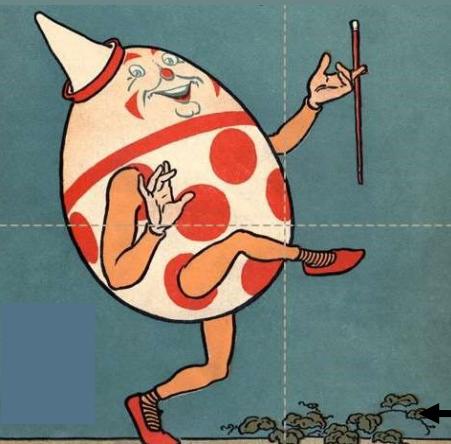




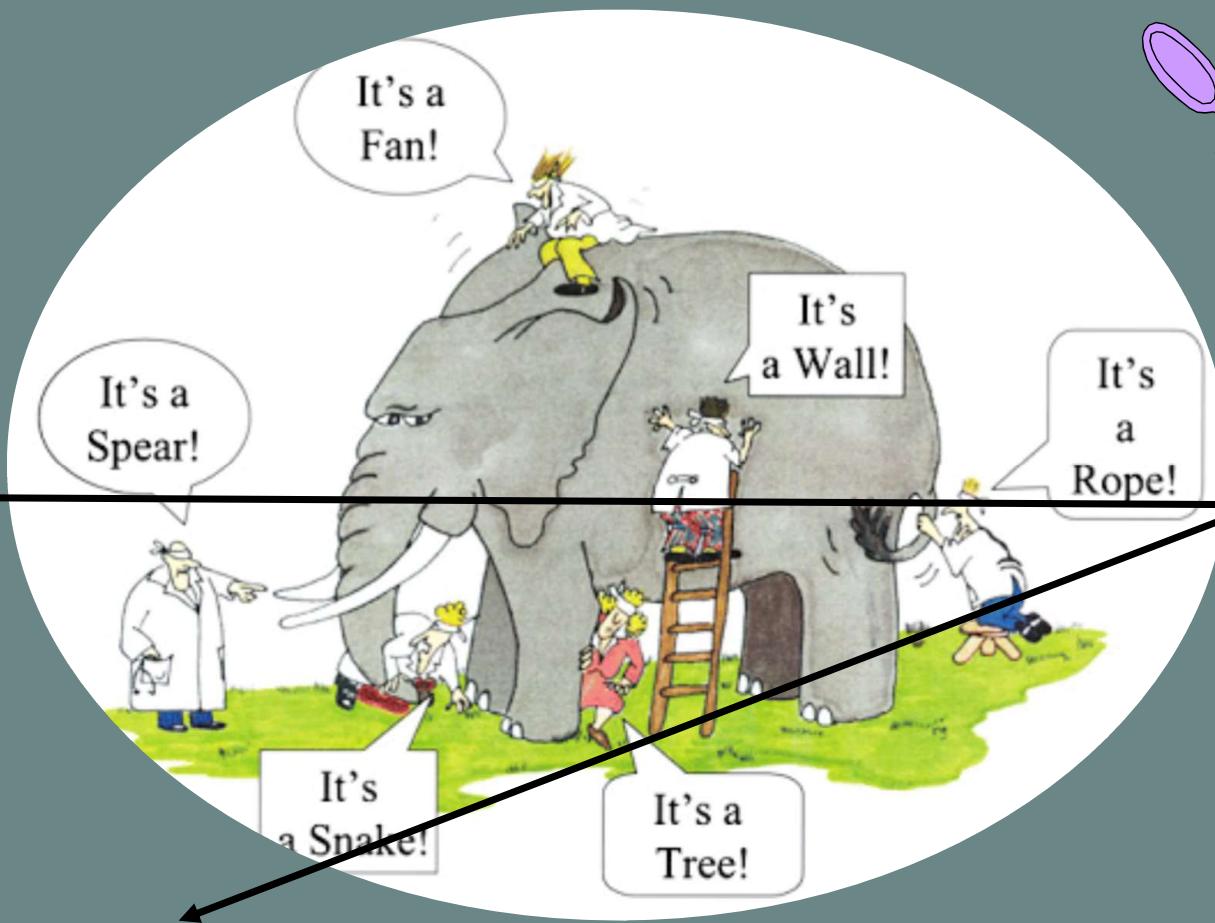
Lesson Study (in Matematica e oltre) e Formazione degli Insegnanti: un approccio culturale

Commenti sparsi

Spaesamento Decostruzione



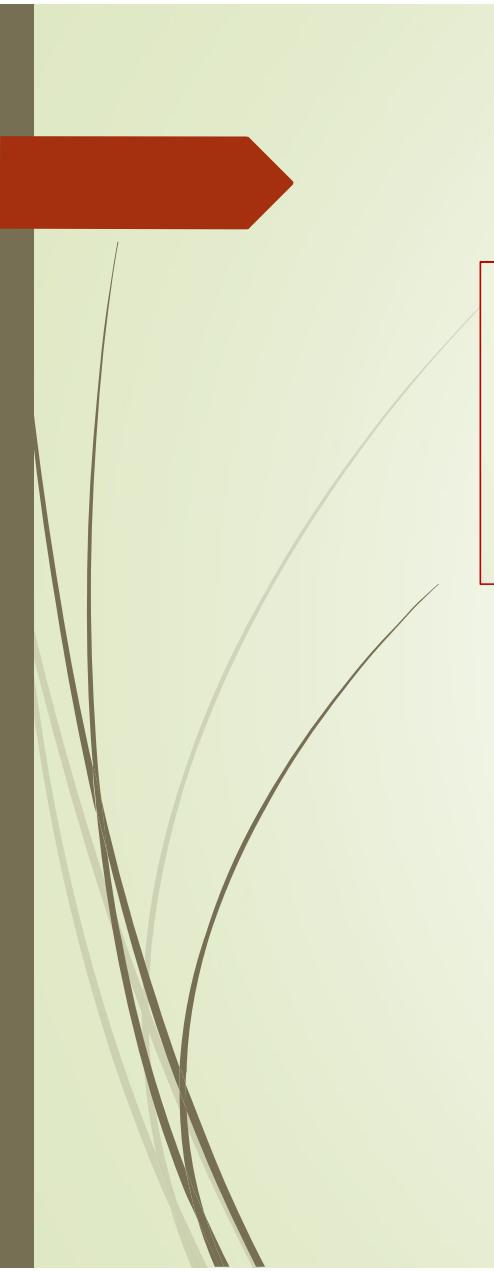
Humpty
Dumpty



Dimensioni:
istituzionale,
culturale,
linguistica,
didattica, ...



Trasposizione culturale



La ricerca
solleva
problemi

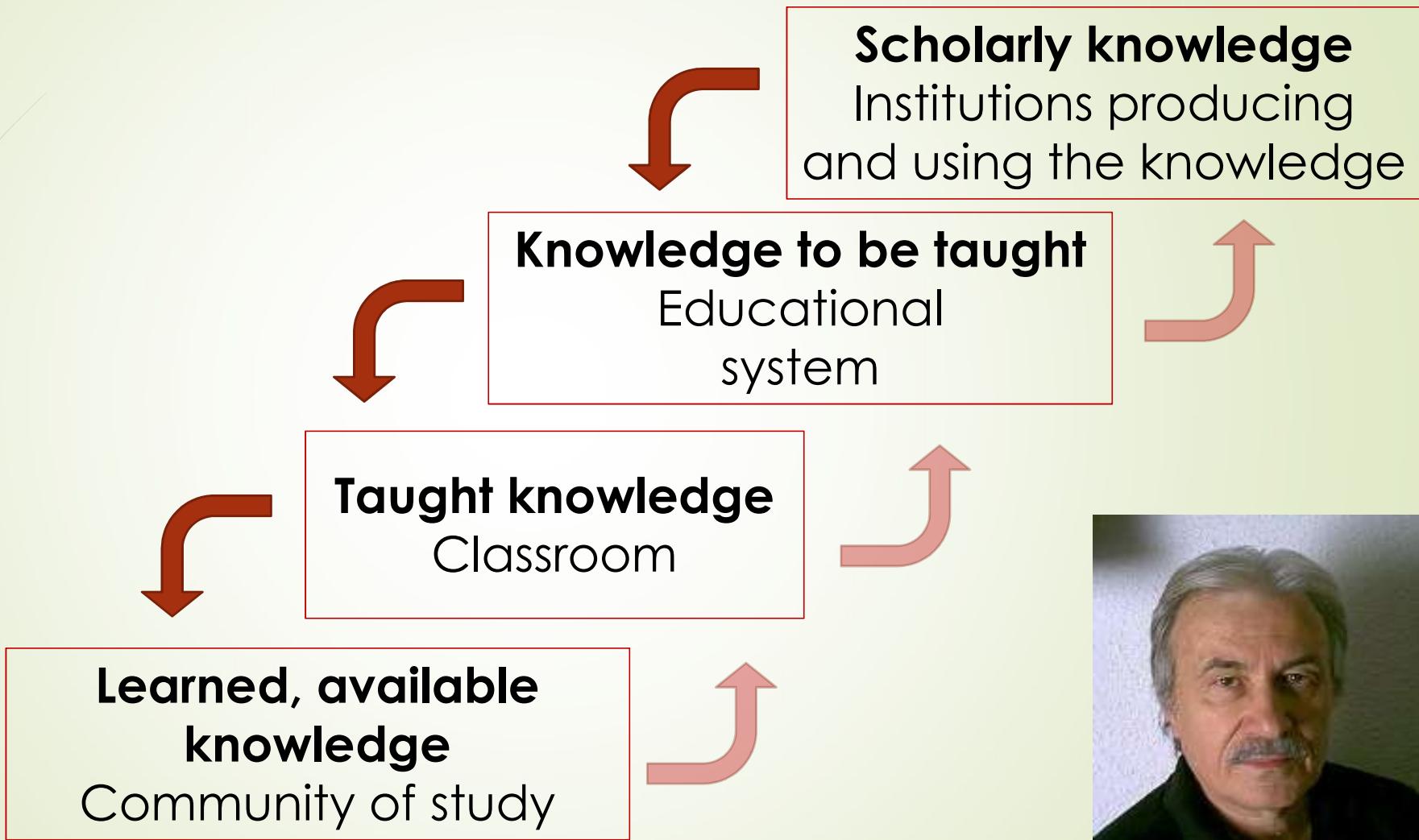
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Theoretical: the ATD framework

