

Judgement and Reasoning in the Child

Jean Piaget



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JUDGEMENT AND
REASONING IN THE CHILD



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JEAN PIAGET

IN COLLABORATION WITH
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CHAPTER I

GRAMMAR AND LOGIC

CONJUNCTIONS EXPRESSING CAUSAL, LOGICAL, AND DISCORDANT RELATIONS, AS USED BY CHILDREN BETWEEN THE AGES OF THREE AND NINE.¹

WE have endeavoured to show in an earlier work that thought in the child is ego-centric, *i.e.* that the child thinks for himself without troubling to make himself understood nor to place himself at the other person's point of view. We tried, above all, to show that these ego-centric habits have a considerable effect upon the structure of thought itself. Thus it is chiefly because he feels no need to socialize his thought that the child is so little concerned, or at any rate so very much less concerned than we are, to convince his hearers or to prove his point.

If this be the case, we must expect childish reasoning to differ very considerably from ours, to be less deductive and above all less rigorous. For what is logic but the art of proof? To reason logically is so to link one's propositions that each should contain the reason for the one succeeding it, and should itself be demonstrated by the one preceding it. Or at any rate, whatever the order adopted in the construction of one's own exposition, it is to demonstrate judgments by each other. Logical

¹ With the collaboration of Mlle Olga Matthes —We wish to take the opportunity of expressing our warmest thanks to M. Dottrens and the staff of the school in which we worked, for the kindness and hospitality that were shown to us.

reasoning is always a demonstration. If, therefore, the child remains for a long time ignorant of the need for demonstration, this is bound to have an effect upon his manner of reasoning. As we have already pointed out (L.T.,¹ Chap. III, § 5), the child is not really aware of the necessity of arranging his sentences in logical order.

But how are we to enquire into the nature of logical relations in children, while retaining our hold upon reasoning as revealed in direct psychological observation, and yet avoid making use of the necessarily artificial framework of the logicians?

We may begin by a method, tentative but natural, which consists in seeing how the child behaves when confronted with those conjunctions which denote causality or logical relations (because, for, therefore, etc.) and with those expressing antithetical relations (in spite of, even though, although, etc.). In this connexion two courses seem to be indicated. The first consists in inducing the child, by means of appropriate experiments, to make use of these conjunctions, to make him understand or invent, for example, sentences in which the required conjunctions are used. The second consists in noting in the child's spontaneous talk all the sentences in which the said conjunction is used. For instance, in studying the conjunctions of causality as used between the ages of 6 and 7 we shall have to note down every 'because,' every 'since,' and every 'why' occurring in the corresponding questions.

In one of the chapters of our last volume we made a certain contribution to this question by analysing, not the conjunctions of causality in the child, but the questions corresponding to these conjunctions (the 'whys'). The analysis of these 'whys' yielded as a first important result the fact that before the age of 7 there seems to be no pronounced desire for logical justification. What the 'whys' bear witness to is a need to explain and justify

¹ The initials "L T" refer to the author's *The Language and Thought of the Child*, uniform with this volume.

material phenomena, human actions, the rules of school and society, etc., far rather than a wish to justify judgments, *i.e.* a wish to deduce or demonstrate anything. The present chapter is partly intended to confirm the following conclusion: if the absence or rarity of "whys of logical justification" really has the significance which we have attributed to it, we must expect to find in childish idiom on the one hand a correspondingly rare occurrence of the "because of logical justification," and on the other a persistent difficulty on the part of the child in finding the correct justification for simple propositions which he is asked to demonstrate. This is what we shall try to establish.

Now, if such are the habits of childish thought, childish idiom ought to display a discontinuous and chaotic character in contrast to the deductive style of the adult, logical relations being omitted or taken for granted. In a word, there will be 'juxtaposition' and not relating of propositions. The study of juxtaposition will therefore constitute the second object of this chapter.

The phenomenon of juxtaposition is very frequent in child thought. A well-known and particularly striking example has been signalled in the case of children's drawings, and has been referred to as 'synthetic incapacity.'¹ M. Luquet has pointed out that one of the most universal characteristics of these children's drawings is the inability shown by their authors to portray the relations existing between the different parts of the model. The thing is not there as a whole, the details only are given, and then, for lack of synthetic relations, they are simply juxtaposed. Thus an eye will be placed next to a head, an arm next to a leg, and so on.

