

# Piaget: from biology to sociology

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## 1. Introduction

The work of Piaget aims primarily at marking the continuity between life and thought, at linking biology and psychology, but also - although to a lesser extent - at connecting psychology and sociology. Let me remind the reader that his genetic epistemology presents a circular vision of sciences, not a pyramidal one. In particular, thought is to be understood from a biological point of view, yet within a social framework (which is also natural, and in particular biological).

His work takes two directions: systematization of psychological knowledge based on confrontation with reality on the one hand, and philosophizing on the question of what is growth of knowledge, on the other hand. Admittedly, these two questions are indissociable - and Piaget did everything to bring the second to the first - but oriented towards different concerns. The attempt at systematizing knowledge led Piaget to seek “the general laws of the coordination of actions”, while his more philosophical work led him to questions such problems as “the psychophysiological [mind-body] parallelism” (Piaget, 1970b), the correspondence between mathematics and reality, or micro-macro links, for example.

In Piaget’s Sociological studies (Piaget, 1977, 1995), his earlier work on the coordination of actions is extended to the interpersonal coordination of actions (and values). He retains especially the co-operative aspect of such coordination. As for the more philosophical questions - or more properly epistemological ones - they relate primarily to the question of “the social totality”, a question closely related to that of reduction and emergence.

## 2. The interpersonal coordination of values

The problem of values constitutes a constant and central concern of Piaget. Actions are directed by values, and the coordination of values - especially the reasoned coordination of values - interested him from the protestant activism of his youth (Piaget, 1917) to his work on equilibration and reflective abstraction, going through *The moral judgement of the child or Wisdom and illusions of philosophy, for example*.

Values are properties of actions or systems (*Piaget speaks about “ coordinations ”*) of action. The values are articulated by operations, or rules or standards (in particular social), which, to a certain extent, determine them (“act in return”). Values and rules are communicated by signs. Values, rules, and signs, constitute, for Piaget (1965, 1970a, 1995), the principal reference of social sciences.

In the context of sociology, the central assumption of Piaget is that the laws of *intrapersonal coordination* of values (the intellectual operations of reasoning and evaluating) are also found at the *interpersonal* level. There is an analogy between the equilibration of cognitive structures and the equilibration of interpersonal cooperation. “To cooperate, it is to operate in common” he says. Piaget is especially interested in the exchanges and “the synchronic” equilibria of values, less in the rules and values which appear and disappear in history. He thinks that synchronic

equilibria - which do not depend very much on circumstances - are rather general and vary little from one society to another. His concept of interpersonal balance rests on a rather simple but not banal idea, little discussed in the sociological or economic literature.

Generally every action or reaction of an individual, evaluated according to his personal scale, necessarily has repercussions on other individuals; it is useful, harmful, or indifferent to them, that is to say, it marks an increase (+) of their values (= satisfaction), a decrease of their values (= loss), or a null difference (Piaget, 1995 p. 100).

Suppose two individuals, *a* acting towards *b*. The values which come into play here are the cost of the action for *a*, *Ra*, the satisfaction of *b*, *sb*, the valorization of *a* by *b* (distinct from his satisfaction) and the debt that *b* has towards *a*. Considering that *b* also acts towards *a*, *b* is in a reciprocal situation with *a*. There is interpersonal balance when  $R + S = 0$  for each individual. One of the dimensions of the balance which interests Piaget lies in the fact that debts are detached from valorizations to acquire a normative character:

This obligation characteristic of normative reciprocity is explicable by the fact that neither *a* nor *b* would without contradiction be able to value the other while acting so as to be oneself devalued. For example, *a* cannot at the same time respect *b* and lie to him, because then *b* will stop respecting *a* and *a* may thus stop respecting *b* or himself (Piaget 1995, p. 120, translation revised).

In other words, social balance (here between two individuals) is accompanied by a standard of reciprocity which is at the same time social (equilibrium) and individual (obligation, debt). Social balance emerges from the social interactions and determines the obligation in individual consciences.

It is from this same point of view that Piaget analyzes legal equilibriums and moral equilibriums. Admittedly, all legal equilibriums are not static in Piaget's sense, i.e., autoregulated: rules are often crystallized during history under pressure, under nonreciprocal and unequal relationships, and are, in a way, extrinsic to individuals. Moral standards, in turn, emerge, according to Piaget, from interpersonal equilibration, and would thus be more universal, more impersonal, and more atemporal.

### **3. Structure and function**

Piaget always sought to study behavior and its mental make-up via development. Consequently, the central epistemological question was the following one: Should explanation focus on the activity of the subject or on the role of the environment? Piaget - on the basis of hundreds of experiments - emphasized the activities of the subject. Another question appears then, that Piaget - taking questions in the reverse order - was already aware of in his adolescence: Should structure or function be stressed in explanation? Piaget hesitated in answering this question and hesitated even in its formulation. Indeed, it is at the heart of his epistemological undertaking, and as he himself showed, the most central questions are the most difficult ones to clarify. How should one explain the progressive construction of cognitive structures in children? Should one privilege cognitive organization (structure) or processes (function)?

