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THE LIMITS OF MATHEMATICAL METHODS IN ANALYZING VERSE

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In applying quantitative methods in the science of literature we run up against the difficulty that a good mathematician rarely understands poetry thoroughly and on the other hand a poetry expert is rarely a good mathematician. This however must not lead us to give up the exact study of verse and does not afford a reason for scepticism with regard to mathematical methods in the study of literature. We must of course consider well what are the possibilities of mathematical methods, i.e. what is the limit of their applicability to the theory of verse.

The starting-point for all theorizing on this theme must be our clear conception of what we demand of a theory of verse, of what it must in fact contain. This question is at first sight an obvious one, but it is not a pointless one. It appears to me that it is not altogether clear in what the substance of a theory of verse lies, and that this gives rise to many misunderstandings and misapprehensions precisely in the application of quantitative methods in the study of prosody. I myself consider that the theory of verse is not only a theory of various forms of verse, but at the same time also a theory of the semantic value of these forms. In other words, the morphological point of view must be combined with the semantic one: with each verse form it is necessary to examine not only its pattern, but also its potential of meaning (communicative value). This investigation cannot be carried out without taking into account the whole literary context of the time, nor can it disregard the development of verse. We must then avoid isolating the different verse forms just as we must avoid an unhistorical approach, while at the same time we must always examine verse forms in relation to the content which is communicated by them. This of course means that the theory of verse should be more closely related to the history of literature than has been the case hitherto. This approach is not only necessary for material reasons (literary history is among other things the history of communicated content), but also for methodological reasons, and it is with these that I wish to deal here.

The most important methodological suggestion which literary history can provide for the theory of verse, is the realization that the relevance of particular elements is not given by their frequency, but by their potential semantic value. In the field of theme this is quite obvious. In works of literature we often find in the centre of the reader's interest certain episodes and characters, which from the point of view of the normative conception of composition are of marginal significance, and yet they outlive the whole work. We need only quote from classical literature the figure of Thersites. But in the field of the smaller thematic wholes the same condition prevails. This is shown particularly convincingly by what we call "winged words". In the Middle Ages there circulated a whole collection of various selected

quotations from the classics and some of these quotations have been preserved up to the present (O tempora, o mores!; Odi profanum vulgus et arceo, etc.). Nor is it otherwise with modern literatures (I know my Pappenheim troopers; Get thee to a nunnery, go, etc.). To quote a very clear example from modern Czech literature, the fact that from such a widely-read book as Hašek's *Schweik*, there continually circulate a few sentences which have passed into current speech (e.g. "You got to treat the poor firm-like"). The reading public has carried out a certain selection here and it is decidedly striking that from several hundreds of pages they have agreed in selecting a few phrases. This is no chance matter; such "winged-words" are the result of the choice of a wide community. The reason for the same expression being accepted by a wide public lies in its content. (By content I mean not only the communication of a certain fact, but also the "emotional atmosphere", i.e. the author's relationship to the fact communicated, his assessment of it.) For the same reason certain situations or certain turns of speech can become the starting-point for parody. If we were to seek to explain why precisely this or that character, situation, episode or expression appealed to the reading public, and not some other, we should undoubtedly have no success with the application of the quantitative method, since this is a matter of quality. But let us return to verse. I think that the relevance of varieties of verse is conditioned in an analogical way to that of thematic elements, i.e. it is not a question of form, but a question of content communicated by verse form.

The problem of relevance of certain elements of content has been comparatively well worked out for the field of typicality. What we know about typicality could be usefully applied to questions of prosody. The science of literature agrees that a typical phenomenon is not the most commonly occurring phenomenon (i.e. it cannot be assessed quantitatively), but a phenomenon of such a character which becomes relevant precisely because it offers certain important elements of content. In analysing verse we should examine a comparable problem: we ought to ascertain first of all w h a t is relevant in the form of the verse and then we can decide w h y precisely this or that element is relevant. And here quantitative aspects will scarcely suffice.

