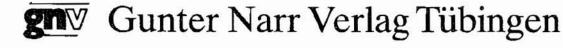# Festschrift for Henry Hoenigswald

On the Occasion
of his Seventieth Birthday

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CONTENTS

Binary and multiple oppositions in the history of Indo-European

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1. This paper is written on the strength of a series of ideas which I have attempted to justify elsewhere and which I am here obliged to take simply as a starting-point.[1]

In fact it deals with the idea that the development of Indo-European took place in three stages, which may be defined schematically as follows:

Stage 1: Pre-flexional Indo-European or Proto-Indo-European (IE 1)

This functioned on the basis of root-words, either nominal-verbal or pronominal-adverbial ones, which determine each other to make up syntagms and sentences through word-order, accent placing and certain enlargements, albeit without proper inflexion and without the later categories of Indo-European having yet arisen.

Stage 2: Monothematic Indo-Eurpean (IE 2)

This phase, preserved in Anatolian (which was left isolated to the south of the Caucasus) and in archaisms in other languages, already has inflexion although always on one stem. In the noun, it opposes singular and plural, animate and inanimate, and has a case system; in the pronoun, it opposes persons; in the verb, singular and plural, three persons, indicative and imperative, present and preterite, active and middle voice. These oppositions are basically expressed by means of oppositions between series of endings. There is the beginning of stem opposition: basic and derived verbs (causative, iterative, etc.); sg. and pl. Nom.-Acc.-Voc. n. ($-om/-\bar{a}$, $-\breve{a}$); heteroclitic nouns.

Stage 3: Polythematic Indo-European (IE 3)

The former oppositions of categories are maintained in this phase, but some of them are extended: that of gender is now between masculine, feminine and neuter, that of number between singular, plural and dual (but not always), that of tense between present, preterite and (at times) future, that of mood between indicative, imperative, optative and (in certain languages) subjunctive, that of voice between active, middle and (at times, too) passive. These extensions now need stem oppositions. And the same goes for other new oppositions: that of the degrees of comparison in the adjective and that of the aspects in the verb. An old opposition, that of present and preterite, now not only opposes endings but also stems. This type of Indo-European is the one which is the object of traditional description.

According to this conception, there has been progressive complication of the oppositive systems; on the other hand, there have been implications between them, that is, one form

may intervene in more than one system of oppositions (gender, number and case; tense, aspect, voice, number and person). It is, moreover, curious that all the oppositions in Indo-European 2 are binary, with the exception of those of person and case; all are basically carried out with the help of endings, although there are also oppositions between lexical items (nouns which are only neuter or only animate, for example), and, to a minimal extent, between stems (in the above-mentioned cases). In Indo-European 3, on the other hand, although it still preserves the old formal resources of the oppositions, the new resource of stem opposition prevails, either by serving the old oppositions or by extending them or by creating other new ones.

An opposition, in fact, may make use of diverse formal resources, according to its antiquity or the category or function it refers to, and may use one or another or a combination of both.

The remarkable thing, however, is that at the time when the grammatical resources used (the lexical ones existed alongside these) were endings, the oppositions were binary, with one or two exceptions; and when these resources were complemented by other grammatical ones, based on the opposition of stems, they became multiple, being generally ternary. The growth of Indo-European morphology was therefore thus tied up with the above mentioned formal resources and obviously had certain repercussions at the level of content. Yet these repercussions may be summed up as the passing from binary oppositions to ternary ones or even to those with more terms.

Therefore it is a matter of explaining this evolution and the reasons for it. It also means explaining the great exception which existed: the case system which in Hittite has seven terms and in other languages a variable number of them, e.g. a maximum of eight, as is known, in Indo-Iranian.

I believe that a further argument should be added to those I have already given in the above-mentioned publications, in favour of the hypothesis that the binary oppositions are the more archaic and that the grammatical resource based on the opposition of endings is also the most archaic. This argument would be of a general type: grammatical oppositions generally begin as binary through the opposition of two terms (two words, two endings or various grammatical elements). It is clear that the opposition of two words is not yet a grammatical fact; neither are the other oppositions when they are isolated. A series of opposed terms are needed: $*pət\bar{e}r/*m\bar{a}t\bar{e}r$, $*bhr\bar{a}t\bar{e}r/*su\underset{\sim}{e}s\bar{o}r$ ...; $-ti/-t$, $-si/-s$; $*line\ k^u_\sim ti/$ $*leloik^u_\sim e$, $*k^u_\sim rneuti/*k^u_\sim ek^u_\sim ore$...

