

The Logic of Demand-Sentences

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Source: *Synthese*, Dec., 1962, Vol. 14, No. 4 (Dec., 1962), pp. 237-254

Published by: Springer

Stable URL: <https://www.jstor.org/stable/20114437>

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THE LOGIC OF DEMAND-SENTENCES *

1. THE AIMS OF LOGIC

As a definition of logic it will be maintained in this paper that the aim of logic is to establish norms in relation to the concepts of "concept", "sentence" and "deduction" as far as it is necessary to do so in considering the concept of a sentence which makes sense or that of a valid deduction. The logical norms must not be arbitrary, but must rest on existing languages. Otherwise there is no guarantee, that our logic can be applied. Logic should only correct language, when natural language is inadequate or misunderstandings may arise, for instance, when a concept is ambiguous and meaningless.

No further validation of logic is possible. What metalogic provides is not a validation of logic, but only a description of it. What is here represented as the aim of logic is often given the name of metalogic, and the aim of logic is said to be the establishment and deduction of formulae of a particular type. But it is more convenient to give this latter type of logic the name of "logical calculus", and so to leave the name "metalogic" to the describing of logical sentences, that is, the describing of sentence-signs and logical signs.

What distinguishes logic from the logical calculus is that the latter lays down logical rules quite arbitrarily, without there necessarily being any reference to the possibility of applying them to language.

A logic is determined by the type of norms, which it lays down, thus there might be several logics, which could have application.¹

As the above definition of "logic" includes the concept "sentence", it must be stated, that the concept "statement" is to be taken as covering all types of grammatical sentences, such as demands, wishes, requests, questions. The only conditions they have to fulfil is that of making sense.

* The original text of this article was published under the title 'Die Logik der Forderungssätze' in *Internationale Zeitschrift für Rechtsphilosophie* (Ed. by Hans Kelsen), 1939.

The definition of a "sentence which makes sense" can now be introduced.

2. SENSE AND VERIFICATION

The concept of a "sentence which makes sense" arose from the point of view of the logic of statements. Logic was regarded as the theory of correct thinking, and thoughts are formulated in statements.²

In all definitions, which have been given hitherto the concept of a "sentence, which makes sense" has been traced back to the concepts "true" and "false". This procedure expresses the demand for the verifiability of sentence, or the somewhat weaker demand for its confirmability or verifiability in some degree. We are not concerned with the degree of verifiability, but only with the question whether the "sentence which makes sense" can be explained in terms of the concept of verifiability.

Our criticism will therefore be confined to considering the definition of "sentence which makes sense" in terms of verifiability.

According to this view, a sentence makes sense, if it is verifiable; and it is verifiable, if its words have meaning. The requirement that the words shall have meaning seems to be a necessary and sufficient condition of the sentence being verifiable and so making sense. For, if the words have no meaning the sentence is not verifiable; thus the condition is necessary – and if they have meaning it is verifiable; thus the condition is sufficient. Thus, since verifiability is a criterion of a sentence making sense, a sentence, which makes sense results, when the requirement of the words-having meaning is satisfied.

Yet this definition is not applicable to all types of sentences, not even to all types of assertions. The above definition is only usable, if one decides to describe as senseless all sentences, which are not verifiable or in other words to consider all sentences which make sense as verifiable. The thesis of verifiability becomes a tautology; for the claim it makes is contained in the concept to which it refers. (A "sentence, which makes sense" is by definition one which is "verifiable".) If we include among sentences not only statements, but all kind of sentences, a "sentence, which makes sense" can no longer be explained in terms of "verifiability", and the thesis of verifiability becomes a contradiction. A "sentence, which makes sense" must be thought of in such a way that the concepts of "making sense" and those of "true" and "false" cease to be

interdependent. Before this point can be dealt with, the concept of “meaning” must be introduced.

3. MEANING AND SENSE

A word has a meaning if it is defined. If a word is of a synthetic, that is to say, not of a syntactical nature, its definition must be of a kind which ultimately contains only words, which refer to what is given, experienced or felt and which we do not need to circumscribe by means of other words. Words are syntactical, when they relate to operations upon expressions, which may be words, sentences or a combination of sentences; thus what they relate to is the combining of expressions.

