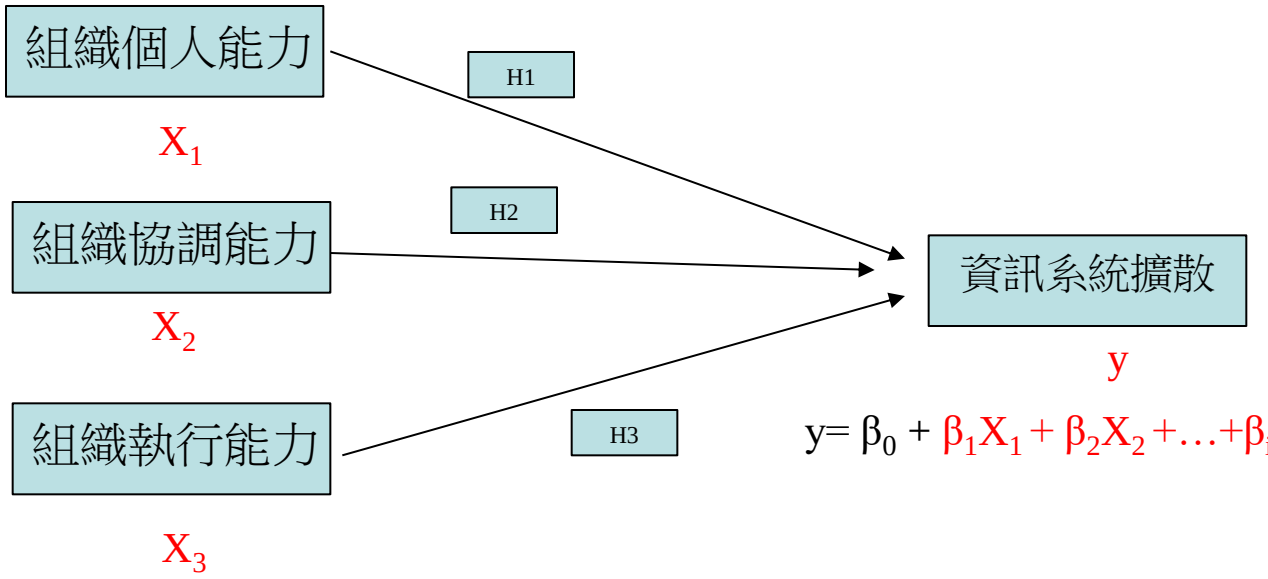
測量方法

從抽象建構到具體的測量工具

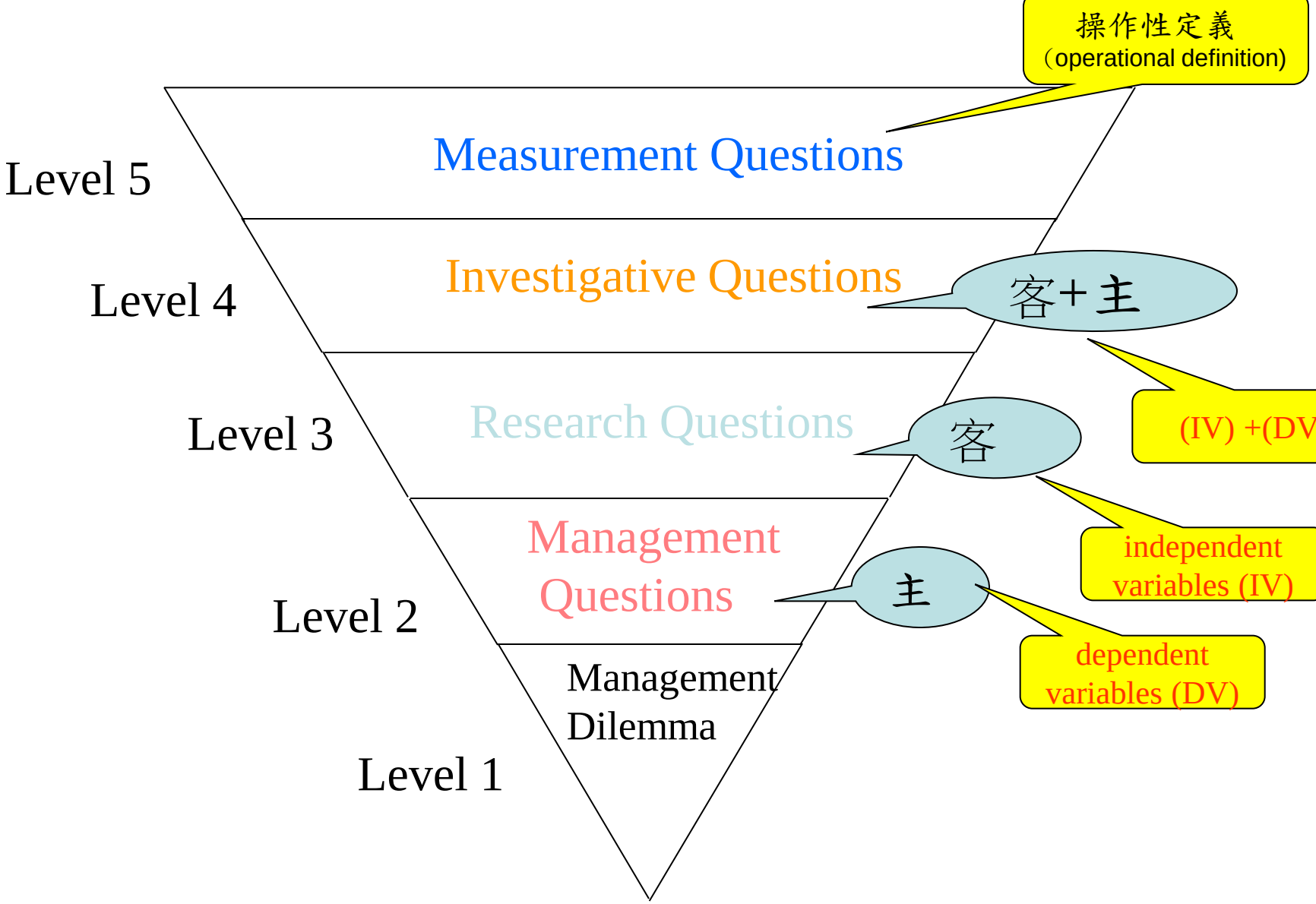




$y = \beta_0 + \beta_1 X_1 + \varepsilon$



