PLAN AND INTENTION
a pragmatical Study

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1. There is no doubt that the main goal of using signs by man is to serve the purposes of human activity. Nevertheless the circumstance that the signs represent their designata causes, that the communicative effect of the signs appears to be so preeminent that the semantical function in the semiosis seems to be the solely possible subject of any utterance, and that we are inclined to see the whole social function of signs to be fulfilled in their informative effect.

But we use signs in the communication with other people not only in order to give or to get informations about the present states of affairs. The designata of the expressed signs are not only the things, or the facts, or factual relations of both of them, but also the communications of non present states of affairs and the mental states of ourselves. Therefore we can speak not only about past things or facts, but also about the future ones, not only about the existing circumstances, but also about the possible and the desiderated ones, about norms and intentions. According to this we distinguish not only particular categories of designata, but also various types of interpretations—various pragmatical modi.

We shall not begin our pragmatical analysis here with the commands or ought sentences, although they may be considered as most intimately akin to the human activity. The function of imperatives namely is so closely joined with the relation ‚adressant – adressat‘, that the idea of the receiver steadily remains as the inseparable ingredient of the designatum of the sign there – leaving aside the complicated social relations, which find their reflect in the idea of compulsiveness or of the binding force at the producer of the sign on the other hand. Accordingly it becomes difficult to separate, what is the factual content or result of the activity itself designed by any expressed imperative without respect to them who participate on the sign.

Against this in the category of signs expressing the plan or an intention the semiotical content does not prevail over the factual content of what is to be done in such a overwhelming way as in the direct or indirect commands or fiats. Grouping the signs of command and of intention in one common wider group opposite to the mere descriptive or declarative expressions we stress, that both the designata of commands and those of plans are future entities and consist mostly in human activities or in the actions similar to them. The plans and commands besides, in contradistinction to the declarative expressions are furthermore characterized by one

common important pragmatical property: they are interpreted not only as expectations or predictions of future states of affairs, but also as causes of them—as motives of human behaviour. That is the principal pragmatical difference between the ought-sentences and plans, and between the signs of information on the other side.

2. The plans and intentions in the first approximation are specific pragmatical systems of motivational signs concerning the actions factually realizable by human activity, but not realized till now. In order to distinguish the expression of the plan —the p-expression, or the p-sign—from the simple prediction, or expectation, the designata of which may be also effects of our actions, we postulate furthermore, that every proper p-sign is interpreted in a specific intentional way as a result of a decision to do, or not to do that, what is denoted by the p-expression, let the adressat of this decision, the actor of the plan, the accomplisher of it be whosoever.

Every p-expression is related to a timepoint t_0, which precedes the time point t_n of the planed action, or of the intended state of affairs—because it has no sense to plan the past. The moment t_0 of the origin of a p-expression is relevant both whether p_n is realizable, and whether p_n is realizable, and whether p_n is no more a plan because of having been realized what is the content of p_n before. The designatum of p_n is not only the final effect of any action, but the action itself together with its final goal. In the year 1496 it was a nonsense to plan the crossing of the Ocean by airway, because it was unrealizable, in the year 1946 it had no sense to plan the defeat of Hitler, because he was defeated.

It is obvious that in the time of the origin of the plan neither the autor of the plan nor any third person do know with certainty, whether the plan will be fulfilled or not. We speak about the plan even then when we have given it up, provided we had once decided for it indeed. Thus we say that any existing plan p_n may be abolished not only by its fulfilment, but also by another p-expression, say p_f voiding the earlier original p_n. Now in such a way there are three time points relevant for the actual existence of a plan, (or more concisely decisive in order any sign may be called the actual p-expression):   2,1

a) t_0 the time of the origin of the plan, the time of the origin of the expression p_n;

b) t_p the time of the possible or planed beginning of fulfilment of the plan, the time of realization of the denotatum of p_n;

c) t_f the time the plan does not exist since i.e. either the time
ca) of the fulfilment of the planed action, or
cb) the time where the actual fulfilment of p_n is given up (the plan is abandoned)— where p_n is abolished.   The designatum, let us denote it π, in the interval (t_0, t_p) can be interpreted only as an idea in the mind of the interpreter, whereas in the interval $(t_p, t_{f-\varepsilon})$ we suppose that there exists something more than an idea in

somebody's mind. We suppose that beginning from t_p there are some denotata C_n the signs of which are interpreted in another way—namely in the declarative one— and that we can construct a relation between C_n and π_n. We are in a fundamentally different situation if $t_0 < t_{f-\varepsilon}$ and $t_{f-\varepsilon} < t_p$, because in the second formula there is no positive time interval $(t_p, t_{f-\varepsilon})$ and if the concerned sign is a proper p-sign, then its denotatum is an abandoned plan.