Cultural: the cultural transposition

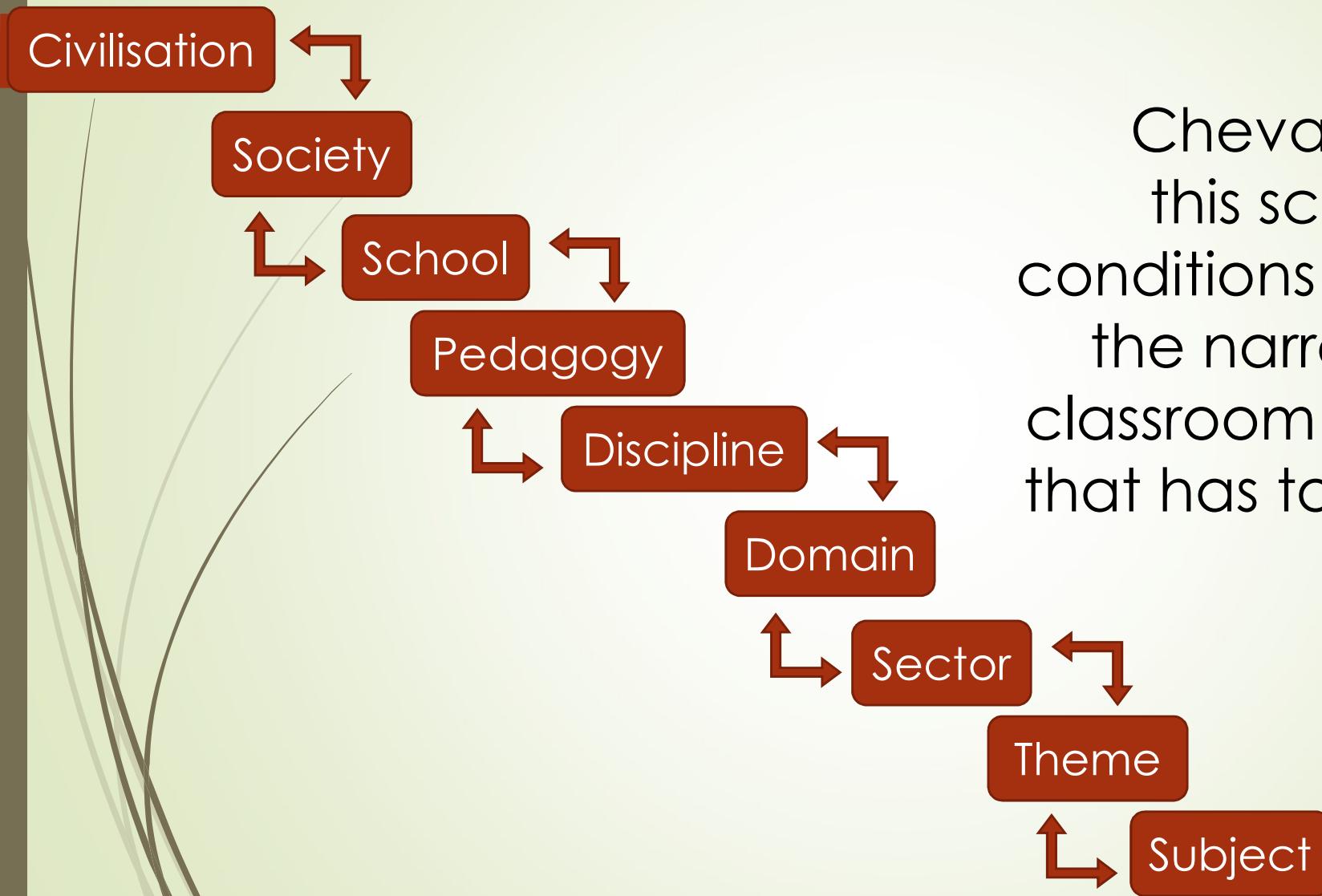


The steps of the didactic transposition process



Yves Chevallard

Levels of didactic co-determination

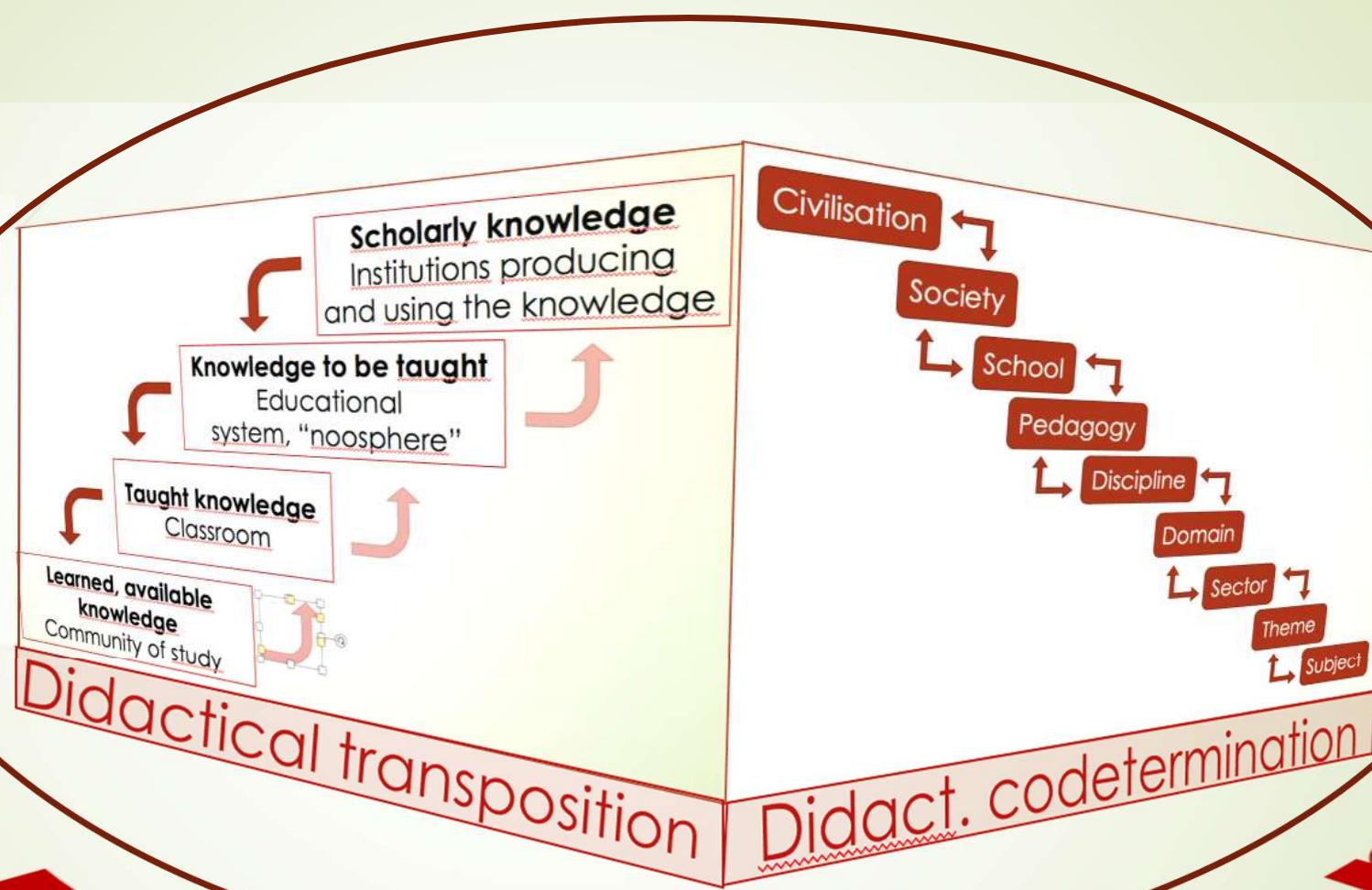


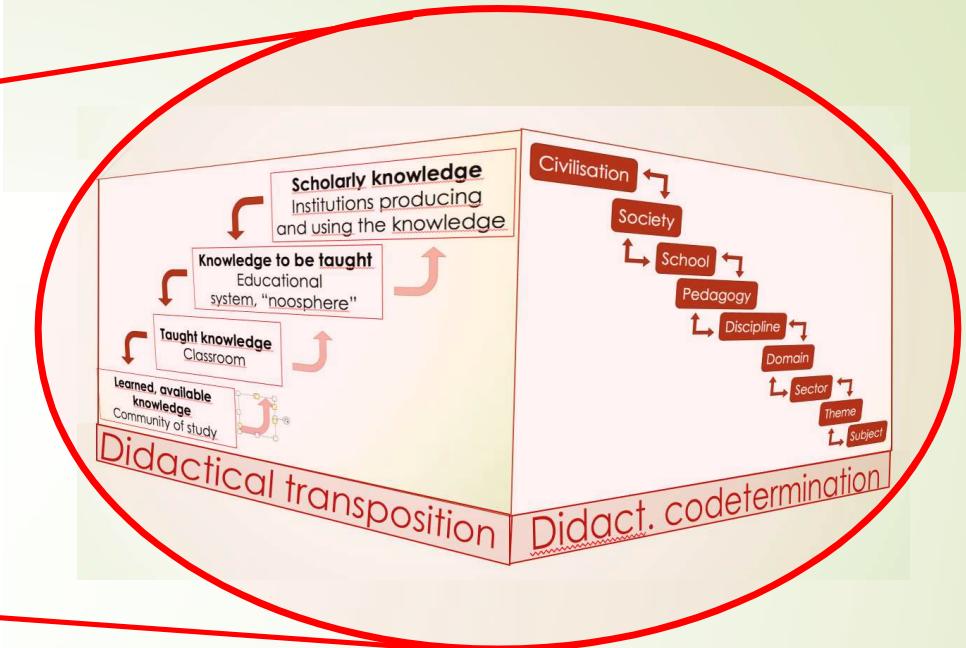
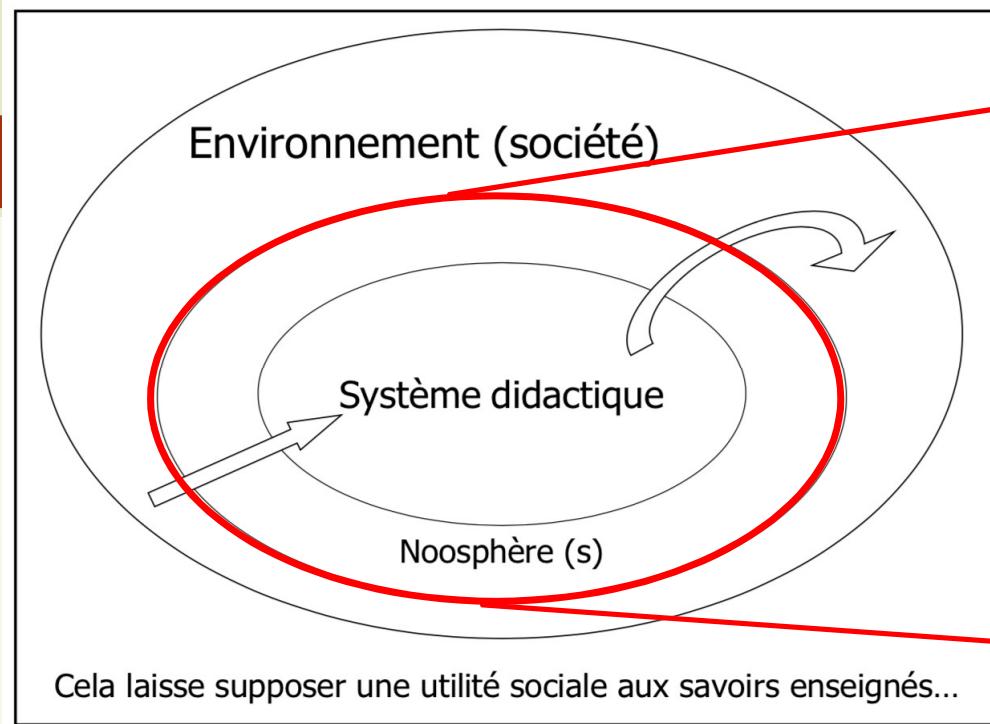
