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► **To cite this version:**

Michael J Baker. Epistemological questions for a psychology of dialogue. *Studia Universitatis Babeş-Bolyai Philosophia*, 2022, 67 (3), pp.11-24. 10.24193/subbphil.2022.3.01 . hal-03888658

HAL Id: hal-03888658

<https://telecom-paris.hal.science/hal-03888658>

Submitted on 7 Dec 2022

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This document is a **PREPRINT** version, before final corrections, of the following article:

Baker, M.J. (2022). Epistemological questions for a psychology of dialogue. *Studia UBB. Philosophia*, 67(3), 11-24. Babes-Bolyai University/Cluj University Press. DOI:10.24193/subbphil.2022.3.01

Epistemological questions for a psychology of dialogue

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ABSTRACT. Notwithstanding the magisterial work of the psychologists H. H. Clark and A. Trognon¹, in comparison with sociology and linguistics a veritable psychology of dialogue still remains little elaborated. This paper analyses epistemological obstacles facing such an enterprise, arguing that dialogue can not be understood as a 'window' on the individual mind. A vision of dialogue as a process of collective thinking, with the exchange as the fundamental unit of analysis, is sketched out. Dialogue is a complex system, involving multidirectional relations between situational representations, communicative action and emergent thinking.

Keywords: dialogue, collective thinking, interaction analysis, methodology, complex systems

Introduction

In *Phénoménologie de la perception*, Merleau-Ponty (1945, p. 407) describes the "experience of dialogue" as follows²:

In the experience of dialogue, a common ground is created between the other and myself, my thinking and that of the other make up only one woven cloth, my proposals and those of the interlocutor are called forth by the state of the discussion; they fit into a common operation of which neither of us is the creator.

This description probably resonates with our experience of an ideal dialogue that was enriching and personally satisfying. However, for an empirical psychology of dialogue, the study of the phenomena evoked by Merleau-Ponty faces several problems.

The first question concerns the nature of the "common ground", and the jointly woven "cloth" (discourse?). The classic problems relating to mutual knowledge arise here, of an infinite regress of the type "I know that you know that I know that you ..." (Clark & Marshall, 1981). For Clark and Shaefer (1989), the common ground is the set of mutual beliefs concerning meanings that have been negotiated in dialogue, to a degree of precision that is considered sufficient for the ongoing purposes. The theory of interactive alignment (Pickering & Garrod, 2004), in

¹ See the references to the work of both these authors at the end of this paper.

² Our translation from the original French.

eschewing cognitive notions such as “mutual belief” in favour of behavioural mutual adjustments, comes closer to the idea of a jointly created publicly available discursive ‘cloth’.

Secondly, how are we to understand what it means for the proposals of each to be “called forth” by the state of the discussion? Does this mean that the thoughts expressed in dialogue are specific to it, situated within it? To what extent do they represent individuals’ thoughts independently of a specific dialogue context? To paraphrase the title of Edwards’ (1993) paper “what do children really think?”, how can we know what people “really think”, or thought, when their words are situated in social interaction? Is this even a meaningful question?

Thirdly, what does it mean to speak of a “common operation”, of which “neither of us is the creator”? What is joint communicative action? What is *emergence* of thinking from dialogue, presumably not reducible to a function of individual thoughts?

This paper therefore raises and discusses the following basic epistemological questions: what is the nature of the object of study of a psychology of dialogue (thinking in/by dialogue)?, and how can it be known (with what empirical, analytical methods)? These questions are of particular importance for developmental psychology, in the light of the research of Vygotsky (1934/1986) and also for collaborative learning research (Dillenbourg, 1999) on the interactive dynamics of small groups of learners.

Nevertheless, if one considers the bulk of research on verbal interaction, conversation, dialogue, from the 1960s onwards, these basic epistemological and psychological questions have generally been avoided. On one hand, neurological, behavioural, conversation analysis and situated cognition approaches aim to eliminate from consideration the psychological subject in dialogue. On the other hand, a broad variety of research in educational psychology, and particularly on “students’ conceptions” of science (Driver, et al., 1985), considers interactions in small groups as expressions of individuals’ thinking – a view that I argue, below, to be untenable. Dialogue may even be seen as a type of method, for bringing individuals to make their thinking explicit, rather than as an object of study in itself. A psychology of dialogue therefore needs to find a way between these alternatives: elimination of the psychological subject in dialogue, or else an untenable individualistic view of it.