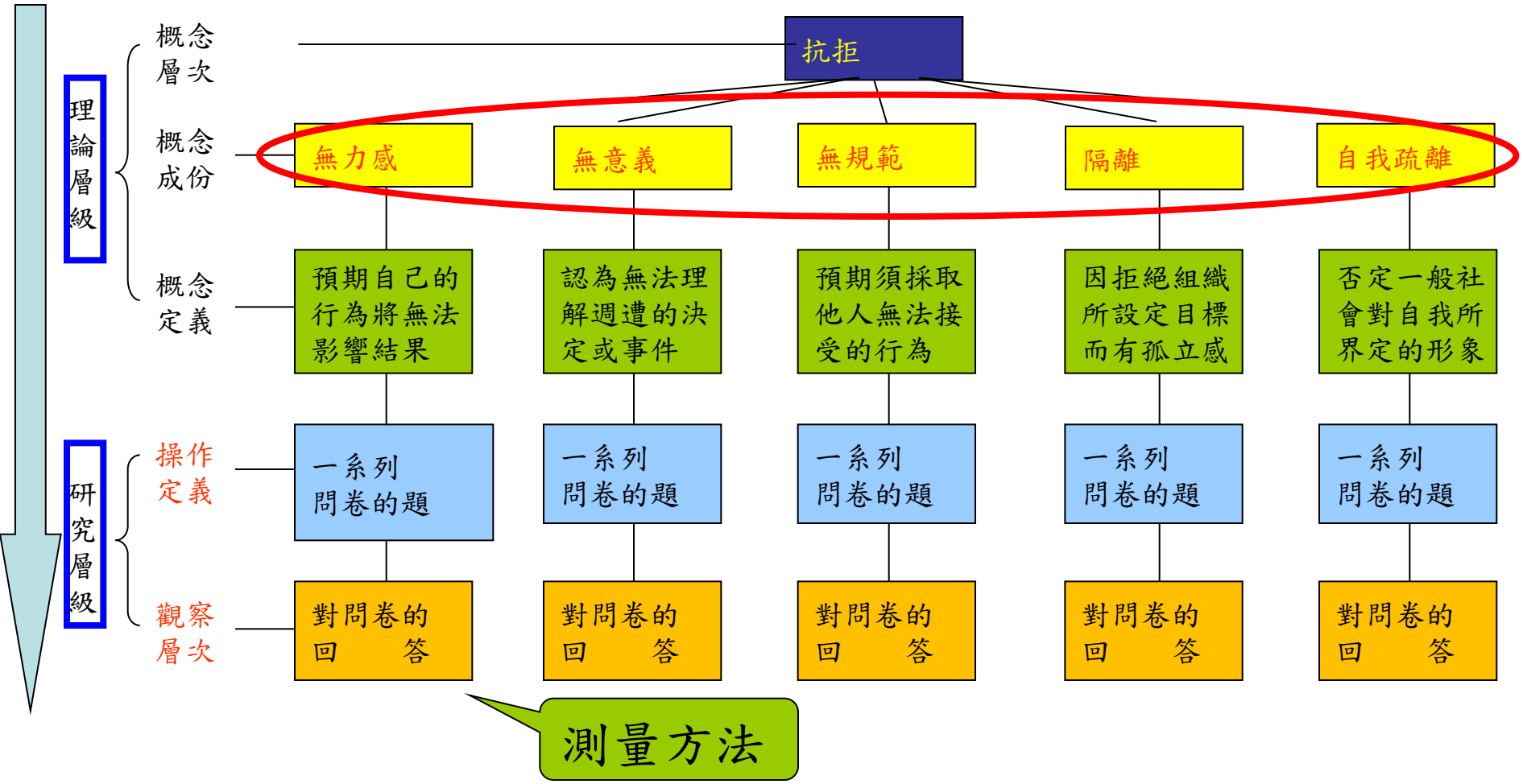
$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_i X_i + \varepsilon$



