Exchange Structure: Refinements to the model through a study of multiparty discourse of 4 to 5 year-old children

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This paper proposes a number of refinements to the original theory of Exchange Structure as first conceived. It first offers a summary of the early ideas and considers challenges made by others. The study responds to these challenges through new analysis of multiparty discourse. The paper discusses revisions to the model based on these challenges drawing on the iterative analysis conducted and considers other points relevant to multiparty discourse. The data is drawn from transcribed video recordings of small groups of 4 to 5 year-old children's peer-led dialogic interactions as they engage in role-play. In addition to the development of Exchange Structure theory, this new analysis sheds light on the nature of negotiation within multiparty discourse and the dynamics of negotiation by young children in this playful context.

Keywords: Knowledge negotiating, Action negotiating, Exchange Structure, children's language, multiparty discourse, role-play

1. Introduction

The paper aims to propose a number of refinements to the original theory of Exchange Structure as first conceived by Berry (1981a, 1981b) by considering and addressing suggestions and challenges made by others, notably Kimps *et al.* (2019); Martin *et al.* (2009), Muntigl (2004, 2009), Rose (2014) and Zappavigna & Martin (2018), and by an iterative approach to the analysis of multiparty discourse. The new analysis draws on data collected in connection with Mukherjee (2016a), a school-based study of children's classroom role-play. The paper will draw on the data and begin to shed light on the dynamics of negotiation in this context, but in the main it exemplifies the model's refinements.

As context, the paper will firstly provide an overview of the original model of Exchange structure (Berry 1981a, 1981b, 2016a, 2017), followed by the methodology of the data collection. We will then address the challenges to the model, drawing on relevant examples in data from other studies, and use new data analysis exploring the discourse of young children.

2.   A metafunctional model of the exchange

Berry (1981a, 1981b) proposed a metafunctional model of the exchange analogous to Halliday's metafunctional account of the clause (e.g. Halliday 1985; Halliday & Matthiessen 2014), developed further in Berry (2016b, 2017). The model is designed to show how an exchange unfolds, indicating what choices are available to speakers at each point in the unfolding. The choices made by the speaker, e.g. who initiates the exchange, are particularly important as these set up expectations for the rest of the exchange, expectations related to each of Halliday's main metafunctions, viz. textual, interpersonal and experiential.[1] The model also accounts for occasions when the expectations are not met, in the form of 'queries', which delay the expected course of the exchange, and 'challenges', which prevent the exchange from reaching its expected end. The proposed structures are intended to show what is expected at each metafunctional layer.

For the textual layer the model takes Sinclair & Coulthard's (1975) Initiation-Response-Feedback (IRF) structure. For example:

(1)   Teacher: Do you know what we mean by accent I
       Pupil: It's the way you talk   R
       Teacher: The way we talk   F
       (Sinclair & Coulthard 1975: 48)

This seems to be the most basic exchange structure onto which other layers of structure can be mapped. As in Halliday's textual layer for the clause, beginnings and endings are particularly important. Who opens an exchange? Who closes an exchange? Do interactants have equal access to these options, or does one interactant predominate?

The interpersonal layer has to do with the roles that the interactants adopt in relation to what is being negotiated: for knowledge/information negotiating

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1. For Halliday, the experiential metafunction and the logical metafunction together form the ideational metafunction. The experiential metafunction is particularly relevant to relations within the clause, while the logical metafunction is particularly relevant to relationships between clauses.

exchanges the roles are 'primary knower' and 'secondary knower'; for action negotiating exchanges the roles are 'primary actor' and 'secondary actor'. The speaker who initiates the exchange casts the roles.

(2) Fay: Because Roman lives in Denning Road also? I k2
      David: Yep   R k1
      Fay: Oh   F k2f
      (Eggins & Slade 1997/2006:172)

Here Fay has cast David as the primary knower, with herself as secondary knower. David accepts the role of primary knower and replies suitably. Fay then produces a follow-up move (k2f) to round off the exchange. An initiating speaker who casts themselves as primary knower has a further choice. They may straightaway produce the relevant bit of information, as in (3), leaving the secondary knower nothing to do but accept the information (again k2f).

(3) Server: So you'd be looking at a 160   I   k1
      Customer: Right   R k2f
      (Ventola 1987:113)

Or the initiating speaker who assumes the primary knower role may delay declaring their knowledge until they have discovered whether the secondary knower knows it as well.

(4) Quizmaster: In England, which cathedral has the tallest spire? I dk1
      Contestant: Salisbury   R k2
      Quizmaster   Yes   F k1
      (From a television quiz programme)

The initiating speaker, the quizmaster, knows perfectly well that he knows the information – he probably has it written on a piece of paper in front of him! But he delays playing the primary knower role until he has discovered whether the contestant, the secondary knower, also knows it. In this case he does. The quizmaster then, in his primary knower role, confirms the information. The confirming move is thus the k1 move: dk1 k2 k1 (d stands for 'delay').