We may verily endeavour for the realization of a stated goal x, only if it is realizable, i.e. if we may attribute to the goal the predicate "realizable". This predicate, say R, does not represent any accomplished fact or outcome, but only the possibility of effectuating the described state[1]. Using it we suppose that there is anybody, let us say n_j, who is able under given circumstances s_n to make the full sentence $R(x)$ true: to produce the goal x at s_n.

Now let us suppose that the p-expression p_n is immerged in any semantical system S, such that$\qquad$ 2,2
   i. S is interpreted by the members of a social group I, in which we may determine for every expression p_n, and for every n_j, who is or are its producers or receivers;
  ii. in S we have a predicate R the universe of which are the signs a_x denoting planed or unplaned actions, and we can decide for every a with respect at least to one member n_j of I whether $R(a)$ is true or not;
 iii. to say that $R(a)$ is true with respect to n_j means that n_j is able to make it true— that n_j under suitable circumstances $s_{n'}$ is able to produce the state of affairs $s_{n''}$ as a result of a_n;
  iv. to say that n_j is fulfilling $R(a_n)$ in the time point $t_{p+\varepsilon}$ means that n_j in the time point $t_{p+\varepsilon}$ is just making the denotatum of $R(a_n)$ true;
   v. to say that a_n and p_n have the same denotatum π_n means that every $n_i \in I$ may interpret $R(a_n) = \pi_n$ as true.

Than we say that the expression p_n of the form $R(a)$ is with respect to I a p-expression if and only if$\qquad$ 2,3
1. $R(a)$ is true,
2. the denotatum of p_n, say π_n satisfied the time supposition 2, 1, and
3. if this denotatum itself may be interpreted as a p-expression up to the time point $t_{f-\varepsilon}$.

3. If we pay attention rather to the internal structure of π_n, than to the effort after the differentiation from other kinds of expressions, we must investigate what are the single expressions, of which the p-expression is built up, or what are the peculiarities of its designatum respectively. Now if we investigate first from the semantical standpoint an actual plan π_n expressed by P_n in such a way as a system, or complex within our usual conceptual framework, we can state two fundamental types of elements of which it is composed: the **actions** p and the **facts** s. By a fact,

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[1] Carnap, R.: Testability and Meaning, in Philosophy of Science Vol. 3 1936, p. 440, 457.

or state of affairs we understand the designatum of a sign s_n, which at any time may be interpreted by the same interpreter in the same or in any other context as a declarative expression.

Let us concede now that a fact or circumstance s_i during the interval (t_o, t_f) can change itself also without intermediation of any action p_o and that the intention of the plan may consist even in the abstention from p_o. Let us denote further the initial state of affairs in t_o by s_i, snad the final state—the target to be reached at t_o, by s_j. Then the simplex in the p-expression, i.e. the most simple structure occuring at its application may appear in one of the following forms   *3,1*

3,1,0	$s_i \; \delta \; s_j$	or
3,1,1	$s_i . p_i \; \delta \; s_j$	or at least
3,1,2	$(s_i . p_i) . (s_i . p_j) \; \delta \; s_j$	if there exist two different simultaneous activities applied upon the same state of affairs at the same time.

We may interpret the symbol δ inside the simplexes as the sign of a real or possible relation between the initial state of affairs s_i, and the final state of affairs s_j, which may be effectuated

i without any planed action *3, 1, 0*)

ii. by application of the action p_i on s_i *(3, 1, 1)*

iii. by simultaneous application of p_i and p_j on s_i *(3, 1, 2)*.

We speak about formulas *3, 1, 0 – 3, 1, 2* as about p-simplexes, if we want to stress their motivational character and appurtenance to the whole plan, we speak about them as about δ-simplexes, if we stress that they are constructed by means of the relation δ. An entire simplified plan—the p-complex—may be represented by the graph fig. 1.
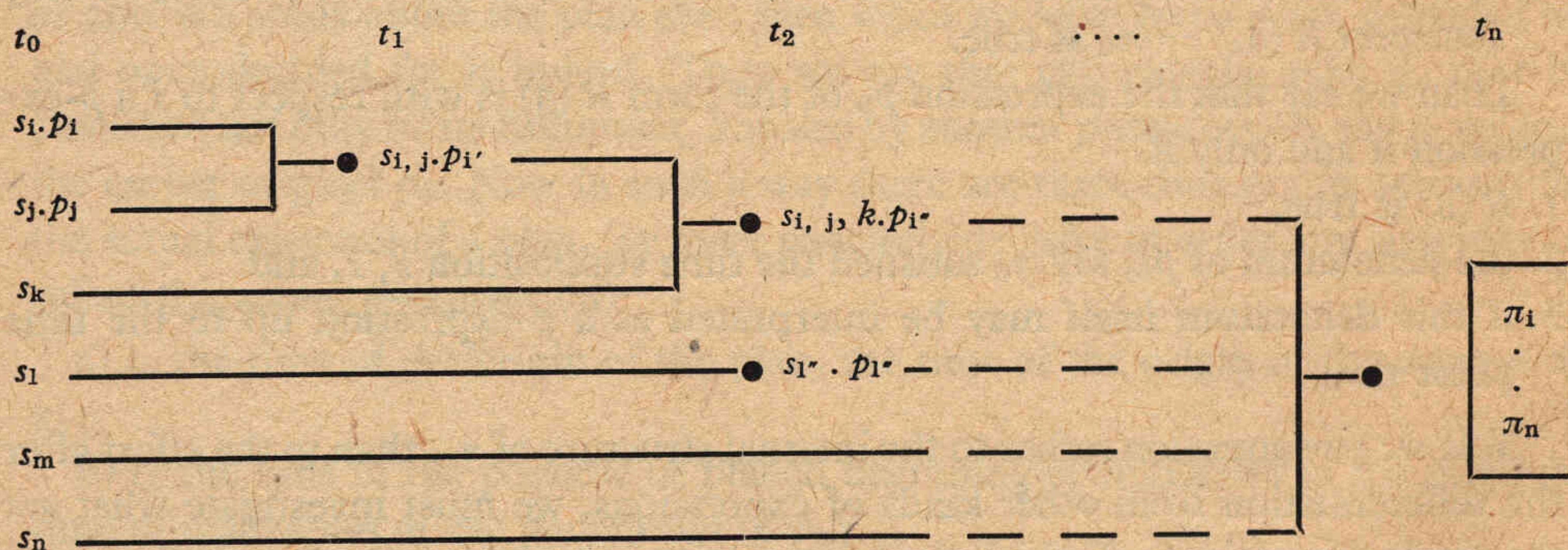