The meaning of synthetic words can ultimately be determined by the aid of gestures, looks and so on. This type of explanation can be achieved without reference to the solution of the question whether this treatment is applicable only to a particular category of words, or of the question whether we can stop at this or that stage of definition, in dealing with a particular category of words. In defining “table” for instance, we can stop at any stage we like in the analysis of its characteristics. In defining of its characteristics by means of gestures, looks, and so on, we leave the sphere of language, whether by “language” we mean only word-language or languages composed of other kinds of signs. Suppose the meaning did not ultimately reach something outside the language: in that case we should not be able to define all words, or the position would be that a sign *A* was defined by means of some sign *B*, and conversely *B* was defined by means of *A*. In the former case a number of words would, according to the definition of “meaning”, be meaningless; in the latter, language would be a system of interconnected signs, in neither case revealing a connection with reality.

This explanation of ‘meaning’ enables us to introduce the definition of a ‘sentence, which makes sense’.

A sentence makes sense if the words, which it contains have meaning and if they are combined according to grammatical and logical norms.

In this definition the concept ‘makes sense’ is explained from the point of view of understanding a sentence logically, as distinct from doing so intuitively. The expression ‘making sense’ is sometimes used in a sense different from the logical sense, to which attention must be called.

It might be objected that the definition of 'sentence which makes sense' which has been given is circular. For if the meaning of words is given by means of definitions, and definitions are sentences and ones which make sense, a sentence which makes sense must be one, whose words are explained by sentences which make sense. The circularity can be avoided if we do not describe definitions as sentences, and indeed, they are not usually so described.

This proceeding is not purely arbitrary, but rests on the distinctive structure of definitions.

Definitions are expressions which fall into two halves, and whose left-hand side only receives a meaning via their right-hand side. Definitions prescribe the way in which a word is to be replaced by some other, or by a combination of words, and the word to be replaced only receives a meaning through the process of replacement. When all words of a sentence have meaning what we are dealing with is not a definition but an assertion, a tautology or a contradiction. A definition becomes a tautology if we insert the definiens in the left-hand side. This type of tautology is to be distinguished from a circular statement. Circularity arises if we try to define a given word by making use of that word, or an expression defined by means of that word before, in the right-hand side of the definition.

A distinction can be drawn between definitions as 'correctly constructed' or 'incorrectly constructed', analogous to the distinction between sentences which make sense and those which are senseless.

A definition of a non-syntactical word is to be called 'correct' if the words on the right-hand side, provided they are not syntactical can be traced back by means of definitions until we reach acts of pointing – and if they are combined on logical principles. A definition of a syntactical word is to be called 'correct' if it traces the word back to other syntactical words, which either were introduced in the same way by means of other syntactical words or count as basic syntactical words. Examples of basic syntactical words are 'not' and 'or' in Russell-Whitehead's system.³ Other syntactical words, such as 'and', 'implies' can be traced back to them.

4. THE FORM OF DEMAND-SENTENCES AND ASSERTIONS

The expression 'demand-sentence'⁴ is to be taken as including commands,

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norms and imperative sentences of all kinds; the word 'assertion' applies to statements.

A statement, whichever its kind might be, describes or represents or states something. Examples are: 'War is breaking out', 'I hear a noise', 'Brutus killed Caesar', 'I shall go swimming to-morrow', 'I believe that and that happened at such and such a place', 'All men are mortal'.

All types of statement have in common the intention of describing or representing something, which might be a concrete reality, or might be something which could exist in reality, or a general property of reality.

The criterion of verifiability is not universally applicable even to statements: such statements as universal sentences, sentences about the future, assumptions or sentences in fairy stories are not verifiable. On the other hand the criterion, which has been given in this paper is universally valid and can be applied to all types of statement.

All types of demand-sentence are distinct from statements. Examples are: 'Stay where you are', 'Thou shalt not steal', 'You ought to work', 'You must not do it', 'If you do that, you must be punished', 'you must finish that'.

What all types of demand-sentences have in common is that they either call for an action, or forbid one and aim of preventing it. But even, when what is demanded is realised and the demand is complied with, the demand-sentence is not verified; what is verified is only the corresponding sentence, which describes the new situation. *The demand-sentence itself cannot be verified it is only a direction for action.* Also linguistic operations of a grammatical or logical kind are actions of a particular type.

