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Pragmatic Conventions Influencing Children's Use of Causal Constructions in Natural Discourse

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Children prior to seven or eight years of age appear to have difficulty comprehending and producing expressions with "because" and "so" on laboratory tests (Corrigan, 1980; Kuhn & Phelps, 1976; Piaget, 1928). In particular, children are known to differ from adults in two ways on these tasks: (1) they invoke different explanations of to-be-explained events (Piaget provides the example of six-year-olds believing that clouds move on their own power) and (2) they sometimes use the opposite order of mention of cause and effect. The second variation is indicated when they are given sentences to complete, for example, *the boy fell down because....*, and provide the logical consequents rather than the antecedents of the specified events.

Traditionally, these differences have been attributed to deficits in general cognitive skills not specific to language, such as the "egocentrism" of the pre-concrete-operational child, or the inability of young children to achieve bidirectional mappings between events (i.e., to reverse the temporal order of events). However, the possibility exists that young children's deficits do not reside in their cognitive ability to understand causal relations among events, but rather, reside in their inability to *express* the relations linguistically.

Interestingly, children do not display these differences when they produce causal expressions spontaneously, in natural discourse (French & Nelson, 1985; Hood & Bloom, 1979; McCabe & Peterson, 1985). This pattern of evidence raises the possibility that there is a mismatch between the conventional pragmatic functions for which causal expressions are used in natural discourse, and those tapped on laboratory tests.

What might the conventional pragmatic functions of causal expressions in natural discourse be? One line of research, that of Susan Ervin-Tripp (Ervin-Tripp & Bocaz, 1989), indicates that *temporal* expressions are most often used by young children in formulating direct and indirect commands, that is, for moves to control others' actions. Like temporal expressions, causal expressions may also first be used by children for interpersonal functions such as controlling others' behavior.

In looking at the data base for the present study, consisting of children's spontaneous productions of causal expressions in natural discourse, we observed a basic distinction that could be drawn among three types of causal expressions. The first type realized interpersonal functions, such as controlling others' behavior, as suggested above. This type we termed *Speech Act-Level Causals*. In this type, the reason clause (i.e., the clause with "because" or "so") justifies why something is said, and why the hearer should comply with what is said, rather than explaining the event that is referred to in the matrix clause. The something that is said

usually (though not always) has some control component to it, as in direct and indirect commands, plans, refusals, and claims. There is no real-world connection between the events described in the two clauses, that is, the event described in the "because" clause cannot be understood as stating the real-world cause of the event or situation described in the main clause. Let us consider Examples (1) and (2) below. (The ages of the speakers are indicated in parentheses at the end of the utterance).

- (1) Can I look at it, can I , 'cause I'm the guest? (7;06)
- (2) Take the gloves off. Because they'll get dirty. (4;07)

In example (1), being the guest does not cause the object's being looked at, but rather, explains why the speaker is indirectly commanding the listener to allow the speaker to look at the object. In (2), getting dirty is not the real-world cause of the gloves being off, but rather, justifies the speaker's directive to take the gloves off, and provides the rationale for the speaker's compliance.

Not all Speech Act-Level causals justify control acts, as the previous two examples might suggest. It is possible for a Speech Act-Level Causal to justify other types of speech acts, such as predictions, questions, and so on. Consider Example (3) below.

- (3) That floor is gonna break 'cause somebody lives down there. (4;07)

As in the previous two examples, the Reason Clause in this example does not denote the real-world cause of the floor's breaking. It justifies why the prediction *That floor is gonna break* is being made, that is, why it's relevant in the situation in which the speaker and hearer find themselves. However, the speech act in this case, the prediction, does not carry any control component. Interestingly, this subcategory of Speech Act-Level Causals was infrequent in the present corpus; most of the Speech Act-Level Causals that children produced justified control acts rather than other types of speech acts.

A second type of causal expression that occurred in our corpus we termed *Content-Level Causals*. In such expressions, the event being explained is the event actually referred to in the main clause, and a real-world causality connects the two events described in the two clauses. Let's consider Examples (3) and (4).

- (4) He was barking. Because he wanted to get out. (3;08)
- (5) I sprained my ankle 'cause I was hitting my father's shoe. (7;05)

In (4), the dog's desire to get out was the real-world cause of its barking. In (5), the child's hitting his father's shoe was the real-world cause of his spraining his ankle. To utilize a distinction put forth by Halliday (1975), Content-level Causals have a mathetic, ideational function, (i.e., they *describe*) in contrast to Speech Act-Level Causals, which realize a pragmatic, instrumental, interpersonal function (i.e., they *persuade* others and *control* their behavior).