Action negotiating exchanges work in much the same way as knowledge negotiating exchanges, but with the roles of primary actor and secondary actor. The most important moves are as in Example (5):

(5) Geoff: Another round? I da1
      Friend: Ta.   R a2
      Geoff: [Gets drinks] R a1
      Friend: Cheers.   F a2f

Geoff is the primary actor who is actually going to get the drinks (a1). However, he delays doing this (da1) until he has discovered whether the action is acceptable to the second person involved (a2). After Geoff has brought the drinks, the secondary actor acknowledges the action and rounds off the exchange (a2f).

The actual physical action is the crucial move of an action exchange. If this does not happen, the negotiation has not been successful. The action may optionally be accompanied by some language. Martin & Rose (2007: 236) give the example of a waitress saying "Your wine, sir" while pouring out a glass. If the action is not to take place for some time, then some form of language or equivalent (okay or a nod) becomes obligatory, in order to signify that the intended primary actor will carry out the action when the time is appropriate. Figure 1 shows the main options available to the initiating speaker.
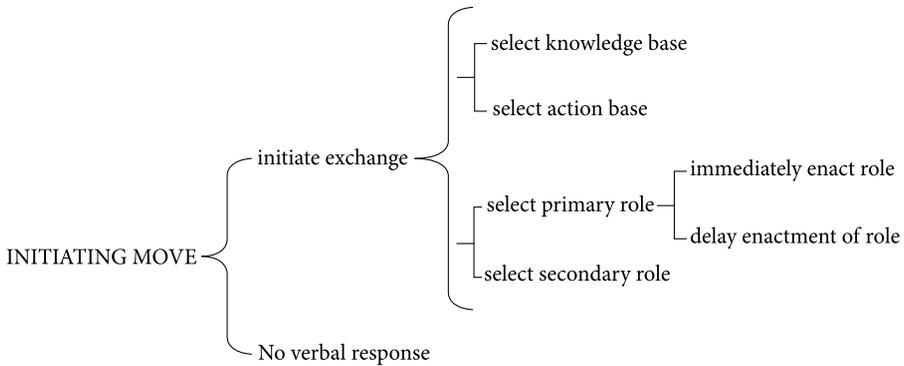

Figure 1. The main interpersonal options available to the initiating speaker

The experiential layer of structure has to do with the propositional content and the way in which this is distributed through the exchange. In Example (4), repeated below as Example (6), the quizmaster provides what the model calls a 'propositional base' (pb). He has indicated what the propositional content of the exchange is to be, although the *wh*-word indicates that something is at present missing from the proposition. The contestant completes the proposition (pc). The quizmaster then accepts and supports the proposition (ps).

(6)   Quizmaster: In England, which cathedral has the tallest spire? I dk1 pb
      Contestant: Salisbury   R k2   pc
      Quizmaster   Yes   F k1   ps

Example (2), although differing from (4) in its interpersonal structure, has the same experiential structure, viz. pb pc ps. In this case what is missing from the propositional base is its polarity. David provides this (pc) and Fay then accepts

(ps). In Example (3), repeated below as Example (7), the server straightaway provides a completed proposition (pc). The customer supports this (ps).

(7) Server: So you'd be looking at a 160   I k1 pc
     Customer: Right   R k2f ps
     (Ventola 1987: 113)

In an action negotiating exchange, what is being negotiated is an action rather than a proposition. Kimps *et al.* (2019) suggest that the relevant experiential functions should be named 'action base' (ab), 'completed action' (ac) and 'action support' (as).[2] In Example (5), repeated below as Example (8), the primary actor proposes an action (ab), the secondary actor agrees to the action, confirming the action base (ab), the primary actor carries out the action (ac) and the secondary actor then supports this (as).

(8) Geoff: Another round? I da1 ab
     Friend: Ta.   R a2   ab
     Geoff: [Gets drinks] R a1   ac
     Friend: Cheers.   F a2f as

The model assumes that an exchange lasts as long as the same proposition or the same action, i.e. the one that has been introduced in the initiating move, is being negotiated. This will be discussed further below.