This synthetic incapacity covers more ground than one would think, for it is really the mark of the whole of childish thought up to a certain age. We have already observed it (L.T., Chap. III) in connexion with understanding between children. We have tried to show that

¹ Luquet, *Les Dessins d'un enfant*, Paris, Alcan, 1913.

occasions abound when, instead of expressing the relation between two propositions by the word 'because' (as had been done in the corresponding adult communication) or in any other way, the child was content to juxtapose these propositions without any further ado, whether or no he had been conscious of any causal connexion between them. Now, in three-quarters of such cases, the child who was spoken to did not realize that such a connexion was in question, and could therefore see nothing more than two statements which were independent of each other.

Juxtaposition is therefore, in a certain sense, the converse of the process which we studied under the name of 'syncretism.' Syncretism is the spontaneous tendency on the part of children to take things in by means of a comprehensive act of perception instead of by the detection of details, to find immediately and without analysis analogies between words or objects that have nothing to do with each other, to bring heterogeneous phenomena into relation with each other, to find a reason for every chance event; in a word, it is the tendency to connect everything with everything else. Syncretism is therefore an excess of relating while juxtaposition exhibits a deficiency in the same function. The two seem in complete opposition to each other. In drawing, children give only the detail and neglect the synthesis, but childish perceptions seem to be formed by general schemas rather than by analysis. In thinking, the child is ignorant of logical justification, he juxtaposes propositions instead of connecting them, but he is able to give a reason for everything, to justify every phenomenon and every coincidence. How exactly are these contradictory phenomena related to each other? This is the question to which we must find an answer.

To sum up, the object of this chapter will be 1° to form an introduction to the study of childish reasoning by means of an analysis of the types of relation involved in the conjunctions of causality, of logical connexion, and of

discordance ; 2° to draw from this study an analysis of the phenomenon of juxtaposition , and 3° to show the relations existing between juxtaposition and syncretism.

I. CONJUNCTIONS OF CAUSALITY AND LOGICAL RELATIONS

The method we have adopted is extremely simple. In the first place, we are in possession of a number of records of the actual conversation of children of different ages who were under observation for about a month each (see L.T., Chap. I). We have selected from these records the sentences which contain conjunctions, and we have analysed them from the point of view which concerns us at present. In the second place, we have made experiments in the Elementary schools of Geneva, which consist in asking the children to invent or to complete sentences containing the word 'because' or other causal conjunctions.

To do this, you begin by asking the child if he knows how to invent sentences with a given word (table, etc.). When he has understood he is asked to invent a phrase containing the word 'because,' etc. Sometimes the child is bored, in which case you pass straight on to the second part of the experiment. You tell the subject that you are going to give him an unfinished sentence: "Then you must make up the end yourself, so that it should go nicely with the beginning, so that the sentence should be true, etc." You then give a list of sentences to complete after the following pattern: "The man fell off his bicycle because . . .," and the child must make up an ending. As a rule this game is quite popular to begin with. You can also take the child's answer as a new starting-point. For instance, if the subject answers, "Because he slipped," you ask: "And he slipped because . . .," and so on, as long as it makes sense. You must at the same time try to avoid boredom or automatism.

In order to study the use of the conjunction 'because' we used this method to experiment on about 40 children from 6 to 10 who were examined individually. In addition to this, we carried out a collective enquiry on 200 children from 7 to 9 by writing the sentences to be completed on the black-board. The simultaneous use of collective enquiry and personal examination is a method that has much in its favour in the experiments in question: the first supplies one with statistical data in a short time, and the second enables one to check the results by analysis. In this way we collected about 500 sentences by means of personal interrogatory, and about 2000 by means of collective enquiry.

§ 1. TYPES OF RELATION EXPRESSED BY THE CONJUNCTION 'BECAUSE.'—Before describing our results we must begin by distinguishing between the two main types of relations which are denoted by the conjunction 'because' [*parce que*], viz. *the relation of cause and effect, or causal relation*, and *the relation of reason and consequent or the logical relation*.

