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Gender identity, social influence and children's conversations

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ABSTRACT

This paper explores the relationship between gender, processes of argumentation and cognitive change in children's social interaction. 120 children (average age, 9.5 years) discussed a moral dilemma with a same age peer. The style of children's conversations differed between same sex (boy-boy and girl-girl) pairs and boy-girl pairs suggesting that social status forms of influence (stemming from a child's gender identity) can act to obstruct the effective communication and acceptance of certain arguments (or more epistemic aspects of influence) in conversation. Further analysis of conversations points to the importance of addressing differences in perspectives when reaching agreement on this "developmental" task. Results are discussed with reference to children's representations and resolutions of socio-cognitive conflict.

**Identity and influence in children's social interactions:
Exploring the relationship between gender, argument and cognitive change**

INTRODUCTION

There is now substantial evidence linking social interaction with cognitive development. This evidence comes from a diverse range of fields including conservation abilities (Doise, Mugny & Perret-Clermont, 1975; Ames & Murray, 1982; Russell, 1982), the acquisition of scientific knowledge (Howe, Rodgers & Tolmie, 1990; Howe, Tolmie & Rodgers, 1992) and socio-moral development (Kruger, 1992; Leman & Duveen, 1999). Whilst few would dispute that interaction leads to advances in reasoning, there are stark differences in accounts of how these advances are achieved. Broadly speaking, we can identify two "schools of thought" (Tudge & Rogoff, 1989; Leman, 2002). On the one hand there are those who emphasise the ways in which knowledge is <u>transmitted</u> from one individual to another. On the other are those who conceptualise the process of interaction as a forum for the <u>construction</u> of new knowledge.

Asymmetry in knowledge between children (or between children and adults) is a central feature of the "transmission account" (Roazzi & Bryant, 1998; Russell, Mills & Reiff-Musgrove, 1990). In short, a condition for development through interaction is that a novice is paired with an expert (or a more advanced thinker) and acquires some part of this expert's knowledge or skill. It could be argued that the transmission account, with its roots in Vygotskian theory, provides us with what might be described as a formal learning model of development (Wertsch & Tulviste, 1992). Of course, such a description is something of an over-simplification; the magnitude of any asymmetry is, for instance, an important concern in determining whether interaction will or will not have beneficial effects on reasoning (Wertsch, McNamee, McLane & Budwig, 1980). Yet the important point is that processes of transmission

or transfer including imitation (Saxe, Guberman & Gearhart, 1987; Greenfield & Lave, 1982), tutoring (Rogoff, 1990; Phelps & Damon, 1989) and feedback (Tudge, Winterhoff & Hogan, 1996; Siegler, 1995) are proposed as playing a fundamental role in the developmental process.

The transmission account is, on the face of it at the very least, a plausible explanation for how interaction can facilitate development. However, the pre-eminence of the transmission account, and in particular the need for asymmetry in knowledge or skill between those involved in interaction, has been challenged. In a seminal study, Ames and Murray (1982) found that interaction between two non-conservers who had both given different answers was enough to stimulate advances in conservation ability. The results from Ames and Murray's study appear to indicate that asymmetry in interaction is not a <u>necessary</u> precursor to development (although Russell, 1982, amongst others has reported difficulty in replicating this finding). In light of this finding and their own work Doise and Mugny (1984) proposed a "construction" account – wherein development does not result from the transmission of information but through the integration of diverse perspectives. Interaction can facilitate the process of integration that, in turn, leads to more adequate, decentred and "advanced" forms of reasoning (Doise, Mugny & Pérez, 1998).

Some have argued that the transmission and construction accounts can been seen as complementing, rather than competing with one another (Tudge & Rogoff, 1989; Verba & Winnykamen, 1992). In some contexts development might occur through a process of transmission, in others through a process of construction. One obvious way in which these different pathways might be realised is in adult-child and peer interaction respectively. However, it remains to be seen if the two processes do indeed account for the same sort of "development". Knowledge that is acquired

(created) through different processes might well be represented in different ways: there might, for example, be differences in the stability of constructed and transmitted knowledge or in the ways that beliefs are legitimised (Leman, 1998).

