

# Connaissances pour l'enseignement de la résolution de problèmes : Comment sont-elles construites au cours du dialogue lors d'une lesson study ?



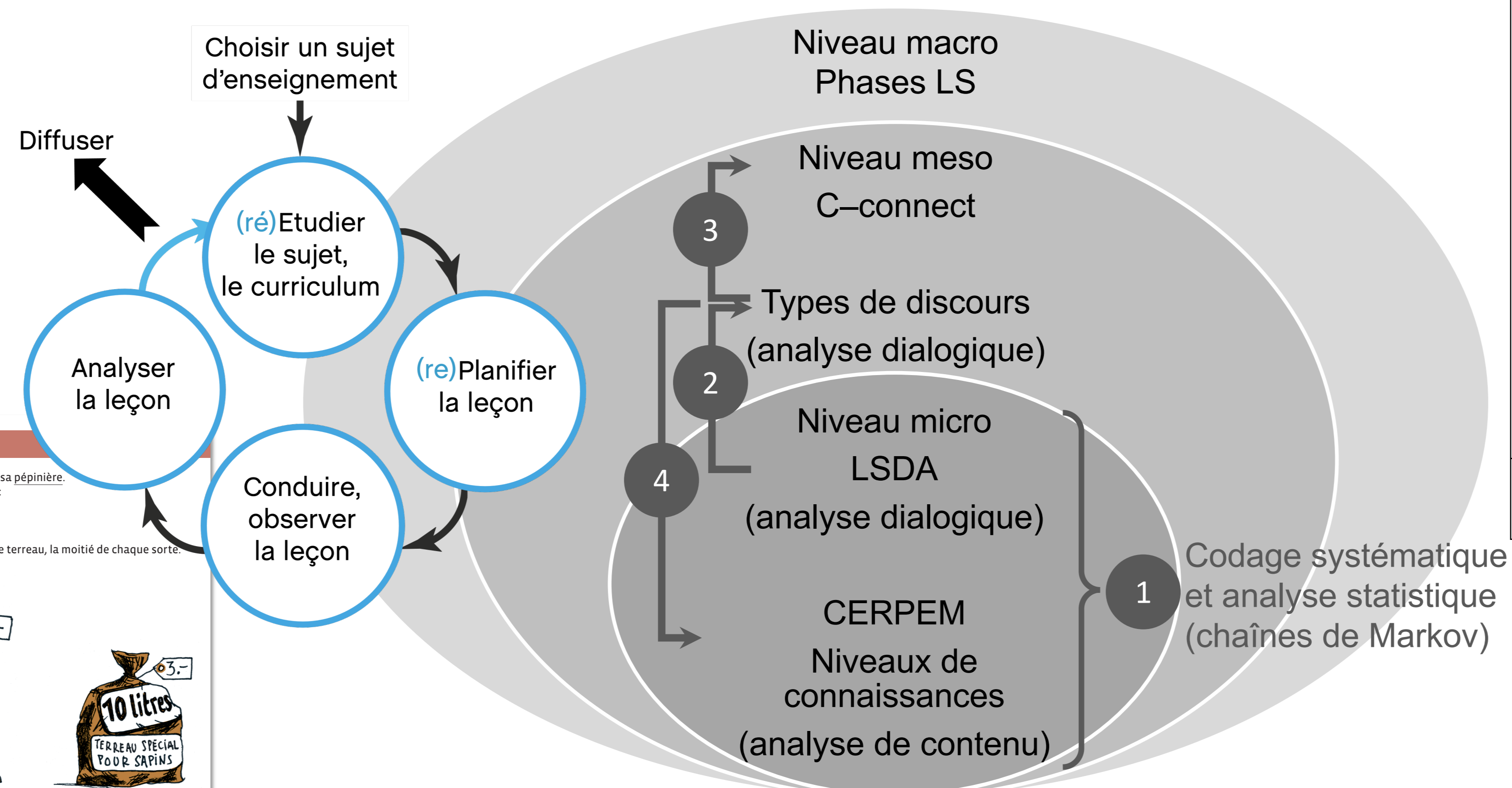
## Contexte et données

8 enseignant·e·s généralistes en 5-6P  
2 facilitateurs  
1 problème

8 séances LS  
3517 tours de parole transcrits (476 min.)  
2726 tours de parole codés LSDA  
2263 codes CERPEM

Combien Sam devra-t-il payer en tout ?

## Méthode (niveaux d'analyse)



### Lesson Study Dialogic Analysis LSDA

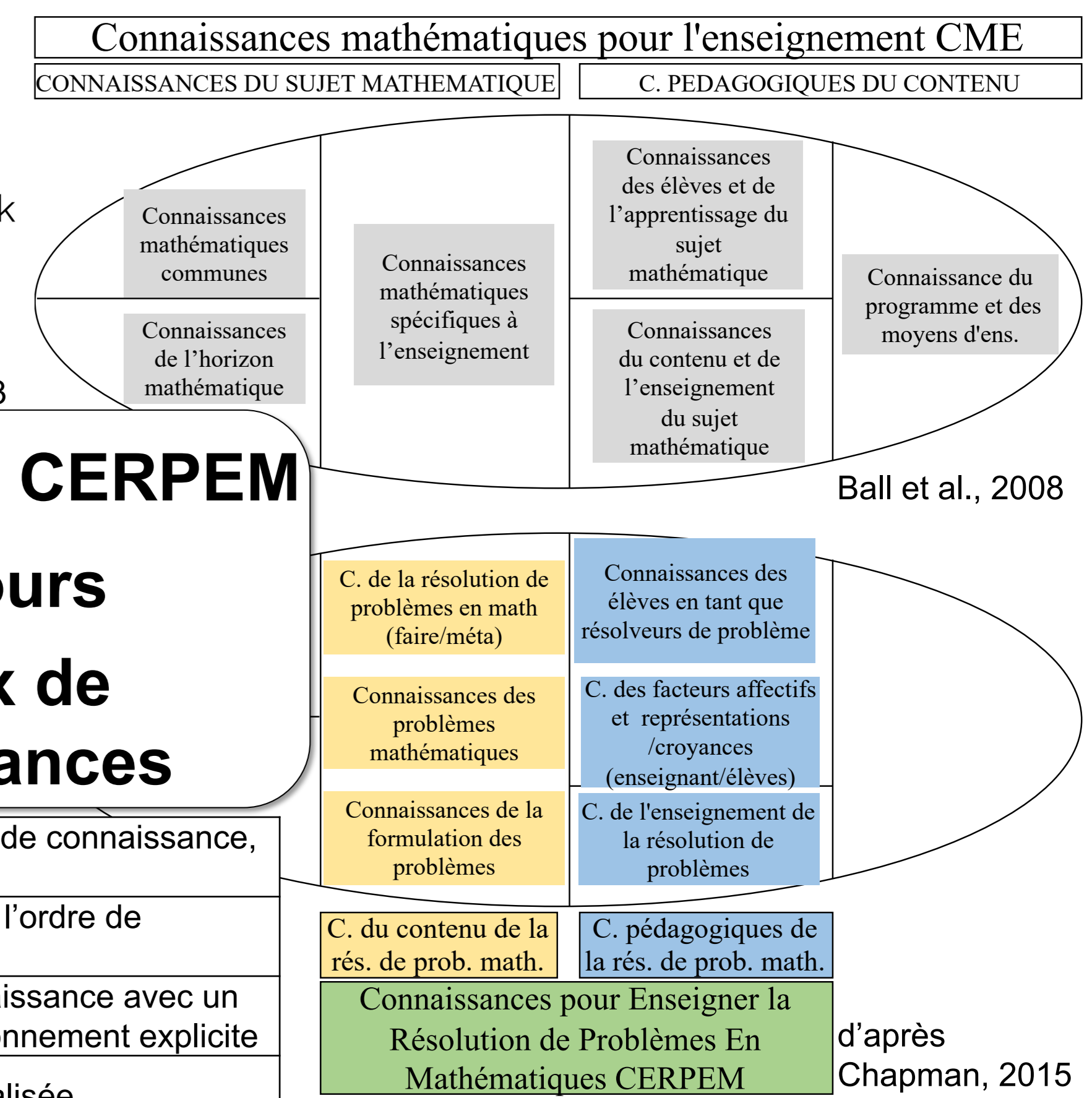
Tours de parole, niveau micro	E – Exprimer ou inviter à exprimer des idées nouvelles	Cumulative talk
	Q – Susciter un développement ou un raisonnement	Disputational / qualificatory talk
	R – Répondre, développer	Exploratory talk
niveau meso	P – se Positionner ou coordonner	Structuring conversation
	G – Guider	Managing understanding
	H – Humour	
	C – Connecter	

adapté de Hennessy et al., 2016

## LSDA et Types de discours Niveaux de connaissances

1	Connaissance erronée, absence de connaissance, ignorance assumée
2	Connaissance non expliquée, de l'ordre de l'observation, du témoignage
3	Connaissance incomplète, connaissance avec un faible degré de certitude. Questionnement explicite
4	Connaissance explicite contextualisée
5	Connaissance généralisée, décontextualisée