On the other hand, the last examples indicate that in the oppositions expressed by grammatical elements one must count upon allomorphism, as one must likewise count upon defectiveness ($*u oide$, without a present), syncretism, amalgams, neutralizations and other irregularities. As I have explained elsewhere[2], these irregularities shed light upon the invariably secondary nature of the oppositions of inflexional Indo-European (2 and 3).

If this is so, it would appear that the multiple oppositions must forcibly have originated in an even more secondary way: through the split of one term of a binary opposition (the animate split into masculine and feminine); through the addition of a new term which opposes one of the basic binary opposition; or through combinations within a complex system of independent binary systems.

Before going further into this subject, however, I have a few things to say on the origin of oppositions in general: that is, in fact, on the origin of the binary systems of oppositions

which are the basic ones. I believe that this has been acknowledged whenever a diachronic criterion has been applied which was at the same time structural, in order to explain how oppositions appear in one stage of a language which did not exist in a former one; and how formal elements which could not express oppositions which did not yet exist in the former stage could then express them in the later stage. I refer briefly to papers by Kuryłowicz[3] and others of mine[4] in which we refer to precedents of these ideas in A. Martinet and others.

Very briefly:

a) A lexical, or lexico-grammatical item may be opposed as a negative term to the same item when a second element is added to it, thus becoming the positive term. Thus, a verbal stem followed by elements such as *-m, -s, -t, -nt* does not indicate tense; but if this complex *T-m (T-s, T-t, T-nt)* is ·opposed to another T-*m-i* (T-*s-i*, T-*t-i*, T-*nt-i*) in which *-i* signals 'present', it comes to mean 'preterite' through opposition.

b) Certain elements which originally had no meaning of their own acquired it in certain contexts. For example, *-ā* and *-ē* are originally radical elements (in disyllabic roots); but they are at times defined as characteristics of the indicative (as against other of the subjunctive), at others, they indicate the opposite; or else: *-ā* signals the indicative and *-ē* the subjunctive (Lat. *amās/amēs*). As is today acknowledged, the same goes for the case of the thematic vowel which marks indicative as against the long vowel of the subjunctive or subjunctive as against athematic forms of the indicative, etc. As soon as one of these elements, accompanying a verb in an indicative context, is interpreted as expressing the indicative, it is then used to this end in other different verbs; and the same occurs with the subjunctive. Thus, Brugmann has already explained the conversion into a feminine marker of an *-ā* which was originally radical (in $*g^{\mu o}n\bar{a}$).

Naturally, the signifiers are later extended and complicated, but the basic pattern is the following: there is always an underlying opposition between two terms, or two series of words.

2. In the second part of this paper, I shall now examine the inventory of binary oppositions in Indo-European, together with their means of expression: I shall give a few indications as to how they were used for the creation of these oppositions. Then I shall examine the exceptions existing within Indo-European 2: ternary systems or those with more terms. This will clear the way for the last part of the paper: the systems of multiple oppositions (through extension of the binary ones or new creations) in Indo-European 3.

The binary oppositions of Indo-European 2 preserved in Anatolian are as follows: in the noun: animate/inanimate; in the verb: indicative/imperative, present/preterite and active/middle voice; in one and the other: singular/plural.

Of these oppositions, that of gender (animate/inanimate) and that of voice (active/middle) have a lexical basis although this is lost in the gender of adjectives, which have "motion". To begin with the former, nouns are by definition 'tantum' forms (either only animate or only inanimate); the concept of defectiveness is habitual, although it may at times be lacking (cf. doubtlessly archaic oppositions of the type tree names in *-os*/fruit names in *-om*, the types represented by Gr. γῆ/πέδον, Lat. *terra/tellus*, O.I. *agnis*/Hitt. *pahhur*, Lat. *aqua*/ Gr. ὕδωρ). As is well-known, to the lexical item another grammatical one is added: animates with different Nom., Acc. and Voc./inanimates with syncretic Nom.-Acc.-Voc.[5] . The theo-

ry I have expounded in other papers on the origin of the opposition is the following: a sub-class of nouns incapable of performing the function of subject and the impressive-expressive one were opposed to another sub-class of nouns capable of both functions: both types also performed that of object (cf. Adrados 1975: 398 ff). The nouns of the first and second class were organized into two series, endowed with suitable grammatical markers (although the inanimates could also later function as Nominative and Vocative, they extended the old Accusative form to these uses, whence the syncretism).