The causal 'because' is the mark of a relation of cause and effect between two phenomena or two events. In the sentence which we gave to the child, "The man fell off his bicycle because . . .," the 'because' calls for a causal relation, since it is a question of connecting an event (a fall) with another event (*e.g.* "someone got in his way"), and not of connecting one idea with another.

The logical 'because,' on the other hand, denotes a relation, not of cause and effect, but of 'implication,' of reason and consequent; what the 'because' connects here is no longer two observed facts, but two ideas or two judgments. For instance, "Half 9 is not 4, because 4 and 4 make 8." Or, "That animal is not dead, because (or since) it is still moving."

Difficulties, from the logical point of view, undoubtedly face us at this juncture, but we shall try to exclude them from these purely genetic studies. When does implication begin and when does the causal relation end? Have

not the relations just mentioned the same right to be named causal as those that were given first? Or at any rate, is not the half of a number as much a datum of empirical observation for the child as is a fall from a bicycle? But to take such a standpoint is to forget that in order to explain why half 9 is not 4, we have to appeal to definitions and relations which are not causes, but logical relations, whereas to explain a bicycle accident there is really no need to appeal to anything beyond facts. It is therefore primarily in virtue of the type of explanation which they admit of that these two kinds of explanation differ; the one is (*logical*) *demonstration*, the other (*causal*) *explanation*.

This criterion, which naturally raises difficulties in its turn, is nevertheless justifiable on psychological and not only on logical grounds. It is clear to observation that logical justification or proof appears at a much later date than causal explanation. When you ask him to complete the sentence: "The man fell off his bicycle because . . .," the child experiences no difficulty. When you ask him: "Half 9 is not 4 because . . .," the question strikes him as absurd. He is even tempted to give a causal explanation as an answer: "because he can't count." The distinction we are making here does obviously refer to something. It may even be said to depend upon a very universal law of mental development, viz. that the desire to check results comes very much later in point of time than the faculty for inventing explanations.

In addition to this, it is necessary to distinguish a third type of relation, which may be considered as intermediate between the last two, and which we shall call the *relation of motive for action* or the *psychological relation*. The 'because' which denotes this relation establishes a relation of cause and effect, not between any two facts, but between an action and an intention, between two psychological actions. For instance: "I slapped Paul's face, because . . . he was laughing at me." The relation here is empirical in a sense, since it is a question of two facts

and of a causal explanation. In another sense, however, it is logical, since it introduces a reason, an intelligent motive as cause. We have here as much a justification as an explanation.

We have distinguished this third type because children have a tendency to replace logical by psychological relations. We gave an example of this just now. "Half 9 is not 4, because he can't count."

It was necessary to bring in these distinctions since it is our intention in this chapter to point to some of the difficulties which a child experiences in establishing correct relations. These difficulties will of course vary considerably according as we are dealing with one type of relation or another. An excellent reason, moreover, for allowing the utility of these distinctions is the good work which they did in connexion with the 'whys' of children (L.T., Chap. V). To each one of our classes of 'because' there will be seen to correspond a class 'whys': the 'whys of causal explanation' ("Why do boats stay on the water?"), the 'whys of motivation' ("Why are you going?"), the 'whys of logical justification' ("Why is it a dog and not a wolf?"). Now, both the respective appearance and the functional importance of these three kinds of question are subject to singular variations, as we have already shown at some length. Hence the desirability of keeping to this classification.

Finally, it may be wondered in connexion with each of our experiments, what is the exact relation which subsists between language and reasoning. When a child fails to complete one of our sentences, is it because he does not know the conjunction, or because he cannot handle the mental relation which it presupposes? It is impossible to settle this question a priori. We shall see later, with regard to the conjunctions of discordance, that some of them, such as 'although,' may not be understood, even though the relation of discordance is understood when other words are used. The matter is not the same when it comes to 'because.' Between the years of

6 and 9, when the relation indicated by 'because' is incorrect, one can always assume that reasoning has been at fault; the word 'because' [*parce que*] is used spontaneously by the child from the age of 3 to 4 onwards.

