

## CAUSALITY AND HINTIKKA'S LOGIC OF PERCEPTION

BORAN BERIĆ  
Filozofski fakultet u Zadru  
*Faculty of Philosophy in Zadar*

UDK/UDC: 159.93  
Izvorni znanstveni rad  
*Original scientific paper*

Primljeno 1990-01-19  
*Received*

The focus of the author's interest is the work of a contemporary Finnish Philosopher Karl Jaakko Hintikka in the field of the philosophy of perception. The author gives a short introduction to Hintikka's specific approach to the classical issues in this field, and tries to point out some important ontological problems, connected with causality, implicit in Hintikka's approach.

In the last thirty years, one of the most influential papers in the field of philosophy of perception was Karl Jaakko Hintikka's paper: »On the Logic of perception«, presented at the Oberlin Colloquium in 1967. In that paper, Hintikka tried to show that the logic of perception should be considered as a subclass of epistemic (or doxastic) logic and, subsequently, as a branch of modal logic. His intention was not only to present the formal semantics for perceptual concepts, but to show that, by treating perceptual concepts as modal notions, we can set up new horizons for solving some of the classical issues in the philosophy of perception. This basic idea, Hintikka has developed through several, also rather important, papers, such as: »Information, Causality and the Logic of Perception«, »Intentions of Intentionality«, etc. In this paper, I will shortly explicate Hintikka's point of view and try to point out some ontological problems connected with causality, which are implicit in his approach to the problem of perception.

The most important feature of Hintikka's approach is, by all means, the possible worlds semantics (»possible world«, for Hintikka, stands for a possible state of affairs or a possible course of events). In his semantics »a sees that p« =that, in all possible worlds compatible with what a perceives, it is the case that p. But, if we want to know is »p« really the case in all relevant worlds (relevant worlds are, of course, those compatible with what »a« perceives) there must be a possibility of its identification

through possible worlds. Such a method of identification, which tells us if some member of one of the possible worlds represents the same individual as a member of another possible world, Hintikka calls the method of cross-identification, because it refers to identification across the boundaries of possible worlds. When perception is considered, only if the cross identification is possible, then it is possible to talk about individuation, since the method of cross-identification enables us to determine the identity of the references of a singular term that specifies a unique individual in the different possible worlds. In short, when perception is considered, the method of cross-identification and the method of individuation are synonyms.

We shall say that a singular term specifies a unique individual, viz. that the individual is well-defined, if and only if the references of that singular term on »the manifestations« of the individual in the different possible worlds are connected with one and the same individuating function (or »world line«, which is the alternative term for the individuating function). The individuating function is a function which picks out the manifestations of the individual in all relevant possible worlds (or roles which that individual plays in a certain course of events). Since every manifestation of the individual, in relevant possible worlds, has certain properties and stands in certain relations with the manifestations of the other individuals, either the continuity or the similarity of these properties and relations, enables us to trace the world line of the relevant individual in space and time (when veridical perception is considered, Hintikka introduces a special criterion of cross-identification – causality).

The greatest syntactical novelty of Hintikka's logic of perception is manifested in the use of two sets of quantifiers. This syntactical novelty is the consequence of Hintikka's semantical views on the nature of perception. According to his view, there are two methods of cross-identification which are relevant for perception – physical (or descriptive) and perceptual. When we perceive, we conceptualize the reality in two different ways. One way, or one method of cross-identification, refers to situations when we perceive someone (or something), but we can not say who (or what) the object of our perception is. Since we, nevertheless, can perceptually identify that individual (determining its location in our perceptual space), this approach represents one method of cross-identification. The other method of cross-identification refers to situations when we know who (or what) the object of perception is.

The perceptual relation of a perceiver and a perceived object is crucial for the perceptual method of cross-identification. It means that this method depends on subjective experience, which implies the fact that drugs or coloured glasses can influence our ontological attitudes. The quantifiers relying on the perceptual method of cross-identification are ( $\exists x$ ) and ( $\forall x$ ).