A further, rather mulish difficulty for transmission accounts, as Perret-Clermont, Brun, Saada and Schubauer-Leoni (1984) point out, is that whilst we might be able to observe the <u>outcomes</u> of a process of transmission of knowledge from an expert to a novice, the transmission account does not give an explanation as to why an expert's argument is <u>accepted</u> by a novice. In an expert-novice paradigm, Leman (2002) found that more advanced arguments seemed to be intrinsically compelling to children at an intermediate stage in development. In contrast, less advanced arguments were accepted only when a novice had argued particularly vociferously for his or her position. This issue of acceptance is particularly pertinent for transmission accounts since they suppose that asymmetries in knowledge are necessary requirements for developmental advance.

The question of how and why arguments are accepted is closely related to the issue of legitimacy in conversation and, more generally, in cognition. Leman and Duveen (1996), following Piaget, suggested that two forms of influence – epistemic and social status – constitute different sources of influence in interaction by presenting alternative ways of legitimising beliefs. The term "epistemic authority" was introduced by Kruglanski (1989) to designate a source that exerts a determinative influence on the formation of knowledge. Whilst the use of the term by Leman and Duveen (1996; 1999) by no means excludes such a definition, the emphasis here is on the power or authority possessed by arguments (as opposed to individuals) to <u>influence</u> judgements. Epistemic influence is distinguished from the influence of social status in that, with the former, arguments possess persuasive power whilst in

the latter, persuasive power is a consequence of an individual's position within a social organisational structure of hierarchy.

Piaget (1932) distinguished relations of constraint and relations of co-operation that underpinned heteronomous and autonomous moral thought respectively. In the former, authority (or an authority figure) governs a child's moral thinking. In the latter, there is no authority in relations and children are "free" to construct an understanding of the function of moral rules for themselves. Consistent with his constructivism, Piaget saw developmental significance in the shift from heteronomy to autonomy, from relations of constraint to relations of co-operation, and from a corresponding shift from realism to subjectivism in children's thinking. With autonomy the child understands how moral rules regulate relations between individuals on an equal basis. Thus the grasp of autonomy is, at once, an intellectual and a social achievement since it corresponds to changes in reasoning and in an individual's involvement in processes of social construction.

Leman and Duveen (1996) explored the interactions of children in two age groups, 6-7 and 11-12 years on a perceptual judgement task. Specifically, children were asked to judge whether two lines in an optical illusion were the same or different lengths. In some conditions children were given expertise in the form of sticks to allow them to "measure" the lines, in others they were not. On this developmentally "neutral" task Leman and Duveen noted that the younger children's conversations were far more overtly conflictual than those of the older children. Moreover, conflict centred along gender lines; more precisely, the younger children had difficulty accepting the arguments of a girl "expert" compared with a boy expert. Leman and Duveen argued that younger children tended to regard interaction as a contest between two competing positions rather than a forum for discussion and debate in which

children could evaluate arguments. In this sense, younger children's judgements were more likely to be affected by social status influence which stemmed from the socio-organisational roles associated with a child's gender identity. Older children, on the other hand, were more likely to be swayed by epistemic influence. In interaction the two forms of influence offer alternative ways of legitimising a judgement.

The distinction between social status and epistemic influence parallels distinctions from the social psychological literature between alternative forms of influence amongst adults. For example, with status influence it is social organisational or normative concerns that legitimise judgements.  With epistemic influence, on the other hand, legitimacy is more a matter of evaluating the legitimacy of arguments. Leman (1998) drew a parallel between epistemic and status influences and processes underpinning minority and majority influences, suggested by Moscovici (1976; 1980; 1985). Majority influence, according to Moscovici, operates on a "public" or verbal level and is the outcome of an attempt to resolve a conflict of responses. When an individual succumbs to a majority influence, he or she is said to have complied. Minority influence operates on a "private" or perceptual level. It is the outcome of an attempt to resolve a conflict of perspectives, and induces more enduring conversion in judgements.  Bar-Tal (1998) has further suggested the distinction between epistemic and status influences might correspond to alternate routes suggested for persuasion (e.g. Chaiken, 1980; Petty & Cacioppo, 1986).