§ 2. HYPOTHESES¹ DRAWN FROM THE ANALYSIS OF CHILDREN'S TALK.—Before passing on to the examination of such experiments as we have made, it will be well to take our stand upon actual observation, and to ask ourselves in what sense and how often children make use of the conjunction 'because.' The results obtained in this way will constitute very useful hypotheses, which will serve to guide us in the interpretation of later material.

To help us in this task we have at our disposal eight homogeneous samples of observation. Three of them are familiar to us—the language of Lev and of Pie at the age of 6 and the language of Lev at the age of 7 (language dealt with in Chapter I of the volume L.T.). Since then Mlles Buerguer, Fiaux and Gonet have taken a record, according to the same method, of a collection of remarks, of which mention will be found in the Appendix.

We are now in possession of nearly 10,000 remarks taken down in identical circumstances from eight children only, it is true (counting Lev and Ad who were each studied on two separate occasions as four), but scattered between the ages of 3 and 7 in such a manner as to yield at least a few working hypotheses.

The first question to be asked is that of the absolute frequency of 'because.' To these statistics may be added the few occasions on which use was made of 'since' [*alors*], and which number 3 out of the 1500 sentences spoken by Dan (age 3) and 1 out of the 1500 spoken by Ad (age 4). Here is the table which we obtained. The combined numbers of 'because' and 'since' are expressed in percentages, *i.e.* relatively to the number of sentences constituting our material. Thus 1.2% means that out of 100 remarks 1.2 contain the term 'because.'

¹ See note on p. 61.

	'Because' and 'Since.'	Coefficient of Ego-centrism
Dan, age 3 . . .	1.2%	0.56
Jan, age 3 . . .	1.5%	0.56
Ad, age 4 . . .	1.2%	0.60
Ad, age 5 . . .	2%	0.46
Pie, age 6 . . .	2%	0.43
Lev, age 6 . . .	2.4%	0.47
Clau, age 7 . . .	3.5%	0.30
Lev, age 7 . . .	6.1%	0.27

Such a table undoubtedly enables us to make three hypotheses subject to verification by wider statistics and other methods which we shall develop later on.

The first is that the number of appearances of 'because' and 'since' increases with age and seems to increase considerably round about 7, after having been more or less stationary just before. In other words, if the phenomenon of 'juxtaposition' is defined as the lack of explicit relation between propositions which imply such a relation, there are strong reasons for assuming that juxtaposition is sufficiently present up till the age of 7 to 8 (Lev being a child 6 months or a year in advance of the normal) for it to diminish after that age. As this is a conclusion which we have already reached in another way (L.T., Chap. III), we may be permitted to retain it with a certain degree of confidence.

The second hypothesis is that 'because' and 'since' increase in number with the socialization of thought, or if it is preferred, that juxtaposition diminishes as the child emerges from ego-centrism. This point of view has already been made known to us elsewhere.¹ It must be admitted that the evolution undergone by Lev speaks in favour of this hypothesis; his coefficient of ego-centrism passes from 0.47 to 0.27 in a year, while the number of 'because' and 'since' increases from 2.4% to 6.1%. But it goes without saying that the only way of really

¹ L T, Chap. III, §§ 4 and 5.

verifying it would be to look for the correlation between these two kinds of coefficients in a large number of children of the same age.

Our third hypothesis is concerned with the nature of juxtaposition. It seems permissible to ask whether egocentrism of thought does not necessarily involve a certain incoherence or, as Bleuler calls it, a certain 'absence of direction' in the succession of images and judgments. If this were so, juxtaposition would be explained. Now M. Bleuler has shown in his well-known studies on psychoanalysis that a connexion exists between the degree of socialization and the degree of 'direction,' or let us say of conscious direction of thought. Dreams, delirium, or even day-dreaming, in short, every manifestation of 'autistic' or incommunicable thought appear to us as 'undirected' in this sense, that the images and ideas which succeed one another in consciousness seem to lack any connecting links, any implication, even any causal relation (dreams have no way of explaining causality except by juxtaposition). Now what is the origin of this lack of conscious direction? Is it some deep and genuine disharmony? Not at all. For analysis shows that the various images and ideas which seem so disconnected are in reality grouped together by one and the same tendency or by one and the same desire. Thus there is always direction in thought, but in cases like these the direction is unconscious and is more akin to simple motor or affective tendencies than to willed and conscious direction. If, therefore, there is an apparent lack of direction, this means that autistic thought does not take cognizance of the motives which guide it. But this ignorance is precisely the result of the autistic character of thought; it is because it is not detached from the ego that this sort of thinking does not know itself. Only by means of friction against other minds, by means of exchange and opposition does thought come to be conscious of its own aims and tendencies, and only in this way is it obliged to relate what could till then remain