The formalized expression »a perceives Mr. Smith«, in Hintikka's logic of perception, would be:  $(\exists x)(a \text{ perceives that } (b=x))$ , where  $b=$ Mr. Smith.

The physical method of cross-identification relies on facts such as the continuity of the behaviour of the material bodies in space and time, similarity of individuals, continuity of memory and so forth. To be able to determine who (or what) the perceived object is, means to be able to say that the perceived object (the individual) is physically well-defined. Quantifiers relying on physical methods of cross-identification are  $(\exists x)$  and  $(Ux)$ . The formalized expression »a perceives who the man in front of him is«, in Hintikka's logic of perception, would be:  $(\exists x)(a \text{ perceives that } (b=x))$ , where  $b=$ man in front of »a«.

But let us see what Hintikka's logic of perception can do on the ontological level. One of the classical issues of the philosophy of perception is the problem of the ontological status of directly accessible objects of human perception. Philosophers of perception have traditionally chosen two solutions - perception can offer immediate awareness of physical entities or of nonphysical entities (such as sense data, ideas, qualia, intentional objects, etc.).

Hintikka rejects the classical approach to the problem of perception, since that approach implicitly presupposes a two-term relation between the perceiver and the perceived object. Hintikka's alternative approach is inspired by possible worlds semantics. For him, perceptual concepts should be treated as modal notions, which implies that they involve simultaneous multiple reference to more than one possible world, and which, in turn, implies that the perception should not be treated as a simple two-term relation. This is, also, the reason why the well known argument from illusion (1), and its undesired consequence – postulation of ontologically problematic entities (sense data) should be rejected.

According to Hintikka's view, there is no ontological difference between the individuals in the actual and in the possible worlds. The difference is neither in the ontological status of individuals referred to by singular terms, nor in the kind of reference of those singular terms. The difference is based exclusively on the difference of the methods of individuation, syntactically expressed in the use of two different pairs of quantifiers. Notice that variables bound to these quantifiers range over the same kind of individuals – there is no distinction between physical and perceptual objects. The main reason for the misleading postulation of sense data is the proscribed reification of the values of variables bound to quantifiers relying on perceptual methods of individuation.

If we accept Quine's criterion of ontological commitment – if we quantify over something, it is necessarily a part of ontology (»to be is to be value of variable«), and if we accept the objectual interpretation of

quantifiers, the question is: What is it that we quantify over? Hintikka's answer is that we prima facie quantify over world lines (or individuating functions). Prima facie, because there is no assumed contrast between the individuals of the actual world and the individuating functions. According to Hintikka, they are »merely two sides of the same coin« (2), which means that the question concerning the ontological primacy of the individuals of the actual world and the individuating functions is illegitimate.

The idea of the worldbound individuals is, for Hintikka, a metaphysical myth, since the individuating function represents the necessary condition for speaking of an individual of more than one world. In other words, without the individuating functions there is no way to establish the connections which create the individual of the actual world. Since individuating functions do not represent inhabitants of any possible or the actual world, it is completely misleading to talk about their ontological status. Individuating functions, in fact, represent »an objectively given supply of ways in which we can deal with more than one contingency (possible world). They are part of our conceptual repertoire or our ideology (in something like Quine's sense), rather than part of our ontology. In a sense, we are committed to their existence, in the sense of their objectivity, but not to including them among 'what there is' in the actual world or in any other world« (3).

From the ideas presented above, it follows that we should reject the intuitive idea of the individual as something independent of our conceptual apparatus. So, Hintikka rejects the position of the metaphysical realist, calling his position – conceptual realism. Connecting his position with the work of the psychologist J.J. Gibson, Hintikka treats perception as the pickup of information about the environment, rather than a mere registration of sensations. The information given by perception, since it refers to the environment, must be expressed in terms of the same concepts that we use when we talk about the objects of perception. Such information can be true (in the case of veridical perception) or false (in the case of nonveridical perception), but not certain or uncertain, since it can not refer to unedited sense impressions (eg. sense data).

