

Jørgen Jørgensen (Copenhagen), Imperatives and Logic:

The object of this communication is to initiate a discussion on the logical character of imperatives. By the word "imperative" I understand imperative sentences which I define as sentences in which the main verb is in the imperative mood. Imperatives in this sense may so comprise not only commands or orders but also requests, pleas, appeals and other linguistic expressions of willing or wishing something to be done or not to be done, the differences between these expressions apparently not being of a logical but of a psychological character. Examples are: "Be quiet", "Shut the door, please", "Multiply 3 by 5", "Don't be silly", "Do your duty", "What you should not want done to yourself, do not do to others", "Act only on that maxim whereby thou canst at the same time will that it should become a universal law".

Perhaps it will be expedient to start the discussion on the logical character of imperatives by stating the small puzzle that started the tentative reflections which I will now allow myself to communicate to you.

You all remember the famous argument by which Henri Poincaré in his "Dernières Pensées" (p. 224—25) tried to demonstrate the impossibility of founding morals or ethics on science. In concentrated form it runs as follows: All scientific sentences are in the indicative mood, whereas all moral sentences are in the imperative mood. But from sentences in the indicative mood only sentences which are also in the indicative mood can be derived by logical inference. Therefore it is impossible to infer a moral sentence from a scientific sentence, however much the concepts involved may be manipulated.

The conclusiveness of this argument I think we must admit. At least I know neither of any scientific sentence in the imperative mood nor of any logical principles by which it is possible to derive a conclusion in the imperative mood from premisses in the indicative mood. And I think it can be proved that such inferences can never be conclusive if we take the word "inference" in the generally accepted sense in which it is defined e. g. by Professor Joseph as "a process of thought which, starting with one or more judgments, ends in another judgment whose truth is seen to be involved in that of the former" ("An Introduction to Logic", p. 232, Oxford 1931). Here it is clearly implied that the conclusion of an inference will

have to be a true judgment or sentence, an implication which is made still more conspicuous by Professor Stebbing who (in her "A modern Introduction to Logic", p. 215, London 1933) carefully distinguishes between the *constitutive* and the *epistemic* conditions for the validity of an inference from a premiss p to a conclusion q , stating that the constitutive conditions are (1) p must be true, (2) p must imply q , whereas the epistemic conditions are (1) p must be known to be true, (2) p must be known to imply q without it being known that q is true.

According to this definition of a logical inference a sentence in the imperative mood cannot be inferred from sentences in the indicative mood, because the relation of implication only holds between sentences which are capable of being either true or false (or at least of having one or the other of two analogous truth-values). But this condition imperative sentences do not fulfil, as they can neither be true nor false in any sense in which these words are used in logic. "Be quiet" — is it true or false? A meaningless question. "Do your duty" — is it true or false? Unanswerable. The two commands may be obeyed or not obeyed, accepted or not accepted and considered justified or not justified; but to ask whether they are true or false seems without any sense as well as it seems impossible to indicate a method by which to test their truth or falsehood. Therefore they are not capable of being implied by other sentences and consequently they are incapable of being conclusions in logical inferences. Indeed, they are even incapable too of being premisses in such inferences, because also the premisses must be capable of being either true or false in order to function as premisses, and it therefore seems justified to sharpen Poincaré's dictum to the extent of maintaining: Imperative sentences are not only unable to be conclusions in inferences with indicative premisses, but they are unable too of being premisses in inferences and so seem to be unable to function as part of any logical argument at all.

By this assertion we are not only sharpening Poincaré's dictum but are also contradicting a remark made by Leonard Nelson (in his „Grundlagen der Ethik“, II, p. 4 f, Göttingen 1932) and others with regard to it, viz that even if it be true that imperative sentences cannot be inferred from indicative sentences it might nevertheless be true, that imperative sentences can be inferred from other

imperative sentences. This according to our preceding argumentation which to me seems indisputable is not tenable. And yet I must admit, that it seems equally evident that inferences can be formulated in which the one premiss at least and the conclusion are imperative sentences. For instance:

Keep your promises	Love your neighbour as yourself
This is a premise of yours	Love yourself

Therefore: Keep this promise. Love your neighbour.