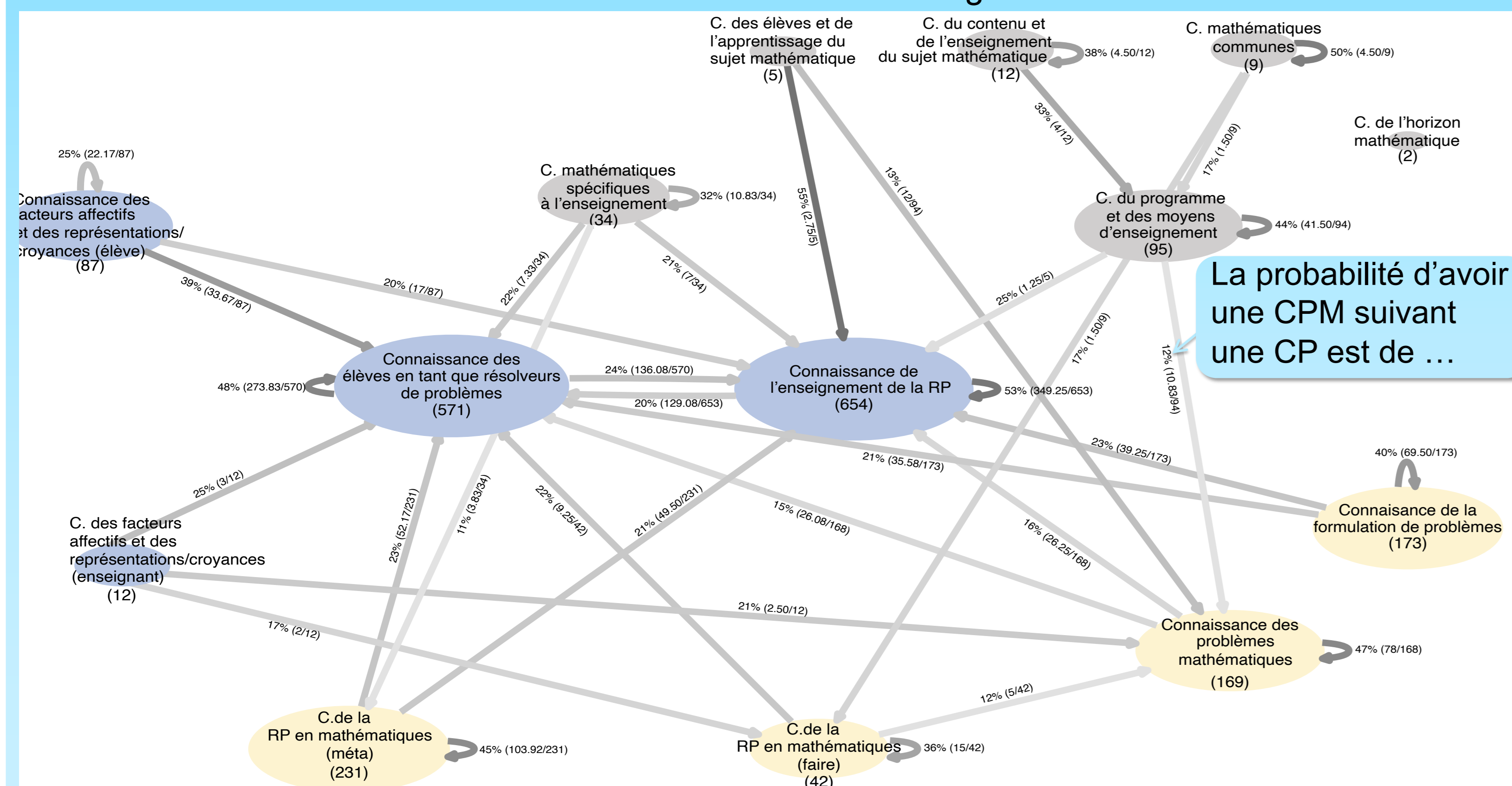
## Cadres théoriques



## Questions de recherche et résultats

### De quelle manière les CERPEM sont-elles construites collectivement au cours du processus LS ?

Quelles sont les CERPEM qui émergent lors de chaque réunion des LS ?  
Quelles sont les transitions des CERPEM et celles qui sont les plus représentées ?  
Comment les CERPEM se succèdent-elles au cours du dialogue ?

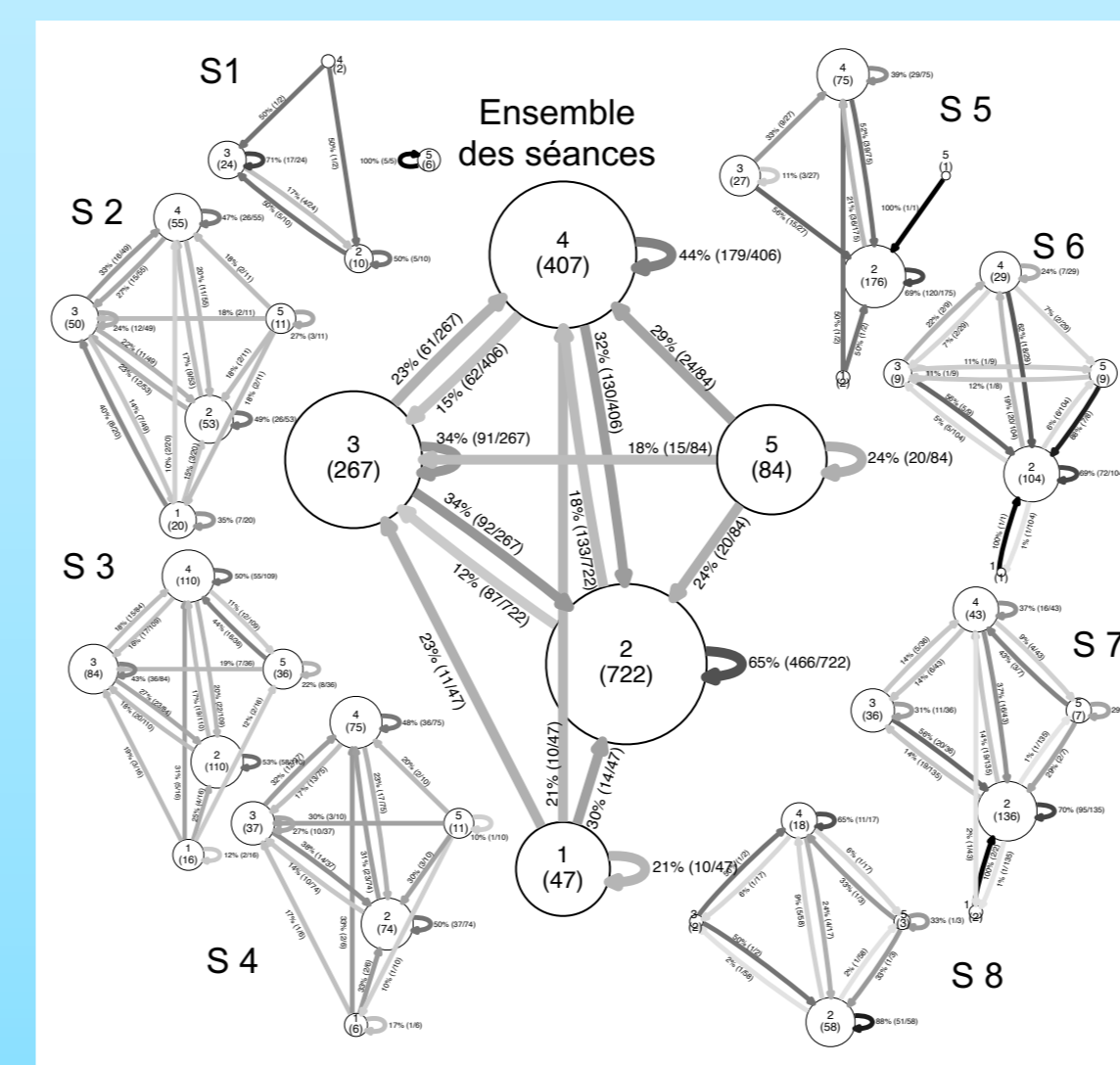


Des connaissances «attractrices»...