juxtaposed. This is why every act of socialized intelligence implies not only consciousness of a definite thought direction (as, for instance, of problem) but also consciousness of the successive statements of a narrative (relations of implication) or of those between successive images of the objects of thought (causal relations).

This, then, is how we can make clear to ourselves the connexion between ego-centrism and juxtaposition. There is nothing in ego-centrism which tends to make thought conscious of itself (since this self-consciousness only arises through some shock with another mind), and this unconsciousness enables the objects of thought to succeed one another in an unrelated fashion. Juxtaposition is therefore the result of absence of direction in the successive images and ideas, and this absence of direction is itself the outcome of that lack of self-consciousness which characterizes all ego-centric thought.

Let us turn to the analysis of 'because' and 'since' as they were noted in the talk of those few children. Out of the 134 relations shown by Jan, Dan, Ad, Pie and Lev at 6 years old, 112 are psychological, 10 causal, and 12 logical.

The frequent appearance of the psychological 'because' is particularly striking. Here are some examples.

"Look, he's laughing!"—Why?—*Because he wants to catch the apple*" (Dan). "*I don't want them to open that because it would be a pity*" (Dan). "*But Rene isn't here yet, he'll be late . . . because he always comes slowly, he plays on the way*" (Dan).

"Look out there, 'cos it goes round" (Ad). "*I want to make a stove.—Why?—Because for [parce que pour] the heating*" (Ad). "*I must hurry up, because Mummy is coming*" (Ad).

"*I'm going to sit here, because my drawing is here*" (Pie). "*I say, Ez! Come here, because we'll both have the same thing*" (Pie).

It will have been noticed that the psychological 'because' sometimes gives a genuine psychological explanation ("he's laughing . . . because . . .") and sometimes expresses

the motive of an action or of a command ("I don't want to . . . because"). There are many intermediate forms between these two, hence the name *relations of motivation* which can be used in this connexion. As a rule it is easy to distinguish between logical justification and motivation. The former always gives the motive for a judgment or statement, the latter for a desire, a command, or an act. Thus the first alone constitutes a proof, the second is only subjective motivation.

The genuinely causal 'because' is rare. This, as we have seen (L.T., Chaps. I and III), is due to the fact that there is very little attempt on the part of children to socialize their search for the causal explanation of external phenomena. This does not mean that they do not feel the need for explanation; on the contrary, an examination of the questions asked by children shows that at the age of 6, 18% of the questions refer to physical causality (L.T., Chap. V).

Here are some examples of this way of relating. "[It is broken, *because it wasn't properly stuck.*" (Dan). "*The train can't get past there. . . . Because there is too much sand up there*" (Ad). "*One of them would like to get into the nest, but he can't, because it (the nest) is too small*" (Pie), etc.

Logical relations number only 12 out of 134, which is a useful confirmation of the result obtained from our study of 'why' (L.T., Chap. V). These relations can be easily recognized by the fact that they constitute neither causal explanations nor subjective motivations but always *proofs* or the beginnings of proof. Here are some examples:

"No, *it's a boat, because it hasn't any wheels*" (Dan). "*It's badly done [a staircase].—Why?—Because you don't make them that way, you make them this way*" (Dan). [Dan sets out some Loto cards] "*Yes, it's that one, since it's at the bottom*"

"How can you tell that they are going to school?—*Going to school? Because the satchel is behind*" (Pie).