5. DEMAND-SENTENCES AND DEFINITION

Imperative sentences include rules, which in their turn include definitions. Their form is: 'Such and such a word, whose meaning is unknown or calls for explanation, shall mean so and so.' Or: 'Such and such a word, whose meaning is not yet known, shall be translated in such and such a way.' A definition is a special type of 'imperative sentence', the phrase 'such and such a word' standing on the left-hand side has no meaning as yet and only receives a meaning by the aid of the *definiens*; whereas other types of imperative sentences only contain words with meaning. A kind of

imperative sentence, which approximates to a definition is: 'A piece of cloth with such and such a combination of colours shall be the national-flag of such and such a nation.' In this sentence every word has a meaning, but the expression 'such and such a combination of colours' acquires a second meaning through the words 'nationalflag of such and such a nation'.

6. DEMAND-SENTENCES AND LOGICAL SENTENCES

There are two types of logical sentences – assertions and demand-sentences.

The first type includes such sentences as 'geometrical similarity is a symmetrical, transitive and reflexive relation'. In this sentence the words 'transitive', 'symmetrical' and 'reflexive' are syntactical; they refer only to the forms of relations. The foregoing sentence is verifiable if 'similarity' is determined by means of some such statement as 'similar is a relation word and always stands between two nouns'. It is a statement about operations, which can be carried out with the word 'similar' and which are described by the words 'symmetrical', 'transitive' and 'reflexive'.

The second type includes such sentences as the sentence ' p implies q ' is to be transformed into the sentence 'not p or q '. Logical sentences of this type are demand-sentences of a particular kind; they relate to the use of linguistic forms and the words which they contain already have a meaning.

7. DEMAND-SENTENCES AND GRAMMATICAL SENTENCES

Among grammatical sentences we can again distinguish two types. The following sentence in german grammar is an example of one which corresponds to a logical sentence of the first kind: 'The article *der, die, das* agrees in gender with the substantive'. This sentence can be verified, if the use of the article in question is determined and the word 'article' is defined.

An example of a grammatical sentence corresponding to the second kind of logical sentence is the sentence 'So and so does such and such' and can be transformed into the sentence 'Such and such is done by so and so'. What was said about the second kind of logical sentence applies to sen-

tences of this type. No kind of demand-sentences is verifiable, although they make sense.

8. THE CONCEPTS 'MAKING SENSE' AND 'SENSELESS' IN
RELATION TO DEMAND-SENTENCES
THEIR KINSHIP WITH WISH-SENTENCES

A demand-sentence makes sense, when its words have meaning, and when their combination is grammatically and syntactically correct. Otherwise it is senseless. Examples of senseless demand-sentences are 'You should be greenly virtuous' (this is syntactically false) or 'You should keep your soul pure, in order to enter the kingdom of heaven' – supposing 'kingdom of heaven' and 'soul' have not been defined in the correct way. On the other hand, such sentences as, 'You should hit someone in the face' or: 'You should travel to the moon' make sense logically, although the former conflicts with good behaviour and the latter with the established laws of nature.

It might perhaps be said that what constitutes the verification of a demand-sentence is the act of complying with it. But the fact that it has been complied with is expressed by a different sentence. Thus, if someone says 'Stop', what is verified by the act of stopping on the part of the person addressed, is not the sentence 'Stop', but the sentence '*x* stopped'.⁵

Similarly, wish-sentences, such as: 'If only I were a king', or: 'I should like an apple', or: 'I wish you were not so and so', are not verifiable, although they make sense. A wish-sentence is neither true nor false, since it does not describe anything: it only expresses a wish for the facts to be otherwise than they are.

A wish-sentence makes sense if its words have meaning, and if their combination is syntactically and grammatically correct. Thus the concept of a 'sentence, which makes sense' as defended in this paper extends to wish-sentences.

A wish, which from a logical point of view makes sense, such as: 'I wish for the moon', is often regarded as senseless, because it arouses feelings of surprise. When this happens the concept 'senseless' is not being taken in its logical sense. It might be said, that what verifies a wish-sentence is the satisfaction of a wish. But the satisfaction is described by a different sentence such as: 'I have got an apple' or: 'I have become a king'.