Fig. 1.

It is to be noticed that the sign "." between s_i and p_i in *3, 1, 1* and *3, 1, 2* on the left side of δ may be interpreted as the usual sign of logical product or conjunction. On the other hand the relation represented by δ is not so timeless as ".": its matrix, represent always a time interval $(t_o \; t_{o'})$ so small or great it may be, con-

gruent in *3, 1, 1* and *3, 1, 2* with the lasting of the action p_i or p_j respectively, and with the time necessary for the change of s_i in s_j in the case of *3, 1, 0.*

That means that no proposition expressed by help of δ, if it refers to any past state of affairs, can ever be logically true; it can be treated at most as factually true and therefore we must admit in any syntax a counter proof against its truth. If on the other side it refers to any future entity, and therefore it is the proper p-expression, we must take in account the contingency of our prediction and moreover the probability of our free decision, in consequence of which we are able to turn out every our foregoing decision in the contrary. The sign of the relation σ express therefore a greater or smaller degree of uncertainty following either from the contingency of facts, or from the deficiency of the semiotical process at planing.

Being aware of the fundamental pragmatical difference between the plan and the prediction we may interpret the sign s_j in the expression $s_i . p_i \delta s_j$ approximatively as „the possible (likely, probable) result s_j' of a planed application of p_i on s_i''. As to the symbol p_x it is to be stressed that every p_x has the same semiotical properties and function as the expression P denoting the whole plan, in contrast to the signs s_x which isolated from the expression of the plan function is to be interpreted as usual declarative sign in normal informative communication.

4. Speaking about p-simplexes with respect to a p-complex, we suppose that the compound plan expressions are composed of the p-simplexes and only of them, i.e. that there are no other elements, which the complexes are consisting of—that there occur no other kinds of simplexes. But in order to be able to say that the compound expression in which only the δ-simplexes occur is a meaningful p-expression, the presence of the p-simplexes does not suffice; it is necessary moreover that the simplexes are in any way ordered, that the compound p-expression must have certain specific structure. So first we expect that every intended action has its own peculiar place in the time sequence. We represent the time pertinency by low left indexes, e.g. $_0s_i$ or $_1p_j$ and heed on the position of the simplexes in the complex according them. Then we expect besides that the single actions denoted by the plan have their own appurtenances, which must be respected, if the complex ought to have meaning and ought to lead to the final goal Π.

Having satisfied all those factual and syntactical presupposition we are justified to say also, that any expression or symbol expressing the whole plan, as well as the δ-simplexes themselves may be conceived as **sentences** and explicitly the simplexes as atomic sentences and the complex as the molecular one. In order to show that the term sentence well known in the logic of declarative sentences is admissible and useful in the logic of p-expressions let us remember first that especially in the sphere of collective plans every p-expression for example "we shall go home" has a two-fold interpretation: (i) it may be pronounced and understood as an expression of the plan (intention, decision) by and for the participators of the action, and (ii) at

the same time as an information (communication) about it for the participators, or about a future likely behaviour of any group for those, who do not participate on it—for the third uninterested persons.

Something similar may be said also in the sphere of an individual plan, if we treat its expression as a monologue made in order to maintain one's decision, or in order to remember it, or on the other side in order to inform the other. In both cases the designatum of the expression is of the same type: one's future behaviour—the future event as a closed unit, and an actual entity which is in any way strictly determined. With respect to this designatum, which is always in our p-expression biarticulate, we are fully justified to accept the term "sentence" also for the p-expressions, especially after the classical conception, in which in the copula we find the tool, by means of which we can express as well the eventual modal category as well as the different maner of the actual interpretation.