As we have said, the model also recognises 'queries' and 'challenges', thereby making provision for occasions on which the discourse does not run entirely smoothly (see Berry, 1981a, 2016b, 2017). A query interrupts the expected course of an exchange. After the query has been asked and answered, the exchange can resume its course. A challenge, on the other hand, aborts an exchange. To exemplify, let us imagine some variations on Example (8). Suppose Geoff has offered another round and his friend has accepted, but Geoff needs further information, as in (9):

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2. Berry (2017: 272) named these functions 'proposal for action' by primary actor (ap), 'wish for action' by secondary actor (aw), 'carrying out of action' by primary actor (ac), 'support for action' by secondary actor (as). The names used by Kimps *et al.* (2019) are probably better. As they point out, their names bring out the full parallelism between action negotiating exchanges and knowledge exchanges.

(9) Geoff: Another round? I da1 ab
     Friend: Ta.   R a2 ab
     Geoff: Same again?   I da1 q
     Friend: Please.   R a2 qr
     Geoff: [Gets drinks] R a1 ac
     Friend: Cheers.   F a2f as

The query (q), followed by query reply (qr), interrupts the exchange, but the action proposed by Geoff is eventually carried out and acknowledged. Suppose, however, that the friend had responded to Geoff's offer as in (10):

(10) Geoff: Another round?   I da1 ab
      Friend: No thanks, I'd better be getting home R a2   ch

In this example, the challenge prevents the exchange's expected completion, and the getting of drinks never happens (for more on challenges, see Berry 2017).

The summary above, apart from a few minor adjustments, presents the model as it was originally proposed. However, research has raised problems which entail further adjustments. Drawing on data from others' research and our own, we now turn to discuss (i) the problem of relations between action negotiating exchanges and knowledge exchanges; (ii) the problem of delimiting an exchange; (iii) the problem of what units of discourse carry the various forms of negotiation (exchanges, transactions, moves and acts); and (iv) the problem of what happens when an action is the responsibility of more than one of the interactants. We begin by outlining the data collection and analysis.

3. Methodology

The language data were collected in connection with Mukherjee (2016a) and are drawn from a corpus of 26 video recordings of children in five different social scenarios of role-play, and are between 15–20 minutes in length. In this new study, exchange structure analysis was conducted on four complete role-plays with four different groups of children in a 'baby clinic'. The data collection received a favourable response from the university ethics panel.

The school is a co-educational state first school in an ethnically mixed area in the South East of England. In consultation with the class teachers, fifteen 4 to 5 year-old participants were selected from the two Early Years (EY) classrooms. The children were organised into groups of three children, each with a mix of boys and girls. For these EY classes a small space within the area was dedicated to role-play, and video recordings were made in this area. It was furnished by the teach-

ers with different props relating to and supporting the scenarios; the 'baby clinic' included a doctor's kit, dressing up clothes, dolls, a play phone, paper and pencils. What one might expect to happen at a baby clinic was explored in a teacher-led class discussion, e.g. making an appointment, weighing the baby. However, the actual role-plays were conducted without the teacher present, and at times took place 3 to 5 days after this introduction. The children's names captured in the paper are pseudonyms chosen by the children themselves. The transcribed language includes the natural contractions of spoken English, thus the transcriptions reveal the children's childlike emerging grammatical knowledge, e.g. 'That's how hot her is.' (BC-EYC3).[3]

In terms of capturing the children's actions relevant for the exchange structure analysis, notes were made on the transcriptions against relevant utterances to record key actions in the role-play, for example, where one child handed another a form or where a prop was selected and used. These notes also included whether a question or statement was directed specifically at a single child or to the group. A full prosodic annotation was not detailed in the transcription. However, rising or falling tone and the impact on the speech function of an utterance was detailed through punctuation. For instance, a declarative with a rising tone as a question was noted by a question mark and by additional explanatory notes to capture the impact on the exchange. Close attention was paid to the recordings during the analysis to take account of prosody. All analyses were double coded and discussed by the two authors.

4.   Challenges and refinements to the model

4.1   The problem of relations between action negotiating exchanges and knowledge exchanges

Berry (1981a, b) recognised two different types of exchange representing two different types of negotiation – knowledge/information negotiating exchanges and action negotiating exchanges, each with its own typical structure. Recent work however has shown that these two types may not be quite as separate as was first thought. Martin, Zappavigna and Dwyer (Martin *et al.* 2009; Zappavigna & Martin 2018) have suggested that an exchange can be both a knowledge exchange and an action exchange at the same time. They show this in their analysis by double coding.

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3. Each data extract shows an identifier denoting (i) baby clinic BC; (ii) a differentiation between the two classes (EYC or EYM); and (iii) 1, 2, 3 group number.

(11) Convenor: Did you – Did you realise that this phone   I   k2   pb
                       was stolen?

      Young Person: [nods]   R   k1   pc

      Convenor: You did.   F   k2f   ps

      Convenor: So why did you take it if you realised it   I   k2   pb
                       was stolen?