In the rest of this article, I shall argue that dialogue is not a window on the individual mind. It is not a ‘window’ at all, even on the collective mind. Rather, it is a process by which minds meet and intertwine, in accordance with Merleau-Ponty’s intuitions. Methodological considerations are discussed, relating to the cognitive unit of analysis of dialogue, complex systems and thinking as an emergent property.

Dialogue and individual thinking

A broad variety of theoretical approaches in psychology argue against seeing dialogue primarily as a place where individuals communicate their (‘pure’) thoughts.

Within information-processing psychology, Ericsson and Simon’s (1985) “think aloud protocol method” was at great pains to establish that subjects’ verbal reports, whilst engaged in individual problem-solving, do directly reflect the contents of their working memories. However, the “structure of thought processes” would be changed (*ibid.*, p. 80-81) if subjects actually were or saw themselves as being engaged in a verbal interaction with another person, in order to explain their thoughts. In other words, when subjects are engaged with the experimenter or with each other, in a social interaction, or even *imagine* themselves to be, their utterances are not direct expressions of their ‘pure’ thought: can such a thing be found in social interaction?

The work of A.-N. Perret-Clermont and colleagues (e.g. Perret-Clermont, Perret & Bell, 1991) in post-Piagetian psychology of group problem-solving and cognitive development, argues that it

can not. They carried out a careful series of experiments in order to understand how social factors influence cognitive performance, concluding that children's activity could not be understood as a purely cognitive attempt to solve a problem, but was also, indissociably, an attempt to understand the meaning of the task within social interactions, with peers or the experimenter. So-called individual testing is itself a complex social interaction, as the child tries to decode the experimenter's expectations. "As a consequence, it is no longer possible to decide a priori if a competence is purely cognitive or also involves the social competence of displaying that behaviour. Intelligence, then, can be considered as intrinsically a sociability." (ibid., p. 55).

In his paper entitled "But What Do Children Really Think? Discourse Analysis and Conceptual Content in Children's Talk" (1993), Edwards takes an even more radical stance, within a discourse analysis and discursive psychology approach. In the first instance, an attempt to defining students' concepts by appealing to cognitive states prior to or underlying their discourse is rejected. Secondly, he claims that the study of students' discourse is sufficient to understand their conceptualisations; therefore, appeal to what is beyond or behind discourse is unwarranted: dialogue is not a window on the mind.

To enter into communicative interaction, dialogue, is to enter into a process of multimodal mutual influence: changing whilst exchanging (Kerbrat-Orecchioni, 1992). That influence concerns not only the other interlocutors, but also the attempt to understand and adapt to the demands and constraints of the social situation. If a dialogue *has* taken place, then it can not be meaningfully analysed into separable monologues. The individual communicative act and its underlying thought(s) is therefore, arguably, not the relevant unit of psychological analysis of dialogue. To express this point another way: the object of psychological study of dialogue can not be the thoughts of individual interlocutors.

The unit of analysis: the negotiation of meaning and knowledge

What is, therefore, the basic unit of analysis of a psychology of dialogue that avoids the individualistic pitfall outlined above? In order to advance with this question, we need to move away from a vision of *meaning* as expressed in dialogue, as something underlying an individual speech act or communicative act. With the use of "primitive forms of language" involving calling out words such as "block" and "pillar", interwoven with actions into language-games, Wittgenstein (1958/1978) illustrated that the question is how those one-word utterances are used, not what they might mean for individual people, in their heads (ibid., 3e). Thinking is not 'behind' language production, it is not a separable element of it: "Thinking is not an incorporeal process which lends life and sense to speaking, and which it would be possible to detach from speaking, rather as the Devil took the shadow of Schlemiehl from the ground" (Wittgenstein, 1958/1978, 109e, §339).