Here we have inferences in which one or both of the premisses as well as the conclusion are imperative sentences, and yet the conclusion seems just as inescapable as the conclusion in any syllogism containing sentences in the indicative mood only. By the way I may here remark that this inescapability has nothing whatever to do with the question whether the imperative sentences are considered justified or not, since the inferences would be just as evident if the first premisses and the corresponding conclusions had been the negatives of the cited, namely: "Don't keep your promises", resp. "Don't love your neighbour as yourself".

So we have the following puzzle: According to a generally accepted definition of logical inference only sentences which are capable of being true or false can function as premisses or conclusions in an inference; nevertheless it seems evident that a conclusion in the imperative mood may be drawn from two premisses one of which or both of which are in the imperative mood.

How is this puzzle to be dealt with? Are we to enlarge our concept of inference and with professor Ernst Mally (in his „Grundgesetze des Sollens. Elemente der Logik des Willens“, Graz 1926) construct a "logic of imperatives" (eine „Logik des Willens“) coordinated with the current "logic of propositions" („Logik des Denkens“)? Or is it possible to deal with the seemingly imperative inferences in another way, as e. g. the regretted Professor Walter Dubislav has proposed in his last publication: „Zur Unbegründbarkeit der Forderungssätze“ (in "Theoria", Vol. III, p. 330—42, 1937), where he, if I understand him rightly, suggests that to any imperative sentence there is a corresponding indicative sentence („ein Behauptungssatz“) and that only these indicative sentences are involved in the process of inference?

In order to discuss these questions it will be necessary to analyse

the imperative sentences and to compare them with the indicative sentences. And here it seems clear to me that any imperative sentence has, as Dubislav said, an indicative parallel-sentence in which the contents of the command or wish is described. It is not possible to issue a command without commanding something to be done or to express a wish without expressing a wish for something. Any imperative sentence may therefore be considered as containing two factors which I may call *the imperative factor* and *the indicative factor*, the first indicating *that* some thing is commanded or wished and the latter describing *what* it is that is commanded or wished. The imperative factor which finds its linguistic expression in the main-verb being used in the imperative mood is the common feature of all imperatives, whereas the indicative factor which varies from one command to another is expressed linguistically by the occurrence of different main-verbs in the different imperatives. In these it is not possible to separate the two factors from one another because a command void of contents is impossible. But the indicative factor may be separated from the imperatives and formulated in indicative sentences describing the action, change or state of affairs which is ordered or wished. E. g. in the command "Shut the door" it is ordered that the door is to be closed, that is, a situation is claimed which would make the proposition "The door which before was open is now closed" a true one. So it seems to be a general syntactic rule that from an imperative sentence of the form "Do so and so" an indicative sentence of the form "This is so and so" may be derived. This is important for two reasons. Firstly, because the derived indicative sentence is capable of being true or false — in Wittgenstein's terminology, it "pictures" a (possible) fact — and therefore it is meaningful in contradistinction to the imperative sentences which as such are not testifiable and seem to acquire a meaning through their indicative derivations only. Or more strictly expressed: An imperative sentence has a meaning if and only if the corresponding indicative sentence which may be derived from it and which describes its contents is meaningful. By this derived sentence it may also be tested whether the command is correctly understood by the person to whom it is addressed and whether it is obeyed or not (but of course not whether it is true or false). And secondly, the rule is important because the derived indicative sentences can be dealt with in the same way as ordinary propositions according to the rules of

ordinary logic which do not apply to the imperative sentences. So we may construct negations, disjunctions, conjunctions, implications, equivalences and the other truth-functions of the derived indicative sentences and thereby indirectly apply the rules of logic to the imperative sentences so that the entailments of the latter may be made explicit.

