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Kenneth C. Shields

A History of Indo-European Verb Morphology

A HISTORY OF INDO-EUROPEAN VERB MORPHOLOGY

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IN LOVING MEMORY OF

MARY JANE SHIELDS
1951-1987

Requiem aeternam dona ein, Domine,
et lux perpetua luceat ei.

Preface & Acknowledgements

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Kenneth C. Shields

Lancaster, Pa.
September 1991

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Chapter I

Introduction

In an earlier book of mine, *Indo-European Noun Inflection: A developmental history* (Shields 1982a), I present *a* theory about the evolution of nominal case, number, and gender markers from early Indo-European to late, dialectal Indo-European. I emphasize the word *a* here because it is my belief that other approaches to this historical linguistic issue have equal validity. Indeed, I admit there (p.97) "that Indo-European did not necessarily evolve in the way that I have described it since the data analyzed [...] are subject to variant interpretations. But because of this ambiguity, [...] Indo European may very well have undergone the changes which I have posited." Such statements, unfortunately, have been misinterpreted by some of my colleagues. Thomason (1983:687) accuses me of advocating "that historical linguistic methodology imposes no constraints on hypotheses about unattested languages", while Szemerényi (1985:56-57) even goes so far as to predict "the disintegration of IE studies" if such "relativism ('any explanation goes')" is allowed to pass as linguistic argumentation and invites me to "return to a more rational way of treating [my] problems, to a way which others can also recognize as rational and do not find necessary to reject out of hand." A careful reading of Shields (1982a), however, clearly demonstrates that "any explanation does *not* go". On page 2, after pointing out that my reconstructions may look strange to traditionalists, I stress that "this deviation does not mean that I have ignored what is known about the structure and the evolution of language in general and the Indo-European language in particular, or that I have rejected the traditional methods of linguistic reconstruction" — I have merely used this knowledge to view the data in a new light. Although certain processes of linguistic change, especially non-proportional analogy and monophthongization, are given greater emphasis in my theories than in most accounts, and although various evolutionary processes and extant reconstructions are integrated in new ways, the reality of these processes in the work of linguistic change is never denied in

my research. It is in this spirit that I offer this current volume, which presents my views about the evolution of certain grammatical categories and their markers pertaining to the Indo-European verb.

I would submit that any perceived problems in my proposals lie not in the reconstructions themselves but in the general linguistic theory and methodology which underlie them. That is, historical linguistics appears to have its own 'constraints problem', comparable to the one which engendered so much research in generative synchronic linguistics in the 1970s. Simply stated, diachronic theory and methodology are too powerful in the sense that they permit too many explanations of the same data, just as synchronic generative theory allowed for the generation of too many structural descriptions of the set of sentences of a language (cf. Newmeyer 1980:175-177). Until current views about linguistic typology, evolution, and reconstruction methodology are sufficiently constrained, widely differing — yet equally valid — explanations of the same data will be possible. Therefore, arguments about the superiority of particular explanations now frequently lie in the realm of the subjective, not in the realm of the rational and scientific. If Shields (1982a) and this volume do nothing else, they perhaps demonstrate just how much diachronic theory and methodology need to be constrained.

The purpose of this study, then, is to explore some possible explanations of the origin of a number of inflectional categories and their markers in Indo-European conjugation. These innovative explanations, though they cannot be proven absolutely correct, are consonant with extant data and with what is known about linguistic structure and evolution. Because of this fact, they pose an interesting challenge to Indo-Europeanists — admit their validity or devise theoretical and methodological constraints sufficient to discredit them.

Above all, it is my hope that these proposals will not be dismissed with the flippant comment that they are *speculative*. Admittedly, there is a sense in which my proposals are speculative. However, this characterization requires careful definition. To my mind, *speculation* is a constructive mental activity which pushes a given theory or methodology to its limits by encouraging consideration of all the possibilities permitted by that theory or methodology. Therefore, speculation results in creative and innovative, yet coherent and plausible views of the data. This kind of speculation should not be confused with mental activity without basis in established data or theory; linguistic proposals which ignore data or violate structural and evolutionary principles of human language must be rejected outright and therefore do not deserve to be dignified by this term. Moreover, the term *speculation* should not be used as

a handy pejoration for ideas which do not conform to one's preconceived notions about what the 'truth' is. Unfortunately, today the word *speculation* has often become a totally subjective appellation for any proposal that one simply does not like, despite its basis in data and theory. This use of the word yields an easy means of rejecting an idea without dealing with it as a viable alternative or with the ambiguities in the theory and methodology which underlie it.

1.1 *Reconstruction Methodology.* I have referred to ambiguities inherent in linguistic theory and methodology. I now want to provide a concrete illustration which, I believe, is at the source of the frequent rejection of some reconstructions. It is well known that historical linguistics has at its disposal two reconstructive methodologies — the comparative and the internal (cf. Anttila 1972:274-285). However, despite Anttila's characterization (1972:274) of the two as 'complementary', many scholars feel uneasy about the application of internal methodology to the results of comparative reconstruction in order to explore the prehistory of a proto-language. Thus, Zimmer (1988:374) writes:

> The reconstructed 'PIE' is nearly unanimously understood to represent the ancestor of the different IE languages in a state just before the beginning of spread and disintegration. On the prehistory of this 'PIE', a scientific discourse is not possible. "One cannot reconstruct *ad infinitum*", as Jerzy Kuryłowicz said.