It may be noticed that in some cases the 'because' is not spontaneous, but is given in answer to an adult's question. Be that as it may, the problem remains as to how the need for justification develops with age. In the following table we shall place Jan, Dan and Ad in one group, Ad, Lev, and Pie at 5 and 6 in the other, and we shall add the results of 100 instances of 'because' taken at random from the table-talk of two adults in the course of a few consecutive days. The numbers show the proportion of times when 'because' expresses a logical relation to the total number of occasions on which the word 'because' is used at all.

Jan, Dan and Ad	0.04	Age, 3-4
Ad (age 5), Pie and Lev	0.10	Age, 5-6
Clau and Lev	0.18	Age, 7
X and Y	0.33	Adult

We must, of course, beware of forming any hasty conclusion from statistics which cover, it is true, nearly 10,000 childish sentences, but are drawn from the talk of eight children only. But we repeat once more that our only object is to frame hypotheses which shall be tested later on by a different method of procedure. And it is the mark of a sound method that the hypotheses which guide its experiments should have been born of the crude facts of observation such as those which make up the body of the statistics given above.

These data seem to point to some period in time—between the ages of 7 and 8—as that after which the chief development of logical justification sets in. And we shall see later on in connexion with our collective enquiry that the unfinished sentences were successfully completed in a proportion of cases which increased rapidly from the age of 7-8.

If this is so, then we are warranted in making the hypothesis that the need for logical justification is concomitant with the decline of ego-centrism on the one hand

and with the diminution of juxtaposition in general on the other, since we have already shown that it is during his seventh year that Lev's coefficient of ego-centrism goes from 0.47 to 0.27, and that his 'because' goes from 2.4% to 6.1%. This solitary but closely observed case seems therefore to indicate that the decline of ego-centrism, that of juxtaposition in general, and the development of logical justification are all of a piece.

It will be easy enough to see how this mutual dependence works out, if the sequel proves it to exist. We have on many occasions stressed the point that the need for checking and demonstration is not a spontaneous growth in the life of the individual; it is on the contrary a social product. Demonstration is the outcome of argument and the desire to convince. Thus the decline of ego-centrism and the growth of logical justification are part of the same process (*cf.* in particular, L.T., Chap. II). On the other hand, we saw just now that ego-centrism entails a certain lack of direction in thinking, owing to the fact that there is nothing here which tends to make thought conscious of itself and consequently to systematize or 'direct' its successive judgments. It is therefore no mere coincidence that all these phenomena should group themselves around the age of 7-8, which forms a definite stage in the development of the socialization of thought.

But once again, these are only hypotheses. Let us now try to verify them by experiment.

§ 3. JUXTAPOSITION AND THE EMPIRICAL 'BECAUSE.'—We have shown what is to be understood by juxtaposition in childish idiom; it is the fact that the successive judgments which constitute the child's talk are not connected by explicit relations but are simply stuck together. If this phenomenon really lasts up till the age of 7-8, we must expect to find, even at this age, that when the children are asked to complete a sentence which implies a definite relation, there is a certain amount of confusion between the various possible relations. Only this element of confusion will prove that the relation was not implicit in

the child's mind, and that the child was really incapable of establishing the correct relation.

For we must beware of confusing juxtaposition with mere ellipsis. We do not ourselves express every 'because' that enters into our explanations, and it is even the mark of good style to bring out causal relations by a mere string of statements. "It is raining. The thunder has ionized the air, and the ions have brought about the formation of rain-drops." But this style is the result of art. It is only after having become conscious of causal relations that we can omit them, and our own elliptical style does not deceive us. In the same way an artist will contrive to express himself by means of a few pencil-strokes, juxtaposed like those of children who are labouring under 'synthetic incapacity'; but here again the apparent juxtaposition is the result of art.

Now, if the scarcity of the word 'because' up till the age of 7-8 is really a proof that the child's mind is devoid of certain relations, experiment should reveal a whole series of confusions when the child is pressed to find the correct relation. And this, as a matter of fact, is what proves to be the case. The data show that up to the age of 7-8 the word 'because' is occasionally an equivocal term which is used for all purposes, and covers a number of heterogeneous types of relation—causal, consecutive, and even finalistic, the child being apparently quite undisturbed by this heterogeneity. Sometimes there seems to be no need for the use of 'because' at all; it will be placed at the beginning of a proposition which bears no relation whatever except that of simultaneity to the principal proposition of the sentence. This is all the more significant in view of the fact that we are concerned here only with the 'because' of empirical relation, leaving aside for the moment the logical 'because' which offers additional difficulties of its own.