Even the term "proposition", which uses to denote in many systems the designatum of "sentence" may show the kinship between a proposal, and a p-sentence which is the simplex at the analysis of the plan.

5. Now what has to be thoroughly considered at first, and taken into account when expressing the plan, are the possibility and the conditions for the sign of negation in the p-expression, or respectively in the expression concerning the plan or intention, or their parts or ingredients. It is obvious namely, that with respect to any intended action it is necessary to distinguish strictly between expressions of the form

"I plan that non s", and

"I do not plan that s".

In occurence of expressions like

"I expect that s, but I want that non s"

"s is non desiderable", or

"s is not planed" or furthermore

"p is no more a plan because it was abandoned", or at last

"p is not fulfilled" and

"p cannot be fulfilled" we see that not all these expressions are the proper p-expressions, and that the negation may refer

i. to various layers (strata) of the semiosis, and we must care for the direction of it;

ii. to various time points of the semiotical function of the same actual p-expression.

It is certainly possible to subsist with only positive expressions in plannig. But in order to accomodate our explanations, as much as possible to the declarative sentences we want to suppose, that the signs s and p are governed by the same rules as in the declarative expressions. The signs represent therefore also the negative states of affairs: it means that every $\bar{s}_i$ may be replaced by an s_j representing the more or less exact description of the actual ‚negative' state of

affairs. The actions p, if they are negative ($\bar{p}$), are represented by various inhibitory components ($p_i \cdot p_j \cdot p_k \ldots$), which also may be mere positively expressed. If a $\bar{p}_s$ is not a result of any inhibition, or if we do not know such an inhibition, then it may be considered as non occuring, and we let it be represented by a null simplex.

Drawing together the attention to the p-simplexes and to the p-complexes we cannot proceed here as at the signs s or p alone, and it appears advisable to proceed rather formally as it is usual in cybernetics and to state the procedural rules which allow us to say what to do, if the sign $\bar{\delta}$ occurs.

Let us understand by the **simple plan line** the sequence consisting of p-simplex either 3, 1, 0 or 3, 1, 1 or 3, 1, 2 and only of such ones with uniformly rising t-indexes such that the final state of every preceeding simplex $_i s_n$—if it exists— is identical with the one and single inital state of affairs of the subsequent simplex. Let us state further that the sign $\bar{\delta}$ may occur only inside of any simplex instead of the sign δ, which, and only which may be replaced by it.

Then we may formulate the rules concerning the sign δ with respect to the simple plan line as follows: 5,1

1. If $\bar{\delta}$ occurs in any simplex, then the sign on the right hand from $\bar{\sigma}$ is to be deleted.
2. If $\bar{\delta}$ occurs in any simple plan line then the whole subsequent plan line on the right hand from $\bar{\sigma}$ is to be deleted, may the signs and further simplexes occuring there be howsoever.
3. The final $\bar{\delta}$ on the end of the simple plan line may be replaced by δ if and only if
   a) we can replace the immediately preceding p_n—if it precedes—by a final number of other p_i positively expressed, and
   b) if at the same time both the s_n, which immediately precedes the δ and the s_n, we shall lay after it, will be identical up to the time index.[2])

Having thus formalized the interpretation of $\bar{\delta}$ we have arrived to the question of the **completeness** of the p-expression. Supposing that the completeness of the final goal Π is represented by its main articles, we postulate—in order to be able to speak about the realizability of the plan—that the ways, that is the means leading to π, and herewith also the concerned p-expressions are complete. Hereby we understand:

1. that as a result of striking desrcibed by *5, 1* and despite of it, we get in planing 5,2 a p-expression containing not only the main articles, but also the plan lines leading to them;
2. that in the plan scheme all necessary initial states of affairs were taken into account inclusive those states of affairs, which are necessary for eventual completion;

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[2]) Replacing $\bar{\sigma}$ by σ we lay down the interpretation of the whole line. We postulate the identity of last two s_n in order to get a closed expression, where even this s_n may be considered as the final goal.

3. thal all plan lines leading to the main articles are uninterrupted: that means that all plan lines

   a) consist in sequences of δ-simplexes conjuntively joined

   b) that every initial state of affairs of the simplexes is either the initial state of the whole plan or the final state of the immediately preceding simplex

   c) that every final state of the simplex is either the main article of the plan or the inital state of the next subsequent simplex.

In face of these postulates we see that the operation $\bar{\delta}$, if it occurs in the p-expression or in the plan scheme may be directed in fact only to the expressions and signs not belonging or not leading to the main articles of the plan. If $\bar{\delta}$ drives at such an article, or at any element preceding it in the plan, then the p-expression or plan scheme cannot be considered complete.