How can "thinking" be defined in a way that is credible, with respect to its dialogical manifestations? Within a discursive psychology approach, Harré and Gillet (1994) make a relevant distinction between "cognition" and "thinking". Cognition refers to all that happens between sensory input, memory storage/retrieval and action. Thinking is that part of cognition for which people are able to give a verbal *account*. From a quite different perspective, Bakhtine (1977/1929) also calls into question the idea that producing a discourse is a matter of individuals formulating thoughts then finding linguistic means for expressing them. In speech, we constantly re-use, "ventriloquate" discourses already circulating in society: each individual does not invent them.

Considered in isolation, the single intervention (move, and speech acts composing it) in a dialogue has a meaning that is underdetermined: it takes on a more intersubjectively

determinate meaning in the context of the exchange, the smallest dialogical unit of analysis (Moeschler, 1985). Utterances in dialogue are inherently multifunctional (Bunt, 1995) and may even involve strategic indeterminacy (Edmondson, 1981), to leave room for multiple ways of understanding, thus attenuating possible interpersonal conflicts. What are of relevance are therefore *shared meanings*, as *negotiated* within the exchange structure.

Sorsana and Trognon (2005, p. 33) represent such negotiation of meaning as shown in the diagram of Figure 1.

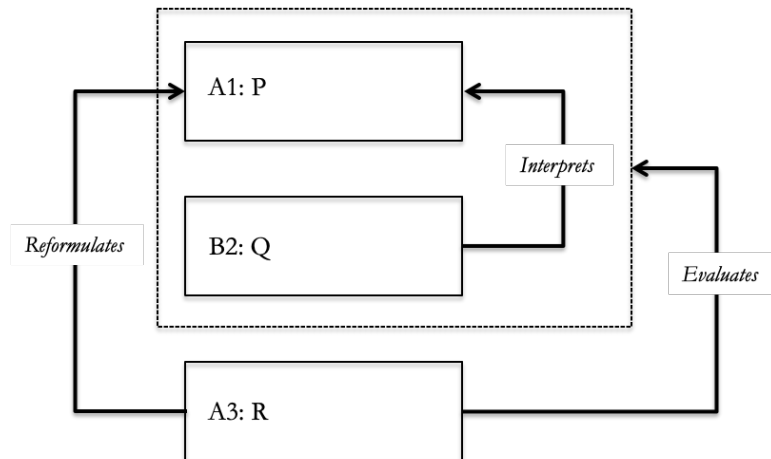


Figure 1. The basic structure of negotiation of meaning in an exchange structure (redrawn from Sorsana & Trognon, 2005, p. 33).

In turn 1, speaker A utters P. In turn 2, by uttering Q, speaker B presents an interpretation of P. This interpretation is evaluated (ratified or not) by A in turn 3, who thereby also reformulates his or her original utterance in turn 1. Within a hierarchical-functional model of dialogue (see Moeschler, *ibid.*), each element of this ternary structure can be expanded recursively — for example, in Figure 1, B2 can be expanded into a ternary exchange structure involving a clarification question concerning A1:P, that may then be answered and ratified, and so on. The object of psychological analysis is therefore the meanings that are *co-constructed* and *locally stabilised* within exchange structures. This is publicly available as the shared ‘woven’ discourse, evoked by Merleau-Ponty (see above).

Processes of negotiation of *meanings* of utterances are constitutive of all communicative interactions. But in certain such interactions, such as those produced in collaborative problem-solving situations, the negotiation process goes further, concerning the *discursive object*, the shared problem *solution* that is being co-elaborated.

Consider the following extract (Table 1) from a dialogue between two 16-year old students, in a physics classroom, trying to understand energy storage, transfer and transformation in a simple electrical circuit where a bulb is linked to a battery by two wires.