      Young Person: [inaudible]

      Convenor: You need to tell us why you took the phone. I   k2 a2 pb

      Young Person: Because it was new.   R   k1 a1 pc

      Convenor: Because it was new.   F   k2f a2f ps
      (Zappavigna & Martin 2018: 150)

The first move of the first exchange is straightforwardly asking for information and thus is knowledge negotiating. So is the first move of the second exchange. However, the Convenor does not receive a satisfactory response to this and tries again, this time phrasing the request for information as if it were a request for action, the linguistic action of telling, with the obligation to carry out this action being imposed by *need to*. Zappavigna & Martin (2018) show both the knowledge negotiating character and the action negotiating character of the move by double coding the move and the exchange of which it is a part. For more on the reasons why Zappavigna & Martin do this, see Berry (2021).

An additional complexity in spontaneous dialogue is the function of utterances such as *please* and *okay* in an exchange. Martin *et al.* (2009) also find these complexities in their own data and cite the observations of Ventola (1987) and her work on service encounters, where she suggests that these can be usefully interpreted as "linguistic service" (1987: 116). These utterances are relevant in a discussion of double coding, as Ventola (1987: 116) points out that "what is requested is not the information but a linguistic act of giving the information".

Another example which has caused problems is Example (12).

(12) Mother: I I haven't got an objection to a ten-thirty phone and eleven-thirty
                 come in (1.3) seems half way between your present curfew and
                 your friends' some of your friends' curfew.

      Daughter: Yeah but it's it's still not, hhh (.8) what I like.

      Mother: Well, it's not exactly what <u>we</u> like.
      (Numbers in brackets indicate lengths of pause, in seconds)
      (Muntigl 2009: 237)

Muntigl analyses this as a knowledge exchange. He notes however that it is not really knowledge that is being negotiated. It is not the truth of propositions that is at stake. What is at stake is the daughter's future actions and the right to determine these. Berry (2021) suggests that Martin & Zappavigna's method of double coding might be usefully applied here, as in (12a).

(12a)	Mother:	I I haven't got an objection to a ten-thirty phone and eleven-thirty come in (1.3) seems half way between your present curfew and your friends' some of your friends' curfew.	k1 a2
	Daughter:	Yeah but it's it's still not, hhh (.8) what I like.	k2f Xa1
	Mother:	Well, it's not exactly what <u>we</u> like.	k1 a1 ch

(X indicates absence of expected move, agreement to carry out the proposed action, and ch indicates challenge.)
(Muntigl 2009: 237)

Here we have what is on the face of it a series of knowledge exchanges, but they are contributing to an action negotiation (for further discussion, see Berry 2021). The reverse is also possible. Rose (2014: 26–27) represents action moves as contributing to knowledge negotiations.[4] In (13), the teacher hopes to reinforce what has been learnt by the action she asks the students to carry out.

(13)	Teacher:	So Zac, can you tell me, what is this all about? What's the beginning there?	dk1
	Student:	'Water'	k2
	Teacher:	Water. Fantastic that's right.	k1
		Can we all highlight the word water, please, the very first word in our text.	a2
	Students:	[Highlight 'water']	a1

(Rose 2014: 26)

In (11), then, we have an example of an exchange which is simultaneously knowledge negotiating and action negotiating. In (12) we have what are on the surface knowledge exchanges contributing to action negotiation, while in (13) we have an action exchange contributing to knowledge negotiation.

Similar, though not exactly the same, problems are found in the children's role-play data. The children often do not say "You need to tell us the baby's name" or "Tell us the baby's name". They simply ask "What's the baby's name?" or "What's your baby called?" However, they do say such things as "We need to

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4. Note that Rose leaves the actual action move (a1) implicit for reasons of space.

check how old she is", proposing an action, and this may be heard as a request for information, as in (14).

(14)   Ryan: …we need to check how old she is… k2 da1
       Nicole: She's 15.   k1
       (Mukherjee 2016b: EYM1, Turns 13 and 14)

In such cases we propose to follow Martin & Zappavigna's example and double code.

We also have instances of a move which on the surface is a knowledge move but which is contributing to the negotiation of an action. When a child says "I'm the nurse" or "I'm the doctor", on the face of it this is a statement of information by a primary knower. However, it is also a declaration of intent to engage in a series of actions. The children associate the social roles with certain actions. In (15) Melissa associates the role of nurse first with putting on the nurse's headwear and then with writing down the names.