### Quels sont les niveaux de connaissances utilisés lors de chaque séance LS ?

Évoluent-ils ?  
En particulier, quelles sont les caractéristiques des facilitateurs en termes de niveaux de connaissances exprimés ?

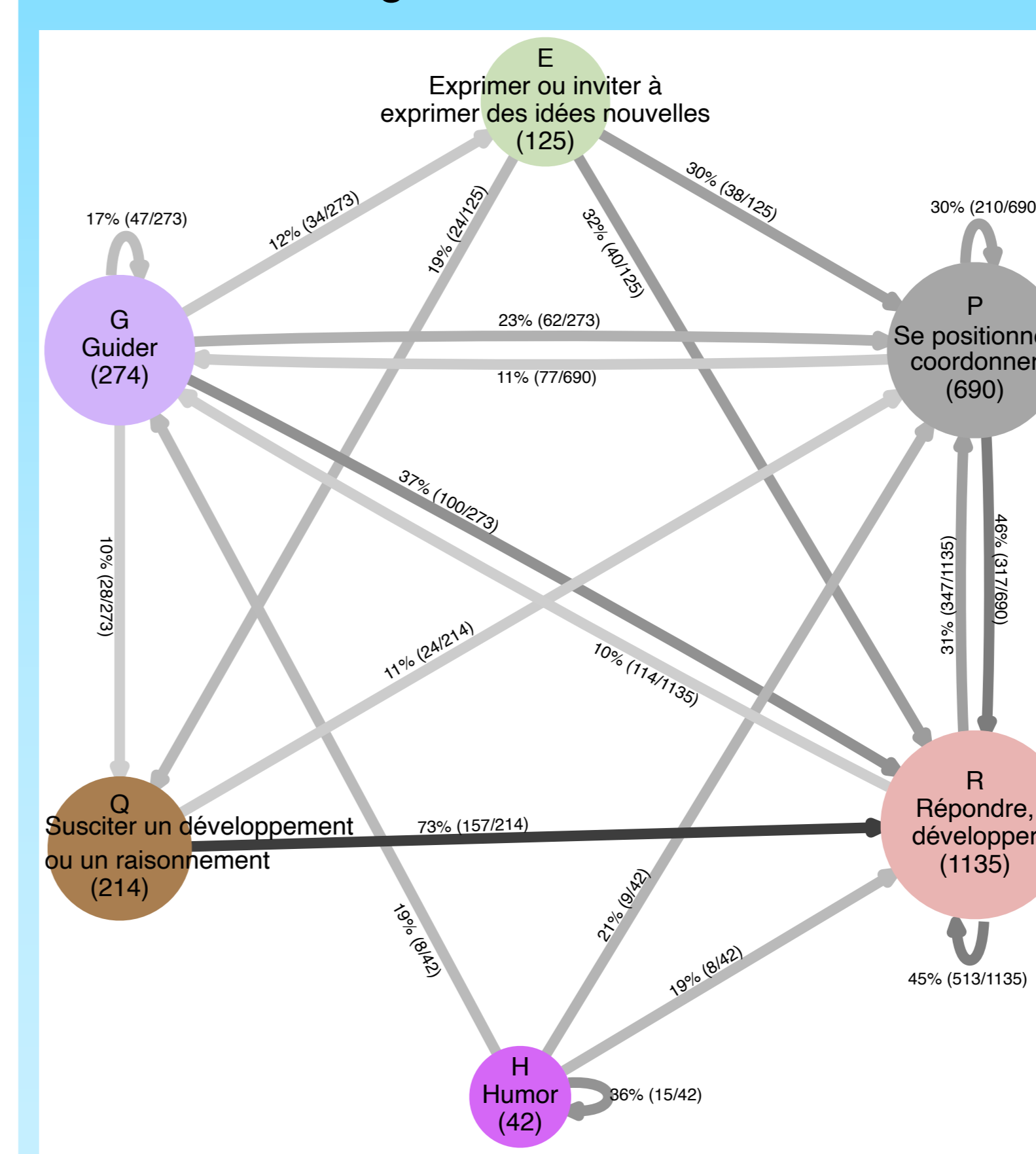
Niveau de conn.	1	2	3	4	5
Locuteur					
F1	0.04	0.12	0.14	0.31	0.78
F2	0.12	0.13	0.16	0.07	0.07
E1	0.08	0.12	0.17	0.13	0.05
E2	0.08	0.04	0.02	0.02	0.01
E3	0.12	0.09	0.11	0.05	0.01
E4	0.10	0.11	0.10	0.10	0.01
E5	0.06	0.04	0.07	0.07	0.02
E6	0.17	0.17	0.11	0.12	0.01
E7	0.25	0.14	0.12	0.11	0.02
E8	0.00	0.03	0.01	0.02	0.01
Total	1	1	1	1	1



Différents niveaux de connaissances selon les rôles et les séances...