By this device the imperative factor is so to speak put outside the brackets much as the assertion-sign in the ordinary logic, and the logical operations are only performed within the bracket. More akin to ordinary linguistic usage is, however, another method by which the imperative sentences are transformed into indicative sentences in which it is said that the ordered actions are to be performed, resp. the wished state of affairs is to be produced. According to this method the command "Shut the door" corresponds in a certain sense to the indicative sentence "The door is to be closed", or more explicitly, "The action of closing the door is belonging to the class of actions which are to be performed". Or generally, there is a syntactic rule according to which an imperative sentence of the form "Do so and so" may be transformed into an indicative sentence of the form "Such and such action is to be performed, resp. such and such state of affairs is to be produced". By means of such transformations the before-mentioned imperative inferences may be given syllogistic forms, viz.:

All promises are to be kept

This is a promise

Therefore: This promise is to be kept,

resp.: Your love of your neighbour is to be equal to your love
of yourself

You are to love yourself

Therefore: You are to love your neighbour.

Here the imperative factor is transformed into the phrase "is to be etc." which is a kind of auxiliary concept that may function as a predicate in an indicative sentence. But then the question arises: How is a sentence of the form "Such and such is to be so and so" to be verified? How is it for instance to be verified that all promises are to be kept?

To this question I know of no other answer than the following: The phrase "is to be etc." describes not a property which an action or a state of affairs either has or has not, but a kind of quasi-

property which is ascribed to an action or a state of affairs when a person is willing or commanding the action to be performed, resp. the state of affairs to be produced. Therefore every sentence of the form "Such and such action is to be performed" may be considered an abbreviation of a sentence of the form "There is a person who is commanding that such and such action is to be performed". And sentences of this form are, of course, capable of being verified or falsified and consequently of having a meaning.

By this transformation the imperative factor has, however, disappeared. The indicative sentence quoted is not prescribing or commanding anything at all, but is merely stating or describing that some person is issuing a command, and to describe that a command is given seems quite another thing than issuing a command. The difference, important as it may be from many points-of-view, seem however not to be of a logical but rather of a psychological nature, the imperative factor being an *expression* of the willing or wishing of the action or the state of affairs which is described by the indicative factor, resp. by the derived indicative sentence. Indeed, whether something is wanted or wished does not in any way contribute to the characterization of it but characterizes only the person who wants or wishes it. Expressions of the form "Such and such is wanted, wished, commanded or the like" may so be only reflexions in the passive mood of expressions of the form "Someone wants, wishes, commands etc. such and such". If this is so, it can possibly explain why the auxiliary concept "is to be etc." has originated, namely because the sentences of the form "Such and such is wanted, wished, commanded etc." suggests that the phrase "is wanted, wished, commanded etc." denotes a property of the object indicated by the phrase "such and such", whereas the truth is that sentences of the form mentioned states a relation between the such and such and a person who is wanting or wishing or commanding it. —

Considering the fact that we are here assembled to discuss linguistic questions of a general character it may perhaps not be thought preposterous if I in conclusion attempt to illustrate the relation between sentences in the imperative mood and sentences in the indicative mood a little further by venturing an idea which has occurred to me concerning the origin of language. My point is that imperative sentences have played a considerable part when language in its descriptive form originated, nay, that the indicative sentences

may possibly have developed from sentences of an imperative character. To make this clear I must begin by stating that I consider language to be a special class of forms of behaviour, and spoken language to be one of the most primitive forms of the linguistic behaviour. This behaviour may have developed through four main stages, of which I consider the first two to be of a pre-linguistic character, whereas I deem the last two to be of a genuine linguistic nature. At the first stage sounds or gestures or other emotional expressions may be produced in an animal as pure reflexes which act as stimuli on other animals and so may *function* as signals although they are neither produced with any intention to act as such nor apprehended as signals. Of this character the so-called bee-languages seem to be which I think are not genuine languages at all because the sounds or gestures ("dances") presumably are not meant to convey any meaning and no meaning is ascribed to them by the other bees. Next comes a stage in which the sounds or gestures are still pure reflexes and thus have no meaning to the creature that produces them, but are nevertheless apprehended by other creatures as indication either of the mental state, e. g. the emotional state, of the sound-producer or of the causes of this state. This may for instance occur when a mother interprets the cries of her young child as expressions of hunger or displeasure. Here a language is in a certain sense understood although no language is spoken. Thirdly, we have a stage at which sounds or gestures are produced with the intention of conveying meaning, but not understood by the hearers, and this stage I consider the first stage of genuine language because the sounds and gestures here are *used* as signs although they are not understood as such. This may occur for instance when animals do not take any notice of human language because they are not apprehending it as such. And finally, we have the stage of normal linguistic behaviour where the sounds are produced as signals and also apprehended as such. i. e. a language is spoken as well as understood as a language.