The research reported here seeks to develop our understanding of the processes involved in children's interaction and the links between conversation and cognitive change. A broad aim is to explore how processes of influence and identity inter-relate in interaction, and in particular how notions of legitimacy can be linked to the different positions that children adopt, support, defend or attack in interaction.  This

aim was realised by analysing the conversations of sixty pairs of children who discussed a moral dilemma. In both studies, the possible effects of a social status was examined by balancing the gender mix of the pair (i.e. either same-sex or boy-girl pairs). Balancing the gender mix like this means that a child's gender identity, which stems from his or her membership of one or other gender group, may act as a form of social status. This is because empirical differences that are attributable to gender are simultaneously attributable to the social organisational factors associated with a gender groups and their attendant social hierarchies. Thus there could be symmetry in social status relations (same sex pairs) or asymmetry (boy-girl pairs).

All pairs were asymmetric in terms of their previous, independent responses to the task. Since the task has developmental significance (a heteronomous response is presumed to signify less "mature" reasoning than an autonomous response) this had the effect of framing interaction in "expert-novice" dyads.

Conversations were analysed and coded to establish the number and sophistication of supports (arguments in favour) and rebuttals (arguments against) children employed in respect to a particular position (heteronomous or autonomous). Of analytic interest were; (1) the extent to which children deployed different supports or rebuttals, (2) the ways in which deployment might vary with a child's identity in interaction (pair type), and (3) the relationship between these different forms of argument and the outcomes of conversation (which, by extension, involves the process of influence). In this sense, we might say that a particular focus in the analysis of these asymmetric pairs is on conflict between alternative positions. On one hand there are questions relating to how this conflict is represented, and on another questions concerning how this conflict is resolved.

METHOD

Participants

Participants were 191 children (109 boys and 82 girls) who attended schools in the same area of the East End of London. Schools were all state-run primary schools and were selected because they were similar in terms of their pupils ethnic and socio-economic backgrounds. Children came from a broadly working class and ethnically diverse background and were in either their fourth or fifth year of formal education (average age 9 years, 6 months). The numbers of children in each year group were roughly equal. All children in a class participated in the study, although for practical reasons not all children could proceed to the interaction phase. Parental consent was secured for all participating children.

Procedure

The experiment was in two phases. In the first "pre-interaction" phase children were interviewed individually for around five minutes and asked to make a moral judgement, based on one of Piaget's moral vignettes, on their own. In the second interaction phase, children were placed in a pair with another child who had given a different response, and asked to agree a judgement together "post-interaction".

Stimuli:  Each was read an adapted version of two Piagetian moral vignettes (Piaget, 1932, p118 - see Appendix for full versions of the stories). The first story depicted John who had broken 6 cups that, unknown to him, were placed behind a door. The second story portrayed David who broke a single cup whilst trying to get some sweets.

Children who answer that John is naughtier give a response associated with heteronomous reasoning since, according to Piaget, they judge the material

consequences and the probable reaction of an authority figure as determining features of right and wrong. Conversely, those who say that David is naughtier give a response associated with autonomous reasoning since, again according to Piaget, the motivations of the protagonist are the relevant aspects in making a moral judgement. The heteronomous judgement based upon material aspects of the situation is, argues Piaget, a consequence of moral realism. Importantly, Piaget goes to considerable lengths to note how heteronomous reasoners can well understand the intentions or motivations of the protagonists – the focus on material or realist concerns is a matter of cognitive preference (rather than any deficiencies or lacunae in the information processing capacities of these children). In other words, moral heteronomy and moral autonomy are alternative systems for legitimising moral judgements and there are no <u>a priori</u> reasons for regarding one as superior to the other. The relative adequacy of different forms of reasoning can only be inferred through charting qualitative changes in children's reasoning with age.