Wish-sentences include curses, greetings, proverbs, and exclamations. A curse makes sense, if its words have meaning and so does a greeting, but it can not be verified, even if someone, in greeting someone else with the words 'good morning' really wishes him a good morning. Proverbs like 'He, who makes his bed well sleeps well' might be confused with assertions, if one were to take them as mere verbal structures and if one ignored the tone and the situation, in which they were uttered. The meaning of the proverb is: 'You should make your bed well and then you will sleep well' or "Obey the maxim: 'He who makes his bed well, sleeps well' ". The conception of making sense, which has been proposed is applicable both to these sentences and to exclamations. Exclamations are sometimes commands, like 'go back' and sometimes wishes like 'help'.

9. ANALYSIS OF THE SENSE OF SENTENCES IN CRIMINAL LAW AND IN THE BIBLE

A. *Sentences of Criminal Law*

In this connection the penal code may be quoted: 'Who acts against a person with the intention to kill her and the death of this person or of another person occurs consequently is guilty of crime of murder.'⁶ and 'Each accomplished murder ought to bring punishment with death to the murderer himself or to the person, who invited him or who directly helped to accomplish the murder or who acted actively for it.'⁷

The concepts of criminal law are introduced by definitions, which do not differ from definitions used in other sciences.

Penalty sentences, however, are norms (hypothetical-imperative sentences) of the form: 'When such and such an offence is committed, such and such a penalty shall (will) follow.' Even, if the grammatical form of the future is used, what is being expressed is not a statement about the future, but a demand or a prohibition, which ought to be expressed in imperative sentences. The hypothetical form might be transformed into: 'You are not to do so and so, for if you do it, you are to be punished.' A penalty sentence would consist of two imperative sentences, one expressing a prohibition and the other a threat. Neither sentence could be true or false, they could be obeyed or not obeyed, or carried out or not carried out, as the case might be.⁸

B. *Sentences in the Bible*

'Thou should not kill.' 'Thou shalt honour thy father and mother, that thy days may be long in the land which the Lord thy god giveth thee.'

The sentences of all moral systems, of which the ten commandments are an instance, are imperative sentences, since they lay down instructions and prohibitions, which apply to men's actions in their social life and in their private life.

Whatever is true of imperative sentences and demands in general, is true of the logic of ethical imperative sentences.⁹

10. COMBINATION OF DEMAND-SENTENCES

Combinations of statements have been dealt with, in the logic of statements as developed by Russell and Whitehead and by Wittgenstein, by means of the theory of truthfunctions. The truth of a whole sentence is represented as depending on the distribution of the truthvalues of individual-sentences. To relate this theory to demand-sentences it will be helpful to quote Carnap's *Abriß der Logistik* (Translation): "If a propositional function, whose arguments are propositions, is of such a kind, that the truth of its values only depends on the truth (and not upon the content) of the statements substituted for them, then it is called a truthfunction.' In logic we understand under statement something which is either true or false."¹⁰

The negation of a statement is a function of one argument; 'not- p ' is true if p is false and conversely. The conjunction or logical product is true, if both arguments (statements) are true. Their disjunction or logical sum is true, if at least one of the arguments p and q is true. Implication ' p implies q ' is false, if p is true and q is false, otherwise true. There need not be any connection of content between p and q .

If we now ask how the theory of truthfunction can be applied to demand-sentences the following is regarded as valid. The negation of a demand-sentence does not mean, that the affirmative demand-sentence is false; it is a prohibition of the action which the affirmative demand-sentence referred to. The conjunction of two demand-sentences means that a composite action is to be performed; it does not mean that a true sentence arises, if two demand-sentences are present or are complied with.

The logical addition of two demand-sentences means that at least one of the demand-sentences is to be fulfilled. Implication means, that if one of the demand-sentences is fulfilled, the other is also to be fulfilled. The logical particles 'not', 'and', 'or' and 'implies', by means of which combinations of sentences are effected are not used in the logic of demand-sentences with the same meaning as they have in the logic of statements. They do not refer to the truth of the sentences, which are combined, but to the execution of the acts, which the demand-sentences call for.

Demand-sentences must be distinguished from such expressions as 'I give order: go'. In this connection, negation, conjunction, implication and logical addition only mean combinations of statements about commands. The theory of truthfunction applies to this type of sentence in so far as it applies to statements in general.