A third type of causal expression that occurred in our data base we termed *Epistemic Causals*. In these expressions, as in Speech Act-Level Causals, the event being explained is not the event referred to propositionally in the main clause. Rather, it is a conclusion arrived upon by the speaker, and the event described in the subordinate clause is the speaker's evidence for the conclusion. Consider Examples (6) and (7).

- (6) Oh yeah, I got 42 because the last one's 42. (4;11)
 (7) This is for gardening, because it's fat. (4;11)

In (6), the last one being 42 is not the real-world cause of the speaker's having 42, but rather, constitutes his evidence for concluding that there are 42. Similarly, the tool's being fat in (7) constitutes the child's evidence for concluding that it is for gardening (since he and his father have been having a discussion in which the father claimed that gardening tools tend to be fat or heavy), rather than constituting the real-world cause of the object's being for gardening.

Interestingly, these distinctions among Speech Act-Level, Content-Level, and Epistemic Causals map onto distinctions that have been observed by Sweetser (1984) among types of causal and conditional constructions in adult discourse. According to Sweetser, recognizing the Speech-Act and Epistemic levels of meaning allows for the disambiguation of many adult uses of causals and conditionals. The purpose of the present study was to examine the relative frequency of these three types of causals in *child* discourse. A second purpose was to examine whether these three types have implications for syntactic expression. That is, are different syntactic forms used to realize the three types of causal expression, and how well do young children distinguish among the forms that are appropriate for expressing the three types? The research of Ervin-Tripp and Bocaz (1989), demonstrating that formal differences among children's *temporal* constructions correspond to different pragmatic functions of the constructions, suggests that this may be the case for *causal* constructions as well.

Method

Subjects and Data Base. In order to study these issues, a corpus of archival data which is available on the Discourse Lab system at the University of California at Berkeley was analyzed. This was the 1976 Ervin-Tripp family corpus. The corpus was as follows. Data were collected from seven families, each with two or three children aged between 2;7 and 11;1 (two years, seven months and eleven years, one month). The corpus is composed of natural family interactions videotaped in the home involving naturalistic activities, for example, role play activities such as birthday party preparation and playing tea party, and non-role play activities such as having lunch and making valentines. Interactants included mothers, fathers, peers, and siblings. There were 21 children in the entire corpus.

Coding. All causal expressions with "because" and "so" produced by the children were extracted. Expressions with variations of "because", such as "cause", were also included. A *causal expression* was defined as an utterance or

succession of utterances that expresses a causal relation between events or between an event and a speech act. There were 303 such expressions produced by children in the entire corpus.

Each expression was coded for the following features: (1) the pragmatic function of the expression, that is, whether it was a Speech Act-Level Causal, Content-Level Causal, or Epistemic Causal; (2) clause order and connective type; and (3) the type of verb used in each clause, that is, whether it was a telic verb, an activity verb, or a stative verb.

Speech Act-Level Causals, Content-Level Causals, and Epistemic Causals were coded according to the criteria referred to earlier, that is, according to whether the "because" or "so" clause in the expression explicated real-world events or justified speech acts or conclusions. In Content-Level and Epistemic Causals, the matrix clause contained an assertion, while in Speech Act-Level Causals, the matrix clause contained interrogatives, as in (1) and (8), direct imperatives, as in (2), indirect imperatives, as in (9), and responses, as in (10).

(8) How do you know that I'm not 8? 'Cause you're only 7. (5;09)

(9) You have to hold onto him because you don't want him to fall. (4;03)

(10) *Child 1*: Why don't you call? *Child 2*: No, because the phone's busy. (4;11)

Despite the fact that in indirect imperatives such as (9), the matrix clause has the form of an assertion or declarative, the expression nonetheless fulfills our criteria for a Speech Act-Level Causal. The expression does not describe the relation between an event and its real-world cause, since the event in the main clause is not something that has actually happened or that will definitely happen, but rather, is being negotiated at the moment. Because the expression contains a directive (albeit an indirect one) and its justification, it constitutes a Speech Act-Level Causal.