Chevallard introduced this scale of to identify conditions that go beyond the narrow space of the classroom and the subject that has to be studied in it.



Yves Chevallard

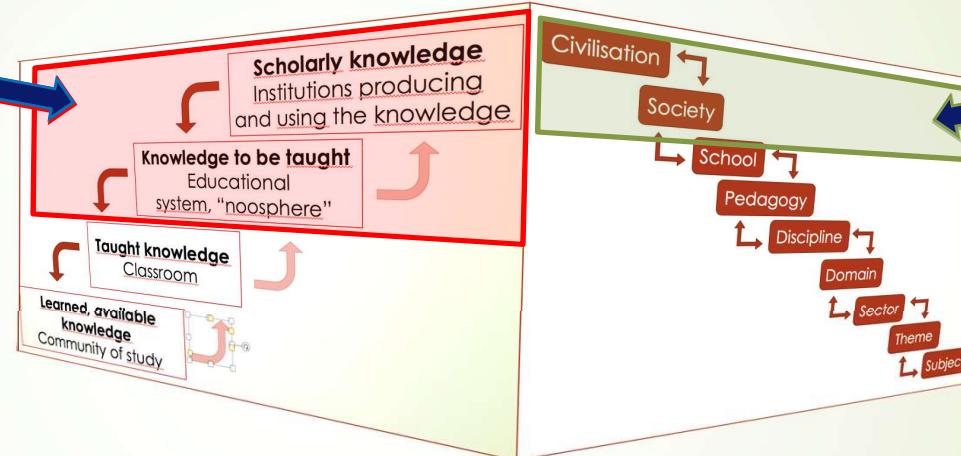
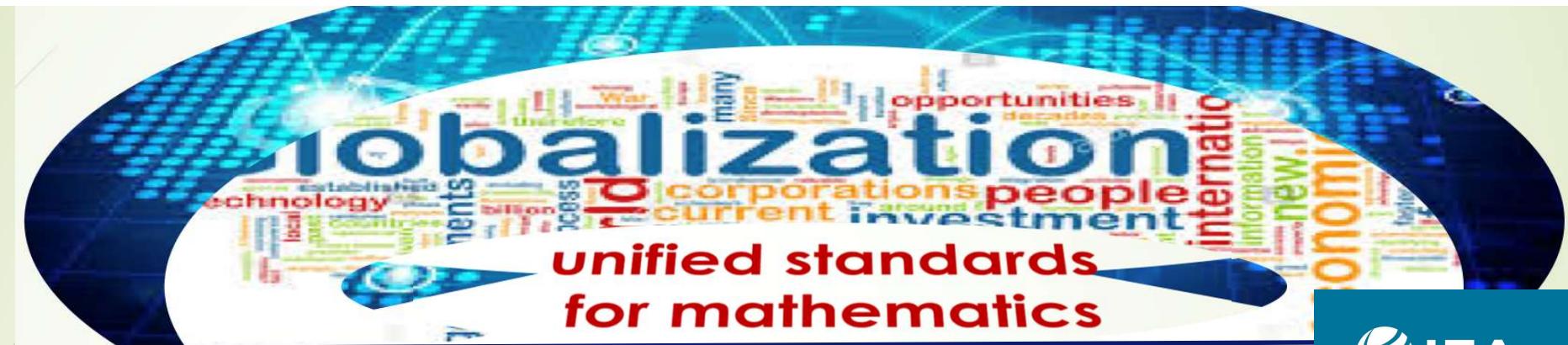
noosphere