<u>Pre-interaction</u>:  In the initial, pre-interaction phase children were seen individually by the experimenter in a room away from normal classroom activities. Once the experimenter was sure that each child understood the stories she or he was asked two questions. First, "Do you think one boy is naughtier than the other or do you think both boys are just as naughty as each other?". Second, if a child judged that one boy was naughtier she or he was asked, "Which boy do you think is naughtier?"

<u>Interaction pairs</u>:  On the basis of their independent responses 120 children (60 boys and 60 girls) were placed in pairs. Pairs consisted of one child who had independently judged that John was naughtier (the heteronomous respondent) and one child who had independently judged that David was naughtier (the autonomous

respondent). Each child in a pair was reminded of their independent response, and asked to decide together upon a response.

Since previous research (Leman & Duveen, 1996) has demonstrated the ways in which gender can constitute a form of status influence in interaction, the gender of children in a pair was also of interest. There were, therefore, four pair types organised in terms of the pre-interaction responses and gender of children involved in interaction. Thus there were two "same-sex" pairs (Mm and Ff), and two "boy-girl" pairs (Fm and Mf). In Fm the girl had given the autonomous response before interaction. In Mf the boy had given the autonomous response before interaction.

Interaction and post-interaction responses: Children's conversations were video-recorded and transcribed for later analysis. The joint response of the pair was also noted. One pair were unable to agree a response after a considerable amount of time and, as a result, their responses are excluded from the relevant analyses. Another two pairs' conversations failed to record with sufficient quality to permit transcription. Once again, the responses and conversational measures of these children are excluded from certain analyses.

Coding and analysis of conversations

Coding framework: Conversations were coded by the first author. Coding categories were based upon the scheme summarised in Table 1 below. The aim of the scheme was to assess children's deployment of supports for a particular position, or rebuttals (arguments against the other position). These support or rebuttals could be concordant either with the autonomous position (for example, arguing that, "David is naughtier") or the heteronomous position ("John is naughtier"). In other words, supports of rebuttals can follow the 'logic' of either heteronomous or autonomous

forms of thinking. Finally, utterances were either basic assertions or more detailed explanations or justifications for a particular position. Coding was undertaken to pick out the sense (or logic) of the sentence rather than content per se.  Since the focus of interest was on the ways in which conversations linked with cognitive change, analysis was undertaken only on segments of a conversation that took place before agreement was reached. The total use of each type of utterance was recorded for each child.

-- Insert Table 1 about here --

Other conversational measures: An additional measure, the 'positivity of arguments' was also calculated from the data generated by coding children's conversations.  This measure was a simple calculation of the number of supports – number of rebuttals; i.e. $\{(D) + (D+) + (J) + (J+)\} – \{(\neg D) + (\neg D+) + (\neg J) + (\neg J+)\}$. The 'positivity of arguments' measure assesses the extent to which children offer more positive supports for a position as opposed to rebutting (attacking or addressing failings in) a partner's position.  A positive score would indicate more supports, whereas a negative score would indicate more rebuttals.

Reliability: The reliability of the coding procedure was determined by giving twelve of the transcripts (20%) to a second judge. Inter-rater agreement was good: Kappa ranged from 0.61 to 1.00, and on each of the eight categories significant agreement was achieved ($p<.001$).


RESULTS

Pre-interaction responses

The majority of children judged that one boy was naughtier than the other ($n=176$) rather than that both boys were equally naughty ($n=15$).  The difference between these

two initial independent responses was significant (binomial, p<.001). Of those who

thought that one boy was naughtier more judged that David was naughtier (n=111, the

autonomous response) than judged that John was naughtier (n=65, the heteronomous

response). Again, this difference was significant (binomial, p<.001) indicating that

whilst this age group was intermediate between wholly autonomous or wholly

heteronomous thought, these children tended to reason towards the upper limit of that

intermediacy.