(15)   Melissa: I be the nurse   k1 da1
                I'm going to put this. I'm going to put this on. k1 da1

       …
       Melissa: And I'm the nurse.   k1 da1

       …
       Melissa: I've got to write down the names   k1 da1
       (Mukherjee 2016b: EYM3, Turns 1, 8 and 10)

The association of 'be' + social role with action in our data becomes even clearer with examples such as Ishaan asking (EYM3, Turn 109) "Can I be the doctor please?" This could be taken as a request for information, but more importantly, it is a request for permission to act out the role of doctor in appropriate actions. Then again Jasmine complains to Melissa "You always be the doctor" and Melissa replies "I don't" (EYM3, Turns 137 and 138).

What at first sight appear to be knowledge moves, then, can contribute to the negotiation of action. In our data, similar to Rose's Example (13), we find cases where actions can contribute to the negotiation of knowledge.

(16)   Nicole (nurse): Again, what's your name?   k2
       Philip (parent): Philip   k1
       Nicole (nurse): Philip   k2f
                PHILIP [spells out name aloud and writes it down]   a1
       (Mukherjee 2016b: EYM1, Turns 30–32)

The writing down of the name records the information that has just been negotiated and acts as a vital part of the k2f move. There is often a problem, then, in disentangling action negotiating and knowledge negotiating. The two perspectives combine to show us what is really going on in the discourse.

4.2   The problem of delimiting exchanges

As noted in Section 2, the model assumes that an exchange lasts as long as the same proposition or the same action is being negotiated, i.e. the proposition/action that has been introduced by the initiating speaker. However, Kimps *et al.* (2019: 107) rightly point out that this principle needs to be "operationalized more precisely". How 'same' does 'same' have to be? In this subsection we examine a number of examples that appear to be problematic from this point of view and propose analyses. First we will return to Example (11), repeated here for ease of reference as Example (17).

(17)   Convenor: Did you – Did you realise that this phone   I k2   pb
                         was stolen?
        Young Person: [nods]   R k1   pc
        Convenor: You did.   F k2f   ps

        Convenor: So why did you take it if you realised it   I k2   pb
                         was stolen?
        Young Person: [inaudible]
        Convenor: You need to tell us why you took the phone. I k2 a2 pb
        Young Person: Because it was new.   R k1 a1 pc
        Convenor: Because it was new.   F k2f a2f ps
        (Zappavigna & Martin 2018: 150)

It seems reasonable to regard the first three moves here as forming an exchange, all concerned with negotiating whether the Young Person realised that the phone was stolen. But the fourth move introduces a new, though related, propositional base, questioning why the Young Person took the phone. The remaining moves all contribute to the negotiation of the propositional content introduced by this second propositional base. Moves 4 to 8 then can also be regarded as forming an exchange since they are concerned with the same propositional content. However, there is a repeated pattern within the second exchange that needs to be recognised, repetition of the I R and k2 k1 patterns, the recursion being triggered by the lack of an adequate Response to the first Initiation. To take account of this we would propose recognising two sub-exchanges within the main propositionally

identified exchange. In our own data we are similarly going to have to recognise sub-exchanges within main exchanges to take account of recursion triggered by unsatisfactory responses.

Next, we return to Example (13), repeated here as Example (18).

(18)	Teacher:	So Zac, can you tell me, what is this all about?	I	dk_1	pb
		What's the beginning there?			
	Student:	'Water'	R	k_2	pc
	Teacher:	Water. Fantastic that's right.	F	k_1	ps
		Can we all highlight the word water, please, the very	[I	a_2	ab
		first word in our text.			
	Students:	[Highlight 'water']	R	a_1	ac]

(Rose 2014: 26)

All the moves here are concerned with negotiating the same propositional information, namely what the text the class is studying is all about. Therefore, the whole example could be regarded as one exchange, one knowledge exchange. However, as discussed in Section 2, we seem to have an action exchange as part of the knowledge exchange. For Sinclair & Coulthard (1975: 27), their follow-up move is a complex move, consisting not only of an obligatory head act evaluating the student's response, but also of an optional post-head act, one of whose functions may be to reinforce what has just been learnt. This seems to be the function of the action exchange here. The teacher is attempting to reinforce the notion of the centrality of water by getting the students to highlight the word 'water'. It is tempting to regard the action exchange as a rankshifted exchange. It is functioning as an act in a move in another exchange. Sinclair & Coulthard took over Halliday's (1961) framework for grammar lock stock and barrel and applied it to the analysis of discourse. We see ourselves as working broadly in the Sinclair & Coulthard tradition. It would not be surprising if we found ourselves needing the full range of Halliday's rank relationships in order to account for relationships between exchanges.[5]

Kimps *et al.* (2019: 104) cite their own Example (30), presented below as (19), as problematic from the point of view of exchange delimitation. They question "whether we are really dealing with the same proposition in B's and A's turns".

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5. We are grateful to Gerard O'Grady for drawing our attention to the problematic nature of Examples (11)/(17) and (13)/(18).