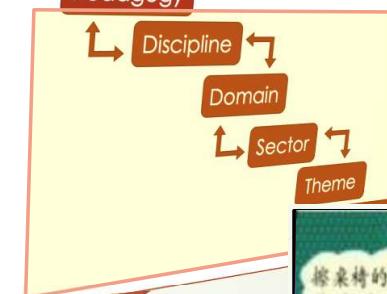
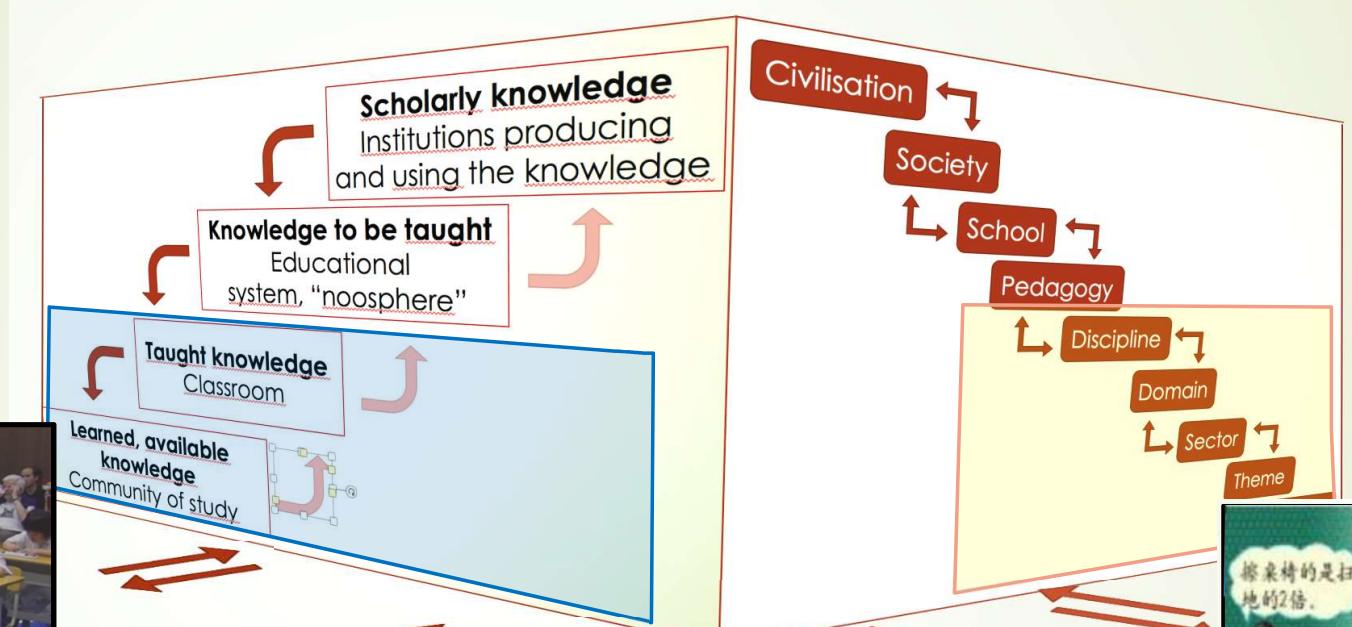
Noosphere (νοῦς): **Sphere where one thinks** the didactic functioning - according to modalities sometimes very different.

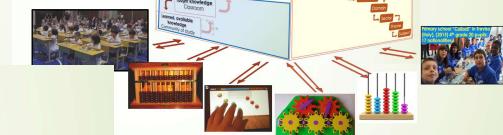
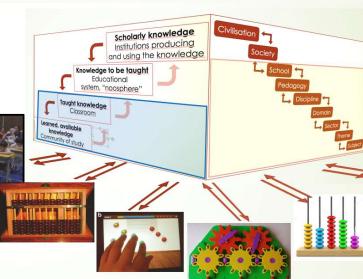
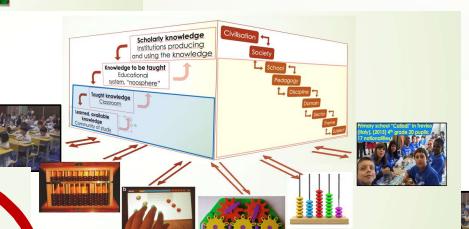
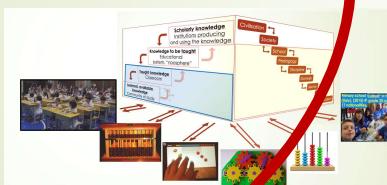
The noosphere will manipulate the objects of knowledge to offer a knowledge to teach that can be considered legitimate for the discipline in question.



while ...

Local cultures concern more the lower levels of didactical co-determination





A variety of
local cultures

IEA
TIMSS



Both streams are important, albeit at different levels of strength and awareness.

But any pruning of one of them would represent a strong loss, which would have negative consequences from many standpoints: social, pedagogical, cultural, epistemological.

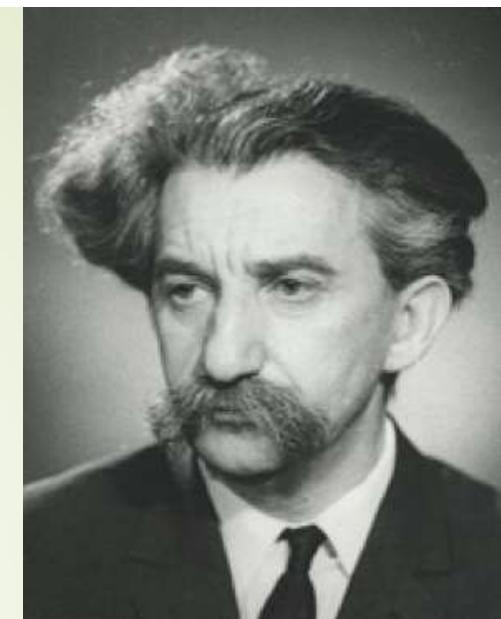
Hence we need ingenuity to formulate a solution which is inclusive as much as possible.



Basing on the examples in the presentation, it seems possible to develop a general frame coherent with the notion of cultural transposition