Here are some examples of these heterogeneous relations as made by children who are otherwise quite capable of handling the word 'because,' but who, in regard to our

uncompleted sentences, use the word sometimes in a correct sense, sometimes in a sense akin to 'in such a manner that' (consecutive relation), and sometimes in the sense of 'and.'

Ga (age 7), after having correctly invented such sentences as: "*There is a window broken, because a boy threw a stone,*" finishes other sentences in the following manner: "A man fell down in the street, *because he fell ill.*"¹ Now Ga does not mean that the man fell down because he was ill, but that he fell, and that was what made him ill. "*He fell down. They took him to the chemist's.—Why did he fall?—Someone had put some ice on the pavement.*" 'Because' might here be replaced by 'and' or by 'in such a manner that.' The causal relation seems to have been changed over into a consecutive relation.

Similarly, Sci (age 7; 2): "A man fell down in the road, because *he broke his leg, he had a bit of wood stuck on [a wooden leg].*" Kel (8, 6): "The man fell from his bicycle, *because he broke his arm.*" Brico (7; 6) and Je (8; 0): "because *he broke his leg.*"

Berne (6½): "I teased that dog, because *he bit me.*" (Berne means: First I teased the dog, and then he bit me.)

Leona (7½): "I had a bath, because *afterwards I was clean.*" "There was a draught because *the draught gave me a cold*" "I went to the cinema, because *it was pretty*" (We found out that he did not know it was pretty before going to the cinema; he did not go because it was pretty, but he went and it was pretty.)

Don (age 6): "I've lost my pen because *I'm not writing.*" "I went for a message yesterday, because *I went on my bike.*" "They are playing music (in the next room), because *you can hear it.*"

Mour (6; 10): "That boy threw me a stone, because *he is in prison.*" "The man fell off his bicycle, because *afterwards he was ill and they picked him up in the street*" Of course this does not prevent Mour from correctly completing other sentences such as: "I shan't go to school to-morrow, because *it is cold.*" Or "I hurt myself, because *I fell off my bicycle.*"

Berg (age 6), among many correct propositions, brings out such statements as: "He fell off his bike, because

¹ The sentence to be completed is in Roman type, the child's answer is in italics.

he fell and then he hurt himself." Mor (9; 1) [backward] tells us "I am not well, because *I'm not going to school.*"

Finally, let us recall the point brought out earlier, that Dan ($3\frac{1}{2}$) in his spontaneous language, uses the word 'because' sometimes correctly and sometimes as follows: "*I want to make a stove . . . because for the heating.*" 'Because' stuck in this way on to 'for' or 'so that' is frequently met with in the talk of children from 3 to 4 years old. One also meets with the expression "because because of." ¹

What interpretation are we to put on all this? At first sight it would seem simply that the child is hesitating indefinitely between causal explanation and logical justification. His 'because' seems at times to be a genuine 'because,' sometimes it resembles a 'since', and the reason for this is that the child does not realize when he is being required to explain, and when to justify.

Roughly speaking, this interpretation is the true one, but it must be qualified by two additional remarks. In the first place, the child (as we have already seen and as we shall show in the following section) is in no way conscious of proving what he says or what is said to him. For instance, it is certainly not from any love of justification as such that the above answers were given to us; they are due simply to the desire to make up a relation since the child has been asked for one, and in these cases, it turns out that the first relation which comes into his head refers to the consequence of the event, not to its cause, thus giving the impression that the child was trying to justify the sentence to be completed. After all, it is the consequence of an event which constitutes the logical justification of the judgment which affirms the event. The fact that he has broken his leg is both the consequence of the fact that the man fell off his bicycle and the justification of the judgment: "That man fell off his bicycle." (The French word for since, 'puisque,' is derived from

¹ French "parce qu' à cause" [Translator's note]