### Quelle est la dynamique des interactions ?

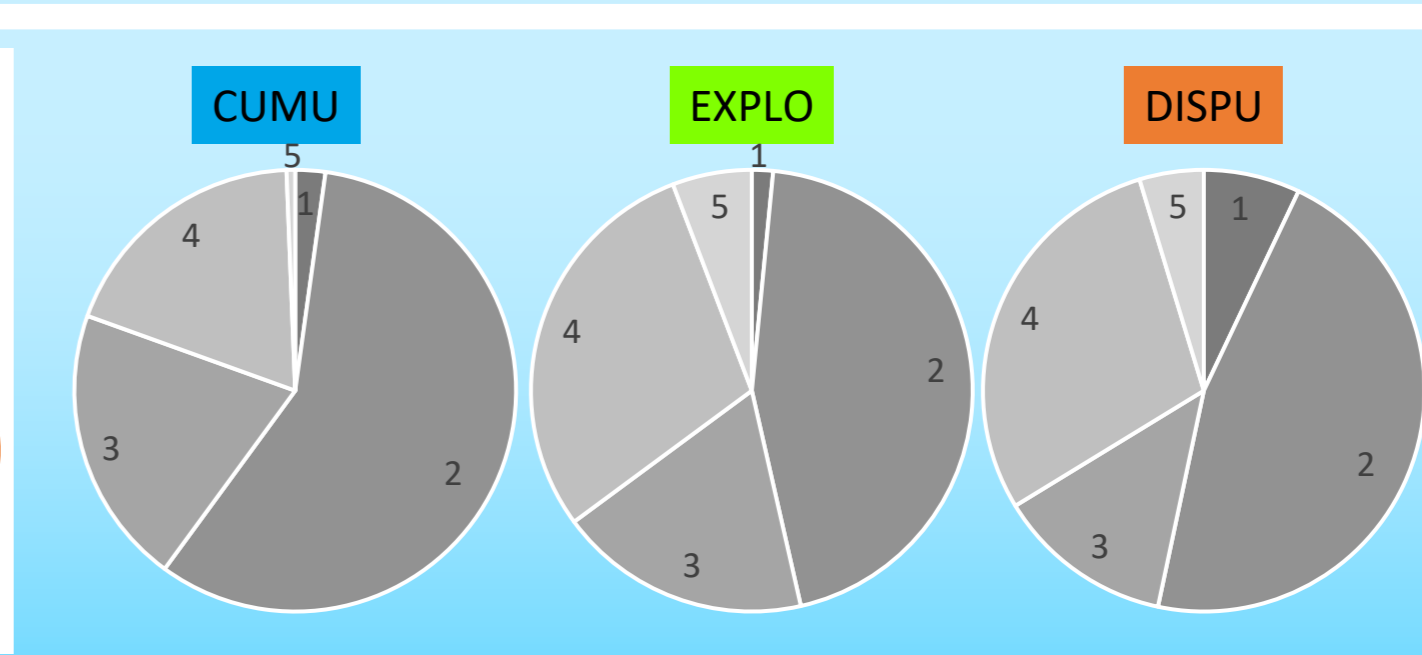
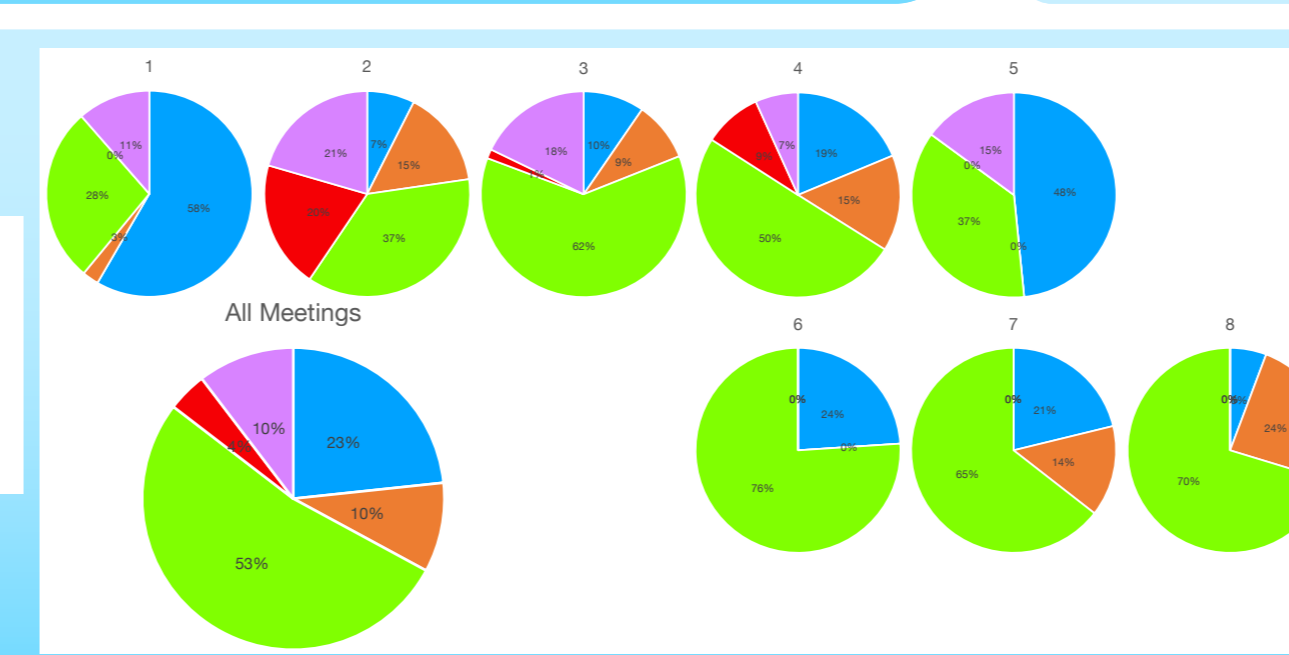
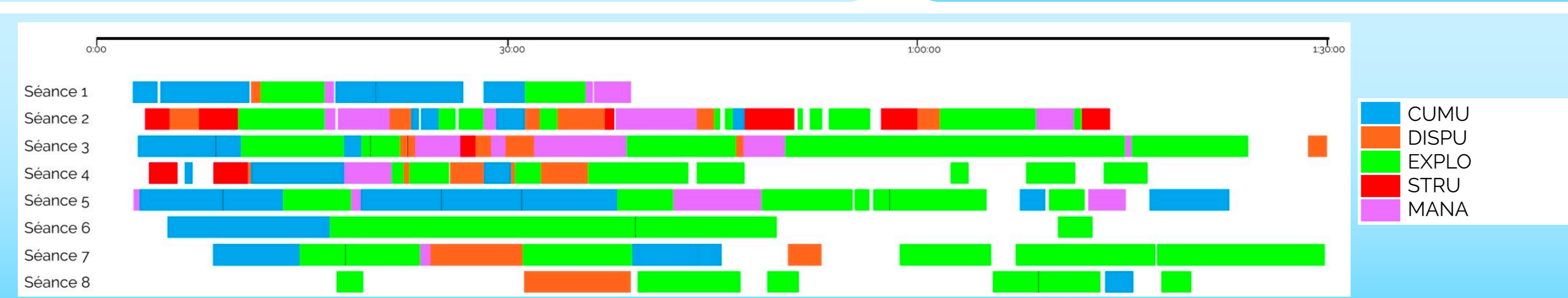
En particulier, quels types d'interactions caractérisent-ils les facilitateurs par rapport à ceux des enseignants ?



Des mouvements dans le dialogue...

Locuteur	LSDA	E	G	P	Q	R	H
F1		0.10	0.61	0.15	0.09	0.16	0.21
F2		0.07	0.29	0.12	0.30	0.11	0.02
E1		0.18	0.05	0.11	0.14	0.10	0.10
E2		0.06	0.00	0.04	0.03	0.04	0.00
E3		0.07	0.01	0.07	0.07	0.09	0.00
E4		0.10	0.01	0.10	0.03	0.11	0.10
E5		0.06	0.00	0.05	0.01	0.06	0.00
E6		0.14	0.01	0.13	0.12	0.16	0.17
E7		0.15	0.02	0.20	0.20	0.13	0.26
E8		0.06	0.00	0.01	0.01	0.03	0.00
Total		1	1	1	1	1	1
Moyenne F1-F2		0.09	0.45	0.13	0.19	0.14	0.12
Moyenne E		0.10	0.01	0.09	0.08	0.09	0.08
Total F1-F2		0.18	0.90	0.27	0.39	0.27	0.24
Total E		0.82	0.10	0.71	0.61	0.72	0.62