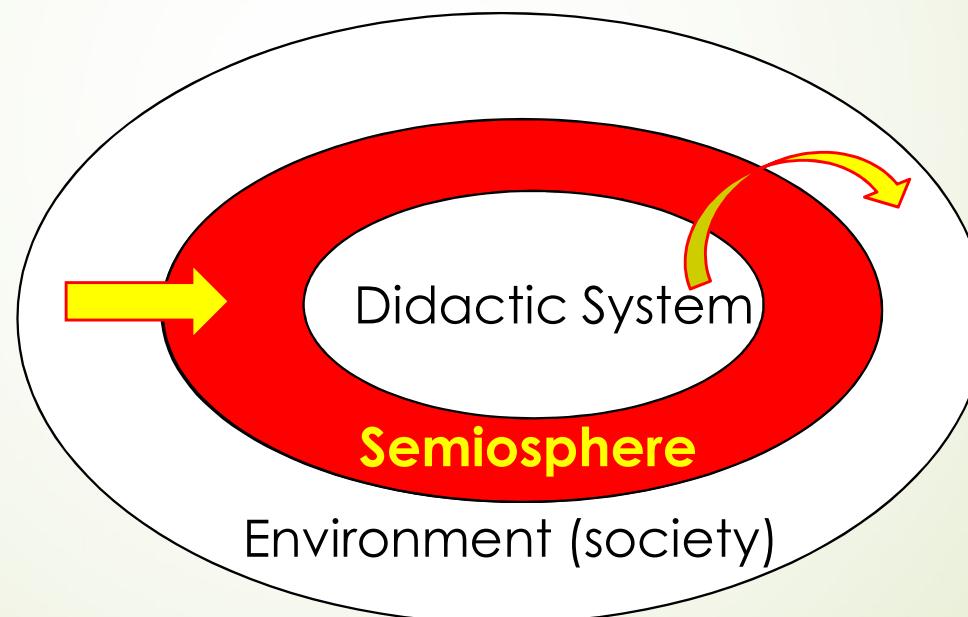


Y. Chevallard



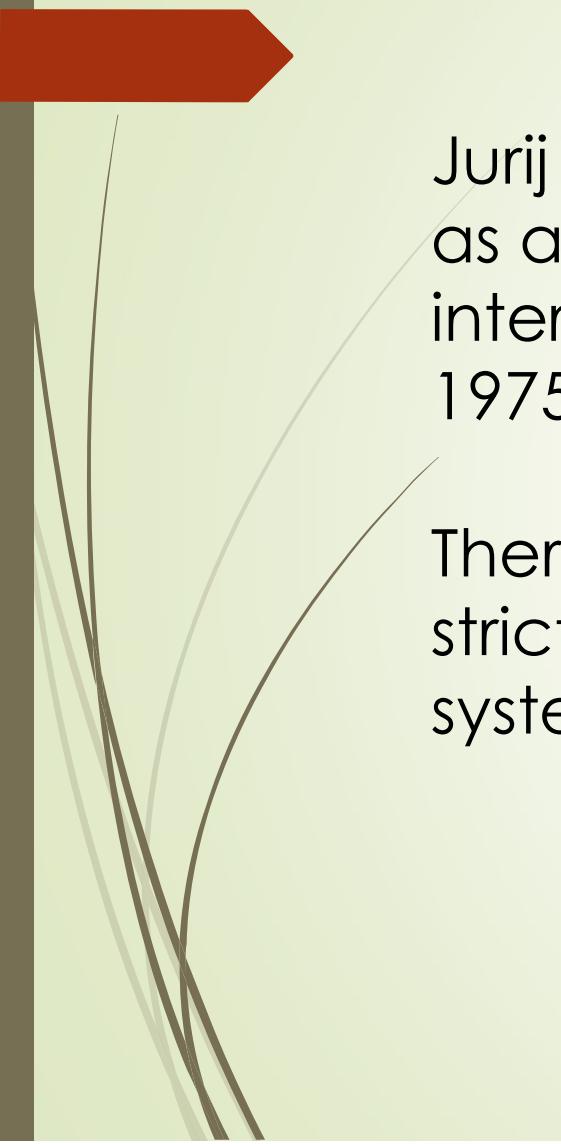
J. Lotman

from the noosphere to the semiosphere



through the *cultural transposition*

Definition of culture



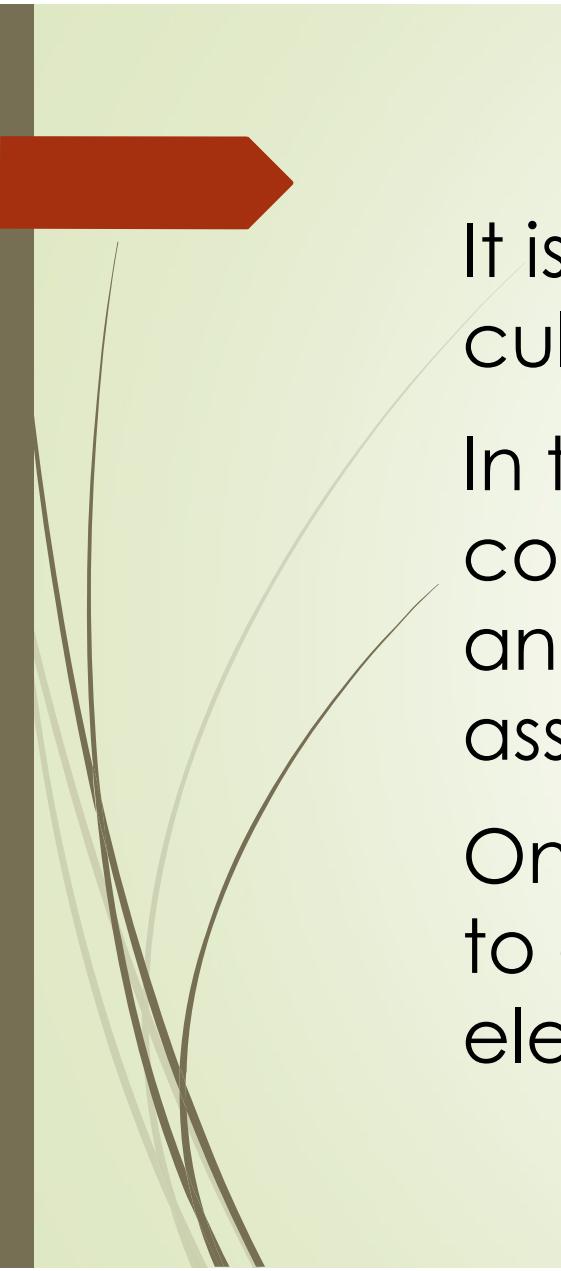
Jurij Michajlovič Lotman (1922-1993) defines culture as a complex semantic system made by different interlaced linguistic signs (Lotman and Uspenkij 1975).

Therefore, transposition in his cultural perspective is strictly related to the signs and those linguistic systems in which it develops.



The fundamental characteristic of the semiosphere is to be a global semiotic space, which in its unity renders significant each "signic" act (text, fragment of language, etc.).

It is a great single space, circumscribed in relation to the space that surrounds it, capable of manifesting a semiotic homogeneity.



It is in this space that the process of cultural transposition takes place.

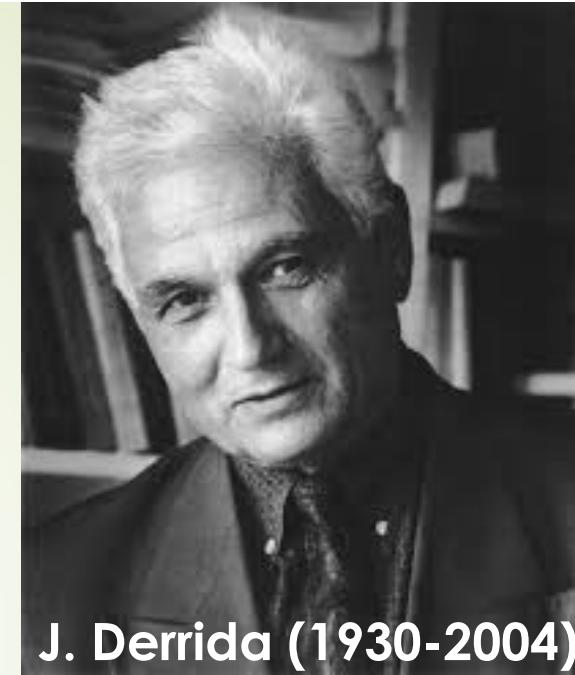
In the semiosphere a meta-language connecting several theories is used not to annihilate them through uniform assimilation.

On the contrary, it ensures possible forms to connect the different heterogeneous elements.

A crucial point in the approach of the report is the **deconstruction** process, taken from Derrida:

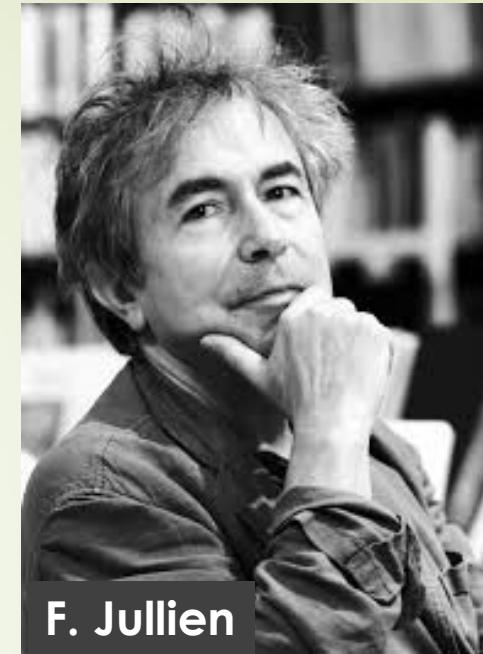
"The word [deconstruction] comes from a Heidegger expression, "Destruktion", meaning "de-destruct" and not as "destruction." I use it in the sense of an analysis of the different layers in which it stratifies culture." (Deridda, 1967).

They write: "we would like to accomplish a didactic deconstructionism in our research, through a reflection that handles the differences among the didactics of mathematics in different cultures."



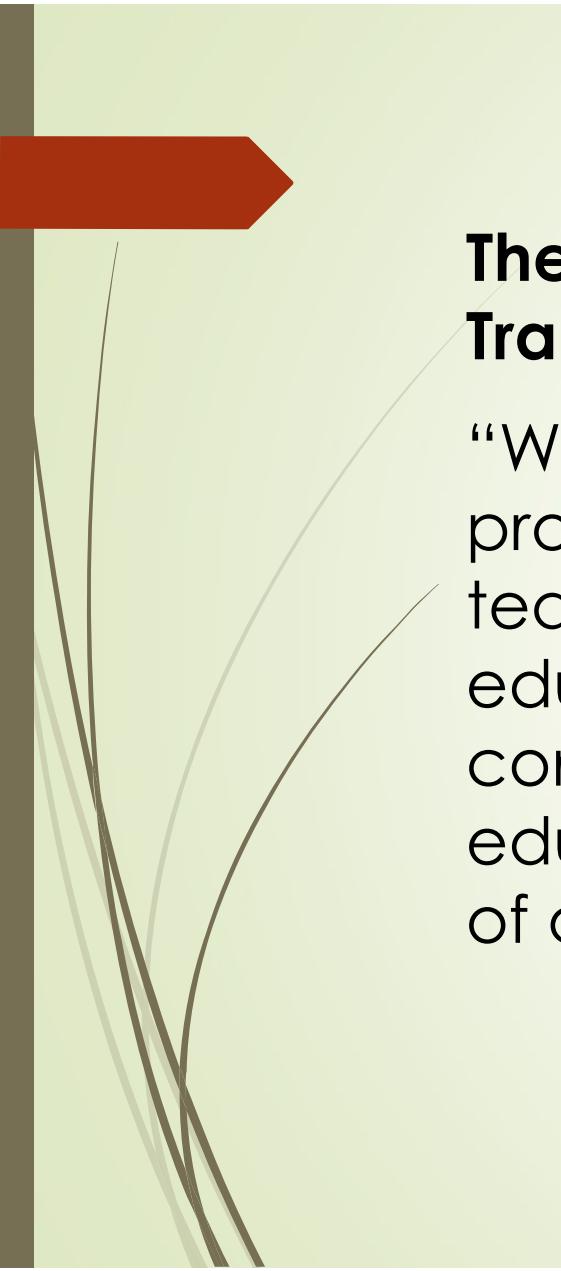
J. Derrida (1930-2004)

As the report points out, this process is more similar to that described by François Jullien in his *chantier*, where he explores the gap (*écart*) between Chinese and European thought: ‘This is not about comparative philosophy, about paralleling different conceptions, but about a philosophical dialogue in which every thought, when coming towards the other, questions itself about its own unthought’ (Jullien, 2006).