Management-Research Question Hierarchy

Factor , latent , vs variable

由概念轉變成觀察的層級 使用者抗拒的研究



Level 5

概念性定義
conceptual definition

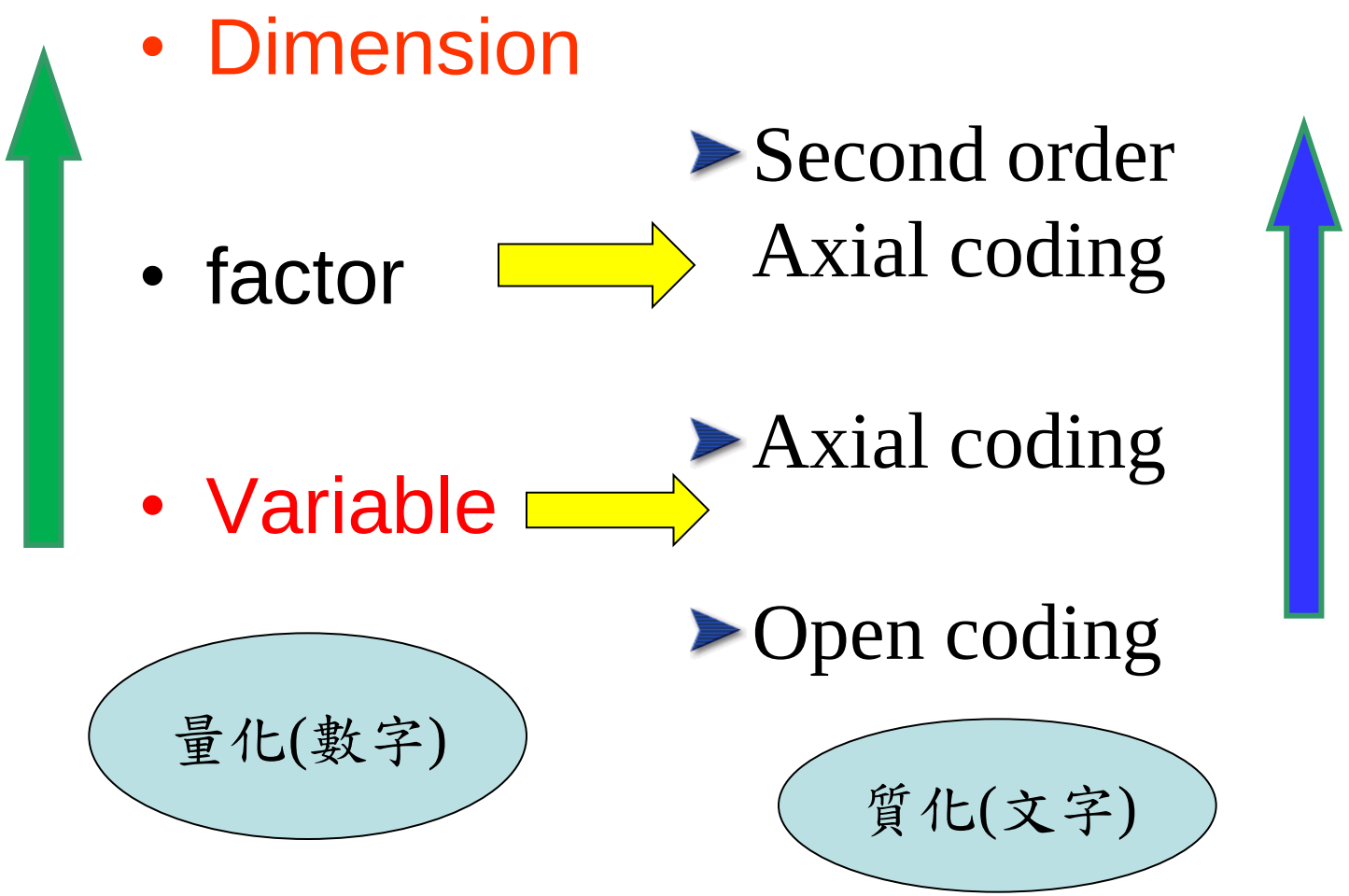
- 依照概念上或假設上的標準來界定研究變項或重要名詞意義，以文字界定文字，用一個概念界定另一概念，並非根據可觀察或可操弄的特徵來界定概念