Interaction: Use of argument by pre-interaction response

Table 2 reports the mean use of utterances for autonomous, heteronomous and all

participants.  Independent samples t-tests were performed to assess the differences in

usage of utterances according to participants' pre-interaction responses

(heteronomous and autonomous). These analyses demonstrated that all utterances

were deployed to a different extent by participants depending on their pre-interaction

response, with the exception of the use of D (a basic support for the autonomous

position) which produced only a marginally significant difference. However, it is

likely that this marginal difference may be a consequence of the way in which

children signalled their agreement; most conversations ended with the agreement that

David was naughtier and many heteronomous participants would signal their

agreement by reproducing this simple assertion.  In argument it is likely that

autonomous respondents use this utterance more frequently than their heteronomous

partners.

-- Insert Table 2 about here --

As can be seen from Table 2, those who had given pre-interaction autonomous

responses used conversational elements that followed the "logic" of autonomous

arguments (D, D+, ¬J and ¬J+) more frequently than their heteronomous partners. And, conversely, pre-interaction heteronomous respondents used those that followed the 'logic' of heteronomy (J, J+, ¬D, ¬D+) more frequently than their autonomous partners. There was no significant effect of pre-interaction response on the use of supports over rebuttals - the 'positivity of arguments'.

### Interaction and identity: Use of argument by pair type

A one-way analysis of variance (ANOVA) was carried out to establish variations in the use of different utterances by children in different pair types. There was no significant variation by pair type on any of the individual elements (D, D+ and so on). However, there was a significant effect of pair type on the measure of the positivity of arguments; $F(3, 112)=5.84$, $p<.001$. Post hoc Tukey Honestly Significant Difference tests (Tukey HSD), $p<.05$ identified significant differences between Fm (an autonomous girl paired with an heteronomous boy) and the two same-sex pairs Mm and Ff. The mean value of positivity of arguments for each pair type is shown in Table 3 below.

-- Insert Table 3 about here --

### Paired (post-interaction) responses

Of the 59 pairs who reached agreement, significantly more ($n=49$) judged David to be naughtier than John ($n=10$), binomial, $p<.001$. Thus there was a significant tendency to adopt the (more advanced) position of the autonomous child as opposed to the heteronomous child after interaction.

### Interaction and influence: Use of argument and paired responses

A final set of analyses examined the use of different utterances and their relationship to the joint judgements of pairs. Since previous analysis of pre-interaction response had indicated that a child's pre-interaction response is related to the sorts of support and rebuttal they produce, an analysis of covariance (ANCOVA) was conducted with post-interaction response as a factor and pre-interaction response as a covariate in the analysis. Mean use of different utterances, the relevant values of $F$ and their significance are reported in Table 4.

-- Insert Table 4 about here --

Inspection of the data in table 4 reveals that certain elements (D, D+, and ¬J+) are either significantly or marginally significantly associated with an autonomous "win". Other elements (¬D+, J, J+) are associated with a heteronomous "win". However, two elements (¬D and ¬J) are not associated with either a heteronomous or an autonomous joint response. An ANCOVA investigating the relationship between post-interaction response and the positivity of arguments showed no significant effects. There were no significant effects relating pair sex and post-interaction response on any conversational measures.

DISCUSSION

These results highlight the ways in which children use interaction as a forum for discussion and debate and to evaluate different positions and arguments. The results also point to the ways in which a child's identity intervenes upon processes of communication and interaction. Finally, these findings indicate aspects of interaction that are linked to processes of influence between children, and thus contribute to our understanding of how features of children's conversations might link with cognitive change. The following discussion will begin by elaborating the results and conclude

with a discussion of the current findings in terms of children's representations of conflict and in terms of the ways in which that conflict is resolved.