F. Jullien

Hence activities in the semiosphere are conceived as a dialogue between different praxeologies during which “each teaching choice, in contact with a different one, can become more aware” (Jullien 2005).



The authors of report can so define Cultural Transposition as follows:

“We propose the idea of Cultural Transposition as a process activated by researchers, educators and teachers who begin to deconstruct [Deridda] those educational practices adopted in other cultural contexts in order to reconsider the issues of educational intentionality, which is the background of any educational practice.”

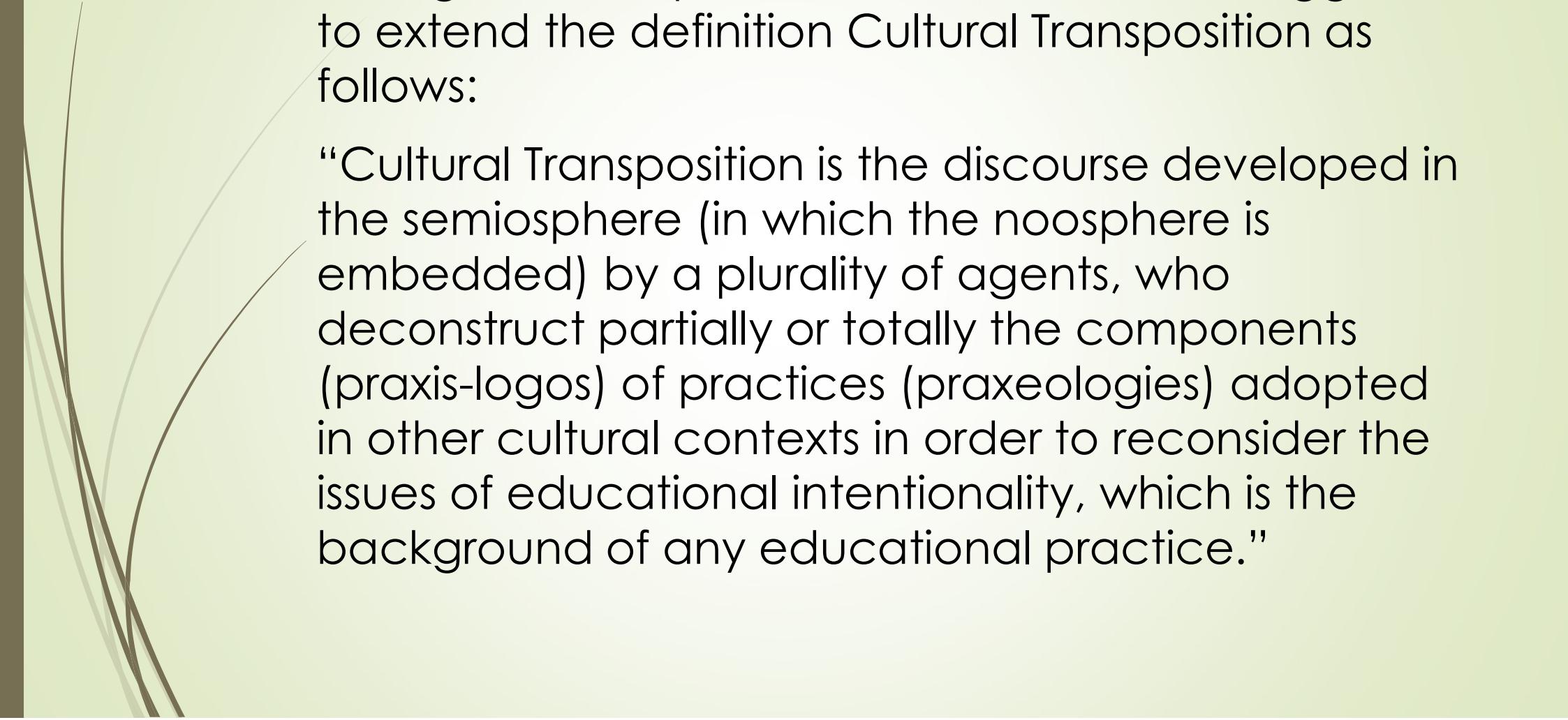


According to Bosch and Gascon, **the issue of de-construction is also in Chevallard's framework:**

“[didactical transposition is] a process of de-construction and rebuilding of the different elements of the knowledge, with the aim of making it ‘teachable’ while keeping its power and functional character.

The transpositive work is done by a plurality of agents (the ‘noosphere’), including politicians, mathematicians ('scholars') and members of the teaching system (teachers in particular), and under historical and institutional conditions that are not always easy to discern.”

(Bosch & Gascon, ICMI Bulletin 58, p.56)



Basing on the report and on Chevallard, I suggest to extend the definition Cultural Transposition as follows:

“Cultural Transposition is the discourse developed in the semiosphere (in which the noosphere is embedded) by a plurality of agents, who deconstruct partially or totally the components (praxis-logos) of practices (praxeologies) adopted in other cultural contexts in order to reconsider the issues of educational intentionality, which is the background of any educational practice.”

In short

Chevallard (DT)

De-construction

How knowl. is made teachable

Institutional environment

Noosphere

Report (CT)

De-construction

How educ. practices change

Semiotic environments

Semiosphere & Culture

FA (DT + CT)

De-construction

Educ. & Epistemological transposition

Institutional + semiotic environment

Semiosphere as extension of noosphere

In short

Chevallard (DT)

De-construction

How knowl. is made teachable

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Noosphere

MRDPM (CT)

De-construction

How educ. practices change

Semiotic environments

Semiosphere & Culture

hybridization

FA (DT + CT)

De-construction

Educ. & Epistemological transposition

Institutional + semiotic environment

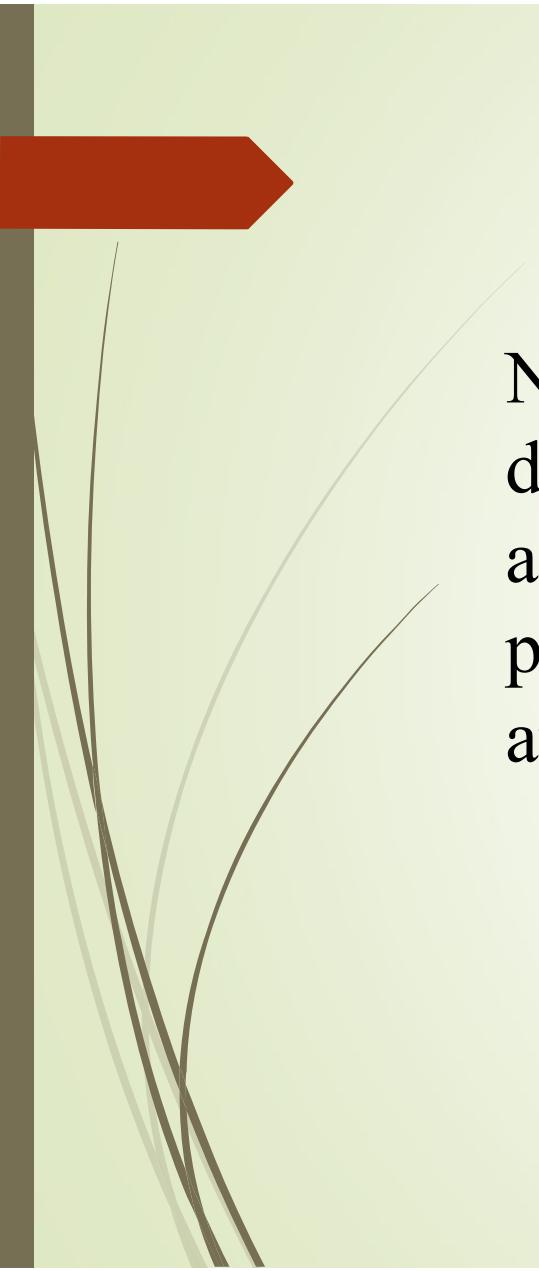
Semiosphere as extension of noosphere



Ibridazione

Es. (Chiara):