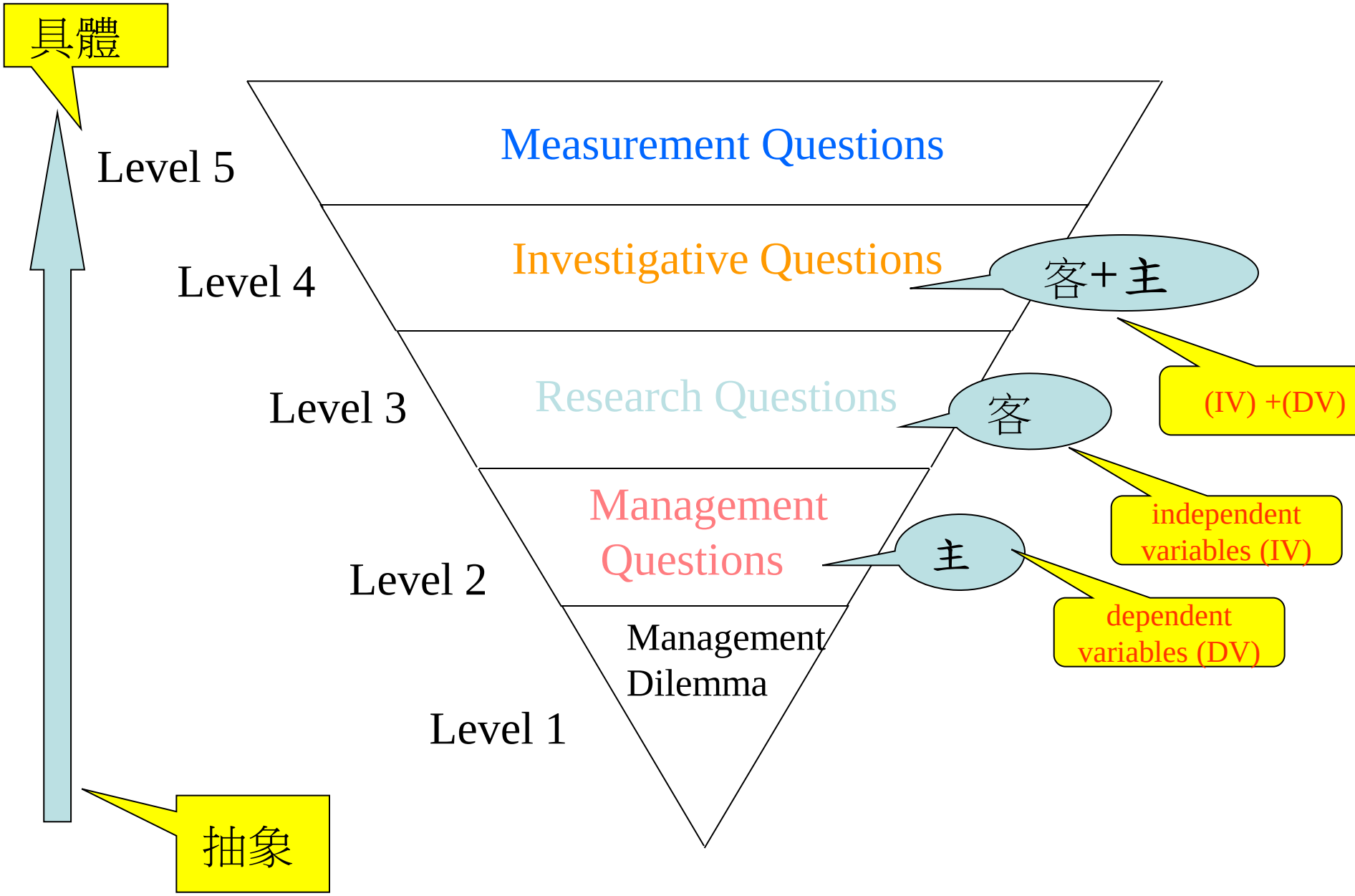
Variables, Factors—服務品質, 喜好

Same mean using different norm

- Factor
- Construct
- Latent

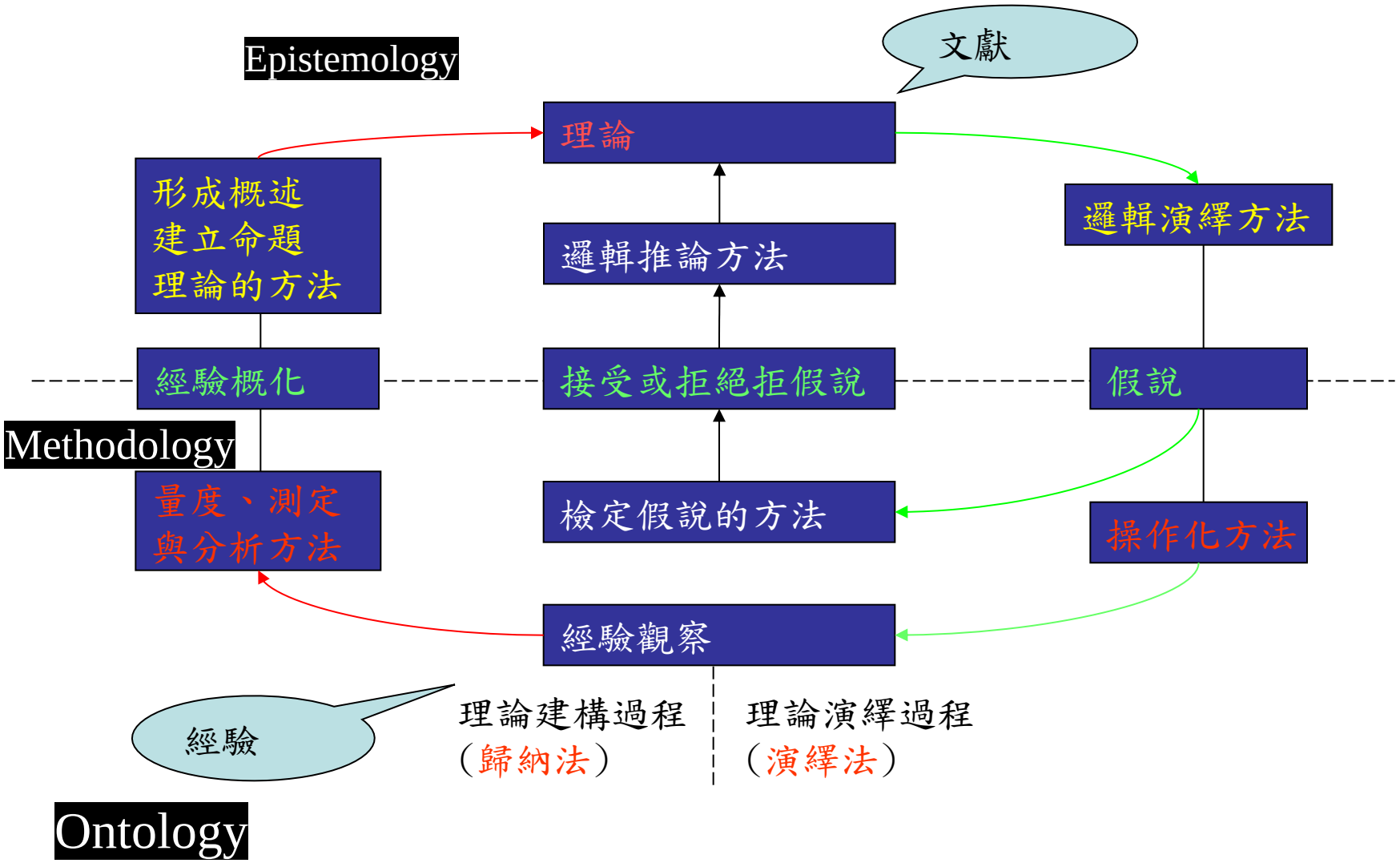
Basic Concept





Management-Research Question Hierarchy

研究的邏輯模型


Epistemology
文獻
理論
形成概述
建立命題
理論的方法
邏輯推論方法
邏輯演繹方法
經驗概化
接受或拒絕拒假說
假說
Methodology
量度、測定
與分析方法
檢定假說的方法
操作化方法
經驗觀察
經驗
理論建構過程
(歸納法)
理論演繹過程
(演繹法)
Ontology

演繹法(induction)與歸納法(deduction)

紅龜模型

Epistemology

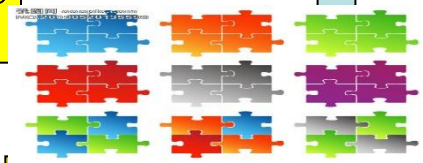
演繹法

歸納法

General rules or hypothesis

理論架構

理論架構



中距理論

Methodology

拼圖

假設檢定

假設經驗通則

根基的理論

概念形式經驗通則

經驗的社會實相

經驗的社會實相

Hold on new specific instance

Ontology

IT Workforce Trends: Implications for Curriculum and Hiring

Given the panel reports on IT workforce from AMCIS, please carefully re-check yourself (your staffs) what capabilities you (they) possess/not possess now? If not possess, how to improve them?