Firstly, analysis of children's conversational use of arguments in terms of pre-interaction responses indicates that those who gave a heteronomous response independently use more arguments that followed the "logic" of heteronomous thought (J+, J+, ¬D, ¬D+) than those who gave an independent autonomous response. Correspondingly, children who gave an autonomous response pre-interaction use more arguments that follow the logic of autonomous thought (D, D+, ¬J, ¬J+) than their heteronomous peers. It might be easy to overlook the significance of children's strategic deployment of arguments in conversation here. One might, after all, anticipate that children who had adopted a particular position pre-interaction would seek to support that position and undermine an opposing position in a subsequent discussion. Yet, the fact that these children were able both to support their own and address another's position demonstrates both a strategic grasp of argument and an awareness of interaction as a forum for evaluating the adequacy and legitimacy of different positions.

This strategic awareness is an important skill since it not only signals a subjectivism (or perhaps more properly, "inter-subjectivisim") that is characteristic of more mature moral thought (Piaget, 1932), but also an awareness of the means by which knowledge is constructed (or created) through interaction. Thus these children's grasp of some of the skills of argument means that conversation is more than a mere set of intersecting (and egocentric) monologues (Piaget, 1923). In line with previous research (Leman and Duveen, 1996) that has found age-related shifts in children's orientation to interaction and knowledge, for these children conversation is

clearly beginning to become a forum for the exchange of perspectives and for epistemic construction.

A second major outcome of this analysis concerns the importance of identity in children's social interactions. Leman and Duveen (1999) found that at this age a child's gender could impact upon the ways in which agreement was reached between children although, as we shall see, it did not appear ultimately to effect the outcomes of interaction (the decisions a pair make). In this study the gender composition of a pair was found to be associated with variations in the 'positivity of arguments' (the balance of supports and rebuttals used by a child in conversation). Specifically, children in the Fm pair (where an autonomous girl was paired with a heteronomous boy) used far more "positive" arguments than in same-sex pairs.

The "positivity" measure picks out the extent to which children state or articulate their own position in conversation over and above the extent to which they address a partner's position. In this sense, we can consider a high positivity score to indicate conversations where individuals spend a considerable amount of time presenting their own position and correspondingly less time talking about a partner's position. Our results illustrate how the extent to which children talk about their own perspective is linked to the gender-mix of a pair. In same-sex pairs (those in which there could be said to be symmetry in terms of gender-related status between children) children appear more willing to address another's position. But in boy-girl pairs there is less willingness to address another's argument and more emphasis on a child's own perspective in conversation. In this sense then a child's gender identity appears to obstruct or constrain those aspects of conversation that we might associate with the exchange of perspectives. Now, of course, these obstacles are eventually overcome amongst this intermediate group of children. But it seems that the status differences

that stem from conflicting gender identities in interaction have an influence upon the processes of conversation and interaction between peers.

A third finding points to how this process of influence is achieved. Analysis of the relationship between the arguments deployed in conversation and the outcomes of interaction (the joint judgements of the pair) reveals, as might be expected, that most arguments following the logic of heteronomous thought are connected with a heteronomous "win" (J, J+, ¬D+). Similarly, most connected with the logic of autonomous thought are connected with an autonomous "win" (D, D+, ¬J+). However, two elements are *not* connected with the outcomes of interaction, ¬D and ¬J, both of which are basic level rebuttals following the logic of autonomous and heteronomous thought respectively. Thus, whilst the majority of argument elements appear to work well in terms of effecting an influence, basic rebuttals do not.

One way to understand this interesting relationship between certain elements of argument and influence is to consider what role a basic rebuttal might have in conversation that a support or more sophisticated rebuttal does not. Basic rebuttals are simple refutations of another's position. Unlike supports they do not make "positive" arguments for a particular position (they do not seek to present or elaborate an individual's own perspective). Nor do they, like more advanced rebuttals or explanations, address the arguments that legitimise another's position. In other words, basic rebuttals simply rebut: they are the conversational equivalent of telling another person that they are wrong without giving a reason why that person is wrong nor even stating one's own position. Thus basic rebuttals do not work on the level of perspectives: they simply oppose another's <u>response</u>. In contrast, effective influence is linked to children's engagement with (or discussion of) each others' perspectives. And so we might say that whilst identity and its attendant social authority appears to

act as a block to communication on a more basic level wherein the exchange of perspectives is initiated, influence appears to be closely related to the process of exchange and argumentation itself.