Thus, a binary lexical opposition was extended to two lexical series and was grammaticalized with one positive and one negative term. Something similar may be said of the voice opposition: there are verbs which are only active, others with different roots which are only middle voiced: they are the lexical basis of an opposition which was likewise grammaticalized. In this case there was systematic opposition of two series of endings (in gender, this occurred in Nominative and Vocative but not in Accusative). Verbal forms with -*e/o* stem or with -*e/o* ending which could appear together with verbal forms of the middle voice in themselves, spread as carriers of this voice; on the contrary, radical verbs without -*e/o* or with endings not followed by -*e/o*, remained characterized as of the active voice. Traces of the secondary nature of the opposition are, among others: the fact of their being at times connected to lexical items still; the fact that stems with -*e/o* or endings with -*e/o* may at times be of the active voice or indifferent to voice (Gr. φέρει, Hitt. -*ta* and Gr. -οϑα in the active voice: the perfect in -*a* being indifferent); the fact that there are 'tantum' forms which are only either active or middle voice; that the opposition did not spread to languages such as Baltic and Slavic (although there is a theory, which I believe is erroneous, that it was lost) (Autor 1981: 41 ff.).

Thus, binary lexical oppositions were the nucleus for binary oppositions of series of roots provided with grammatical elements (endings or $\emptyset$ endings) either concommitant with mentioned oppositions or used secondarily to express those. There comes a moment when only the opposition of endings added to one and the same lexical item is sufficient.

There is a certain difference in the opposition of number (singular/plural). Here, too, there are 'tantum' lexical forms (either only singular or only plural); but they are not opposed to each other and there are, on the other hand, syncretic forms which are not yet differentiated: this is what often occurs in Hittite inflexion. In number the opposition of endings, when it is there, comes from secondary differentiations: this is how I have interpreted the oppositions -*os*/-*ōs* (with metrical lengthening), -*os*/*oi* (with agglutination of -*i*), -*s*/-*es* (with difference of vocalic degree), etc.; and -*m*/-*ms*, *bhi*/-*bhis* (with secondary interpretation of -*s* as a plural marker). Probably, originally anumerical nouns were characterized as singular or plural when they were determined by lexical items of these types ('one'/'two', 'three ...', 'I'/'we'...) (cf. Adrados 1975: 427 ff; 1984 b)

In the last instance, these are re-makes of lexical oppositions with the aid of endings. But in others cases, an ending has also been used with its own value as against another $\emptyset$ ending which has become the negative term: thus in the temporal opposition (-*mi*/-*m*, -*si*/-*s* ...), it is necessary to point out that the negative term may act as a positive one (the type of Gr. τίϑης, Hitt. *arta* as present forms) and that the -*i* may be extended outside its limits. The use of an ending to mark one term of an opposition as against the lack of ending to mark the other is also found in the indicative/imperative opposition as it appears in Hittite (although the negative term acquires certain formal markers secondarily).

To sum up: the basis of the binary oppositions is in lexical or grammatical pairs (specific ending as against $\emptyset$) or in the abstraction that opposes "one" to the other numerals. Or in the combination of different resources: at times, by attributing to both opposed terms forms which were in principle indifferent to opposition.

3. What happens with the multiple oppositions of Anatolian can now be understood.

The first is that of person: first, second and third. Obviously, this is based on the existence of the pronominal forms 'I', 'you' and the other pronouns and nouns in general. On the other hand, it has no lexical basis: all verbs have the three forms.

However, the partial identity of the second and third persons singular is only too well-known. In fact, in Greek, within the forms which were originally without endings, φέρεις/φέρει were only secondarily differentiated; in Lithuanian something similar occurred, but here the differentiation was carried out with the aid of vowel timbre (2nd -e < *-ei/3rd -a < *-o). When there are endings, things are even clearer: in Hittite in the preterite we find -t, -š, -ta and -šta in both persons and there are parallels in other languages (cf. Adrados 1974: 621 ff., 635 ff.). In fact, second-third forms were secondarily split, certain ones being used for the second, and others for the third; they were old allomorphs.