(19) B: what happens// this comes right off does it// k2 pb
      A: no it screws in tight and the ...   k1 pc
      // indicates a tone unit boundary
      (Kimps *et al.* 2019:104)

We would agree that the proposition of A's turn is different from the proposition of the second tone unit of B's. However, we would suggest that the example still hangs together propositionally as an exchange. B in the role of secondary knower asks what happens, thereby providing a propositional base. B then, though still in the role of secondary knower, offers a possible propositional completion for his/her initial question, effectively by doing so narrowing the original propositional base. A, accepting the role of primary knower, first addresses the narrowed propositional base, the 'no' providing the necessary polarity for the propositional completion. A then turns to the original propositional base and provides a propositional completion, what happens is that it (whatever 'it' is) screws in tight. The whole of the exchange is negotiating what happens. This would give an analysis along the lines of (19a).

(19a) B: what happens   k2 pb1
           this comes right off does it k2 pb2
       A: no   k1 pc2
           it screws in tight and the ... k1 pc1
       (Kimps *et al.* 2019:104)

We are not told anything about the context of the example, but it is possible that it also hangs together from the point of view of action negotiation. Are they trying to open something/get something going and debating how to do this?

The principle that an exchange lasts as long as the same proposition is being negotiated has enabled us to provide analyses for (17), (18) and (19), at least to our own satisfaction. However, it might be better to amend the principle slightly: an exchange lasts as long as the same proposition(s) are being negotiated. This would allow for the propositional complexity of B's contribution to (19). We would emphasise again that it is the initiating speaker who determines what is to be negotiated in an exchange.

The initiating move of Example (12), repeated as (20), is again propositionally complex. The daughter, with her "Yeah", seems to accept the propositional content. However, she then produces a proposition of her own which, though related to the first of the mother's propositions, is not the same as that proposition. The mother then in her turn produces another proposition, which, though related to the daughter's proposition, is not the same as the daughter's proposition.

(20)   Mother: I I haven't got an objection to a ten-thirty phone   k1   pc   a2ab
                  and eleven-thirty come in (1.3) seems half way
                  between your present curfew and your friends'
                  some of your friends' curfew.

       Daughter: Yeah   k2f   ps   Xa1ab
                  but it's it's still not, hhh (.8) what I like.   k1   pc ch a1 ch

       Mother: Well, it's not exactly what we like.   k1   pc ch a2ch

       (X indicates absence of expected move, agreement to carry out the proposed
       action and ch indicates challenge.)
       (Muntigl 2009: 237)>

Viewed from a knowledge point of view then, the example consists of three
exchanges. The first has two moves: k1 pc and k2f ps. The other two are each
one-move exchanges. It frequently happens that we get one-move exchanges when
there are challenges. A speaker puts forward a proposition which is in some way
incompatible with or different from what has gone before. This receives no sup-
port from the interlocutor, who often puts forward a proposition of her own, this
again receiving no support.

However, as we said in Section 4.1, it is not really the truth of propositions
that is at stake in Examples (12a) and (20). What is under discussion is the daugh-
ter's future actions and the right to determine these. Viewed from an action point
of view, the example could be said to constitute one exchange, since the same
actions, the phonings and the comings in, are under negotiation throughout. The
mother, the secondary actor, proposes a course of action (a2 ab), but this does
not receive the expected agreement from the intended primary actor (a1 ab). The
daughter accepts the truth of the propositional content, but not the proposed
course of action. The withholding of the expected agreement to the action is in
itself an implicit challenge. The daughter goes on to challenge explicitly and then
so does the mother. They both retain their actor roles throughout, the mother as
secondary actor and the daughter as intended primary actor. From a knowledge
point of view, they take it in turns to be primary knower. In our own data, we have
a problem with Example (21).

(21)   Yusra: You're the doctor, I'm the nurse. Okay?
       Daniel: You have to write it. I'll be the doctor
       (Mukherjee 2016b: EYC3, Turns 1 and 2)

Most of the children just say "I'm the doctor" or "I'm the nurse", but Yusra has
recognised that they are taking part in a joint activity, and she casts Daniel as well
as herself in the relevant social roles. With her "Okay?", she does not forget to
check that this is acceptable to Daniel. We would like to regard this example as an

exchange, with an initiating move and a responding move. But how does it measure up to the criteria we have been discussing for delimiting exchanges? On the surface, Yusra's remarks look like statements giving information, so they should at least be considered as k1 moves initiating a knowledge exchange. In this subsection, we have already amended the principle for knowledge exchanges to allow for more than one proposition in the initiating move. However, it would be consistent with the discussion in Section 2 to regard Yusra's remarks as declarations of a course of action. We will be distinguishing below between the negotiation of a single action and the negotiation of a series of actions or a course of action.