How, then, might we conceptualise the processes of argument, communication and influence and the role of identity in children's social interactions?  One way to address this question is to consider how children represent conflict. In this study, interaction is seen to introduce conflict between children's (pre-interaction) responses. But there is also a conflict between the alternative "logics" of heteronomy and autonomy since the two constitute alternative ways of legitimising judgements. These alternative representations of conflict are reminiscent of Moscovici's (1976; 1980) distinction between two different forms of conflict – conflicts of responses and conflicts of perspectives. According to Moscovici, a conflict of responses operates on a public (verbalised) level and relates to processes of conformity. Conflicts of perspective operate on a more private, "perceptual" level and connect with processes of conversion.

The differential use of 'positivity of arguments' indicates that identity, realised in interaction in the form of pair type, forms an obstruction or "block" to the exchange of perspectives. Gender identity can have the effect, in interaction, of framing the discussion in terms of a conflict based upon differences between children's <u>responses</u>. The conflict centres primarily, on a failure to recognise a partner's perspective as valid or even worthy of consideration. Hence, in the <u>Fm</u> pair, there is less attempt to address or consider another's position

Social asymmetries in relations which stem from aspects of a child's identity appear to operate at a relatively early stage to inhibit (albeit temporarily in this instance) the exchange of perspectives between children. In this sense, it is not the

case that just any sort of conflict is associated with advances in cognitive development (co-operative peer interaction can clearly yield more benefits than interaction that is overtly conflictual). It is specifically conflict at the level of perspectives that is crucial in inspiring developmental advance (Doise & Mugny, 1984). Conflicts, like those here, that inhibit the investigation (or recognition) of arguments underlying another's perspective do not provide the conditions for developmental advance (Mugny, De Paolis & Carugati, 1984).

Our final finding, of a relationship between certain types of argument and the outcomes of interaction point to precisely this sense in which a representation of the task as a conflict of perspectives is closely associated with influence and the resolution of conflict for these intermediate children. Of course, it is perfectly possible that conversations can be resolved as conflicts of responses. Yet in this intermediate group of children, resolution of conflicts is connected with more sophisticated and positive forms of argument, and resolution of on the level of perspectives.

Conflicts of perspective were associated with processes of resolution and influence regardless of whether autonomous or heteronomous arguments were ultimately persuasive. In other words, conflicts of perspectives did appear to result, in a minority of cases, in the less developmentally advanced argument "winning out". Thus these results do not warrant the conclusion that conflicts of perspective (as opposed to conflicts of response) are intrinsically conducive to developmental advance. This result would seem to point us away from Doise and Mugny's (1984) conceptualisation of socio-cognitive conflict, but it is important to note that the current study addressed only short-term, post-interaction changes in judgement. More importantly, responses were elicited publicly. More sensitive and subtle measures

might just have detected shifts in reasoning that would remain undisclosed in front of an interaction partner. Clearly, more research is needed here to 'unpick' the social and conceptual aspects of interaction that might link to cognitive change and longer-term, developmental changes in cognition.

This study explored the role of identity and influence in children's social interactions with peers. A child's identity (apparent in terms of gender) frames conversation in terms of a 'conflict of responses' between children wherein asymmetries in the social relation constitute a means of legitimising judgements. In contrast, influence is a consequence of a 'conflict of perspectives' between children wherein judgements are legitimised on a more "epistemic" level, in terms of the arguments or justifications that underpin a particular position. The alternative forms of conflict constitute an original way of thinking about children's social interaction and its connection with processes of development. In particular, by focussing on qualitative differences in interaction we can begin to understand the ways in which interaction might be tied to longer-term, developmental changes in cognition.