In *The psychology of intelligence*, Piaget (1962) presents a conception he will never disavow completely: “The intellectual operations, he says, proceed in terms of overall structures. These structures determine the types of the equilibrium towards which tends the whole evolution”. Piaget means here that structure precedes and directs function. Such an idea, I believe, is due to his biological conception, more precisely to the idea according to which assimilation schemes (structures) precede assimilation itself. As it is often the case with Piaget, that which precedes, also explains. Piaget thus seems more structuralist than functionalist. But his position remains ill defined because, with this assimilation problem, he fails to clearly distinguish a psychological and a logical aspect of structure (Piaget, 1962). Later, with the rediscovery of the importance of processes (Piaget, 1975), he considers the principal engine of development to be the avoidance of inconsistencies. Thus, in stressing equilibration, he comes closer to the functionalist framework. However, the reasons for constant reequilibration lie in the structural needs for coherence.

He very well sees the limits of each one of these two approaches: functionalism leads to a dualistic position which he rejects; as for structuralism, it explains badly how the structures are formed, why they are such and not different, and why the cognitive structures present an ultimate limit (the stage of formal operations). Piaget was valiantly opposed to the dogmas of his time, mainly Platonism – a dualistic position – and empiricism – a monistic position. Seeking an intermediate position, he hesitated a little. Surely he always rejected dualism, but did not clearly declare himself a monist.

#### **4. The problem of social totality**

In the social sciences, there are traditionally two polar extremes. Radical reductionism and radical (or dualistic) holism. According to radical reductionism (reformulated here by Margaret Thatcher), “there is no such thing as society, there are only individuals”. According to radical holism, society transcends individuals and cannot be understood from individual behavior. Although sociologists seldom adopt such extreme positions, one can distinguish them according to whether they stress individual or macrosocial properties to explain social facts. Piaget adopts, in this debate – and with an outstanding constancy (cf. Piaget, 1917 – an intermediate position. For him, social totality, which has new properties, (i.e. which are not properties of the individuals) modify in return, individuals. In a situation of interpersonal balance, the interindividual actions lead to the emergence of a social whole, which, in turn, “preserves” the individuals. This is what Piaget calls “the reciprocal conservation of the whole and the parts”. Such a balance corresponds, on the level of individuals, to “normative states of consciousness”, i.e. to conscious debts and obligations.

Ideal equilibrium (reciprocal conservation of the whole and the parts) concerns here the co-operation between individuals who become autonomous under the terms of this co-operation. The imperfect balance characterized by the modification of the parts by totality appears in the form of social constraints. The imperfect balance characterized by the modification of totality by the parts appears in the shape of unconscious self-centredness of the individual, similar to the mental attitude of the young children who cannot collaborate yet, nor coordinate their points of view (Piaget, 1966, p. 140).

What Piaget calls “ideal” equilibrium, with the idea of *reciprocal* conservation of whole and part, undoubtedly comes from biology. According to this idea, the stability of an equilibrium is at the same time the conservation of parts or components, and “conservation” of the whole or the structure. In the social sciences, however, there are no reasons to systematically connect these two types of stability. There are indeed equilibriums – and it is those which interest most the sociologists – that are only structurally stable (the structure is stable, but the components, for example the individuals, change). One can even think of nonrational individuals (far from the “normative states of consciousness”), with social interactions leading to the emergence of social order (Moessinger, 1999).

## 5. Organism and society

Again, when Piaget speaks about social systems, he thinks about organisms. There is yet a significant ontological difference between an individual organism and a social system, which lies in the cohesion between components, in what is called the “degree of integration”. An individual organism is more strongly integrated than a social system. The respiratory system of an individual is more strongly connected to the digestive system than an individual is connected to another one in a group. Although one can replace hearts or kidneys, an individual is more easily replaced in a group than an organ in an individual. In addition, the disfunctioning of a component is all the more likely to affect the whole system than when the system is strongly connected. By assimilating organic and social equilibria, Piaget slightens this ontological difference.