- T-Shaped people vs I-Shaped person

- Career path

- Entry-level vs mid-level

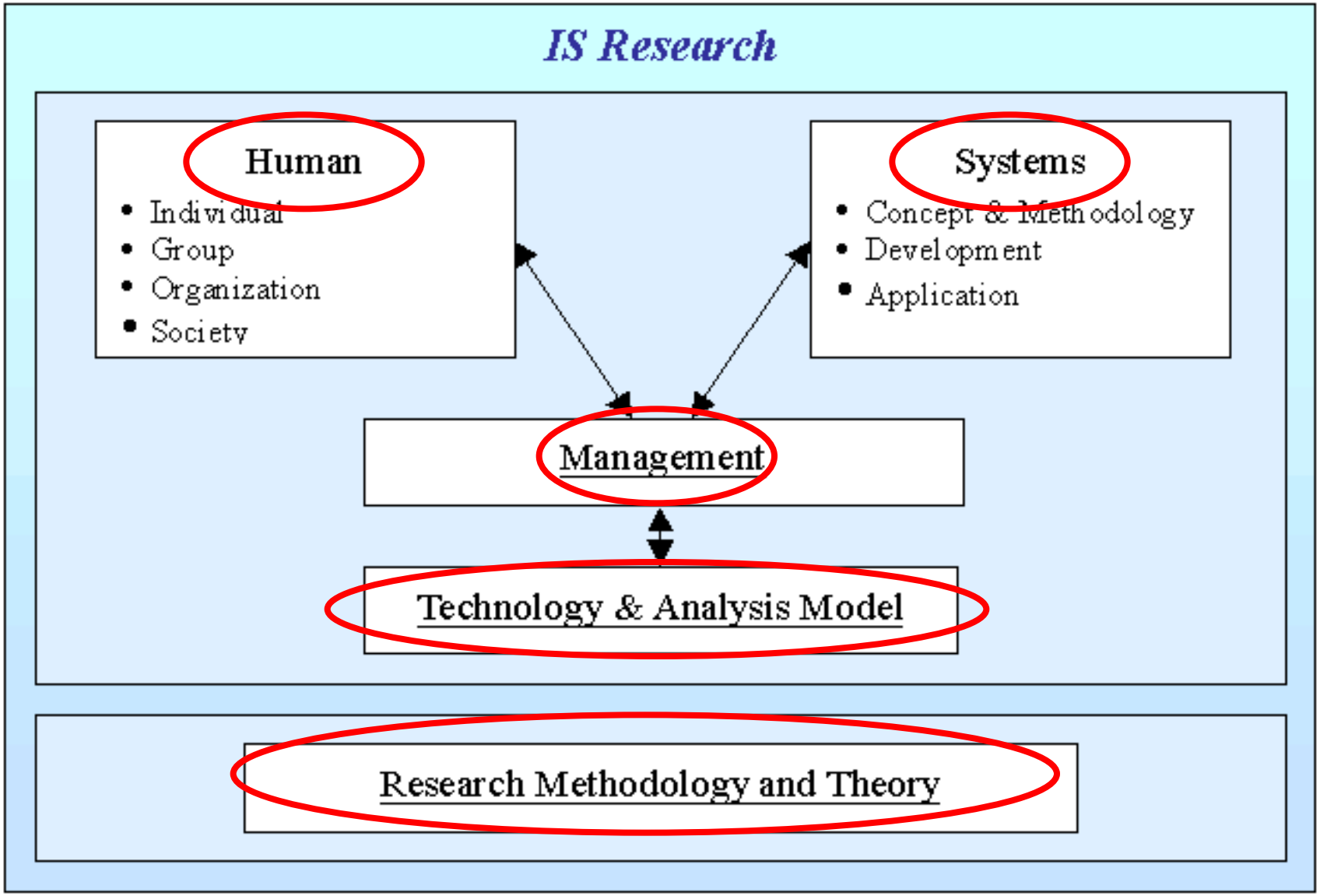
- Rotating, Internship experience

資管研究的生態調查（梁定澎教授）

- 針對過去資管國外主要期刊的分類整理，共調查3841國外期刊論文

- 調查期刊包括：MIS Quarterly, JMIS, ISR, CACM, MS, DS,DSS, I&M共8種

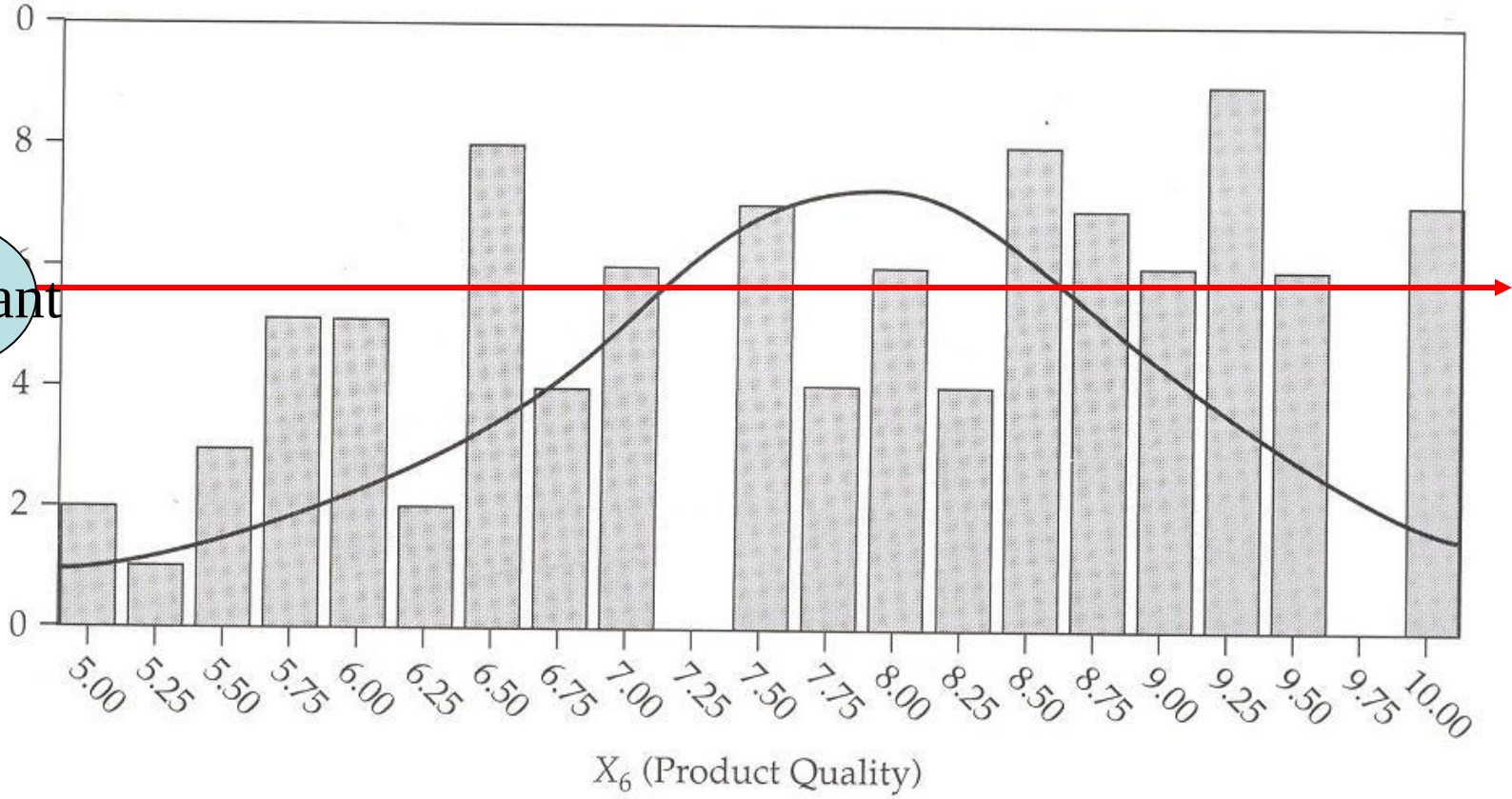
Classification Scheme



Distribution of Research Topics