Here, we amend the principle for action exchanges to allow for more than one proposal for action in the initiating move. The general principle would then read: an exchange lasts as long as the same proposition(s) and/or the same plans for action(s) as those introduced in the initiating move continue to be negotiated. Does Daniel's contribution address the same propositions or the same plans for action as Yusra's so that it can be regarded as part of the same exchange? Daniel's phraseology is certainly in keeping with regarding his remarks as indicating plans for action, and his "I'll be the doctor" matches Yusra's plan in "you're the doctor". But what about his "You have to write it?" As we have already said, the children seem to associate writing things down particularly with the role of nurse, as illustrated in (15). In context, Daniel's "You have to write it" is virtually synonymous with "You be the nurse". He is in effect agreeing with both halves of Yusra's plan and and hence completing the exchange. Immediately afterwards, Daniel begins to enact the role of doctor, asking Meggie what is the matter with her baby, thereby opening a new exchange.

4.3 The problem of what units carry the various forms of negotiation: Exchanges and transactions

Turning now to the various forms of negotiation, from an action point of view, Examples (17) and (18) could be said to differ from Example (20) in that in (17) and (18) the action being negotiated is a particular single action while in (20) what is being negotiated is a series of actions, the daughter's phonings and comings in. In our data, we need to distinguish between the negotiation of single actions and the negotiation of action plans intended to extend over larger stretches of discourse than a single exchange. In (15) Melissa first says "I be the nurse" and then "I'm going to put this. I'm going to put this on". In (15) we coded both these moves as k1 da1; k1 because each could be seen as a statement by a primary knower giving information, da1 because each could be seen as proposing action by the speaker as primary actor.

However, "I'm going to put this on" relates to a single action, that of putting on the nurse's headwear. It receives immediate support from an interlocutor, and Melissa proceeds to carry out the action. "I be the nurse", on the other hand, is a declaration of intent to engage in a whole series of relevant actions, putting on the headwear being just the first of these. The series is expected to continue unless or until somebody objects. Silence is assumed to indicate consent. One of Sinclair & Coulthard's (1975:16) principles for the analysis of discourse is that, if one finds oneself putting into the same bag things which are clearly different, then it is time to refine one's framework. We have already indicated that we see ourselves as working broadly within a Sinclair & Coulthard framework, though with additional insights from Halliday's metafunctional approach. Sinclair & Coulthard have a whole rank scale of units relevant to the analysis of discourse. In this paper we are focussing on two of their middle units: the exchange and the moves of which the exchange is composed. In order to account for examples such as "I be the nurse", which function as a move in an exchange but mainly set the scene for a larger stretch of language, we will adopt Sinclair & Coulthard's term 'transaction'. There will be no room in this paper to discuss transactions in further detail, but we will distinguish da1 moves introducing transactions from those relating to single actions by using capitals for the former. Thus, moves such as "I'm going to put this on" will still be coded as k1 da1, but moves as "I be the nurse" will be coded as k1 da1T.

4.4 The problem of what units carry the various forms of negotiation: Moves and acts

As we have said, in this paper we are focussing on exchanges and moves, but we have also found it necessary to refer to Sinclair & Coulthard's unit above the exchange, the transaction. In the present subsection we will be considering Sinclair & Coulthard's unit below the move, the act. This is Sinclair & Coulthard's smallest unit. Moves consist of acts. In general, each move will have a head act and may optionally have one or more subsidiary acts. In our model it is the head act that provides whichever is relevant of propositional base, propositional completion, propositional support, as well as action base, action and action support.

We have already mentioned some of them. We have reiterated that the crucial move of an action negotiating exchange is the actual action, and this applies particularly to an exchange negotiating a single immediate action. We said that the action might optionally be accompanied by some form of verbalisation. In our data, for instance, Yusra says "Here are the notes" while handing a piece of paper to Daniel. The actual action would be the head act, while the 'verbal accompa-

niment' would be an optional subsidiary act (see Berry 1981b for further discussion).

We have followed Sinclair & Coulthard in assuming that the head act of a third move, the F move, could be followed by a subsidiary act. They call their post-head act a 'comment' (Sinclair & Coulthard 1975: 27 and 42). We are calling ours 'reinforcement' as that seems to be its function in our data (see Examples (13), (16) and (18) above, together with discussion of these examples). In the classroom the third move is likely to be the teacher's k1 move. Elsewhere it is likely to be a k2f move.

A third type of subsidiary act is one that we are calling 'check', since its function is to check whether an interlocutor agrees with what has been put forward. There is an example of this in (21), repeated below for ease of reference.