Now, within this last stage we may further distinguish what may be labelled the ape-stage where the sounds are only used and apprehended as indicating emotions or feelings, and the human stage where they are also used and understood as descriptions of objects or facts. And it is by the very transition from the ape-stage to the human stage the imperatives to my mind play an important part, being expressions of states of mind as well as descriptions of objects

or facts. They therefore serve two purposes which I name an *informative* and an *imperative* purpose, and which I consider the two main purposes of all human language. For an informative purpose language is used when it serves as a means to give or to get information about facts, whereas it is used for an imperative purpose when it serves as a means to change present facts or to hinder unwanted changes from taking place, that is in a word: to control facts. These purposes are, of course, the *speakers* purposes, and as it seems evident to me that it is the speakers who make the language according to their needs I find it reasonable to assume that language is developed primarily to serve the speakers purposes — the possible hearers or listeners only acting in a regulating way as indicators whether the speech has been correctly understood or not, that is, whether the hearers behave as the speaker expects them to do as a consequence of his speaking. Now, for biological and psychological reasons of a general nature I think it probable, that a primitive speaker has more interest in controlling facts than in giving information about facts already known to him, and therefore I think that the primitive linguistic expressions has been mainly of an imperative character, the language having been used as a kind of “magical” tool for controlling the environment of the speaker before it was used as an instrument for describing it. Indeed, we have all of us from our earliest childhood got the habit of using language as a controlling tool, our first linguistic experiences having shown us that we — in an to ourselves understandable way — by our cries or other utterances were capable of producing the food we wanted or the appearance of our mother, nurse or playthings. We thereby have got a deep-rooted impression that our utterances are tools by which things wanted may be procured or things unwanted may be removed, and this impression is more or less explicitly carried over in our mature age where it survives predominantly in the imperative usage of the language and is strengthened in those cases where we happen to address ourselves to other human beings who are obeying our commands or fulfilling our wishes, whereas it is weakened in those cases where we are addressing ourselves to dead things which take no notice of our commands or wishes. Very soon we too learn, however, that in order to obtain the change wanted we have to differentiate our command-cries according to the definite concrete changes we want to obtain. Thereby our imperative cries have got different contents

which as before mentioned may be described in indicative sentences thereby opening the way for a mutual understanding and for information about facts present or wanted. In some such way the syntactic rule according to which indicative sentences may be derived from imperative sentences may find a psychological explanation, and it therefore to me seems to be of interest to learn if there are any linguistic facts which tend to disprove or to corroborate the idea concerning the origin of language here tentatively brought forward. Perhaps someone of the linguists present will be good enough to comment upon this question?

In conclusion I may resume the main points of the present communication in the following theses:

I. Imperative sentences are not capable of being either true or false. According to the logical positivist testability-criterion of meaning they therefore must be considered meaningless. However, they are nevertheless capable of being understood or misunderstood and seem also to be able to function as premisses as well as conclusions in logical inferences.

II. This puzzle may be dealt with by analysing the imperative sentences into two factors: an imperative and an indicative factor, the first being merely an expression of the speakers state of mind (his willing, wishing, commanding etc.) and therefore of no logical consequence, whereas the last may be formulated in an indicative sentence describing the contents of the imperative sentences and therefore being capable of having a meaning and of being governed by the ordinary rules of logic.

III. The ordinary rules of logic being valid for the indicative sentences which can be derived from the imperative ones, and no specific rules for the imperatives being known (unless it should be the rule governing the derivation of the indicative sentence from the imperative one) there seems to be no reason for, indeed hardly any possibility of, constructing a specific "logic of imperatives".

IV. Language conceived as a specific class of forms of behaviour may possibly have originated as a tool for controlling facts in the speakers environment, the imperative sentences consequently being the most primitive linguistic utterances from which the indicative sentences may have developed as a result of the efforts of the speaker to make the hearer understand the speakers wants in order that the hearer may be able to act according to the wishes of the speaker.