It is also necessary to distinguish the interactions between components of a system from the relations between properties of a system. Piaget considers relations between properties as synchronic, whereas interactions are diachronic. Note that Piaget thus blurs the ontological distinction between things and properties. In any case, he stresses the distinction between synchronic and diachronic, paying particular attention to the relationship between the two, to what he calls the relationship between equilibrium and history. There is here a problem which interests sociology centrally. Piaget opposes Durkheim, for whom the history of a social structure does not explain its current function, to Pareto, who is more interested in genetic and historical mechanisms. He reproaches Durkheim for missing the historical dimension, and in particular the fact that “structures, while being integrated in new totalities, can change meaning”. Piaget gives the example of the prohibition of incest, that Durkheim links to totemic exogamy:

Suppose we accept this as a hypothesis immediately the further question occurs as to why, amongst all the innumerable totemic taboos have lost functional significance while the incest taboo has kept its value in our societies because of contemporary (or still contemporary) factors, such as those revealed by Freudian psychology (Piaget, 1995, p. 5)

When Piaget writes that “structures, while being integrated in new totalities, can change meaning”, he adds in thought: contrary to cognitive development, where there is increasing equilibration. This difference between systems the history of which accounts for structure – such as cognitive systems – and those – such as social systems – for which the “conciliation between history and structure can only be made afterwards” remains essential. It is necessary thus to resort to the fact that there are

two kinds of explanations in sociology, those that focus on history, and those that focus on structure. According to Piaget, the reason for this duality is double. It is due on the one hand, to the fact that social life is fortuitous and disordered (causality is thus reduced to probabilistic causality), and on the other hand to the fact that a complete equilibrium would involve the subordination of individuals to a social totality. Thus, the sociological explanation by equilibrium, which Piaget favors, has its own limits. In turn, in cognitive psychology, a cognitive equilibrium – or rather the equilibrium of a cognitive system – corresponds to norms for the individuals which constitute the reasons for their behavior.

Such a difference between cognitive and social systems could not leave Piaget indifferent. This is why he sought to highlight those social equilibria that correspond to individual norms, such as those discussed above. It was his manner of exploring this assumption of the “reciprocal conservation of the whole and the parts”. (Yet he ignored social equilibria which are not regulated by conscious individual obligations). Undoubtedly, Piaget thought that sociology should have a closer resemblance to psychology, and that it should be oriented towards synchronic explanations such as those he proposed in *Sociological studies*. But he also saw the limits of such an undertaking, which are primarily due to the fact that there is no collective consciousness (if not metaphorical), and that an obligation is always an obligation for an individual consciousness.

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L'œuvre de Piaget vise essentiellement à marquer la continuité entre la vie et la pensée, à relier biologie et psychologie, mais aussi - bien que dans un moindre mesure - à relier psychologie et sociologie. Son épistémologie génétique est à situer dans une vision, non pas pyramidale, mais circulaire des sciences. Par exemple, la pensée est à comprendre à partir de la biologie, mais dans un cadre social (qui est aussi naturel, et en particulier biologique).

A titre préliminaire, observons qu'il y a toujours chez Piaget un travail de systématisation du savoir, qui s'appuie sur une confrontation avec le réel, et un travail plus philosophique orienté par la question de savoir ce qu'est une bonne explication. Certes, ces deux entreprises sont indissociables - et Piaget a tout fait pour ramener la seconde à la première - mais tournées vers des préoccupations différentes. La tentative de systématiation du savoir a conduit Piaget à chercher << les lois générales de la coordination des actions >> , tandis que son travail plus philosophique l'a conduit à s'intéresser à des questions telles que le << parallélisme psychophysiologique >> , la correspondance entre les mathématiques et la réalité, ou les liens micro-macro.

Dans le domaine des sciences sociales, le travail portant sur la coordination des actions s'oriente vers la coordination des actions s'orientant vers la coordination interpersonnelle des actions (et des valeurs), dont Piaget retient surtout l'aspect coopératif. Quant aux questions plus philosophiques, ou plus proprement épistémologiques, elles concernent essentiellement la question de la <<totalité social >>, étroitement liée à celle de la réduction et de l'émergence.

### **La coordination interpersonnelle des valeurs**

Le problème des valeurs constitue une préoccupation constante et centrale de Piaget. Les actions sont orientées par des valeurs, et la coordination des valeurs - surtout la coordination raisonnée des valeurs - l'intéresse depuis l'activisme protestant de sa jeunesse jusqu' à son travail sur l'équilibration et l'abstraction réfléchissante, en passant par *Le jugement moral chez l'enfant ou Sagesse et illusions de la philosophie, par exemple*.

Les valeurs sont des propriétés des actions ou des systèmes (Piaget parle de << coordinations >> ) d'actions. Les valeurs sont articulées par des opérations, ou par des règles ou des normes (en particulier sociales), qui, dans une certaine mesure, les déterminent (<< agissent en retour >>). Les valeurs et les règles ou les normes se communiquent par des signes. Valeurs, règles, et signes, constituent, pour Piaget (1965, 1970), la référence principale des sciences sociales. Sans doute accorde-t-il une primauté ontologique aux valeurs.

Dans le contexte qui nous occupe ici l'hypothèse centrale de Piaget est que les lois de la coordination *intrapersonnelle* des valeurs (ou les opérations propres au travail intellectuel) se retrouvent au niveau interpersonnel. Il y a une analogie entre l'équilibration des structures cognitives et les équilibres coopératifs *interpersonnels*.