The theory of truthfunctions does not apply to sentences of a mixed type, like: 'If you are ill, you should send for a doctor'. These sentences are neither true or false, and the same is to be said of combinations of these sentences with one another, or with demand-sentences or with statements.

It is equally impossible to interpret combinations of wish-sentences as truthfunctions. When the logical particles occur in these combinations, what they mean is in the case of conjunction, that both wish-sentences are to be fulfilled; in the case of logical addition at least one; in the case of implication, if one then the other and in the case of negation that the wish-sentence is not to be fulfilled. What the negation of a wish-sentence means is not that the wish-sentence is false, but either that the object of the wish is denied or that a negative wish is in question.

This type of wish-sentences must be distinguished from sentences of the form 'I wish so and so' and combinations of them. The latter are statements about wishes, and can be true or false, as can combinations of them.

11. DEMAND-SENTENCES AND THE AXIOMS OF THE LOGIC OF STATEMENTS

We must introduce the system of axioms of the logic of statements, as a preliminary to a further account of the likenesses and differences between the logic of statements and of demand-sentences. The basic sentences of the logic of statements are:

The principle of tautology: 'It is true, that if p or p , then p ', the principle of permutation: 'It is true, that if p or q , so q or p ', the principle of addition: 'It is true that if q , then p or q ', the principle of summation: 'It is true that, if q implies r , then p or q implies p or r '.¹¹

The axioms of the logic of statements can only be applied to demand-sentences by analogy.

Different views may be taken of the meaning of these axioms in the logic of statements; it may be held, that they are introduced wholly as tautologies or that they are really constituent parts of rules which serve to the elucidation of the axioms. But whatever view is taken, it is clear that they deal with statements, that is to say with a particular combination of statements, whose truth values are so distributed, as to produce a tautology. But we cannot talk of truth or falsity in connection with demand-sentences. However, these axioms may be adopted in the logic of demand-sentences in an analogous sense, if they prove convenient for the operations with the demand-sentences.

In addition to the formal principles, which have been mentioned, there are two material principles:

1. The deductive rule of implication – if there are two assertions one of which is an implication and the other its *implicans*, we can regard the implicate of the former as an assertion.

2. The deductive rule of substitution is a direction for transforming an universal statement, by replacing the variables. Thus from '(x) x is mortal' we can obtain such a statement as 'Socrates is mortal', by inserting the constant 'Socrates'. *In the logic of demand-sentences these rules are only valid in a metonymous sense.* The rule of substitution will relate, not to universal statements, but to universal norms. The rule of implication will be dealt with in the paragraph about deductive logic.

The laws of the older logic, such as the law of contradiction or excluded middle and also the law of the double negation, appear as theorems. *The law of contradiction only applies to the logic of demand-sentences by analogy: we cannot demand something, which conflicts with or contradicts itself.* We cannot say: 'Do so and so and do not do it'. In the logic of demand-sentences the law of contradiction takes the form of the statement, that we cannot issue at the same time a command or affirmative demand-sentence and a prohibition or a negative demand-sentence. Here the word 'contradiction' is not applied to conflicting truthvalues. *The law*

of excluded middle transferred to the demand-logic means that either an affirmative or a negative demand-sentence holds good, and there is no third possibility. It does not mean, that either the one or the other of these demand-sentences is true. The law of double negation transferred into the logic of demand-sentences should be used as if a positive demand-sentence.

However, neither the law of contradiction nor the law of excluded middle can be applied to wish-sentences, not even in metonymous sense. That is obvious in the presentation of conflicts. For example: 'I wish *A* and I do not wish *A*'. The law of double negation is applicable to wish-sentences *per analogiam*. Yet the negation of a wish-sentence is false, only that there is a negative wish.

12. THE DEDUCTIVE LOGIC OF DEMAND-SENTENCES

The rule deductive of implication holds here only by analogy. Suppose we are given: 'go implies sing' and 'go' and we draw the conclusion 'sing', we are not getting a true sentence from two premisses, as we cannot talk about truth in this connection. What the deductive rule of implication means is that, when two demand-sentences are related to one another in the way laid down in the rule of deduction, a third demand-sentence can be obtained. The deductive operations of traditional logic can also be performed with demand-sentences. Thus in the mood Barbara we have:

All citizens of this state ought to be honest.