6. The question, whether an actual p-expression is complete or not, is in the practice, however, answered in principle on the ground of our previous empirical experience. For the purposes of logical analysis we may conceive those experiences as represented by the whole semantical system S, in which the p-expression is immerged.

It is obvious that every conclusion about the completeness of the p-expression is relative, and is to be considered as a function dependent both of the time point t_x and the interpreter and his pretensions. Thus a different content and value has the statement about the completeness, if it is made in the time point t_x such, that $t_0 < t_x < t_p < t_f$, or if we make it in the time point t_x such that $t_0 < t_p < t_x < t_f$. As meaningless is to be considered the question on the completeness if $t_x < t_0 < < t_p < t_f$, and it is to be considered as any mere declarative statement, if it is made with respect to t_x such that $t_0 < t_p < tf < t_x$.

The statement about the completeness depends obviously on the degree of attention we pay to the details of the plan in consideration, for it is evident that whatever plan, if we would do so, might be denoted by mere one and single simplex. In order to be able to consider the completeness of a p-expression as thoroughly as possible, and explicitly in order to know in such a way completely the set of initial states of affairs $_0s_x$ framing the factual conditions for the realization of the plan, let us suppose that every $_ip_x$ occurring in any complete plan represents itself also any complete closed subplan $_i\pi_x$, the goal of which is repersented by its own partial result denoted by $_i's_x$. Then we may consider every p on principle as decomposable on further subelements pp ad ss, which may be decomposed again on ppp, $pppp$... and sss, $ssss$..., Instead of repeating the letters p or s let us differentiate the degree of decomposition by the fourth index e.g. $_i^2p_m$, or by means of repeating and differentiating the time subscripts as for example $_{1, 3, 4}s_m$, i, j in the case that the decomposition coincides with certain time scala uniformly for the whole plan P. Then the degree of decomposition is expressed by the number of

places in the subscripts and the relative position by the numeral or indexical signs themselves. Hereby we suppose that the connexion of the subelements in the elements is effectuated by analogous relations $^1\sigma$, $^2\sigma$, $^3\sigma$, ... the structure of which need not coincide with the structure of $^0\sigma$ of the whole plan. On the other hand the structure of eventual $^i\sigma$ is in the simple plan lines so far uniform, that its converse domain is always empty.

The idea of the completeness of the p-expression, together with the possibility of its decomposition in the mikroelements of arbitrarily high degree, may appear useful, I guess, also for another important question, for the question of the consistency of the plan. Postulating namely that a plan is well made we mean that our predictions about 's' and our decisions about 'p' are right, and postulate that there are no contradictions between our plan and between our notions we have about the possibilities of its realization. Saying the same in a positive way we say that making the plan—i.e. formulating a p-expression—we presuppose, that it is in agreement with the logical picture, we have about the world and about the plan. That means: we presuppose that the p-expression is in agreement not only with the rules of formation of the system S, in which the p-expression is immerged, but also with its transformation rules, i.e. with the rules stating what may be considered as an entailment of any expression occuring in the plan, or in its environment. Using the terminology of Carnap[3]) we say that we presuppose that our p-expression— if it ought to be considered self consistent—has to be in agreement both with the L-transformation rules and with the P-transformation rules representing the known physical laws including also the rules concerning the probability of our predictions.

Taking in account that the world is in motion we must concede that not only the likely configurations of particularities of the plan and of its environment are changing, but also their relations and the rules governing them—the P-rules and even the L-rules may change. Therefore preparing on the way of planing any decision concerning the future states of affairs and our own actions we want to be sure that they will be in agreement with the environment of the plan and with the rules holding in the whole interval (t_0, t_f).

Supposing that the relations δ and $\bar{\delta}$ are the sufficient basis for the realizability of the plan, we can arrive to the following formulation: 6,1

If any p-expression P may be interpreted as complete with respect to all time points of the time interval (t_0, t_f) then and only then it is to be considered also factually consistent.

7. The requirement of completeness of the plan is striking mainly since a plan fails. When we ask post festum on the causes of the faliure of any plan, we use to hear commonly that it was the uncompleteness of the plan, in which even the relevant

[3]) Carnap, R.: Logische Syntax der Sprache, Wien 1934 p. 134

circumstances were omitted and not provided, what just caused the failure. The requirement of the factual completeness is obviously relative. The decision, whether a plan is complete or not depends, however, from the thoroughness in stating the main articles. Therefore also the decision about the fulfilment of a plan is not a simple question. That is, why in the practice we meet very complicated systems of indicators, which serve as criteria and basis for such a decision.