### Quels sont les types de dialogues? Evoluent-ils? La construction des MKPTS est-elle liée aux types de dialogue?



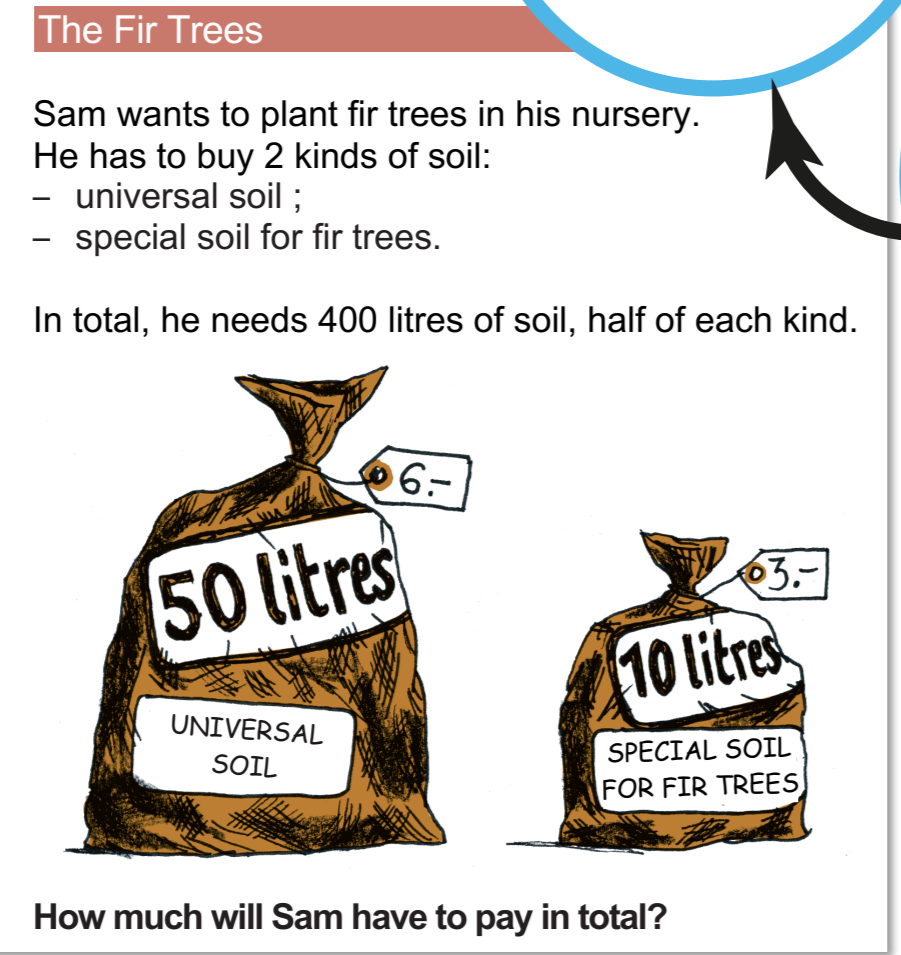
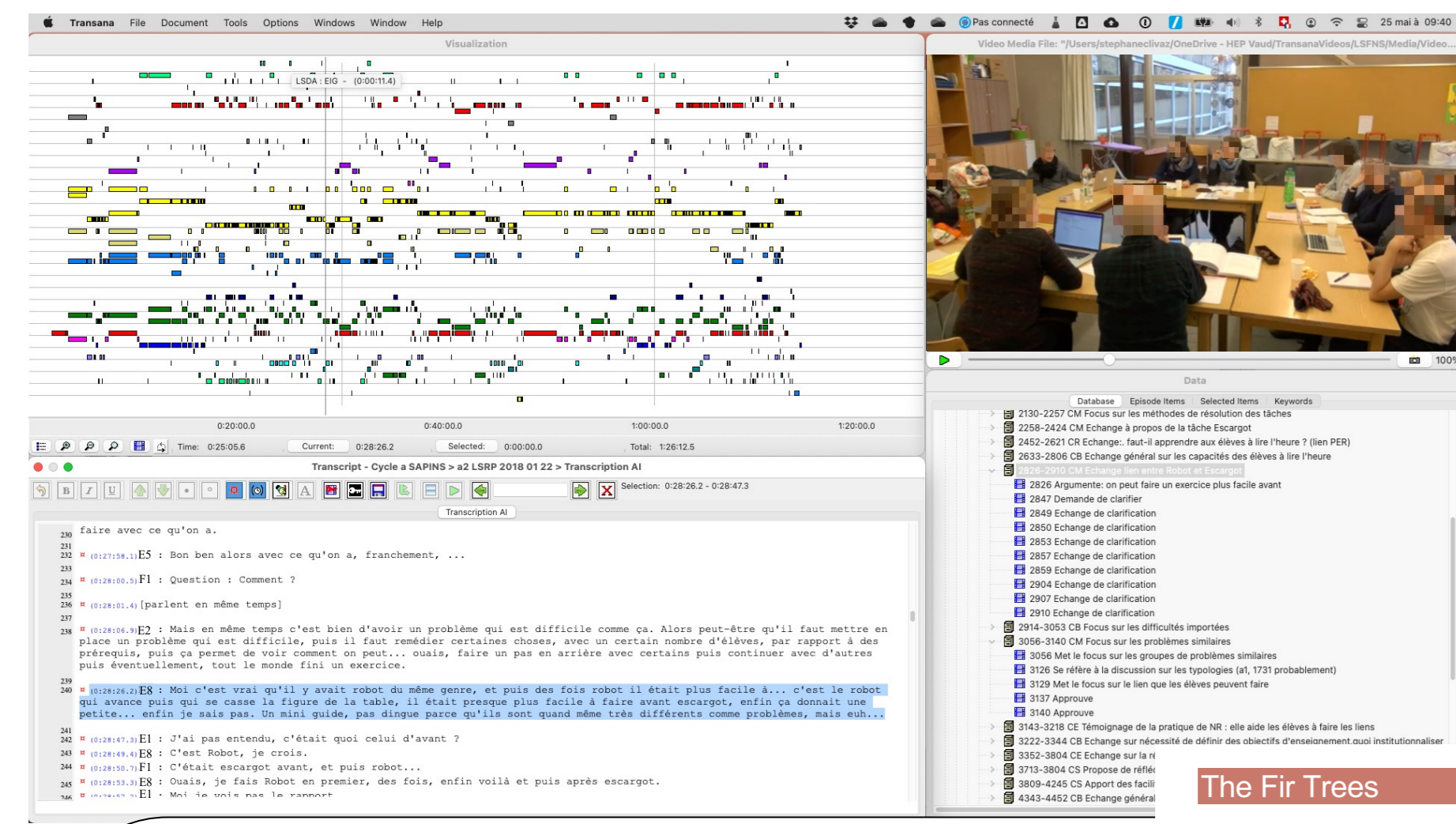
L'augmentation de l'exploratory talk... et son effet possible...



# Mathematical Knowledge for Teaching Problem-Solving: Dialogic Construction during a Lesson Study



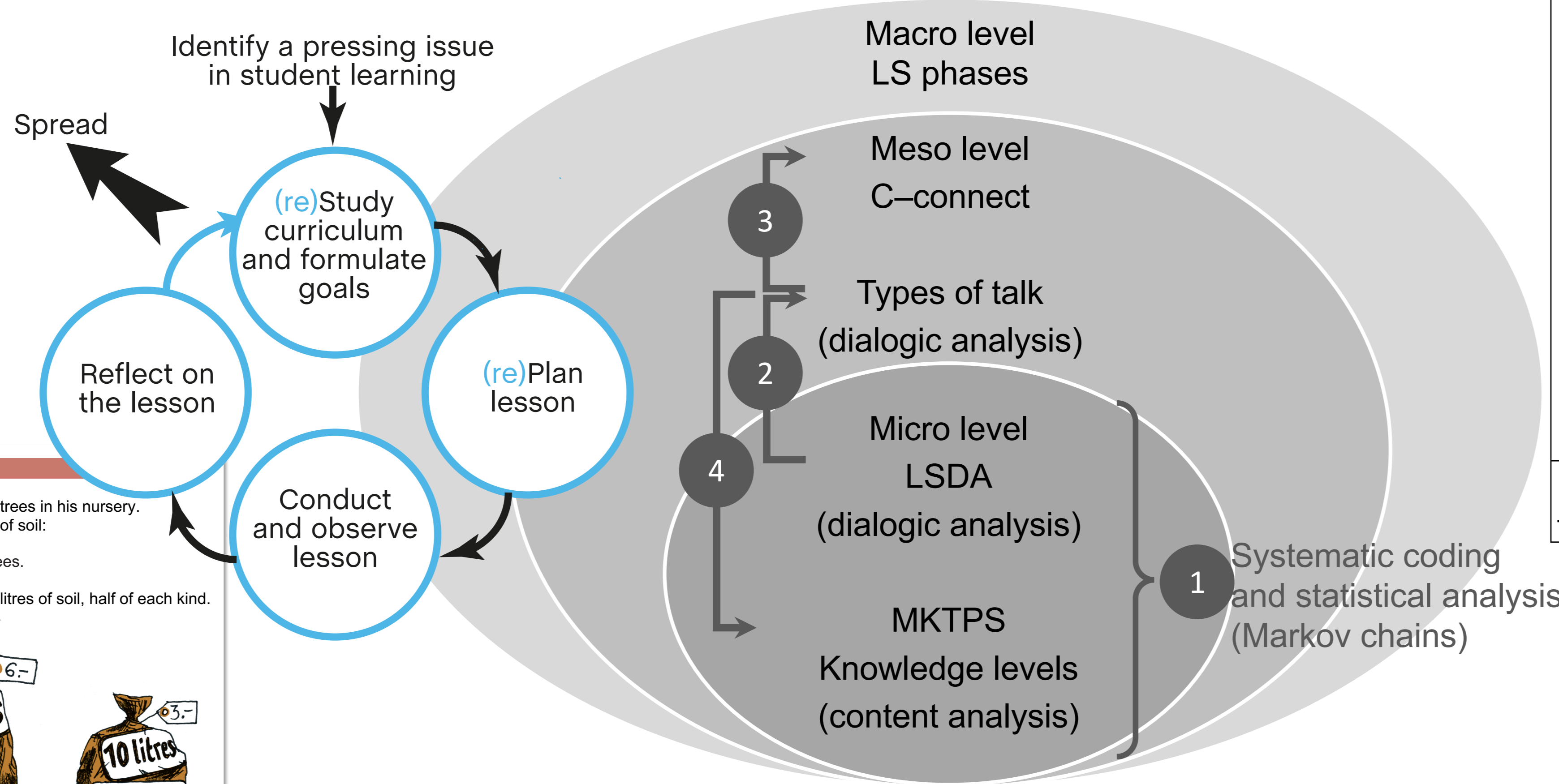
## Context and Data



8 generalist teachers, grades 3 and 4  
2 facilitators  
1 problem

8 LS sessions  
3517 transcribed utterances (476 min.)  
2726 LSDA-coded utterances  
2263 MKTPS codes

## Method (levels of analysis)



### Lesson Study Dialogic Analysis LSDA

E – Express or invite new ideas
Q – Arouse development or reasoning
R – Answer, develop
P – Position or coordinate
G – Guide
H – Humor
C – Connect