That is to say that the ternary opposition was carried out by means of a scission within one of the two terms, the negative. Once more, we come to the same result. And if we consider that the opposition existing between base verb/iterative/causative was a ternary opposition, then the evolution which led to this result is here different: base verb/iterative and base verb/causative are the two underlying binary oppositions which were then combined. In each one of them a form considered to be non-characterized was opposed to another characterized one following a pattern that is by now well-known to us. In this case it is clear that an opposition between stems was used for the first time, which has been considered as a model for all later ones (cf. Rosenkranz 1979: 227).

I believe that this combination in a multiple opposition of older binary oppositions is what happened as far as the case system is concerned. Naturally, I am not starting with the theory of an older system of eight cases which were later syncretized here and there; in this sense I would refer to my above-mentioned works and to Villar (1974), as likewise to Lehmann (1958: 179−202), Kuryłowicz (1964: 190 ff), Fairbanks (1977: 101−131), Schmalstieg (1980: 73 ff). Today, there is a widespread opinion that the system of Nominative, Accusative, Genitive and Vocative is older, as likewise a form variously interpreted either as a Locative or as an extra-syntactic one; for Villar and myself, the Dative/Locative split is secondary.

However, without going further into the creation of the system, as it basically already existed in Indo-European 2, one should note that if we believe that it is the synthesis or combination of various systems of binary oppositions, this is because each of them belongs either to a different function of the language or to different contexts. I believe that there were initially several oppositions:

a) A functional opposition: base noun/Vocative
It is clear that the vocative inherits a special use of the noun in expressive and impressive non-representative function: it was formalized by means of junctures, initial accent placing, the use of the pure stem, etc.

b) An Adverbal opposition (created within the base noun)

The Nominative/Accusative opposition refers to that existing between two actants or determiners of the verb: this is its context. Of course in the Nominative there were still noncasual uses (asyntactic Nominative *pendens*, etc.) and the Accusative at times acquired new contexts secondarily (Accusative of relationship to the noun, adverbial Accusative). The opposition is expressed by means of endings (including the $\emptyset$ ending), which in general mark these two types of verb determination (Adrados 1975: 407 ff).

c) An adnominal opposition

The base noun/Genitive opposition opposes any noun to another one which has the function of noun determiner. The Genitive as verb determiner is secondary as is generally believed.

d) A sentence opposition

The remains of the base noun which were not split into the three former binary systems were used with a local value opposed to any other noun in the sentence. I shall not enter here into a discussion of the traditional theory that there were originally four cases (Dative, Locative, Instrumentalis and Ablative); I believe that the Dative/Locative scission is secondary (their markers -$\emptyset$, -*i* and -*ei* are the same) and that the Ablative and Instrumentalis were developed as dialectal. I refer to the above-mentioned publications to this end and for all details concerning the formalization of the different oppositions.

It is clear that the evolution of Indoeuropean tended to confuse functions and distributions and to combine the four binary oppositions in one single system. Opposition c), for example, as from a certain moment onwards, opposed to the Genitive both the Nominative, the Accusative, and even the Vocative and Locative; all cases come into the negative term opposed to the Vocative, and, of course, into that opposed to the Locative.

Although very briefly expounded, I believe that only thus may the origin of the multilateral case system be explained. Despite all, it has preserved traces of the following archaisms: the limitation of certain cases to certain distributions (or preference for them), the opposition of certain cases to others (and not to all of them) also in certain distributions, systems of partial oppositions within the overall case system.

Thus, Indo-European 2 not only provides proof that the oldest systems are the binary ones, and specifically those created with either lexical or ending elements, but that it was the first which resources that the whole of Indo-European was thenceforth to handle in order to create systems of multiple oppositions: either by splitting one term of an opposition or by synthesizing several into one, and by using the opposition of stems as a morphological resource as well as the former ones.

4. This brief account of the creation of systems of grammatical oppositions in Indo-European 2 may serve as a guide for tracing another parallel with regard to Indo-European 3: I have already stated that there is an extension of the morphological resources (generalized use of stem oppositions) and that at times this is an extension of a binary system in Indo-European 2 which as a consequence becomes ternary or multiple, at others creates a new system — here, too, as always, on the basis of a binary one.

There are a series of concepts which I shall handle — concepts which partly correspond to already known data in Indo-European 2 — and which should be more precisely defined. I speak of scission when one term of a binary opposition is split into two terms that are opposed to each other: the allomorphic stems of which it consisted are shared by the two

terms of the secondary opposition now created. Binary opposition thus becomes ternary. This is what already occurred in Indo-European 2 when the person opposed to the first was split into second and third as we have seen.