Clause order and connective type were coded according to the following categories: (1) *B1 Causals* were constructions with *because* in which the Action Clause comes first, Reason Clause, second, in the order of clauses (e.g., *Let's leave for the restaurant now, because I'm hungry.*); (2) *B2 Causals* were constructions with *because* in which the Reason Clause comes first, Action Clause second, in the order of clauses (e.g., *Because I'm hungry, let's leave for the restaurant now.*); (3) *S1 Causals* were constructions with *so* or *so that* in which the Action Clause comes first, Reason Clause, second, in the order of clauses (e.g., *Let's leave for the theater now, so (that) we'll get there on time.*); and (4) *S2 Causals* were constructions with *so* in which the Reason Clause comes first, Action Clause, second, in the order of clauses (e.g., *I'm hungry, so let's leave for the restaurant now.*).

The data were analyzed in terms of Action and Reason clauses, rather than in terms of matrix and subordinate clauses, in order not to exclude S2 Causals from the analysis. Despite the fact that S2 Causals are coordinate constructions and hence do not contain *subordinate* clauses, they depict the same types of events that

are depicted in the Action and Reason Clauses of B1, B2, and S1 Causals. Hence, they should be included in any analysis of causal construction types.

Type of verb in the two clauses was coded according to a coding scheme developed by Vendler (1967). This coding scheme differentiates between stative and dynamic verbs. *Stative Verbs* are verbs that depict enduring states, such as *be*, *have*, *know*, *want*. These situations remain stable unless something happens to change them. Because they depict enduring states, these verbs are not marked by progressive aspect. Dynamic verbs refer to situations which must be maintained by continued input, and are divided by Vendler into two types, telic and atelic (durative) verbs. Atelic or *Activity Verbs* refer to pure action that has no plausible end point, and can go on as long as the actor wishes. Progressives are common, as in *he was walking for five hours*. For such verbs, one can ask, *when did you stop?* *Telic Verbs*, in contrast, are verbs which depict an endpoint. They are divided by Vendler into two types. *Accomplishment Verbs* refer to actions which can take a long time to reach an endpoint, such as *he's writing an article*. The possibility of asking *how long did it take to finish?* shows that these verbs involve an endpoint, or accomplishment. *Achievement Verbs* refer to punctual events like "break", "start", "recognize", and so on. These events also reach an endpoint, but do so rather quickly, such that one cannot ask how long they took, but rather, when they occurred.

Results

For purposes of data analysis, children were divided into three age groups. Group 1 contained children between 2;4 and 3;6 years. Group 2 contained children between 3;7 and 6;6 years. Group 3 contained children between 6;7 and 12;0 years.

The percentage of Causal Function Types, that is, Speech Act-Level, Content-Level, and Epistemic Causals that was produced at each age is given in Table 1.

Age	Causal Function Type				
	Content	Speech Act-Level	Epistemic	Incomplete	Total
2.4-3.6	0	22.2	0	77.8	100 (18)
3.7-6.6	15.2	55.8	4.6	24.4	100 (197)
6.7-12.0	23.9	59.7	1.5	14.9	100 (67)

As can be seen, more Speech Act-Level Causals than either Content-Level or Epistemic Causals were produced at all three age levels. The youngest age group produced *only* this type. At all three ages, most of the Speech Act-Level Causals that children produced justified control acts, as opposed to other types of speech acts. There seemed to be a small rise in the use of Content-Level Causals between the second and third age groups, suggesting that Content-Level Causals may be an advanced type that increases in frequency with age. Epistemic Causals were very

infrequent, and remained so throughout the age period studied here. This finding is consistent with Slobin and Aksu-Koc's (1982) finding for evidentials indicating that epistemic meanings emerge later than deontic ones. These findings suggest that epistemic meanings are more cognitively complex for young children. Another notable finding was that in the earliest period, the majority of causals produced by children were incomplete. *Incomplete* meant that the child did not produce a complete causal, that is, that the construction lacked either an Action or Reason Clause, or that the causal was a response to a Why-question. The prevalence of this category in young children suggests that they are not well able to produce both clauses of a causal construction, and that there is a sharp rise in this ability after 3 1/2 years.