Nevertheless—conceding they be necessary conditions—neither the completeness and consistency nor the realizability themselves are suffcient conditions in order to speak about any actual *p*-expression as **veracious**, i.e. as about such a sign, which has the specific pragmatical properties, in consequence of which it is interpreted as the very and proper intention, and differ thus from the mere declarative or informative signs, or from other expressions having another pragmatical function, than the motivational one. We can, to wit, imagine a "*p*-expression", which is factualy complete, and logically and factually consistent, the content of which is perhaps moreover easily realizable, which despite of all that is not a proper *p*-expression, because it is not accompanied by the interpretation typical for the proper motivational signs. We can construct—e.g. mere in order to research it, or to make a proposal, an expression, which does not represent the preparation or the very beginning af an action, which is not approved, or which is just at the moment of its origin appointed to be abandoned, or not to function as a motive.

The characteristic motivational features of a *p*-expression depend obviously upon its actual situation and use to be treated mostly as mere psychological by means of non-logical and non—semiotical methods. Nevertheless, by my opinion, the difference from the declarative expression and the specificity of then plan expressions is not to be conceived as a semiotical quality, which cannot be further analysed. The key to the analysis is to be sought in the postulate of adequacy as the highest degree of correspondence between the expression and its semiotical function. Then, while the correspondence between the sign and its designatum (and thus also the highest degree of this correspondence: the adequacy of any sign) may be supposed, if we say that the expression is true (factually true, logically true)—so on the other side the correspondence between any sign and its interpretans (the pragmatical, or motivational adequacy) may be supposed as given, if we say that this expression is veracious (verax, veritable, wahrhaft, opravdový, rzetelny). As we speak about the truth of a sentence in the deductive or inductive logic, as well on the other hand we can speak about the veracity of an expression, if it is the very picture of the persuasion of the interpreter, of the belief accompanying the expression in general. And such a persuasion—the veracity of the intention—may be presupposed as present in the domain of the *p*-expressions, if the object of the plan (its designatum), that is: the planed matter, is going to be realized, and if between the plan *Π* and its expression trere are no hindrances, neither subjective nor objective, indicating the failure, or the impossibility of its fulfilment.

In order to analyse the logical foundations of this specific relation between the sign and its interpretans, that is: in order to state the conditions of the veracity of any p-expression, let us suppose—in addition to 2,2—that Π is immerged in its environment $E \subset S_p$ in such a way that:
<div style="text-align:right">7,1</div>

1. if in the environment E of the plan hold any relations δ or $\bar{\delta}$, they hold also in Π, and between E and Π, unless there is in Π any p_s, which may change $\bar{\delta}$ in δ;
2. every objective time sequence T, may it be empty or not, is dense in itself[4]), thoug even any plan line expressed by means of it is an isolated manifold.

Let us now summarize the plan expression and write it linearly

$$S^{P_0} \; \delta \; S^{K_0=P_1} . \; S^{P_1} \; \delta \; S^{K_1=P_2} . \; S^{P_2} \; \delta \; S^{K_2=P_3} . \; \ldots, \qquad 7,2$$

where S^{X_i} represent the set (the logical product) of all contemporary initial states of affairs s_i (together with eventual belonging p_i), or respectively contemporary final states of affairs s_i (where no p_i occur) in single times, i.e. the states of affairs immediately antecedent or subsequent to the time sequence

$$T = t_1, t_2, t_3, \ldots$$

Let us consider further, that the plan rise, together with the origin of the veracity of the plan is also an activity immediately foregoing to the time point t_0, and that this plan rise may be expressed and interpreted by means of a p-expression, that is be means of formula O of the type 7,2 taking place in the interval $(t_0-\varepsilon, t_0) = (t_\omega, t_0)$.

Then we must concede that O represents a sequence $^0O_1, {}^0O_2, {}^0O_3, \ldots$ and that every one member of this sequence may be anew subdivided in further subsequences by means of the expressions ^1O_x and ^2O_x etc in smaller and smaller simplexes, each of which has again the form

$$S^P \; \delta \; S^K, \qquad 7,3$$

and each of which, taking place in any time interval $(t_\omega, t_{\omega\prime})$—in the course of which (how small it be) the origin of the plan may be wrecked in consequence of occuring $\bar{\delta}$ — is consequently relevant for the whole plan itself.

Now we may conceive every plan line, which has been written in the form of logical product, in any weaker form, to wit as connected merely by means of an entailment, which is true with respect to the neighbouring members even if the antecedent element is false (e.g. $\sim p \vee q$). The same structure and connection may be supposed consequently for any sequence

$$^\omega O_1, {}^\omega O_2, {}^\omega O_3, \ldots {}^\omega O_n \qquad 7,4$$

the members of which are also any plans sui generis, and are to be deleted—together with all the subsequent members—if one of the antecedent members $^\omega O_{n-1}$ has to go to wreck in consequence of any unavoidable $\bar{\delta}$. The occurence of such any $\bar{\delta}$ is

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[4]) „insichdicht", cf. Alexandroff-Hopf: Topologie I. 1935, p. 45

obviously the less so probable, as the interval $(t_\omega, t_{\omega'})$ is smaller, or—what is the same—as the degree of decomposition is higher.