The concept of allomorphization means that different stems become part of one and the same term of an opposition that is created. Thus, this occurred already in Indo-European 2 in the case of the animates and the inanimates, for example.

I speak of combination when two or more binary oppositions with a common term are combined into a multiple one: just as in the case system which already existed in Indo-European 2.

Finally, the concept of addition means that, at times, one or more terms of an opposition are secondarily opposed to a new term, whatever its origin may be. The opposition thus becomes ternary or multiple. This is somewhat parallel to what occurs when a term is opposed to another to make up a binary opposition; it is therefore a continuation of the same procedure.

Let us first briefly examine the extensions of the old binary oppositions of Indo-European 2 mentioned above. For more detailed analysis, I refer to the above-mentioned bibliography and to the already quoted works. We find:

a) Addition

This is produced with ending elements when the plural in a series of Indoeuropean languages becomes a negative term opposed to a newly created positive one, the dual, which refers to certain numerical uses (two individuals or objects in certain circumstances), which are also expressable as a negative term by the plural. With regard to the origin I suggest analogy with *$du\bar{o}$ and *$ambh\bar{o}$ in the case of $-\bar{o}(u)$ for the dual endings (cf. Adrados 1975: 440 ff).

b) Scission

Animate nouns split into masculine and feminine: certain lexical items and often stems followed by certain grammatical elements (above all masc. $-o$ /fem. $-\bar{a}$) form two opposed series by means of a process of allomorphization. As is known, the feminine is a positive term and the masculine a negative one. On the marking of masculine and feminine (respectively) with elements such as $-o$ and $-\bar{a}$, which at first were indifferent to this distinction, several hypotheses may be formulated (cf. Adrados 1975: 481 ff).

c) Scission and addition

Both resources are used supplementing each other in the extension of the mood and voice systems.

The stems which in Anatolian (as the representative of Indo-European 2) function as allomorphs of the indicative, that is, of a non-imperative, are classified in Indo-European 3 as indicative stems and subjunctive stems: in both terms a process of allomorphization takes place. I have explained elsewhere[6] that there are no stems which are specifically of the indicative or the subjunctive kind: The definition is proportional and this can be seen very clearly when one touches upon the subject. By the time, however, the well-known fixed correlatives of athematic indicative/thematic subjunctive or that of thematic indicative/ subjunctive with long vowel were established. Authors like Renou and Kuryłowicz by now

acknowledge at least the identity of the -*e/o* of the indicative and that of the subjunctive (cf. Kuryłowicz 1964: 137 ff; 1977: 90 ff.).

Thus a ternary system was formed. A positive term corresponding to the impressive function of the language (the imperative) had a negative one in which this function coexisted with the representative one; then the above-mentioned split created a secondary opposition of indicative/subjunctive. However, on the other hand, there is addition of the optative, which has a characteristic suffix -*iē/-ī* (also in the -*oi*- of the thematic verbs). This four-term system is highly complex: the indicative indicates reality as against the subjunctive-optative, and there is a gradation of reality (indicative)/eventuality (subjunctive)/possibility (optative); at the same time, there is an opposition between mandate (imperative)/will (subjunctive)/wish (optative) within the impressive values which these moods preserved, as compared to the indicative.

One would achieve similar results by analysing the creation of a passive voice which makes the binary voice system (active/middle) a ternary one; although this is not an Indo-European phenomenon since the different languages develop this independently, it is clear that the old middle voice at times can be split into a middle and a passive one, whilst at others the passive received the addition of special elements.

d) Combination

The evolution of the tense system in Indo-European 3 consists of two phases which are chronologically different.

In the older of the two, the present/preterite opposition, which belonged to Proto-Indo-European (Indo-European 1), takes a new formal characterization which does not cancel out the older one (based on endings): certain stems are assigned to the present, others to the preterite. The distinction is only proportional to a great extent and often dialectal; however, as in other parallel cases, certain stems tend to be assigned to one of the opposed terms, others to the other (cf. Adrados 1975: 675 ff.). The whole of this formal re-shaping hardly affects the semantics of the opposition, except that one must assume that is was formerly a privative one (-*m*, -*s* . . . as the negative term) and that it is now an equipollent one, for both the present and certain preterites in certain Indoeuropean languages display atemporal uses.