All inhabitants of this island ought to be citizens of this state.

∴ All inhabitants of this island ought to be honest.

An example of the *modus ponens* would be:

If A ought to work, B ought to work

A ought to work

∴ B ought to work.

An example of the *modus tollens*:

If crime ought to be punished, criminals ought to go to prison,

Criminals ought not to go to prison,

∴ Crime ought not to be punished.

The *modi tollendo ponens* and *ponendo tollens* can be similarly adapted.

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Other deductive operations can be adduced, which have no proper prototype. Thus:

No citizen of this state ought to steal

X is a citizen of this state

∴ X ought not to steal

The minor premiss of this argument is a statement, the major premiss and conclusion are demand-sentences. Another form of mixed argument arises, if the minor premiss is a definition. Thus:

No citizen of this state ought to steal

Citizen of this state are those, who live in such and such territory

∴ Those who live in such and such territory ought not to steal

Arguments in the 'you ought not' form are of another kind, that has no prototype. Thus:

You ought not to kill

You are a man with such and such properties

∴ As a man with such and such properties you ought not to kill.

Here the minor premiss is a statement. A similar argument could be found in which the minor premiss would be a definition. Our reason for introducing this type of argument is that 'you ought to' sentences are often used in moral systems.

The arguments instanced above show that the deductive logic of statements can be transferred (used *per analogiam*) into the deductive logic of demand-sentences. This is illustrated particularly well by the criminal law.

Investigations of the logic of demand-sentences have already been tried.¹²

13. THE SYSTEM OF TYPES OF ETHICAL AND LEGAL CONCEPTS

The theory of types or levels of Whitehead and Russell can also be transferred (used *per analogiam*) into the logic of demand-sentences. The construction of a system of law or morals also allows us to order concepts in levels.

A. *The Derivation of Ethical Concepts*

In all ethics 'virtue' and its opposite 'vice' appear as supreme concepts.

The other supreme concepts are 'guilt' and 'atonement'. We must begin by giving formal definitions of these concepts, so that these definitions can be taken as the foundation of every ethical system.

Virtue is human behaviour appropriate to a certain inclination, which is valued, vice is behaviour, appropriate to a certain inclination, which is not valued. Guilt arises if somebody's intentions or actions are vicious. Atonement is an action prescribed in the laws of morality in case of guilt, performed either by the guilty person or by someone else.

A number of different ethical systems have been maintained, of which we will only attempt to develop two, the ethics of duty and the eudaimonistic ethics. We shall have in mind their historical exemplars, but are not concerned with the historical accuracy. Non-ethical concepts will be used as they are used in the everyday language and will not be defined.

In the ethics of duty it is assumed, that the person, towards whom the duty has to be performed as a rule conducts himself in a neutral way towards the person, who is the subject of the duty. The question of guilty behaviour on the part of the other person, only arises in relation to the duty of magnanimity. The ethical concepts may be developed on those lines.

Virtue is human conduct evoked by duty. Guilt arises if someone intends or performs a vicious action. Atonement is an act prescribed by the morality of duty, which has to be performed either by the guilty person or by someone else.

The less general concepts might be defined as follows: Justice is the equal fulfilment of duties towards everyone. Magnanimity is the fulfilment of duty towards someone else, even though he has behaved wrongly towards the doer of the duty (higher injustice). If the ethics of duty includes the assumption that duties must be fulfilled, whether the other party acts rightly or wrongly, 'magnanimity' cannot be defined in the ethics of duty. The concept of magnanimity lays stress on the difference in the conduct of the other party. Beneficence is shown if someone helps another by just means. Truthfulness, if someone tells the truth to everyone under the same conditions, so far as to do so does not conflict with other duties. Untruthfulness, if someone does not fulfil the duty of truthfulness. Flattery, if someone is untruthful in order to gain the favour of another person. Hypocrisy if someone is untruthful for his own gain. Courage, if someone performs one or more duties, whatever the consequences of his

action may be for himself. Perseverance, if someone is courageous, in spite of obstacles, which make the performance more difficult. Patience, if perseverance goes on for a long time. Self-command, if someone acts dutifully towards himself or others, in spite of contrary feelings and inclinations, which in some circumstances have to be totally suppressed. Temperance, if self-command is carried just to the point, at which the feelings are kept in the right equilibrium.