Let the interval $(t_\omega, t_{\omega'})$ converge to zero, in consequence of which the form of the belonging ^nO_j expressed by $S^P \delta S^K$ approaches

$$\text{to } S^P = S^K \qquad\qquad 7,5$$

which may be considered as the limit for the case that the interval $(t_\omega, t_{\omega'})$ equals to zero. The expression 7,5 in consequence of our previous explanation is a sentence, the informative effect of which with respect to S^P equals to zero, then it is an identity proposition, and if we know, what is the factual content of S^P, we can learn nothing more from S^K, and vice versa.[5] If we may treat all components representing the factual content of the expression 7,5—let us call it $\mathfrak{M}$—as a variable x, then for arbitrary universe of this variable the expression () $(\mathfrak{M})$ is true, and we may call 7,5 an empty or null sentence.[6]

On the other hand, if we treat the formula 7,7 as a theoretical construct, and interpret it by means of the supposition stated above especially in 7,2, then we may conceive it as such a case of planing, where between the suppositions of the origin of the idea of the plan Π, and of its semiotical realization by the expression P, there are neither possible nor thinkable any hindrances, either subjective or objective, in consequence of which the plan Π may go to wreck. By other words: the formula 7,5, if we want to understand it as an expression preparing and very beginning the action toward S^K in the given circumstances S^P, may be considered as the model of adequacy relation as between the single elements of all expressed plan lines, as well as between the whole plan and its environment.

If that holds also for the single parts of a p-expression and if we may interpret every simplex of this p-expression by means of 7,5, and if we moreover suppose those simplexes to be joined by means of the sign of the logical product, then such a p-expression might be considered absolutely adequate. Such an absolutely adequate p-expression would be interpreted as such semiotical event, in which there are no gaps or inconsistencies between the genesis of the sign and the action denoted by it, and where every element of the expression entails its immediate neighbours and is at the same time entailed by them.

It is evident, that in such an absolutely adequate p-expression the time coordinate does not come into consideration.

On the ground of these considerations we may construct the definition of the predicate 'veracious' as follows: $\qquad\qquad 7,6$

If any plan line may be represented as a sequence of entailments and if p and q are members of this plan line, then we call q **veracious** if p is an empty sentence and q is the immediate entailment of p.

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[5] Wittgenstein, L.: Tractatus, prop. 5, 473 5, 5301.
[6] Carnap, R.: Logical Foundations of Probability, p. University of Chicago Press 2. impression, 1951 p. 105.

The varacity is then the common semiotical property of all those expressions, which are veracious.

8. The definition *7,6* is based on the same principle on which Tarski and Carnap have established the definition of the predicate **true** (verus, wahr) on the ground of the concept of null sequence[7]), and Carnap the definition of the predicate **valid** (L-true, gültig) by help of the null sentencial class[8]). Hereupon we see that the concept "veracious" is analogous and of the same importance for the pragmatical dimension as the predicate true for the semantical, and valid for the syntactical ones. The definition of the concept veracious and veracity were gained by mere formal means without help of any psychological or any other suppositions, wherefore it is, by my opinion to be prefered to the concepts "belief" or "believes" proposed by Carnap as the basis concepts of pragmatics.[9]) The concept veracious may be introduced as a relation between an expression (vehiculum, thing) and an action (human behaviour) responding to the given sign. The concept veracious may be conceived as an attribute of an expression, as well as of its content (connotatum, intension) without respect to any actual interpreter, and to his unanalysable mental state.

This content or intention may be conceived as a theoretical construct, as a general scheme or a type of behaviour, wherefore we can speak also about veracious collective plans and testing the presence of veracity of any expression we need not base it on any verbal deposition of any person, which eventually might not be true, and for truth of which we would ever be obliged to state further and further indicators still subjective and individual. On the contrary the statement of veracity may safely be based on mere objective and directly observable indicators independently upon the truth of any individual averment or allegation.

The concept of veracity may serve, I guess, also as starting point to analysis of other pragmatical concepts, namely of those meant by Carnap as "utterance", "assertion", "intension" etc.[10]) It could appear fruitful also at the analysis of various problems of the imperatives or of the normative and ought sentences, preeminently at many actual juridical question, especially if it would be done hand in hand with the analysis of the relation sentence-proposition, that is: with further researching in intensional logic and in the motivational expressions in general.

It is obvious that the correspondence between an expression and its interpretation, especially at the terms concerning human actions may be considered also from various other standpoints, and may be defined also by help of other concepts as for instance "realizable" "realization" etc. which of course should be defined in a concise way and, if possible, without any previous intensional presuppositions.

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7) Carnap, R.: Introduction to Semantics, Cambridge Massachusetts 1946, p. 48.
8) Ibid. p. 171, also yet former in Syntax, p. 126.
9) Carnap, R.: Meaning and Necessity, p. 248.
10) Ibid. p. 249.