	Human		System		Technology & Analysis Model		Management		Research Methodology and Theory	
	Paper counts	%	Paper counts	%	Paper counts	%	Paper counts	%	Paper counts	%
1980~1984	85	18.0%	231	49.0%	38	8.1%	65	13.8%	52	11.0%
1985~1991	398	17.2%	1027	44.4%	262	11.3%	414	17.9%	212	9.2%
1992~1998	740	20.9%	1358	38.4%	467	13.2%	595	16.8%	378	10.7%
1999~2001	531	26.6%	670	33.6%	283	14.2%	327	16.4%	186	9.3%

Univariate Distribution

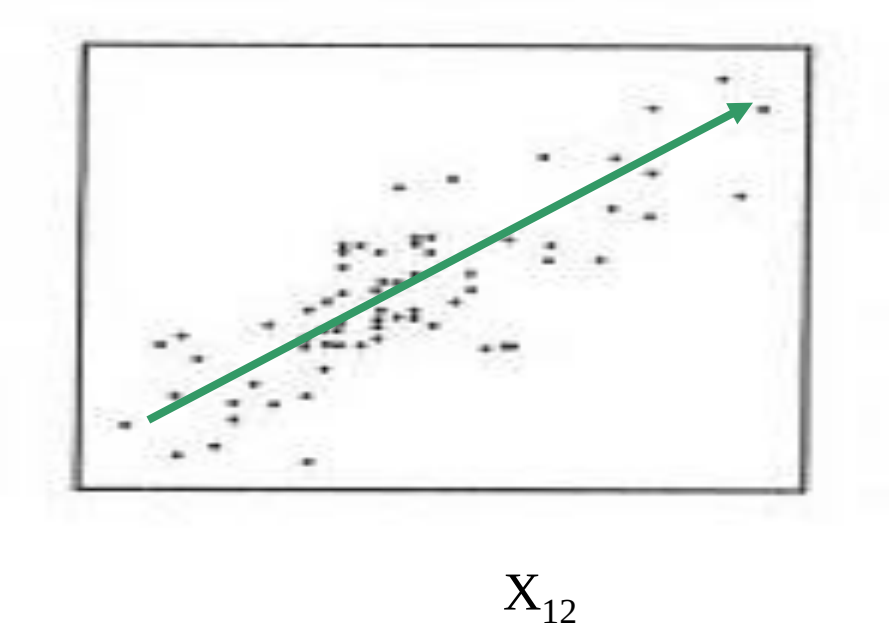


constant

Variable

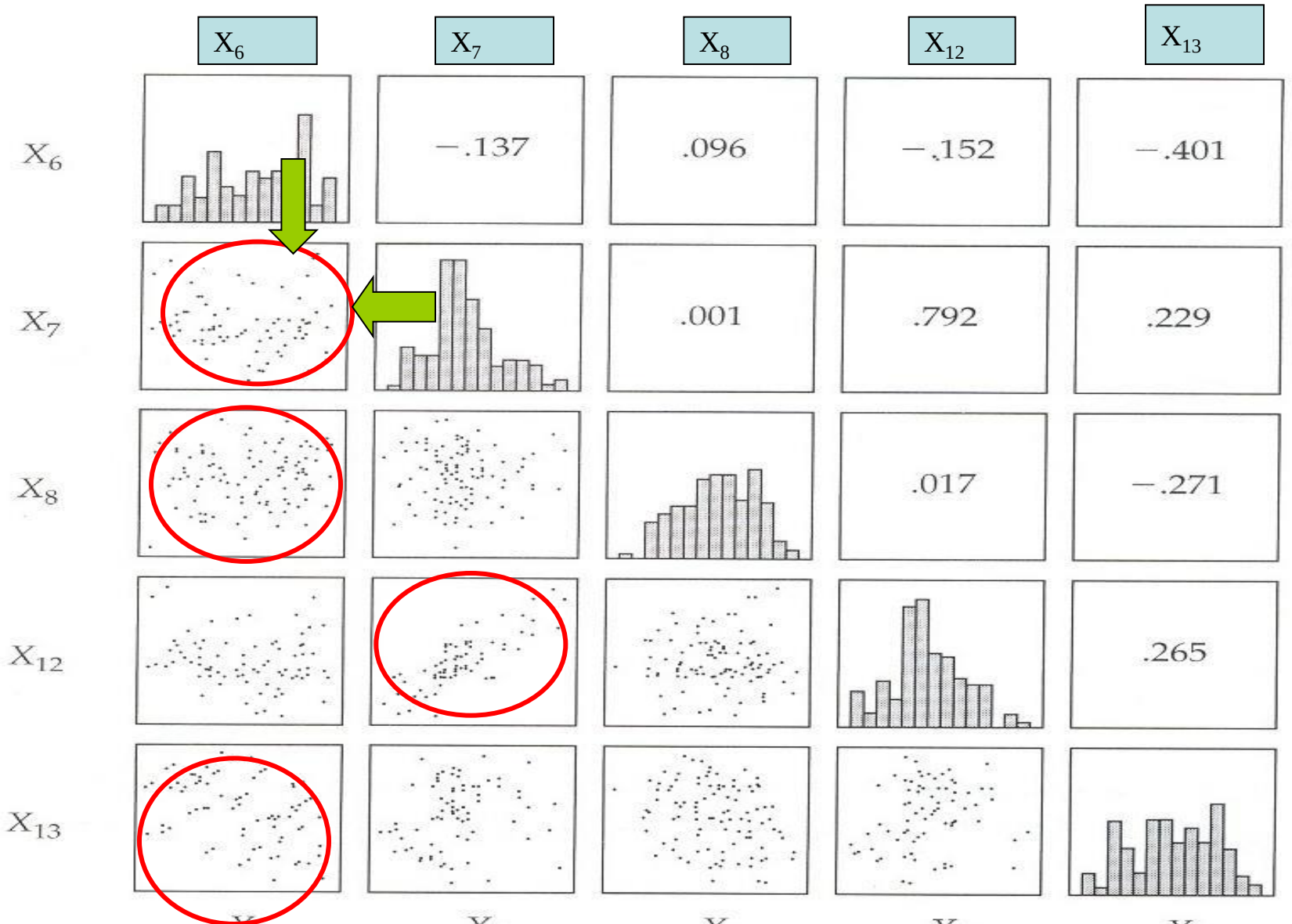
- $(X_7, X_{12}) = (1,2)$
- $(X_7, X_{12}) = (2,3)$
- $(X_7, X_{12}) = (3,2)$
- $(X_7, X_{12}) = (3,5)$
- $(X_7, X_{12}) = (1,5)$
- $(X_7, X_{12}) = (4,2)$
- $(X_7, X_{12}) = (3,6)$
- ……
- ……..