Colours, for example, are always seen as colours of certain (three-dimensional) objects, never as colours only (4), as colours should be according to sense datum theories, for example, Russel's or Moore's. This means that secondary qualities (colours, sounds, etc.) can not exist independently of material bodies or, more precisely, the objects of three-dimensional space, viz. that such properties do not represent separate entities existing in, for example, two-dimensional space as they were treated by sense datum theoreticians. If we accept this, we should accept the basic assumption of conceptual realism according to which the content of

perception should be specified in the language appropriate to properties, relations and objects of three-dimensional space, rather than in the language appropriate to sense data.

But let us return to the concept of individual. The following question still remains an open one: How can individuating functions, beside possible worlds, also reach the actual world, or: How can we say that some »perceptual objects« are identical with the objects in the actual world?

According to Hintikka, individuating functions can reach the actual world only through a causal chain. This is the reason why he had to introduce a new distinction – between geometrical and causal methods of cross-identification: »If I am right, cross-identification between the actual world and its perceptual alternatives takes place in a way different from cross-identification between these alternatives themselves« (5). He calls the first type of cross-identification, which should be applied in the cases of veridical perception, the causal method of cross-identification, and the second type, which should be applied in the cases of nonveridical perception, the geometrical method of cross-identification. Hintikka chose the term geometrical, since he considers it as fixing the co-ordinates of some individual in the perceptual space of a person who perceives that individual. On the other hand, the idea of causality enables his semantics to incorporate the most relevant situations, those in which we have to consider the individuals from the actual world. Those individuals, in the veridical perception, should be matched one-to-one with the individuals in the perceiver's perceptual space, according to the thesis about the ontological sameness of perceived objects. In short, for the geometrical method of cross-identification it is relevant that it is tied exclusively to the perceiver's perceptual space, and for the causal method of cross-identification it is relevant that it necessarily extends its domain to the actual world.

Since Hintikka does not explicitly define the nature of the proposed causal relation (except stating the necessary condition for establishing the lines of perceptual cross-identification – the causal chain must pass through the perceiver's sense organs), there is still a possibility of several interpretations. In fact, there are three relevant answers, compatible with Hintikka's logic of perception, to the question concerning the ontological status of the relation of the causal relation:

1) causes are entities (or events) from the actual world; effects are in the domain of possible worlds. Hintikka, or, it is better to say, anyone, would hardly accept this attitude, because it presupposes the ontologically peculiar fact that the causal effect can be transferred from the actual to possible worlds. In that case, it would be possible that sound, heat, light, etc. can, partly or completely, pass from the actual to the possible world(s), which is, I think absurd.

2) causes and effects are entities (or events) exclusively from the possible worlds. The only accessible reality would be, obviously, the reality of possible worlds, and one of those possible worlds would be defined as »the actual world«. But, we should still be forced to accept the strange doctrine about the causal interaction between two (or more), in this case possible, worlds. Besides this, one can wonder if it is suitable for conceptual realist to rely on causality in explaining perception. If we accept Hintikka's stance of perceptual realist, according to which the content of perception should be specified in terms of the concepts expressing properties and relations of the objects of three-dimensional space, and if we accept the attitude that the causal method of cross-identification considers only individuals from possible worlds (including the one which is defined as »the actual world«), then it seems that the change expected as an effect of causal relation, between »the actual world« and the corresponding possible worlds, remains obscure. Wouldn't the idea about the conceptual (and not about the causal) nature of that relation be more appropriate for a conceptual realist?

3) causes and effects are entities (or events) exclusively from the actual world. In that case, causality occurs inside the actual world, and the relation between a caused entity (or event) from the actual world and possible worlds, would be of modal nature. This position is obviously the most plausible. But such a position is not incompatible with a position of a more subtle sense datum theoretician who would be expressed in terms of the concepts of properties and relations of objects from three-dimensional space. Such a theoretician would be able to preserve the two-term relation, between the causes and effects of perception, which means that modality, viz. »simultaneous multiple reference«, could appear only at the level of relation between, for example, sense datum as the product of perceptual causal relation, and possible worlds. Of course, if he wants to allow the possibility of relying on the modal nature of such a relation, our hypothetical sense datum theoretician should reject the thesis about the incorrigible access to sense data. But Hintikka must not allow the compatibility of this position and his position, since, according to sense datum theory, it is possible to reify the values of variables bound to quantifiers relying on perceptual methods of individuation in the form of sense data – mental entities which Hintikka intended to eliminate.