To conclude from these findings, the primary purpose for which children utilize causals in their own spontaneous constructions is to justify their speech acts (particularly their control acts). Hence, causals for young children appear to be used most often to realize a coercive, interpersonal function, rather than the purely ideational function of explaining events described in propositions. What are the implications of this finding? First, the recognition of the speech-act level meaning of children's causals is important, because, without recognizing this level, many of children's causals would appear illogical or ill-formed. For example, (1), (*Can I look at it, can I, 'cause I'm the guest*), appears illogical unless we realize that the speaker is justifying his indirect directive to the listener and is not providing the real-world cause of the object's being looked at. Similarly, (3), (*That floor is gonna break 'cause somebody lives down there*), appears illogical without realizing that the speaker is justifying why he is predicting that the floor is gonna break -- he does not really think that somebody living down there will actually cause the floor to break in the real world. In a similar way, as noted by Sweetser (1984), recognizing the speech-act and epistemic levels of meaning disambiguates many of *adults'* uses of causals.

A second implication is an ontogenetic one concerning how children learn to use causals. It appears that children first learn causals as realizing one particular pragmatic function, that of justifying speech acts, and only later, with development, acquire a broader range of pragmatic functions for their causal constructions -- their function of explaining events described in propositions and their function of justifying conclusions. As noted previously, children in our corpus used the Speech-Act Level function of causals most frequently in the context of formulating and justifying control acts. Hence, it is not surprising that the Speech Act-Level function of causals emerges earlier ontogenetically, since it is a practical one in terms of getting things accomplished in the child's world. Moreover, a preliminary analysis of the *adults'* uses of causals in this corpus revealed that a vast majority were also Speech Act-Level Causals. This suggests that the Speech Act-Level use of causals is one that is modelled by adults in their speech to children.

A third implication of this finding is a syntactic one. According to Quirk, Greenbaum, Leech, & Svartik (1985), Speech Act-Causals are disjunctive, that is, are more peripheral to their superordinate clause, than are Content-Level Causals, which are adjuncts. According to these authors, the peripheral status of disjuncts

is indicated by the fact that they do not allow a number of syntactic processes to apply to them that are allowed by adjuncts. These processes "reflect a measure of integration within the superordinate clause (p. 1070)". For example, the causal clause of disjunctive constructions lies outside the scope of the negation of the main clause. If you negate the main clause in (2), ("Don't take the gloves off because they'll get dirty"), the scope of the negation is limited to the directive and does not span the reason clause. However, in (3), the scope of the negation does span the reason clause. In other words, "He wasn't barking because he wanted to get out" can be paraphrased "the reason that he was barking was not that he wanted to get out".

It is noteworthy that children first acquire, or are most facile with, constructions which are disjunctive and lie outside of the scope of the sentence, rather than sentence-internal constructions. This finding must be accommodated within any model of language acquisition, since it suggests that sentence-internal relations are not primary, as would be predicted by nativist theories of language acquisition (Chomsky, 1968).

Are there any implications of the functional differences among types of causal constructions for their syntactical realization, that is, for formal features such as clause order or type of connective used? In order to answer this question, we examined the distribution of Clause Order Types by Causal Function, and that analysis is contained in Table 2.

Causal Function	Clause Order Type				
	B1	B2	S1	S2	Total
Content-Level	56.4	1.8	9.1	32.7	100 (55)
Speech Act-Level	60.1	0.6	20.2	19.0	100 (163)
Epistemic	90.0	0	10.0	0	100 (10)
B1 = Action 1st, Reason 2nd (Connective = <i>Because</i>)					
B2 = Reason 1st, Action 2nd (Connective = <i>Because</i>)					
S1 = Action 1st, Reason 2nd (Connective = <i>So</i>)					
S2 = Reason 1st, Action 2nd (Connective = <i>So</i>)					

It is noteworthy that B1 is always the clause order of choice for constructions with *because*, and that B2 is very infrequently used. This result can be accommodated within Schiffrin's model of the discourse functions of causal expressions. According to Schiffrin (1987), reasons constitute backgrounded events in discourse which support main events, and therefore become subordinated. From this view, one might predict that reason clauses, as supportive material, would come second in the order of clauses. Constructions that conform to this clause order constraint (Action Clause first, Reason Clause second) should be cognitively less complex (from a discourse-processing point of view), and hence, this would explain the preference of young children for B1 over B2 constructions.

The function of the causal construction, that is, whether it was a Content-Level Causal or Speech Act-Level Causal, had implications for whether S1 or S2 was preferred, as can be seen in the interaction in Table 2. S1 use was heightened in Speech Act-Level Causals and S2 was heightened in Content-Level Causals. S1 causals refer to purpose or desired outcomes (consider examples (11) and (12) below), and hence, they may be particularly useful for justifying control acts.