Tours de parole, niveau micro  
niveau meso

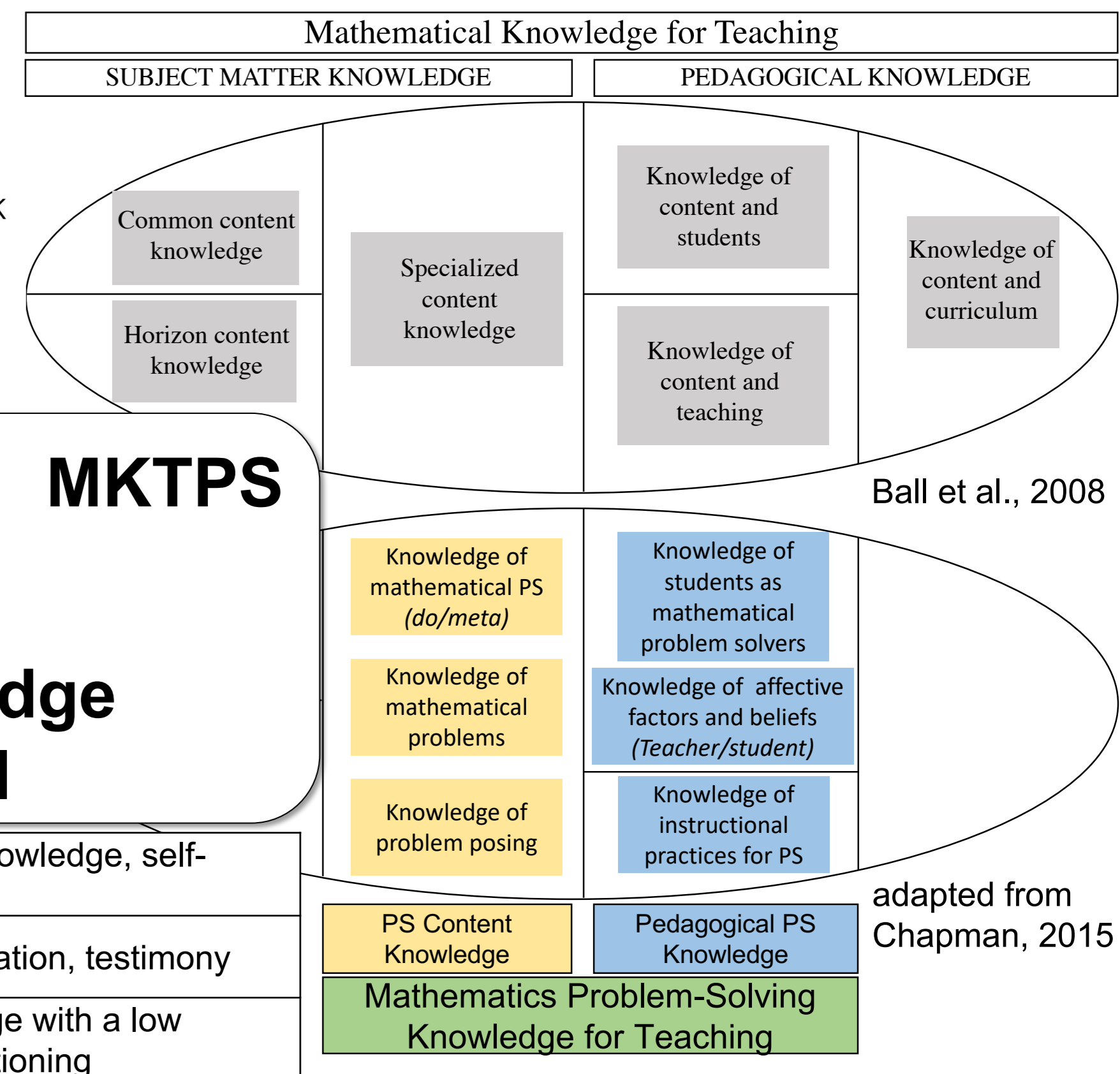
Legend:  
Cumulative talk (blue)  
Disputational / qualificatory talk (orange)  
Exploratory talk (green)  
Structuring conversation (red)  
Managing understanding (purple)

Dudley, 2013; Littleton et Mercer, 2013

**LSDA and Type of talk Knowledge level**

1	Inaccurate knowledge, lack of knowledge, self-assumed ignorance
2	Unexplained knowledge. Observation, testimony
3	Incomplete knowledge, knowledge with a low degree of certainty. Explicit questioning
4	Contextualized explicit knowledge
5	Generalized, decontextualized knowledge