(21) Yusra: You're the doctor, I'm the nurse. Okay?
       Daniel: You have to write it. I'll be the doctor
       (Mukherjee 2016b: EYC3, Turns 1 and 2)

The head act of Yusra's move is "You're the doctor, I'm the nurse.", where she introduces her propositions and plans for action. She follows this with "Okay?" in order to check whether Daniel agrees with her proposals. Zappavigna & Martin (2018: 138) also recognise something which they call 'check', but they treat it as a separate move. In our data it seems more appropriate to treat it as an act within a move. Yusra's "Okay?" is an integral part of her move. She is seeking agreement to the whole of her package deal of proposals.

A fourth subsidiary act is what we are calling 'mitigation'. In polite discourse a speaker who produces a dispreferred move will usually attempt to mitigate this in some way, perhaps by an apology, perhaps by an explanation of why a dispreferred move was produced. Consider Example (22):

(22) Meggie: I'll help you too
       Daniel: No, you're the Mum
       Meggie: I know
       (Mukherjee 2016b: EYC3 Turns 23–25)

Here, Meggie offers to help. Instead of accepting the offer, the preferred response, Daniel says "No", the dispreferred response. Daniel attempts to mitigate this by explaining why he thinks Meggie's offer would not be appropriate. Meggie accepts this.

4.5   The problem of how to analyse when an action is the responsibility of more than one of the interactants

Another problem is the analysis of cases where an action is the responsibility of more than one of the interactants. Is it always possible to speak of a 'primary actor' and a 'secondary actor'? We would prefer to keep the two conversational roles of 'primary actor' and 'secondary actor' as they are, but to allow each role on occasion to be filled by a group rather than an individual, for instance, in (23).

(23)   Jasmine: We're going to pretend the baby's in the tummy. Yeah?
       (Mukherjee 2016b: EYM3 Turn 77)

Jasmine is proposing an action, proposing it on behalf of her whole group (da1). She intends that the action should be carried out by the whole group including herself. In other words, she has cast the group, including herself, jointly as primary actor. We will use da1+ to highlight where the utterance serves to draw in others into the proposal of action. In this case, before the action, Jasmine needs the agreement of the group to the action. Her "Yeah?" shows that she is seeking such agreement; this is a check as introduced above. At this point, the members of the group other than herself are in the role of secondary actor, a2. If they agree, the expectation is that the action will then be carried out jointly by the members of the group including herself, a1. This may be followed by support for the action, with the members of the group probably now acting as individuals rather than jointly. This results in a1f if the support is from the proposer of the action, and a2f if the support is from another member of the group. In multi-party discourse such as this, there may be more than one a2f.

In fact, in this instance, the action does not happen as the group gets distracted by a piece of equipment whose function they do not know. However, the important point is that a proposal for action such as Jasmine's sets up the same expectations as a proposal for action involving just herself would have done, da1 followed by a2 followed by a1 possibly followed by a2f/a1f. Indeed, it not only sets up the same expectations at the interpersonal layer, but also at the experiential layer. Jasmine provides the action base (ab). She seeks agreement to the action, which would confirm the action base, ab. The expectation would be that this would be followed by the completed action, ac, which might then be followed by action support (as).

5.   Summary

In summary, while negotiation of knowledge and action in dialogue is complex, exchange structure offers a metafunctional framework to show how an exchange unfolds and the choices that speakers take up in relation to the propositional content and the conversational roles open to them. This paper has presented the model as first proposed by Berry (1981a, 1981b), and challenges to the model based on research into different types of interaction (Kimps *et al.* 2019; Martin, *et al.* 2009; Muntigl 2004, 2009; Rose 2014; Zappavigna & Martin 2018). Reflecting on these challenges and through the analysis of multiparty discourse in children's role-play, this paper has offered a contribution to the understandings of the unfolding of an exchange in two ways. Firstly, it proposes refinements to the original model, such as including double coding of knowledge and action exchanges to cope with utterances which may be on the surface knowledge exchanges contributing to action negotiation, or vice versa. In addition, we propose that an exchange lasts as long as the same proposition(s) are being negotiated, allowing for propositional complexity and for more than one proposition/action to be introduced in the initiating move. Furthermore, it is necessary to distinguish between the negotiation of single actions and those that extend and set the scene across future exchanges. As such, some utterances function as moves in an exchange, while others set the scene across a 'transaction' and below the move (the act), a number of subsidiary acts are possible including reinforcement, check, and mitigation. Questions remain around the relationship between exchanges and the problems of challenges and dispreferreds. Finally, the refined model has been shown to reveal delicate moments of negotiation of both knowledge and action in young children's playful interactions, thereby highlighting early stages of children's grasp of negotiation in dialogue.

Acknowledgements

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