- (11) Let's quickly clean it up so your mother won't know. (4;03)
- (12) Mom, would you give it to me yellow and white and blue so I can paint?
(5;09)

The heightened use of the S2 form in Content-Level Causals may be due to the fact that they maintain the temporal order of events, and do not subordinate the antecedent event that leads up to the main event. Hence, they encode build-up or a logical progression of events, as in (13) and (14).

- (13) The fixers fixed the tin man before the witch could fight the tin man, so the tinman had a chance to fight the witch. (4;11)
- (14) While the boy was walking along the road, he came upon some beautiful roses and daisies. So, he decided to pick some. (6;11)

For this reason, S2 causals may be particularly appropriate for telling stories or describing sequences of events, hence accounting for their greater use in Content-Level Causals.

Also important to account for is why S1 and S2, both "so" constructions, are used much less frequently by children than B1. One possible account for the infrequent use of S1, which designates *purpose*, is that it constitutes too narrow a range of meaning to be generally useful. In contrast, S2, B1, and B2, all encode a much broader range of semantic meanings, including purpose (as in Example 1), motivating circumstance (as in Example 15), physical cause (as in Example 5), and other meanings.

- (15) Can I change Elsa's water because she's thirsty? (6;02)

Concerning S2, the fact that it violates the discourse constraint suggested by Schiffrin's model (i.e., Action Clause, first, Reason Clause, second), may account for its infrequent use by young children. This hypothesis is supported by the fact that the use of S2 causals in our corpus increased with age. If S2 violates a discourse constraint, this may make it more cognitively difficult for young children, hence accounting for its greater infrequency among the younger age groups. In support of this account, Ervin-Tripp and Bocaz (1989) found that control acts used by young children usually took first position, and preceded temporal clauses (i.e., conformed to Action Clause, first, Reason Clause, second).

Schiffrin's claim concerning the backgrounding function of Reason Clauses in causal constructions receives further support from the following analysis of the

contrastive use of different verb types, Telic, Activity, and Stative verbs, in Reason and Action Clauses.

Clause	Verb Types			
	Telic	Activity	Stative	Total
Action	46.9	21.4	31.6	100 (196)
Reason	30.0	12.5	57.5	100 (257)

As can be seen, Reason Clauses much more frequently than Action Clauses depict enduring states. Concomitantly, Action Clauses much more frequently than Reason Clauses depict dynamic events, particularly telic ones. This makes sense if we consider the events described in Reason Clauses as background, supportive material for the events described in Action Clauses. In keeping with this view, the events in Reason Clauses should be continuous, ongoing contexts which create a backdrop against which dynamic events described in Action Clauses can be understood or made sense of, or which motivate the dynamic events in Action Clauses. Hence, they are likely to be enduring states, as in (16) below, and also as in Examples (1), (4), (6), (7), (8), (9), (10), (11), and (15) above.

- (16) Max, every time he saw one, then he had to watch, then they knew it was a nice one, but--whenever he saw a boy one, then those were the bad one, so they told him to watch out. (4:03)

One might argue that, since the Action Clauses in children's causals often contain an imperative (i.e., in Speech Act-Level Causals), it is not surprising that the events contained within them tend to be dynamic, particularly telic ones. Hence (at least in these cases), the foregrounding function of Action clauses need not be invoked to explain verb choice. However, there is no feature other than the backgrounding function of Reason Clauses to explain why *these* clauses tend to contain stative rather than dynamic verbs. For example, the speaker in (15) could have just as easily provided a dynamic Reason Clause event (e.g., *because she spilled hers; because her glass fell over*), but chose instead to designate a stative one. We suggest, in line with Schiffrrin's (1987) claim, that this verb choice is motivated by the backgrounding function which Reason Clauses serve in discourse.

To summarize, the results that emerged from this study were as follows: (1) children evidenced a preferred pragmatic function for their causals, that of justifying speech acts (particularly control acts), while they used other functions of causals (explaining real-world events and justifying conclusions) much less frequently; (2) the pragmatic function of children's causals influenced various syntactical aspects of their constructions, such as clause order and type of connective chosen; and (3) the discourse functions of Action and Reason Clauses (foregrounding and backgrounding events, respectively) influenced clause order of the

constructions, as well as relative verb choice in the two clauses. These findings suggest that the pragmatic and discourse-level functions of causal constructions and their constituent parts, Action and Reason clauses, must be taken into account in understanding children's meanings for their causal constructions, as well as the forms which they select to syntactically realize these meanings.

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