We may on the ground of the concept of veracity propose the following definition of the pragmatical system:

By a **pragmatical system** P_S with respect to the semantical system S_P we may understand a system of statements formulated in S_P and refering to P_S for the sake of determining the veracity conditions of the given semantical sphere.

Independently from *7,6* and from the definition of the pragmatical system we may at the end summarize the outcome we have achieved hitherto:

1. In every semantical system used in a social group for the purposes of human actions there are besides the usual informative or declarative expressions also specific p-signs expressing plans or intentions, with respect to which we have to ask, how far their vehicula correspond to the interpretation of them, i.e. whether they are veracious or not.

2. The smallest unit, where we can speak about its veracity is the sentence.

3. In order to denote the particalrities both in the plan expressions and in the declarative ones we can use the same elements, which have—with exception of the time coördinate—also the same denotata.

4. The single p-expressions are as to their meaning connected each with another and with the other declarative signs, not only because they have the same designata but also because we can construct the syntactical relations between them, especially also relations of inference.

5. For the interpretation of the p-expressions, and of their designata is their time coordinate preeminently relevant as conditionning their specific meaning.

With respect to every p-expression concerning π_0 we can construct at least one declarative sentence p_n—the sentence about the fulfilment of π_0, which is a truth function and which may be verified. If this sentence p_n in any time point t_f may be interpreted as true, then it has an eminent and decisive role for π_0: the expression refering to π_0 may not since be interpreted as any veracious plan or any rational intention—as an actual p-expression.

Plán a záměr

Souhrn

Plán je specifický pragmatikální systém výrazů vztahujících se k budoucím činnostem. Plán a záměr spolu s příkazy a normami můžeme zahrnout do společné širší skupiny tzv. výrazů motivačních, kterou stavíme proti výrazům deklarativním, poněvadž se od nich liší svým úkonovým zaměřením.

Každý výraz plánu, p-výraz se vztahuje k jistému okamžiku t_0, který musí předcházet okamžik t_p plnění plánu a okamžik t_f jeho splnění. Výraz p není více aktuálním p-výrazem v okamžiku t_x bylo-li od plánu upuštěno, nebo byl-li plán dříve splněn. V p-výrazech přicházejí dva základní typy výrazů, jednání p a skutečnosti s.

Z nich vytváříme simplexy pomocí relace δ na jejíž pravé straně jsou vždy výrazy s_j na levé buď také jenom výrazy s_i nebo výrazy s_i spojené s jedním nebo dvěma (více) výrazy $p_{i,j}$. Syntakticky každý simplex můžeme považovat za větu. Podstatným rysem relace δ je, že vždy odpovídá určitému časovému intervalu.

Specifickou roli hraje u p-výrazu negace, pro jejíž formalizaci jsou v *5,1* stanovena pravidla. Pod *5,2* je pak stanoveno, kdy je možno p-výraz považovat za skutkově úplný, pod *6,1* kdy za skutkově konsistentní. Připustíme-li, že každý plán jako celek je možno vyjádřit jako simplex, musíme také teoreticky připustit i rozklad jeho prvků v postupně menší a menší mikroelementy ^2S, ^3S, ^4S, ... a ^2P, ^3P, ^4P, ..., tím, že zkracujeme časový interval a užíváme nových relací $^2\sigma$, $^3\sigma$, $^4\sigma$ ... teoreticky bez omezení.

Daný p-výraz má charakteristiku pravého motivačního výrazu, můžeme-li říci, že je **opravdový** (verax). Tak jako v semantickém vztahu mezi výrazem a jeho designatem považujeme za nejvyšší stupeň adekvátnosti jeho pravdivost a ve vztahu mezi výrazy—ve vztazích syntaktických – jeho správnost (L-pravdivost), tak po stránce úkonové (pragmatikální) ve vztahu mezi výrazem a jeho interpretací mluvíme o jeho opravdovosti. Tento predikát je možno považovat za základní úkonový predikát, a můžeme podat jeho formální definici pomocí pojmu p-linie, jakožto posloupnosti δ-simplexů takto:

Může-li být p-linie vyjádřena jako řetěz vyplývání a jsou-li p a q články tohoto řetězu pak říkáme, že q je opravdové, jestliže p je prázdná věta a q je bezprostředním závěrem z q.

Myšlenkový postup vedoucí k tomuto vymezení je možno shrnout asi takto:

Moment opravdovosti je také aktivita uvědomělá, která může být vyjádřena jako δ-simplex. Rozkládáme-li δ-simplex v podsimplexy zkracuje se časový interval a zmenšuje se pravděpodobnost výskytu $\bar\delta$ tj. vztahu, jímž může dojít ke zhacení plánu. Konverguje-li interval k nule, blíží se výraz $s_i\delta s_j$ k výrazu $s_i = s_j$, který nemá informativní obsah, který je prázdnou větou.

Toto vymezení opravdovosti navazuje na definici pravdy, kterou Tarski a Carnap podali pomocí pojmu prázdné posloupnosti resp. prázdné třídy vět.