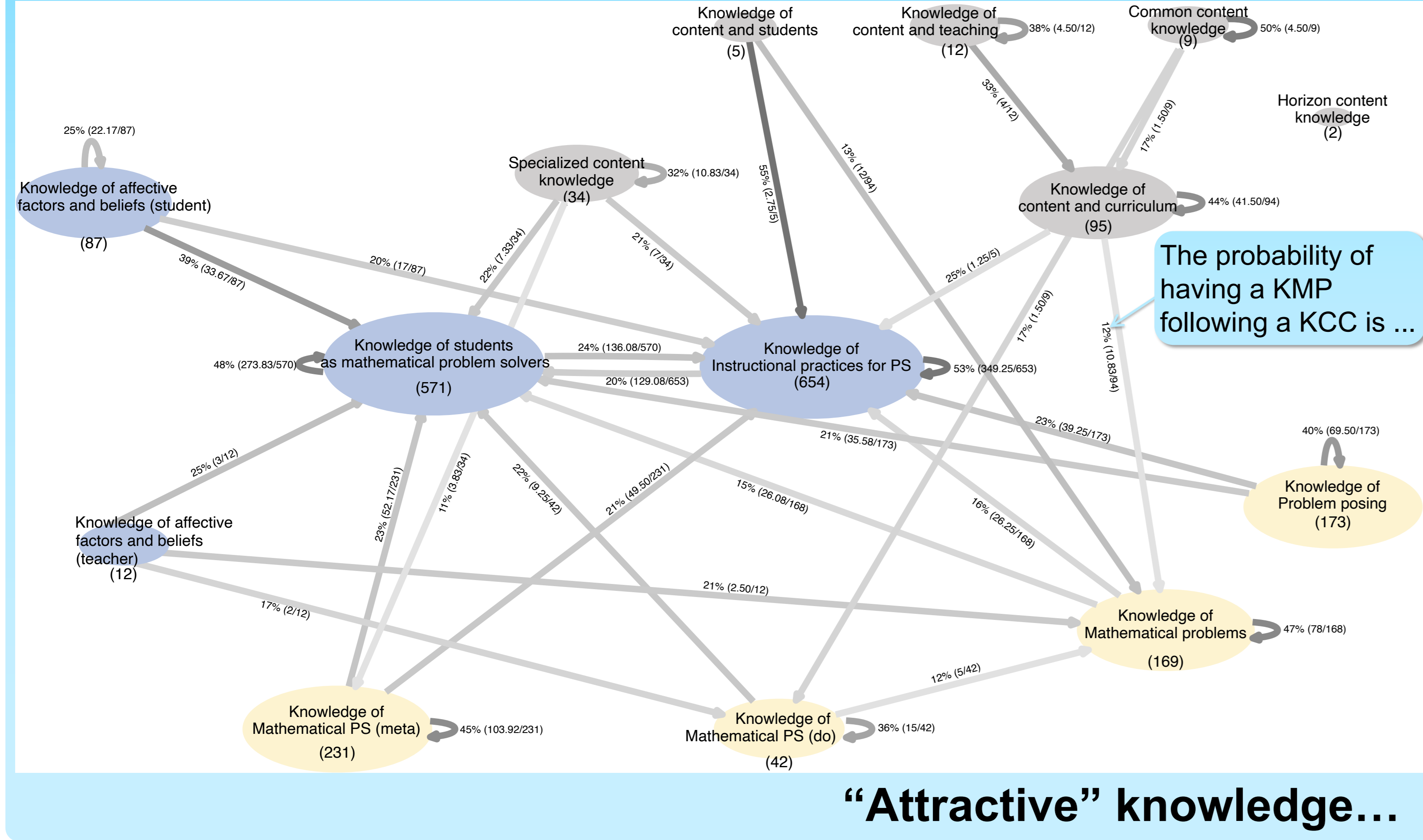
## Theoretical framework



## Research Questions and Results

### In what way is MKTPS built collectively during the LS process?

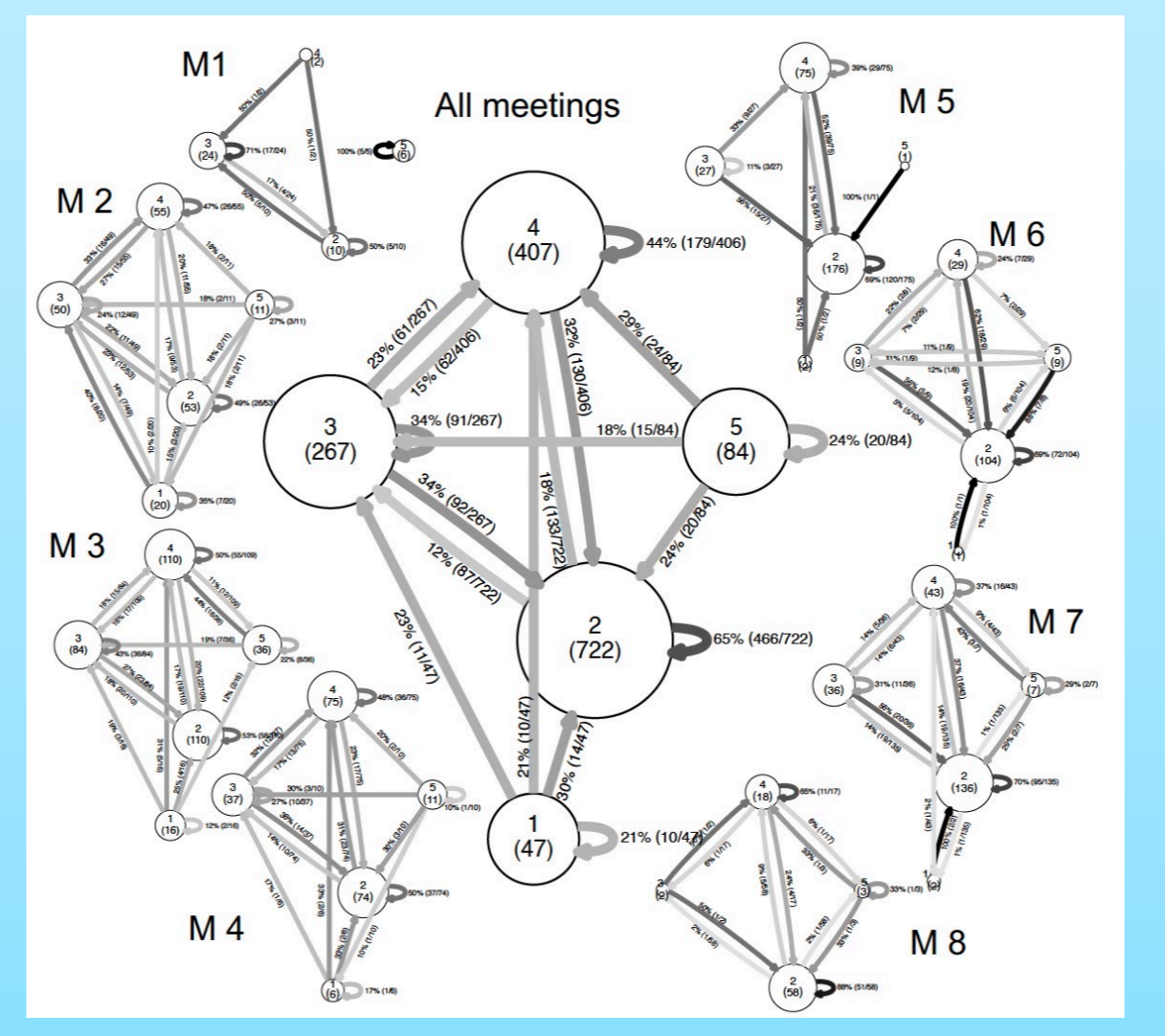
What is the MKTPS that emerges during each LS meeting?  
What are the transitions of MKTPS and those most represented?  
How does one MKTPS follow on to the next in the dialogue?



### Which knowledge levels are used during each LS meeting? Do they evolve?

In particular, what are the characteristics of the facilitators in terms of the levels of knowledge expressed?

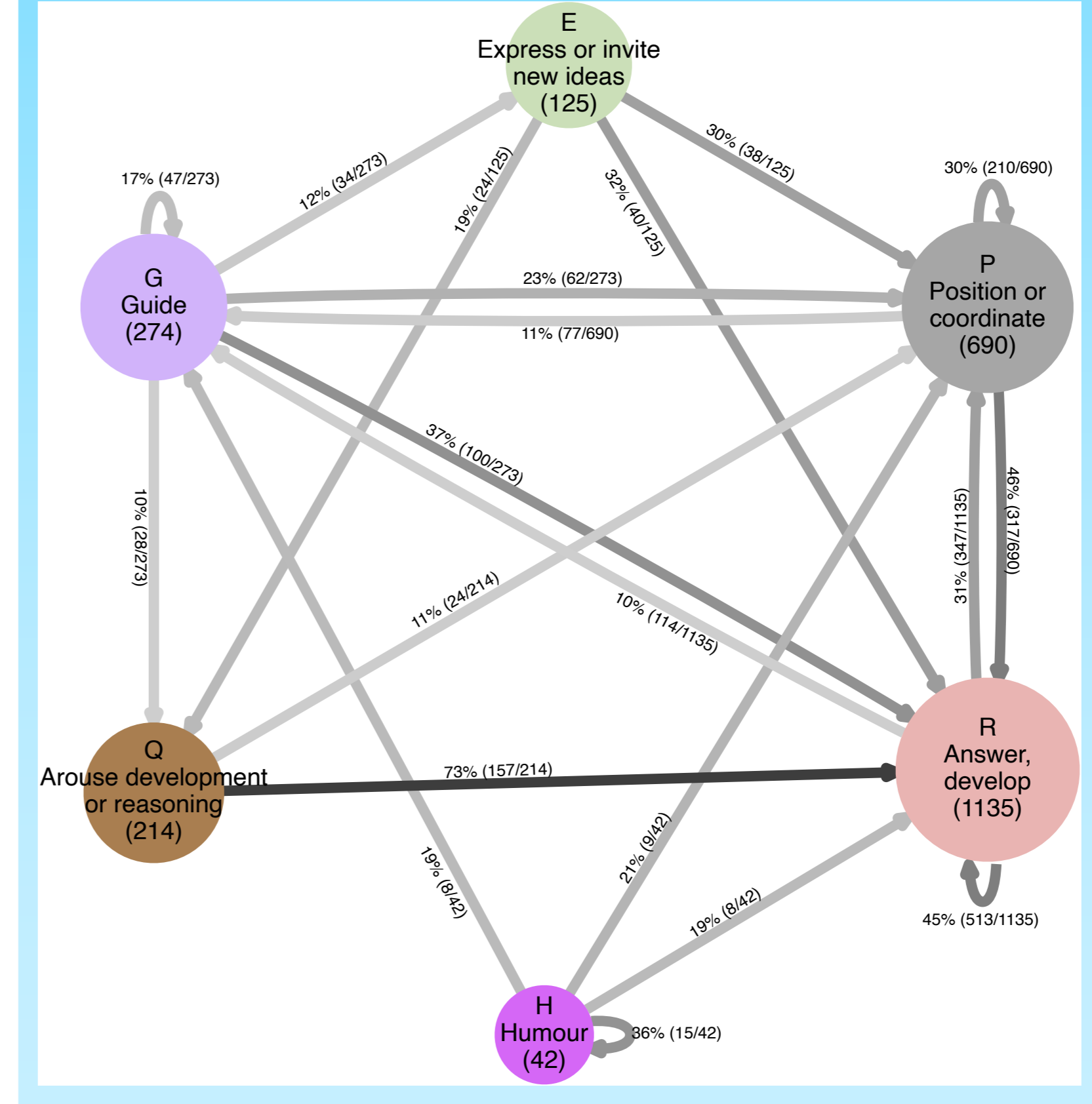
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T7	0.25	0.14	0.12	0.11	0.02
T8	0.00	0.03	0.01	0.02	0.01
Total	1	1	1	1	1



Different levels of knowledge, depending on the roles and the sessions.....