The second phase is that in which, at least in Greek, Indo-Iranian and Baltic, the present/ preterite tense opposition was combined with the atemporal present (negative term)/ desiderative opposition, thus a positive future term being created. As is known, the synthesis came about through the proximity of the semantic values of the desiderative and the future and through the existence of a 'case vide' for the future.

Once more, we observe in all cases the secondary nature of the ternary and multiple oppositions in general and their construction through lexical elements, and above all stems. There is only the exception of the dual, which was created on the basis of an opposition of endings.

5. The new oppositions are still to be discussed, as I mentioned above: as I stated then, they were all created on the basis of opposing stems. There are processes of allomorphization of existing stems (and other new ones which were created) which contract binary oppositions that later give ternary ones.

a) Scission (split)

I believe this is what occurs in verbal aspect. Leaving aside that based on the opposition of base verb/verb with preverb as likewise the diverse 'Aktionsarten', whose existence in Indo-European 2 I already mentioned, I shall keep to the aspect which comes into play between the present, perfect and aorist stems. The present/perfect opposition starts from that between diverse allomorphic present stems and a deverbative of state.[7] In fact, the result is an opposition between a base verb and a special stem with stative value.

But this base verb (the ensemble of allomorphized stems) splits into present and aorist by means of a new process of allomorphization in both sectors. The starting-point is plausibly in certain iterative and durative stems and in other punctual ones, which become crystallization points around which the two opposed terms are made up. Thus, the oldest and most general binary opposition is extended to make up a ternary one (cf. Adrados 1974:675 ff.).

b) Combination

The degrees of comparison in the adjective (positive, comparative and superlative) make up a ternary system resulting from the combination of two previous binary systems, the positive/comparative and the positive/superlative.

It is well-known that these are sometimes lexical oppositions, sometimes grammatical ones (with diverse allomorphized suffixes), and sometimes mixed ones. It is clear that the first step is allomorphization (as is known, for example, -tero and -ios originally had quite different values) and the constitution of the two binary systems with a common term (the positive). Their combination makes up a ternary system of the gradual type, as to a certain extent that of the Indicative/Subjunctive/Optative (reality/eventuality/possibility) and that of Imperative/Subjunctive/Optative (mandate/will/wish), although clearer.

As was stated, these new systems of Indo-European 3 display defective data, among others, which definitely prove their secondary nature.

6. I think the foregoing is sufficient, although similar arguments may be put forward for the 'Aktionsarten', deixis of the pronoun, etc., always along the same lines.

If Proto-Indo-European or Indo-European 1 was a non-inflexional language, as is thought, an intellectual mechanism must be thought up to explain how later categories were created: obviously with the aid of formal elements prior to these and originally indifferent to them. The process took place in stages: the creation of the binary oppositions, the extension of these latter, the later creation of other binary and ternary ones and their extension. Fundamentally, the procedures were always the same: if we follow up the process in the individual languages, we shall see how it is repeated. There is, however, an evolution: first the lexical and ending resources are used, whereas the stems are hardly used; then, without renouncing the former, the latter become the more frequent.

In all cases, abundant irregularities are left which may serve as a guide in the reconstruction of the oldest oppositions and the development of the system through its various stages. I have given a more detailed account of these irregularities and their use to this reconstruction elsewhere (Adrados 1984b).

Notes

1   Cf. among others: Adrados 1974, Adrados 1975, Adrados 1981a: 96–122, Adrados 1982: 1–35, Adrados 1985a und 1985b.
2   Above all in Adrados 1985b.
3   Cf. Kuryłowicz 1956, and above all Kuryłowicz 1964 and Kuryłowicz 1977. Cf. a criticism indicating the points which differentiate my work from that of this author in Kuryłowicz 1974: 932 ff. and Adrados 1982: 195.
4   Adrados 1962: 5–41, Adrados 1966: 131 154, Adrados 1968: 1 47.
5   That Anatolian had no masculine/feminine opposition is becoming acknowledged by all. Cf. lately Laroche 1970: 5—57.
6   Adrados 1974: 849 ff.; Adrados 1975: 7/9 ff., in which the supposed secondary loss of the subjunctive in Baltic and Slavic is also refuted.
7   For the origins of the perfect and its non-existence in Anatolian, cf. among others Nadia van Brock 1964: 119–165 and Adrados 1981b: 27–58.

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