X_7



X_{12}

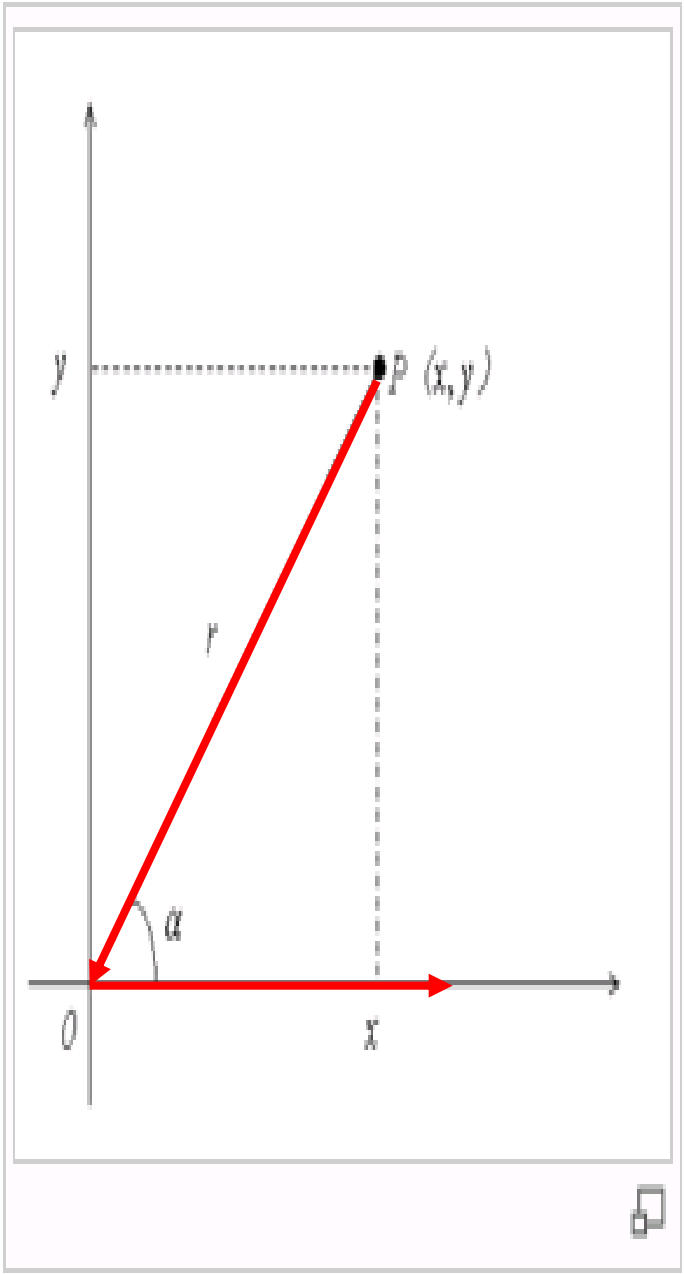
Bivariate Profiling of Relationship between variables



α是平面直角坐標系xOy中的一個象限角，$P(x,y)$是角的終邊上一點，

$r=\sqrt{x^2+y^2}>0$是P到原點O的距離，則α的六個三角函數定義爲：

函數名	定義	函數名	定義
正弦	$\sin\alpha=\frac{y}{r}$	餘弦	$\cos\alpha=\frac{x}{r}$
正切	$\tan\alpha=\frac{y}{x}$	餘切	$\cot\alpha=\frac{x}{y}$
正割	$\sec\alpha=\frac{r}{x}$	餘割	$\csc\alpha=\frac{r}{y}$



直角三角形中

[編輯]