In eudaimonistic ethics, ethical concepts can be developed as follows:

Virtue is human behaviour, which aims at human happiness. Vice is a behaviour, which contributes to human unhappiness. Guilt arises, if someone's intentions or actions are vicious. Atonement is an act prescribed by eudaimonistic morality performed either by the guilty person or by someone else.

The less general concepts may be defined as follows: justice is shown, if someone contributes to everyone's happiness equally with his own. Magnanimity, if someone contributes to another's happiness, although the other person has contributed to his own unhappiness (higher injustice). Beneficence, if someone justly helps someone else. Truthfulness, if someone speaks the truth to everyone under equivalent conditions, so far as it is compatible with the happiness of others. Untruthfulness, if someone is not truthful. Flattery is shown, if someone is untruthful to gain the favour of another person. Hypocrisy, if someone is untruthful for his own advantage. Courage, if someone aims at the happiness of others without reference to the consequences for himself. Perseverance, if someone is courageous, in spite of obstacles. Patience, if perseverance persists, for a long time. Self-command, if someone concerns himself with the happiness of others, in spite of contrary feelings and inclinations, which in some circumstances have to be entirely suppressed. Temperance, if self-command is carried to the point, at which feelings are kept in the right equilibrium.

B. The Development of Legal Concepts

A law is a direction for action, whose form is hypothetical. Its protasis refers to a wrong, and its apodosis states the consequences of a wrong. Justice is done, if a law is applied in the same way in equivalent situations, without references to the differences between individual persons. Injustice, if this is not the case. Illegality, if an existing law is broken. A crime is an

illegal act accompanied by an evil intention. (At this point definitions of individual crimes as they appear in criminal law, could be added.) A penalty is the consequence prescribed by the law, if a crime has been committed, A legal code is a corpus of valid laws. The validity of a legal code depends on the freedom of the laws from contradiction. A state is a juristic union of a territory, a people and a particular code. A constitution is part of the legal code of a particular state, which deals with the rights and duties of the agencies of state. A duty is a demand laid down by law. A right is a demand for an area free from law. A citizen of a state with a particular legal code is an individual, who has rights and duties laid down by the legal code of that state. A person is a personified symbol of a bundle of legal duties and rights. Federation of states is a union of sovereign states with a common central power. International law is the complex of the laws, which determine the rights and duties of the states belonging to the International Federation of States.¹³

Kelsen has drawn the outline of a theory of levels of a legal code; but he has been concerned not with the logical interconnection of norms, but with the generality of the region of application and so with 'authoritative validity'.¹⁴

With the help of the above given deductive systems of concepts can norms of Ethics and Law be constructed and subsequently deductive systems of norms be obtained.

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NOTES

1. See Łukasiewicz: 'Philosophische Bemerkungen zu mehrwehrtigen Systemen des Aussagenkalküles', *Comptes rendus des Sciences et des Lettres de Varsovie, Classes III* (1930).
2. I am quoting here some definitions of a sentence "which makes sense" which have been given by the representants of the "Wiener Kreis" to obtain a general definition by a critical consideration of this point of view.
Schlick: 'Meaning and Verification' in *Gesammelte Aufsätze*, 1938, p. 340: "Whenever we ask about a sentence: 'What does it mean?' . . . we want a description of the conditions under which the sentence will form a true proposition, and of those, which will make it false. The meaning of a word or a combination of words is . . . determined by a set of rules which regulate their use and which following Wittgenstein, we might call the rules of their grammar . . . The "grammatical" rules will partly consist of ordinary definitions i.e. of explanations of words by

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means of other words, partly of what are called "ostensive" definitions i.e. explanations by means of procedure, which puts the words to the actual use. The simplest form of an "ostensive" definition is a pointing of gesture combined with the pronouncing of a word . . ."

Wittgenstein: *Tractatus Logico-philosophicus*, 1921, sentence 4.024 (Translation from German): "To understand a sentence means, to know, what the case is, if it is true . . . One understands it, if its parts are known."