As far as the most general examination of the role of single elements of verse form is concerned (the role of stress or quantity, the role of the number of syllables, etc.), their function can of course be determined from the aspect of language structure and here mathematical evidence can well be used (e.g. the optimal length of line with regard to the optimal length of sentence, the role of stress and quantity in verse in relation to the function of stress and quantity in the language concerned). It is more complicated however when verse forms are examined in their entirety and as they develop. As soon as we begin to ask the question of why precisely at this or that particular time the form of the trochee changes, why free verse appears, why rhyme disappears or — to be as concrete as possible — why in the development of Czech verse the key position was held by the eight-syllable line and why during the Renaissance it was ousted by a line with a larger number of syllables or why from the second half of the 15th century the line without feet (i.e. the line with a variable number of syllables) was declining in frequency, we find ourselves facing problems which can no longer be solved only quantitatively. Here we must add the qualitative aspect and seek the reasons why certain verse forms are received in one way and others in a different way. With this purpose in mind we must introduce a further factor into the field of investiga-

tion, namely the perceiving subject. In this way we cannot avoid approaching the communicated content and discover a striking analogy to the problem of theme. Just as out of a whole extensive work only a few characters or situations act with particular emotional effect on the reader, literally engraving themselves on his memory, so the reader of a piece of poetry preserves in his memory a few rhythms and gives them a specially high value in his consciousness; and these frequently become the starting-point of further literary development. Is was here that standardized prosody usually showed little sensitivity, e.g. Josef Král in his mechanical analysis of verse did not succed in dealing satisfactorily with works which in some way departed from an *a priori* established norm (Erben, Mácha etc.). He failed to realize that it was this departure which was capable of aesthetic effect. In his attempt to attain the greatest possible objectivity he did not take into consideration the perceiving subject, and thus his interpretation unavoidably led to a contradiction between the factual literary value and abstract metrical requirements. He could have found a corrective in the literary historical point of view: if he had taken into account the communicated content he must have seen that the old verse form broke down precisely at the moment of introducing a new content. The history of verse should take as its starting-point the aspect of literary value, and changes in the form of verse should be interpreted just from this aspect of literary value and thus as one of the elements which together form in combination the literary value of a work. This means that the aspect of content and import must not be lost sight of.

A similar danger still threatens us today. In the course of contemporary attempts to solve questions of verse by mathematics the statistical examination must not eliminate the subject, investigation may set out directly from the relations of the perceiving subject to, for example, certain forms (and for this purpose certain tests may be carried out). The results can then be worked up mathematically — but without regard to the communicated content such evidence does not tell us much.

And this is precisely where the limits of quantitative methods in prosody are reached. We can express very well by mathematics whatever is systematized in a poem; we can express well the structure of the poem and examine its relation to the structure of the language, in other words the relation of the system formed in the poem to the system of the language as a whole. This is undoubtedly of value. I am however sceptical as far as the problem of the relevancy of individual verse forms is concerned. I consider that this must be examined from the point of view of the communicated content, i.e. we must examine the way in which the relevancy of form is conditioned by the communicated content (or else, in cases where tradition is concerned, we must examine the whole tradition in regard to the communicated content). Certainly this content too is part of a certain system (just as the linguistic form of verse is part of the general language system), but it is a non-linguistic system: it is the system of the entire reality which the work reflects. The problem here, then, is really one of a sociological character: why a particular character, a particular episode, a particular expression, a particular rhythm, etc. should engrave itself on the memory, why does it affect the reader emotively, why, in short, does it become relevant.

In practice there are of course two ways open: either we can take as our starting-point the places which are outstanding and relevant for their content, and consider whether or not this relevance is in some way expressed by prosodic means (whether for example such places are indicated by some special verse forms or by special

features of the verse structure within the same verse form, e.g. within blank verse) or on the other hand, whether and in what way the rhythmically relevant places are significant in content. Both these ways however must be combined and must supplement each other, since special features of verse structure do not necessarily follow from relevance of content, while on the contrary peculiarities of verse form necessarily arouse a feeling of the relevance of the content communicated by the verse in question. (Some theoreticians speak here of the subjective sub-text — these are cases where relevance of content would not occur without particular expressiveness of verse form.)

Translated by Jessie Kocmanová

MEZE MATEMATICKÝCH METOD PŘI ANALÝZE VERŠE

Teorie verše není jen nauka o různých formách verše, ale je to současně nauka o jejich významové hodnotě. U každé veršové formy tedy musíme zkoumat nejen její tvar (hledisko morfologické), ale i její významovou potenci (hledisko sémantické). Toto zkoumání není možno konat bez zřetele k celkovému literárnímu kontextu dané doby a bez zřetele k vývoji. Z toho ovšem vyplývá potřeba sblížit teorii verše s literární historií; není to nutné jen z hlediska materiálního (literární historie je mimo jiné historií sdělovaných obsahů), ale i metodického.