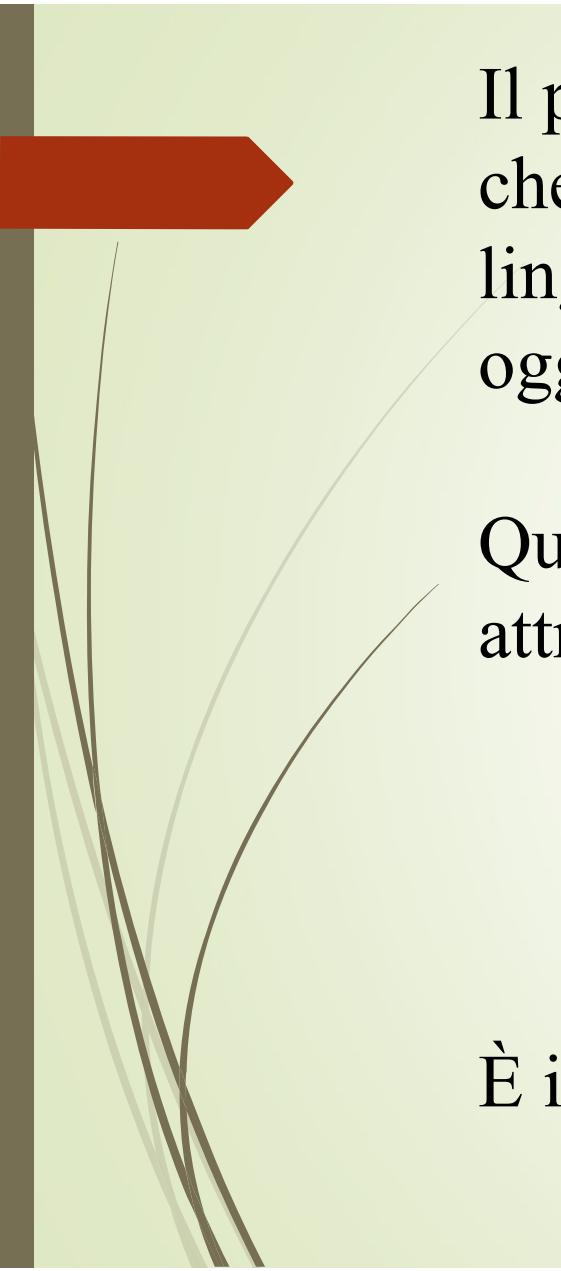
- **co-progettazione**
- **co-conduzione**
- **co-valutazione**



Nella semiosfera, un meta-linguaggio collegato a diverse teorie viene usato non per annullarle ma al contrario, per assicurare delle forme possibili per connettere i diversi elementi eterogenei attraverso un'assimilazione uniforme



Come spiegare gli obiettivi, le possibilità, le modalità e i limiti dell’ibridazione, elaborata nella semiosfera attraverso il suo metalinguaggio?

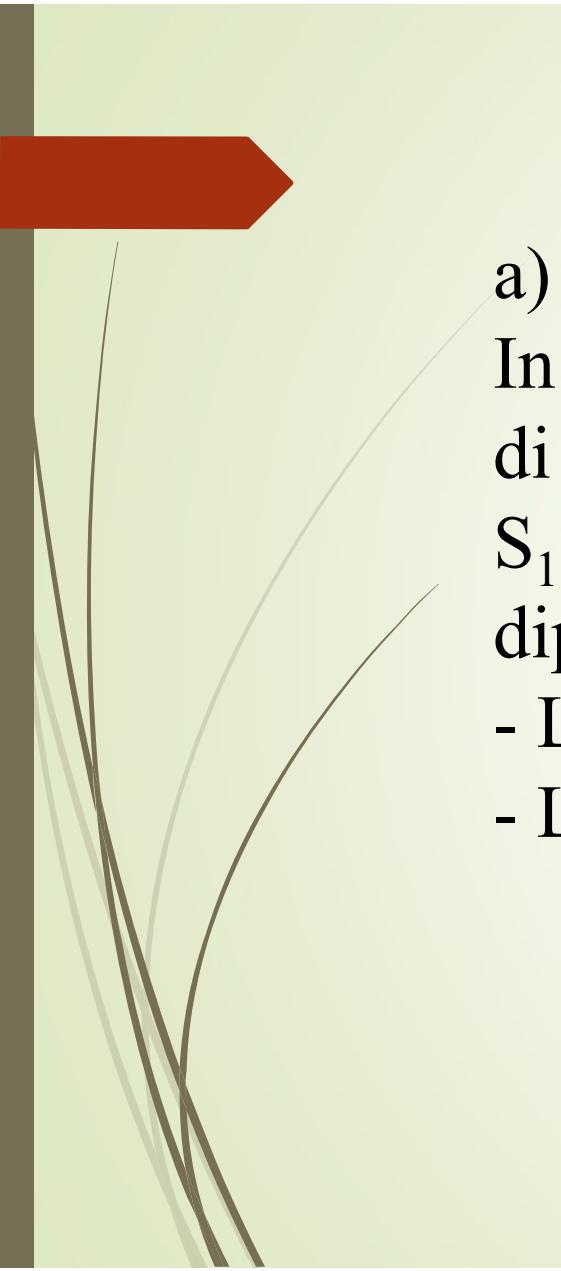


Il problema è caratterizzare i tipi di connessioni che possono essere espressi nel nuovo meta-linguaggio quando queste connessioni sono oggettificate nella loro pratica sociale.

Questo processo, se ha successo, avviene attraverso 3 passaggi:

- a) Connessione
- b) Interpretazione
- c) Adattamento.

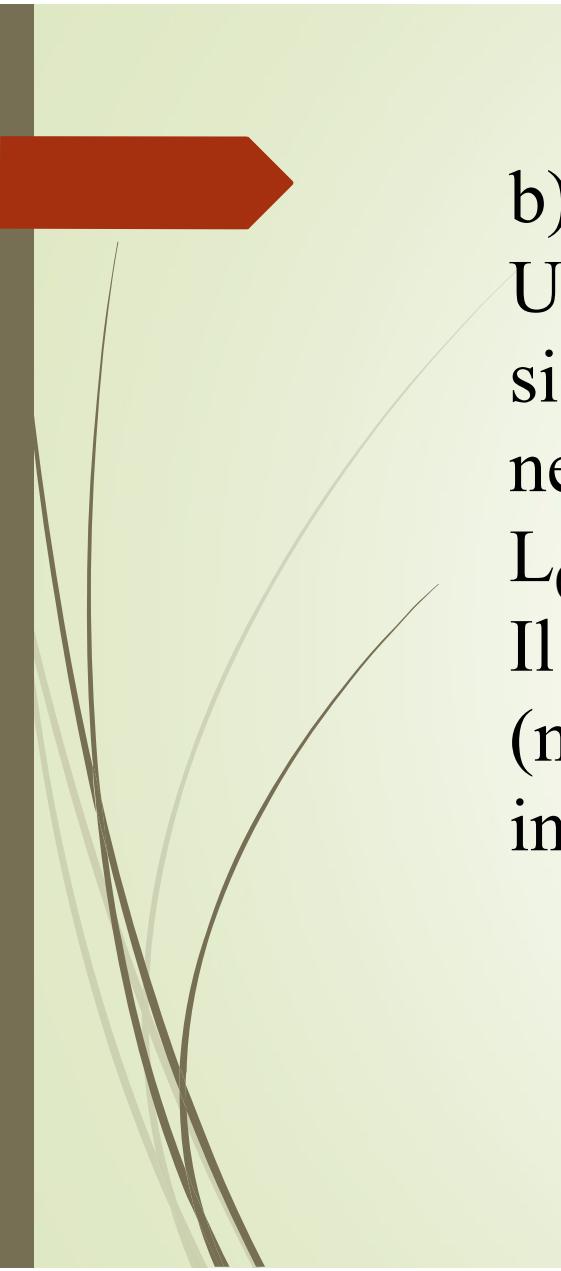
È inoltre soggetto a un controllo di coerenza.



a) Connessione

In generale un processo di ibridazione di un sistema S_0 con (una parte di) un sistema S_1 inizia stabilendo una connessione tra i due e dipende da almeno due parametri:

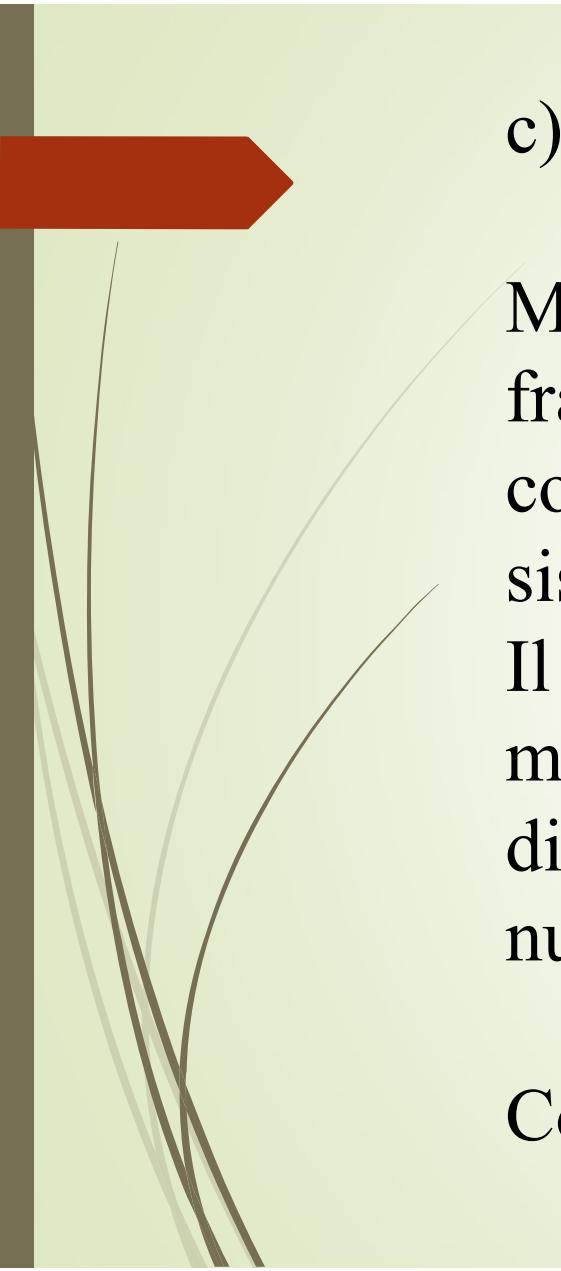
- Le strutture dei due sistemi;
- Lo scopo della connessione.



b) Interpretazione

Un frammento F_1 più o meno grande di un sistema S_1 espresso in linguaggio L_1 è interpretato nel sistema teoria S_0 (espresso in un linguaggio L_0).