Carnap: 'Testability and Meaning', in *Philosophy of Science*, 1936, Vol. 3, p. 420: "If we know what it would be for a given sentence to be found true, then we could know, what its meaning is." And for two sentences the conditions under which we would have to take them as true are the same, then they have the same meaning . . . If by verification is meant a definite and final establishment of truth, the no sentence (synthetic) is ever verifiable . . . We can only confirm a sentence more and more. Therefore we shall speak of the problem of confirmation rather than of the problem of verification. We shall call a sentence . . . *confirmable*, if we know that our observation of such and such a different course confirm its negation without knowing how to set up either this or that observation.

Also Aristoteles: *De interpretatione*, V, 7, 22 defines (Translation): "The elementary judgment is a statement, which is either true or false."

3. See: Whitehead-Russell: *Principia Mathematica*, Vol. I, 2nd Ed., 1925.
4. The notion 'demand-sentence' has been introduced by Dubislav in 'Zur Unbegreifbarkeit der Forderungssätze', *Theoria* 3 (1937), and because it is convenient it has been used in this treatise.
5. Quoting the point of view of Bolzano: *Wissenschaftslehre* Vol. 1, 1837 p. 70 (Translation): "I call imperative sentences, sentences, which state, that a person ought to do something or not do it. Their general form is: '*A* ought to do *B*', or better: '*A* has the obligation to do *B*'. For the truth of this kind of sentence is required, that the idea *A* is related to a rational being and that *B* is the idea of a certain action or better of a certain decision . . ." Bolzano alters the meaning of the demand-sentences and is interpreting them as description of the 'ought to do', which he considers to be a relation between the psychic state of a person and an action or a decision. Whether there is such an obligation or not, it can be verified from this point of view. But the demand-sentence relates to an obligation, a demand, and the psychic state as well as the execution are not to be considered. Further quoting a definition of Joergensen: 'Imperatives and Logics' *Erkenntnis* 7 (1938) 291: ". . . An imperative sentence has a meaning if and only if the corresponding indicative sentence, which might be derived from it and which describes its contents, is meaningful." Similar Schächter: *Prolegomena zu einer kritischen Grammatik*, 1935, (Translation): "An imperative sentence makes sense, if it can be complied with, if the assertion which describes its observance makes sense." In either case the notion of the 'sentence, which makes sense' is traced back to the notion of the 'assertion, which makes sense', for which the criterion of verifiability is presumed to be valid. There is no attempt made, to set up a separate criterion or a sufficiently general criterion.
6. § 134
7. § 136
8. H. Kelsen: *Reine Rechtslehre*, 1934, p. 30 (Translation): 'The norm . . . means that under the condition of the contrary behaviour coercive measures have to be exercised.'

9. This is also the opinion of Victor Kraft: *Die Grundlagen einer wissenschaftlichen Weltanschauung*, 1937.
10. R. Carnap: *Abriß der Logistik*, 1929, p. 5.
11. Substituting for p, q, r , not statements, but demand-sentences, one obtains e.g. the principle of tautology: 'If go or go, then go' the principle of permutation: 'If go or drive, then drive or go', the principle of addition: 'If drive, then go or drive', the principle of summation: 'If drive implies move, then go or drive implies go or move'.
12. E. Mally: *Grundgesetze des Sollens, Elemente der Logik des Willens*, 1926. W. Dubislav: 'Zur Unbegründbarkeit der Forderungssätze', *Theoria* 3 (1937) 340. (Translation): "A demand-sentence F is called derivable from a demand-sentence E , if the assertion corresponding to F is derivable from the assertion corresponding to E ." This opinion has also J. Joergensen in 'Imperatives and Logic', *Erkenntnis* 7 (1938) 292, who wants to reduce the demand-sentences to sentences with 'is to be' as he admits that these sentences are statements. But the word 'is' deceives, because this kind of sentences can also be considered as a type of demand-sentences.
13. Some definitions have been used freely as in H. Kelsen's *Reine Rechtslehre*.
14. H. Kelsen: *Reine Rechtslehre*. P. 74. (Translation): "The levels of law – taking at first into consideration the law order of an individual state – can be presented as follows: With the assumption of a fundamental norm is the highest level the constitution . . ." P. 76: "The next level to the constitution are the general norms whose function is . . . to determine the individual norms which are to be employed by courts and administration . . ." P. 83: "If one assumes that there is more than one statesystem of laws . . . than the international system of law stands above all state-systems of law."