Line N	Adam	Beatrice
146	right then the transformer me it's that notion of transformer! the battery ... wait wait ...	
147		it's the one that receives and transforms the energy me that's all I can think of
148	right that transforms the energy and gives out the light ok ? perfect so it's the bulb	
149		it's the bulb the filament in fact ...
150	ah yes it's true that there is right you have to contain to take account of	
151		in fact there are the what do you call that the thingie because it's that in fact that receives it's the filament that transforms that transforms the energy produced by the battery in light energy it's the filament
152	no wait ... the filament receives the current ...	
153		no the filament produces the current it receives the current and produces the light
154	Right it receives the current therefore it produces light uhh so it transforms the energy into light	
155		yeah

Table 1. Extract from physics collaborative problem solving dialogue³

In line 147, and in each successive turn, the students make manifest how they have understood the previous utterances (the negotiation of meaning). They also successively build on each other's contributions, to co-construct a shared discourse that could be glossed as "the filament of the bulb receives energy from the battery and transforms it into light" (the negotiation of the shared solution, discursive object). The processes of knowledge co-construction can be analysed in terms of the realisation of a set of *cognitive-linguistic operations* (Grize, 1982; Vignaux, 1988). For example, in line 147, Beatrice's utterance renders Adam's previous statement more *specific*: transformer (battery) → transforms (battery, energy) (see Baker, 1994, 1995, for a typology of such operations). Similarly, in line 149, Beatrice makes Adam's previous utterance more *precise*: bulb → filament (of bulb). I propose that this co-elaborated shared discourse corresponds to the "one woven cloth" intuited by Merleau-Ponty. Its elaboration goes hand in hand with the negotiation of meaning, to produce the "common ground". This theoretical vision is similar to that of Allwood (1997), who analyses "dialogue as collective thinking" as a process of incrementally building up a conceptual structure. In epistemological terms, there are two ways of seeing such operations in dialogue: as "traces" of thinking, that are in some way incomplete expressions of underlying thought, or as simply the thought processes themselves, with what may or may not have underlain them being excluded from analysis.

³ The dialogue has been translated from the original French by the author. Students' names have been changed. Further details on this dialogue extract can be found in Baker (2001).

The students are clearly searching, exploring together here: neither is really sure of the answer. This has implications for how we understand their shared thinking in such cases, notably in terms of *cognitive attitudes*, such as “belief”, that classically underlie assertive speech acts (Searle, 1969) and presuppose the ability and willingness to justify such beliefs. If we subscribe to the model of collaborative problem-solving dialogues as multidimensional *negotiations* — not only on the levels of meanings and knowledge, but also with respect to discourse genres, interpersonal relations, emotions, ... — then the primary speech act (that becomes a dialogue act, in context) is the proposal, not the assertion. And what underlies the a proposal is the attitude of conditional *acceptance*, in other words, to propose p is to say “I will accept p if you will” (Airenti et al., 1989). The philosopher of language J.L. Cohen, in his *Essay on Belief and Acceptance* (1992), introduced a clear and operational distinction between belief and acceptance, whereby belief is a disposition to feel, acceptance a policy for reasoning. To accept what the interlocutor says in dialogue is to take it as a premise for future reasoning. This has an individual attitudinal aspect, but also a public one: to accept is to do so publicly. This is what classically closes the exchange in interaction: one speaker accepts (e.g. “ok”), a second accepts (or more than one speaker, in polylogues), and the first speaker ratifies that acceptance. We arrive here, therefore, at a preliminary conception of joint thinking in dialogue, as the result of the negotiation of the interpersonal relation, of meaning and knowledge, that is mutually accepted. But what is dialogue, concretely, as an object of research?

The materiality of dialogue: corpus, analysis and interpretation

Before the existence of reasonably portable audio and video recording devices, researchers analysed group activities by checking boxes on a pre-defined grid (pencil and paper), without the possibility of going back, unless of course it was thought that analyst’s memory could be trusted. In that case, dialogue as a material object was experienced and analysed in real-time.

Recordings change this, since the analyst can look backwards and forwards in the data, as many times as might be wished for. Nowadays, analysis can be performed directly on video recordings, using software such as ELAN or TRANSANA, for coding time-stamped segments. What is also changed is the fact that making a video recording involves making choices already at the data gathering stage, of what should be recorded or not.