Il linguaggio L_0 di S_0 si può quindi estendere (modificare) a un linguaggio L'_0 : il frammento interpretato diventa F'_1 (espresso in L'_0).



c) Adattamento

Modifica del sistema S_0 per collegare il frammento interpretato F'_1 alle diverse componenti del sistema S_0 : si ottiene un nuovo sistema, precisamente il sistema ibridato S_{01} . Il frammento interpretato può consistere in una modifica o eliminazione più o meno significativa di componenti "vecchie" di S_0 e nell'aggiunta di nuove componenti.

Controllo di coerenza di S_{01} .



Un risultato di questa connessione potrebbe produrre una migliore comprensione/modifica o del sistema S_0 .

Ma lo svolgimento di questa "comprensione" può essere diverso e generare vari tipi di trama:

- la trama dell'identità svelata
- trama del cambiamento di identità (che trovo più adatta all'ibridazione)
- ...



1. Trama dell'identità svelata

Mi rendo conto che nel mio sistema c'è una parte, un aspetto di cui non ero consapevole prima e che ora mi sembra svelato.

2. Trama del cambiamento di identità

Mi rendo conto che il mio sistema fornisce solo una risposta parzialmente soddisfacente alla domanda di ricerca e quindi importo da un'altra teoria dei nuovi frammenti che modificano i principi e la metodologia della mia teoria in modo operativo, in modo (più) soddisfacente ma anche coerente.



Forme grammaticali e Forme logiche

是

Il verbo essere

Per Aristotele ci sono 4 modi di dire l'essere (derivati dai modi con cui si dice $\epsilon\tilde{\imath}vai$): come accidente, come vero, come atto e potenza, come categoria.

Frege, eliminando la relazione soggetto-predicato non ha più bisogno del verbo essere. Esso scompare dalla sua logica, sostituito dalle diverse funzioni che esso ha nel linguaggio naturale:

1. Predicazione. Appartenenza. $F(a)$: “Abelardo è francese”
Inclusione. $\forall x(P(x) \rightarrow F(x))$: “i parigini sono francesi”
2. Uguaglianza. $a = b$: “Abelardo è l'amante di Eloisa”
3. Esistenza. $\exists x F(x)$: “esiste almeno un francese”.



是

Il verbo essere

La logica aristotelica ha lottato contro i diversi significati del verbo essere per individuare il concetto di forma logica.

Ma non vi è un concetto di essere condiviso da tutte le lingue: l'uso di “essere” come copula (con relativo predicato nominale) è tipico quasi solamente delle lingue indo-europee

La grandezza dei filosofi greci è stata di riconoscere le diverse funzioni (es. quelle della *Metafisica* di Aristotele: “l’essere si dice in molti modi”) *nonostante* la presenza del verbo essere.

是

Il verbo essere

In Cinese 是 (shì = essere; i verbi non si coniugano) è solo usato per connettere due sostantivi. Non può essere usato come copula in qualcosa di simile al predicato nominale.

Secondo Graham (*Disputers of the Tao...*, 1988), in questo senso il Cinese è più simile al linguaggio logico e per questo (C. Penco, *Frege*, p. 62) per i cinesi è più immediato adeguarsi alla formalizzazione logica.

Nel *Tractatus* (uno dei primi libri logici contemporanei tradotto in Cinese, dopo la visita di Russell in Cina) si trova che una proposizione è un'immagine di un fatto costituita da una connessione di nomi (come una proposizione con gli ideogrammi cinesi:

我 **是** 学生。 *Wǒ shì xuéshēng. Io **essere** studente*)

Tractatus, 3.1431

The essential nature of the propositional sign becomes very clear when we imagine it made up of spatial objects (such as tables, chairs, books) instead of written signs. [L]
[SEP]

The mutual spatial position of these things then expresses the sense of the proposition. [L]
[SEP]

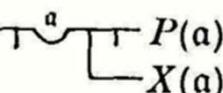
Sehr klar wird das Wesen des Satzzeichens, wenn wir es uns, statt aus Schriftzeichen, aus räumlichen Gegenständen (etwa Tischen, Stühlen, Büchern) zusammengesetzt denken.

Die gegenseitige räumliche Lage dieser Dinge drückt dann den Sinn des Satzes aus.

Vedere quello che di cinese c'è nella nostra semiosfera e che può essere svelato entrando “in commercio” con il sistema della scrittura cinese:

**1958 Zhou Youguang: Pinyin
Dagli ideogrammi al linguaggio fonetico**
馬 → 马

1879 G. Frege: Begriffsschrift (scrittura concettuale)

Sillogismo → 

Eine der arithmetischen nachgebildete formelsprache des reinen denkens
Un linguaggio-formula del pensiero puro modellato su quello dell'aritmetica



Begriffsschrift (ideografia, scrittura concettuale)

A differenza del linguaggio alfabetico scritto, i cui segni stanno per suoni, il linguaggio artificiale di Frege rappresenta concetti o pensieri, non immagini mentali.



Spaesamento e decostruzione

A phenomenological perspective

“There is not such
thing as true
seeing...
... there is only
seeing as”



Giancarlo Rota
(1932 - 1999)

A phenomenological perspective

The disclosure

Disclosure is a Husserlian concept further elaborated by Rota to give reason of mathematical understanding. It indicates the process by which people make sense of the world and of the situations in context to which they are exposed.

The chess problem example (p.276)

A phenomenological perspective

Learning mathematics requires different modes of focusing:

“just like seeing is focusing upon some functions which may be present, similarly, remembering, imagining, or visualizing are other modes of focusing” (Rota, 1991, p. 239).

A phenomenological perspective

Disclosure:

process by which people make sense of the world and of the situations in context to which they are exposed.

Being-in-the-world:

Sense-making depends ultimately on our own being-in-the-world, on the situation of our interacting, our dealing with the contextual situation in the world.

A phenomenological perspective

Disclosure:

process by which people make sense of the world and of the situations in context to which they are exposed.

Being-in-the-world

Functionality of the objects:

“If you deconstruct the notion of an object, what you find is pure functionality, the pure ‘being good for’ of that object or something. So that the world, instead of being a world of objects, will become a world of functions, of tools”.

A phenomenological perspective

Disclosure:

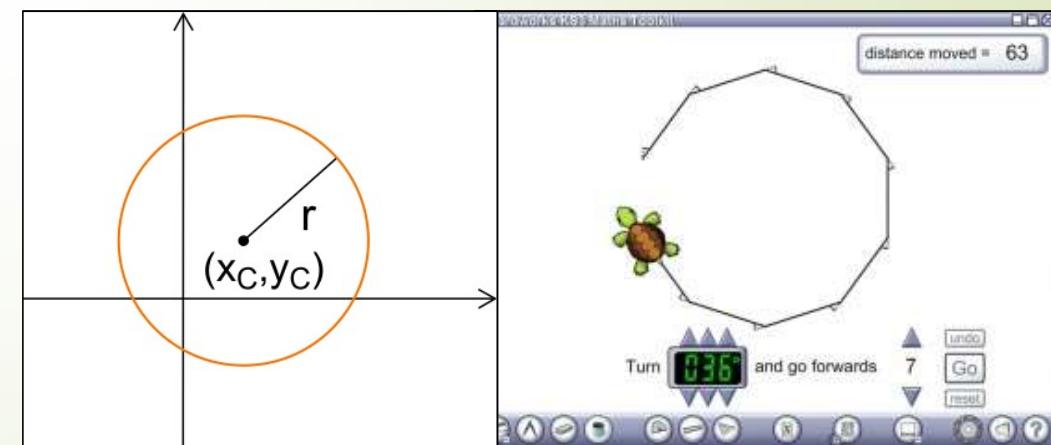
process by which people make sense of the world and of the situations in context to which they are exposed.

Being-in-the-world

Functionality of the objects

Network of related functions:

“Such functions are related to each other by a system of references, a network of references among them”.



Coltivare grano in Groenlandia