Nejdůležitější metodický podnět, který může dát literární historie teorii verše, je poznání, že relevantnost určitých prvků není dána jejich frekvencí, nýbrž jejich významovou potencí. Autor se domnívá, že relevantnost veršových různotvarů je podmíněna analogicky jako relevance prvků obsahových, tj. že nejde o věc pouhé formy, nýbrž že jde o obsah veršovou formou sdělovaný.

Právě zde se ukazují hranice kvantitativních metod ve versologii. Matematicky lze dobře vystihnout to, co je v básni usystemizováno, dá se dobře vyjádřit struktura básně a vysondovat její vztah k struktuře jazyka, jinými slovy, vztah systému vytvořeného v básni k systému celojazykovému. To je jistě cenné. Autor je však skeptický, pokud jde o problém relevantnosti jednotlivých veršových forem. Domnívá se, že ta musí být zkoumána pod zorným úhlem obsahu sdělení, tj. že musíme zkoumat, jak je relevantnost formy podmíněna sdělovaným obsahem. Jistě i tento obsah je součástí určitého systému, ale to je systém celé skutečnosti, kterou dílo odráží.

Při praktickém řešení je možná dvojí cesta: buď můžeme vycházet z obsahově exponovaných (relevantních) míst a zkoumat, zda je jejich relevantnost nějak vyjádřena veršovými prostředky, nebo naopak můžeme zkoumat, zda a jak jsou rytmicky relevantní místa exponována obsahově. Obě naznačené cesty se však musí kombinovat a doplňovat, protože z obsahové relevance nevyplývá nutně zvláštnost veršové výstavby, naproti tomu zvláštnosti veršové formy nutně vzbuzují pocit relevance obsahu těmito verši sděleného.

ГРАНИЦЫ МАТЕМАТИЧЕСКИХ МЕТОДОВ ПРИ АНАЛИЗЕ СТИХА

Теория стиха — это не только наука о различных стиховых формах, но одновременно и наука об их семантических свойствах. Следовательно мы должны рассматривать в каждой стиховой форме не только эту форму (точка зрения морфологическая), но также ее смысловую потенцию (точка зрения семантическая). Такое исследование нельзя делать, не считаясь с общим литературным контекстом данного периода и с его развитием. Разумеется, из этого вытекает необходимость сближения теории стиха с историей литературы; это необходимо не только с точки зрения материальной (история литературы кроме всего остального является историей сообщаемых содержаний), но и методической.

Самым важным методическим стимулом, который может дать история литературы теории стиха, является познание того, что решающее значение определенных элементов дается не их частым повторением, но их смысловой потенцией. Автор предполагает, что решающий характер различных стихотворных форм аналогично обусловлен, как решающий фактор элементов, относящихся к содержанию, т. е., что речь идет не только о форме, но также о содержании, передаваемом в стихотворной форме.

Именно здесь проявляются границы количественных методов стиховедения. Можно точно и ясно понять, что́ в стихотворении систематизировано, можно хорошо изложить структуру стихотворения, проанализировать его отношения к структуре языка, иными словами, отношение созданной в стихотворении системы к общеязыковой системе. Все это является безусловно ценным. Однако автор скептически относится к проблеме решающей роли отдельных стихотворных форм. Он предполагает, что эти формы следует рассматривать с точки зрения сообщаемого содержания, т. е., что необходимо исследовать, как роль формы обусловлена сообщаемым содержанием. Разумеется и это содержание составляет часть определенной системы, но данная система вне сферы языка: это система всей действительности, которую отражает данное произведение.

При практическом решении возможны два пути: или можно исходить из семантически экспонированных мест и рассматривать, выражена ли как-нибудь их семантическая роль стихотворными приемами, или же наоборот мы можем проследить, если ритмически выразительные места экспонированы в содержании. Но оба намеченных пути следует комбинировать и дополнять, так как из решающей роли содержания не должна обязательно вытекать особенность стиховой конструкции, — наоборот, особенности стиховой формы возбудят чувство содержания, выраженного этими стихами.

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