As a conclusion, we may say that Hintikka's logic of perception, which treats perceptual concepts as modal notions, is very successful in its semantical function, but the possible worlds semantics, with its ontological indeterminateness, can not offer us significant solutions for classical ontological issues in the philosophy of perception.

*Notes:*

- 1 This is the simplified Hintikka's version of the argument from illusion:  
 1) No entity can, in the same time, have incompatible properties  
 2) I see that the physical entity in front of me is grey  
 3) The physical entity in front of me is, in fact, red I have to postulate a (new) grey entity (eg. sense datum) as an object of my immediate visual perception
- 
- I have to postulate a (new) grey entity (eg. sense datum) as an object of my immediate visual perception
- 2 page 320., Radu B o g d a n (ed.): »JAAKKO HINTIKKA«  
 3 page 179., J. H i n t i k k a : »On the Logic of Perception«, in »MODELS FOR MODALITIES«  
 4 Hintikka finds support for his attitude in the works of the following two psychologists:  
 David K a t z : »The World of Color«, Kegan Paul, London, 1935; and Jacob Beck:  
 »Surface Color Perception«, Cornell University Press, New York, 1973  
 5 page 71., J. H i n t i k k a : »Information, Causality and the Logic of Perception«, in  
 »INTENTIONS OF INTENTIONALITY AND OTHER NEW MODELS FOR MODALITIES«

*References:*

- R. B o g d a n (ed.)(1987): »JAAKKO HINTIKKA«; Dordrecht Reidel Publ. Co., Dordrecht  
 R. C l a r k (1987): »What Is a 'Perceptually Well Defined Individual'?«; in Bogdan (1987)  
 J. H i n t i k k a (1962): »KNOWLEDGE AND BELIEF«; Cornell University Press, Ithaca  
 J. H i n t i k k a (1969): »MODELS FOR MODALITIES«; D. Reidel Publ. Co., Dordrecht  
 J. H i n t i k k a (1969 a): »Semantics for Propositional Attitudes«; in Hintikka (1969)  
 J. H i n t i k k a (1969 b): »On the Logic of Perception«; in Hintikka (1969)  
 J. H i n t i k k a (1975): »THE INTENTIONS OF INTENTIONALITY AND OTHER NEW MODELS FOR MODALITIES«; D. Reidel Publ. Co., Dordrecht  
 J. H i n t i k k a (1975 a): »The Semantics of Modal Notions and the Indeterminacy of Ontology«; in Hintikka (1975)  
 J. H i n t i k k a (1975 b): »Objects of Knowledge and Belief: Acquaintances and Public Figures«; in Hintikka (1975)  
 J. H i n t i k k a (1975 c): »Information, Causality and the Logic of Perception«; in Hintikka (1975)  
 J. H i n t i k k a (1975 d): »The Intentions of Intentionality«; in Hintikka (1975)  
 R. K r a u t (1987): »Hintikka's Ontology«; in Bogdan (1987)  
 W. L e n z e n (1978): »RECENT WORK IN EPISTEMIC LOGIC«; ACTA PHILOSOPHICA FENNICA, vol. XXX; North Holland Publ. Co., Amsterdam  
 E. S a a r i n e n (1987): »Hintikka on Quantifying In And on Trans-World Identity«; in Bogdan (1987)

*Boran Berić*: KAUZALNOST I HINTIKKINA LOGIKA PERCEPCIJE

S a ž e t a k

U fokusu autorovog interesa nalazi se rad suvremenog finskog filozofa K. J. Hintikke na području filozofije percepcije. Autor daje kratki uvod u Hintikkin pristup klasičnim problemima filozofije percepcije i pokušava ukazati na neke ontološke probleme, u vezi s idejom kauzalnosti, implicitne u Hintikkinom pristupu.