### What are the dynamics of the interactions?

In particular, which types of interactions during LS meetings characterised the facilitators compared to those of the teachers?



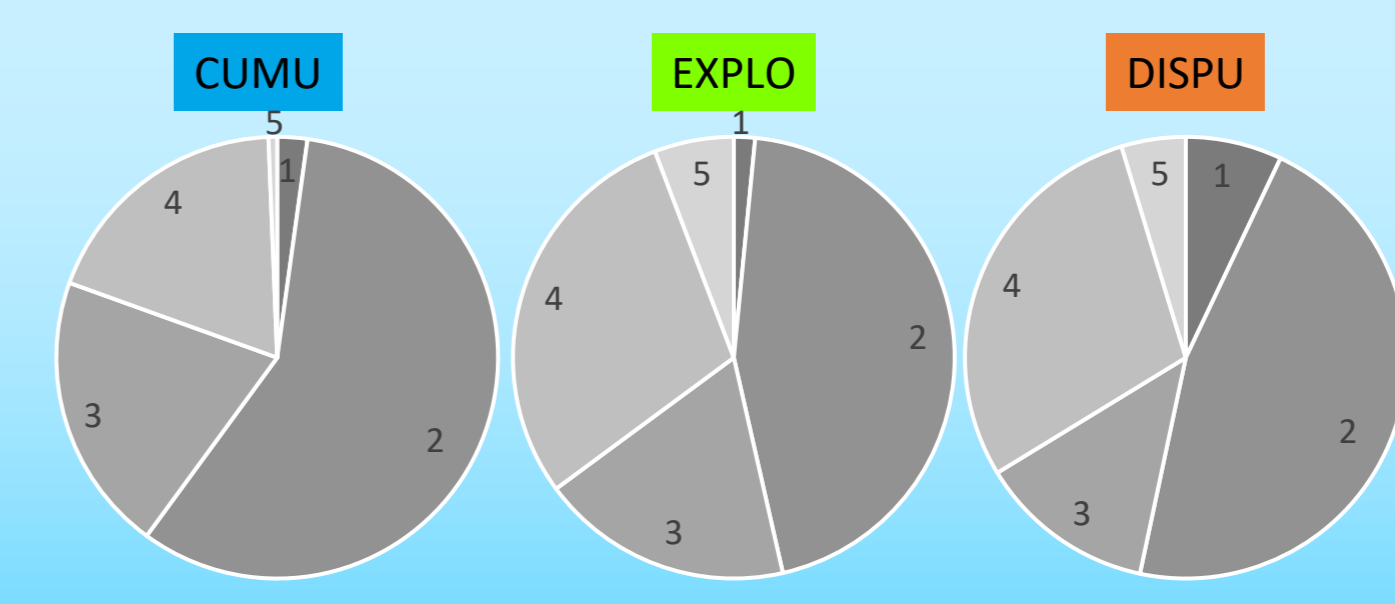
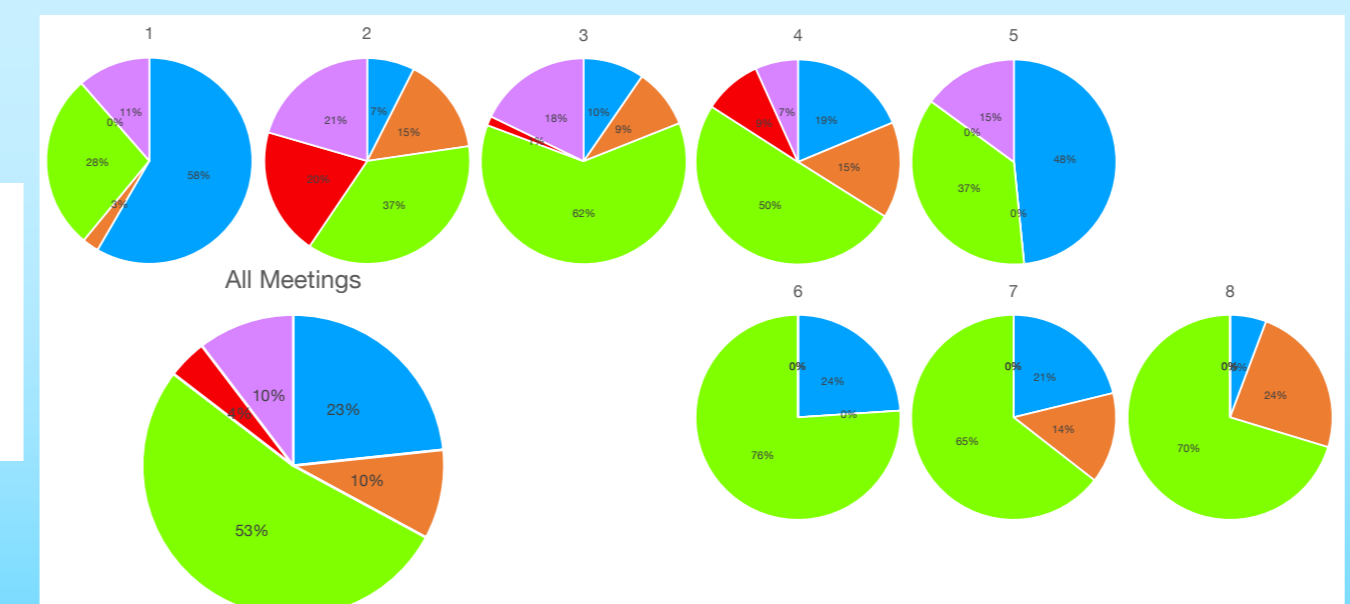
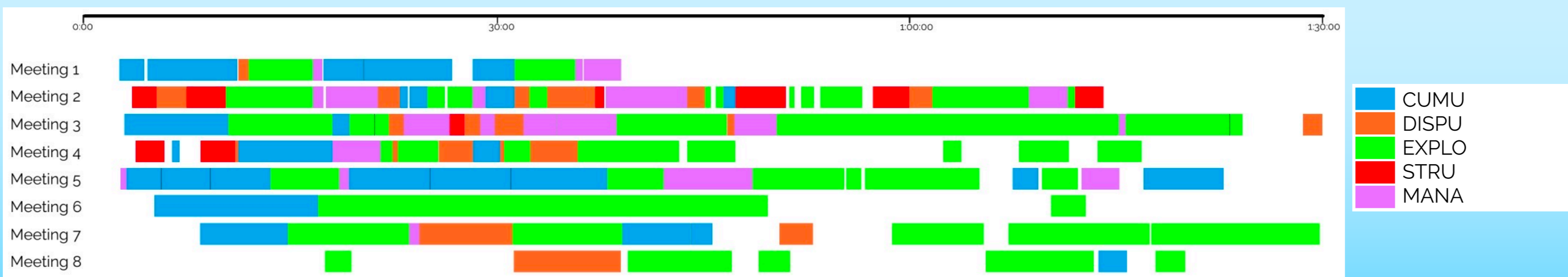
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T5	0.06	0.00	0.05	0.01	0.06	0.00	
T6	0.14	0.01	0.13	0.12	0.16	0.17	
T7	0.15	0.02	0.20	0.20	0.13	0.26	
T8	0.06	0.00	0.01	0.01	0.03	0.00	
Total	1	1	1	1	1	1	1
Average F1-F2	0.09	0.45	0.13	0.19	0.14	0.12	
Average T	0.10	0.01	0.09	0.08	0.09	0.08	
Total F1-F2	0.18	0.90	0.27	0.39	0.27	0.24	
Total T	0.82	0.10	0.71	0.61	0.72	0.62	

Movements in the dialogue...

### What are the types of talk?

Are they evolving?

Is the MKTPS building related to the type of talk?



Increase of exploratory talk... and its possible effect...