A step further in abstraction from the data is made once a *transcription* of the data is made. What should be transcribed or not? Conversation analysis appears to aim to transcribe almost every feature of the verbal channel, including, for example, hesitations, overlaps, intonation contour, pronunciation, and so on. Obviously, this goes beyond the purely verbal channel, since posture, gesture, facial expressions, and so on, all contribute to the meaning of the ‘total utterance’ (embodied cognition). But it is a priori impossible to transcribe ‘everything’; so ‘dialogue’ as it is transcribed and reconstructed for research purposes, depends on the objectives and theoretical framework.

With such theoretical choices of what to focus on, implied by transcription, dialogue becomes a type of reified *text* for analysis. However, Bouchard (1988) has pointed out that if dialogue becomes a text, it should rather be seen as a *palimpsest*, a text that is rewritten continuously in dialogue, as participants reinterpret what has been said. With dialogue as a text, it becomes possible to analyse it, for example, in terms of fixed hierarchical and functional structures, using the Genevan model (Roulet, et al., 1985; Moeschler, 1985). But, what would an analysis be like that is *dynamic*, in the sense of the interactive dynamics of thinking in dialogue?

Finally, in research on dialogue and thinking, it is necessary to ask who does the analysis, what is the relation between analyst and what is being analysed. What does it mean to analyse, rather than to interpret.

To “analyse” means “to unravel the bonds that tie components of something together”, (ἀναλύω). The term became influential in European languages during the 19th century, thanks to chemistry, notably the work on systematic elemental analysis of Justus von Liebig (1803 – 1873). Most schoolchildren have used the Leibig condenser to analyse or separate out solids from liquids (e.g. sodium chloride and water). How can this idea, originating in the physical sciences, be applied to human and social sciences?

The first point is that in analysis of a substance into its components, the latter have different properties from the former: water is a liquid; when analysed, two gases (oxygen and hydrogen) are produced. Therefore, when an interaction between students is analysed into its components, these may also have different properties from the original analysed; an exchange will have some properties that its component communicative acts do not have, and vice-versa. If a dialogue is analysed into separate monologues, each will not have the properties of the dialogue; we have to take into account the relations between the elements.

In order to close the reductionist gap produced by analysis, between initial object and analysed components, *interpretation* of the analysed data is required. To interpret is to achieve understanding and agreement in communication (inter- φράζειν, “to point out, show, explain, declare, speak”. It explicitly refers to a *relation* between the interpreter and what or who is being interpreted. Since I am a human being myself, I have empathetic access to a realm of understanding of interactions between other human beings in a way that I do not have with respect to interactions between two physical objects. For some researchers, it is the researcher who interprets; for others, this is the outcome of a dialogue between the researcher and the object (=subject) of research.

Interpretation is not necessarily pure subjectivity: alternative interpretations can be validated or not, by other researchers. Researchers in anthropology, such as Geertz (1973) and Latour (2010) consider that the achievement of a commonly accepted understanding of human interaction requires combining *multiple* interpretations, that Geertz (ibid.) terms “thick descriptions” and Latour, the weight of accumulated interpretations over historical time, analogous to Biblical scholarship.

In relation to the above discussion, how can the dynamics of situational understanding, dialogue and thinking be theorised?

Complex systems: situation, dialogue and learning

Not all psychologists working on analysing interactions between people ask the epistemological questions that have been mentioned above, concerning individual and collective thinking. What might be termed the “standard approach” in psychology is essentially a matter of developing and applying a set of (mostly) behavioural codes to the interaction (see Bakeman & Gottman, 1997). For example, if a research hypothesis states that the children in groups who “attend most” to others will have significantly higher learning gains, then only two behavioural codes might suffice: ATTEND (subcodes: gaze, speech, gesture), and NOT_ATTEND.