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Table 1. Supports and rebuttals: conversational measures, descriptions, codes and examples

| Code | Example | Support/ Rebuttal | Logic of argument | Basic or Explanation |
|------|---------|-------------------|-------------------|----------------------|
| D | "Its David", "David's naughtier", (in some instances, "Yes") | Support | Autonomous | Basic |
| D+ | "Its David because he shouldn't have been…" | Support | Autonomous | Explanation |
| ¬D | "Its not David", (in some instances, "No") | Rebut | Heteronomous | Basic |
| ¬D+ | "Its not David because he only broke 1 cup" | Rebut | Heteronomous | Explanation |
| J | "Its John", (in some instances, "Yes") | Support | Heteronomous | Basic |
| J+ | "Its John because he broke 6 cups…" | Support | Heteronomous | Explanation |
| ¬J | "Not John" | Rebut | Autonomous | Basic |
| ¬J+ | "Its not John because he wasn't…" | Rebut | Autonomous | Explanation |

Table 2. Mean use of argument by pre-interaction responses (standard deviation in brackets) and corresponding values of $t$

| | Pre-interaction response | | |
| --- | --- | --- | --- |
| | Autonomous | Heteronomous | $t$ |
| Code | n=58 | n=58 | (114df) |
| D | 1.84 (2.79) | 1.09 (0.94) | 1.96(*) |
| D+ | 2.22 (1.64) | 0.48 (0.88) | 7.11*** |
| ¬D | 0.02 (0.13) | 0.33 (0.91) | 2.58* |
| ¬D+ | 0.02 (0.13) | 0.57 (1.03) | 4.06*** |
| J | 0.14 (0.35) | 0.93 (2.25) | 2.66** |
| J+ | 0.05 (0.39) | 1.24 (1.56) | 5.63*** |
| ¬J | 0.34 (1.00) | 0.03 (0.18) | 2.32* |
| ¬J+ | 1.93 (1.69) | 0.26 (0.83) | 6.75*** |

*significant at $p<.05$ level; **significant at $p<.01$ level; *** significant at $p<.001$ level; (*) marginal significance, $p<.10$

Table 3. Mean 'positivity of argument' score for a pair by pair type (standard deviation in brackets)

| | Pair type | | | |
|---|---|---|---|---|
| | <u>Mm</u> | <u>Mf</u> | <u>Fm</u> | <u>Ff</u> |
| | <u>n</u>=30 | <u>n</u>=30 | <u>n</u>=28 | <u>n</u>=28 |
| Positivity of argument | 1.57 (2.10) | 2.50 (1.68) | 3.71 (3.71) | 1.25 (1.62) |

Table 4. Mean use of utterances by joint (post-interaction) responses of the pair (standard deviations in parentheses).

| Code | Autonomous n=96 | Heteronomous n=18 | $F_{(1, 111)}$ |
|---|---|---|---|
| D | 1.53 (2.04) | 0.61 (0.85) | 3.60(*) |
| D+ | 1.43 (1.55) | 0.72 (0.96) | 4.99* |
| ¬D | 0.15 (0.60) | 0.11 (0.32) | 0.06 |
| ¬D+ | 0.15 (0.46) | 0.89 (1.28) | 22.74** |
| J | 0.32 (1.37) | 1.11 (0.90) | 5.74* |
| J+ | 0.44 (0.87) | 1.61 (2.23) | 19.50** |
| ¬J | 0.18 (0.63) | 0 (0) | 1.45 |
| ¬J+ | 1.12 (1.45) | 0.56 (0.92) | 3.71(*) |

*significant at p<.05 level; ** significant at p<.001 level; (*) marginal significance, p<.10

APPENDIX

Moral vignettes - adapted from Piaget (1932), p. 118

Story 1:  Once there was a little boy called John. He was in his room and his mother called him to dinner. He opens the door to the dining room but behind the door there is a tray with six cups on it. John couldn't have known that the tray was behind the door. He opened the door, knocked the tray, and all six cups smashed on the floor.

Story 2:  Once there was a little boy called David. One day when his mother was out he tried to get some sweets from the cupboard. He climbed on a chair and stretched out his arm. But the sweets were too high and he couldn't reach, and while he was trying to reach it he knocked over a cup and it fell and broke.