In the domain of collaborative learning, what has been termed the “interactions paradigm” (Dillenbourg, Baker, Blaye & O'Malley, 1996) aims to discover the “types of interaction” that are most highly correlated with learning gains. There is an underlying linear (causal?) schema here, whereby characteristics of certain situations engender certain types of interactions, that in turn produce new knowledge as “effects”: situations → interactions → knowledge (effects). Examples of such “types” of interaction would be argumentative interactions (see e.g. Muller Mirza & Perret-Clermont, 2009) and co-construction, corresponding to the kind of dialogue sequence shown in Table 1 above.

However, such a linear model is inherently flawed; and understanding why will have important epistemological consequences. The first problem resides in the concept of “situation”: as Perret-Clermont and colleagues (1991) put it, with respect to Piagetian conservation tasks, “... subjects derive meaning from the *experimental social history* that they have undergone ... there is no ‘dolls’ or ‘glass’ effect as such, but rather a complex interaction between the sociocognitive components of the experimental episode and the characteristics of the staging of the operatory notion that is presented to the subjects by the task” (pp. 54-55). Experimental or other situations are not static and defined once and for all by the researcher; their meanings are constructed by subjects and co-constructed by them dynamically, when they enter into interaction. In that case, the element “interactions” influences the nature of the element “situations” — the influences are bi-directional (situations \leftrightarrow interaction) —, for example, the situational definition of the problem to be solved is commonly renegotiated in the interaction between, problem-solvers. Consider now the relations between interactions and knowledge ‘produced’ by them. As knowledge of the task, but also of each other (see the discussion of grounding, above), this in turn transforms, ‘backwards’ the nature of the interaction (interaction \leftrightarrow knowledge). It appears that the linear model is flawed: situation, interaction and understanding/knowledge are mutually dependent on each other.

Such bidirectional influences are part of the definition of *complex systems* (Arrow et al., 2000; Pavard, 2002). Complex systems are only predictable within a limited time-window, beyond which their behaviour may become chaotic. Such a view resonates with research that argues for the necessity of taking different timescales into account, in order to understand collective activity and learning (Lemke, 2000; Ludvigsen et al., 2011). What is required is, as argued above, to understand the *processes* of thinking in and by dialogue, not so much their “effects” in specific situations, but rather their more or less stable development across dialogical situations (Greeno et al., 1998). *Emergence* is a second property of complex systems. Thus thinking should be seen as emerging from dialogue by a non-linear process. As Grossen (2010) puts it, echoing Merleau-Ponty (see above), in dialogue “we are faced with an original product, that belongs neither to one speaker nor to another”.

Concluding remarks

A psychology of dialogue does not simply correspond to research carried out by psychologists, on dialogue. The majority of such work either sees verbal interaction between subjects as a convenient and ecological way for them to make their thinking explicit, or else searches for patterns of discrete behaviours, to be correlated with outcome variables, such as cognitive progress or task performance. As I have defined a psychology of dialogue, here, its aim is to understand the complex multimodal processes by which collective thinking is engendered in and emerges from dialogue. This short paper has surveyed a number of theoretical and methodological questions and obstacles that may arise on the way towards such a psychology.

Although I have sketched out a vision of collective thinking as a mutually accepted shared discourse, co-constructed by discursive operations, this does not dispel what could be called the “mystery” of dialogue, as defined by the philosopher Merleau-Ponty and the psychologist Grossen (op. cit.), of the original idea that seems to come from nowhere. Thoughts may emerge that are not readily analysable in terms of the discursive operations that have been performed, moving backwards, as it were, to the original ideas.

Learning in and from dialogue can be unpredictable: it may occur within seconds, during the dialogue itself, or it may be that the dialogue continues to resonate within and transform people on a much longer timescale. This raises interesting epistemological questions.

Acknowledgements

I would like to thank Dr. Anda Fournel and Dr. Jean-Pascal Simon, of the Université Grenoble Alpes, for having stimulated me to write these reflexions. A much earlier version of them were first communicated during a keynote speaker lecture that I gave, during a meeting of the EARLI SIG 17 "Qualitative and Quantitative Approaches to Learning and Instruction" (Friedrich-Schiller-University Jena, 2-3 September 2010), an unpublished transcript of which was distributed to participants. This research is financed by the CNRS.

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