But despite Zimmer's reservations, scholars like Bomhard (1984) use established internal methodology to propose primeval genetic relationships between Indo-European and Afro-Asiatic and other linguistic stocks. In evaluating Bomhard's research, Szemerényi (1985:41) speaks highly of his efforts, calling them "carefully worked out", while Kaye (1985:888) says of Bomhard's work: "I am a conservative in matters of genetic relationship, like (I think) the majority of linguists. No one can deny the possibility of ultimate relationship; but such questions need further investigation." There seems to exist at present no principled basis on which to assess these contradictory appraisals.

A similar ambiguity in theory is manifested in the assessment given to Hittite data in the reconstruction of Indo-European. Current understanding of the nature of linguistic change allows for two possible interpretations of these data. Szemerényi (1985:44) identifies these interpretations when he says of Hittite:

> There was — apparently — no feminine. The verb did not show such familiar categories as imperfect-aorist-perfect, or subjunctive-optative. Did Hittite once possess them, and later lose them? Or did it never have them, and the languages showing these features developed them after Hittite had left the community?

Until recently, the first question was the one generally answered in the affirmative (cf. Kuryłowicz 1958); but "in the past few years there has been a sweeping change in ideas about the situation of Hittite within the Indo-European languages" (Adrados 1982:5), resulting in greater acceptance of the opposing view. Ironically, this new, more general recognition that Brug-mannian Indo-European may not represent Common Indo-European has its basis in argumentation designed to show merely that this claim can be defended as theoretically plausible, not that it is a necessary assumption (cf. Adrados 1982). Szemerényi (1985:19) draws the same conclusion when he says of the status of the feminine gender in Hittite, "the question is still not settled". In short, the field of Indo-European linguistics has reached a theo-retical impasse on the matter of whether Hittite is generally an archaic Indo-European language or an innovative one; and this impasse shows no signs of resolution.

1.2 *Evaluating Reconstructions.* In very general terms, I have just outlined my views of the goals and methodology of linguistic reconstruction. However, since I have been accused of an 'anything goes' approach in the formulation of hypotheses about early Indo-European, I feel compelled to state explicitly the constraints which, to my mind, serve to define a valid reconstruction.

1) A reconstruction should be typologically sound. As Anderson (1988: 324) observes:

> Contemporary linguists are concerned (probably as never before) to find theories of linguistic structure that are not only adequate to the description of all possible human languages, but sufficiently constrained to provide an interesting and substantive understanding of just what systems are possible.

In the past three decades, great strides have been made in the identification of such typological universals; and this body of research cannot be ignored when the validity of a reconstruction is assessed. Reconstructions found to be typologically inconsistent must be viewed cautiously. Thus, even the largely traditional reconstruction of the Indo-European stop system has been harshly criticized by proponents of the 'glottalic theory' (cf., e.g., Gamkrelidze & Ivanov 1984) because of its supposed typological implausibility. However, it

must be acknowledged that typological argumentation is by no means a highly developed science. In his review of Anttila (1989), Bubenik (1989:126) observes:

> A[nttila] advocates caution in the use of typological universals as determiners of change and reconstruction (the framework of the typological consistency of language types is "seriously misguided [...]. Typology and comparative reconstruction [...] should not be allowed to override each other. When there is a clash between history and typology, typology loses.") Most historical linguists, I suspect, would be less apprehensive of the intentions of typologists. In most cases, typology is used as a stimulant for research into the change in basic word order etc. without allowing it to become a methodological strait-jacket. The problem is not so much that of overriding but rather of cross-fertilization and sharpening of the perception of diachronic [linguists].

Comrie (1988:454) also cautions against the misuse of typological generalizations — those involving implicational universals of linear ordering:

> While word order typology is clearly a more significant basis for linguistic typology than was morphological typology, it is not without serious problems. In addition to problems that arise in establishing a basic word order for languages, the establishment of two main types [...] involves a considerable idealization of the data. Many languages are exceptional on one or more parameters from the overall type.

Lightfoot (1988:305-306), after decrying the "internal problems" of a word order typology approach to syntactic change, states:

> One of the more bizarre aspects of most historical work based on this approach was that it dealt often with changes between reconstructed proto-languages and attested daughter languages, sometimes over vast time spans (Lehmann [1974]; Friedrich [1975]; etc.), and never spelled out the method of reconstruction despite obvious and frequently discussed dissimilarities with the reconstruction of phonological systems.

In summary, typological considerations can aid in the evaluation of reconstructions. Typological plausibility does lend support to the validity of a reconstruction; however, in light of the present understanding of linguistic typology, typological implausibility should not automatically cause a reconstruction to be rejected outright in the absence of other defects. In this volume, I utilize typological generalizations which seem compatible with known data — e.g., my acceptance of the view that Indo-European had at least one laryngeal

consonant is, in part, motivated by the fact that "aspirated consonants presuppose the existence of /h/" (Kiparsky 1988:391) — but those generalizations of a less substantiated nature — e.g., those on which the glottalic theory of Indo-European consonantism are based (see below) — have not been employed here in the process of reconstruction.

2) A reconstruction should be based on the complete corpus of attested data. Of course, many failings of the neogrammarian reconstruction of Indo-European can be ascribed to the unavailability of Hittite data. But even on a much smaller scale, failure to consider attested evidence leads to unsound linguistic generalizations. In his review of Gamkrelidze & Ivanov (1984), Vine (1988:397) emphasizes the ramifications of the failure of the two great Soviet scholars to deal with extant data, specifically some of the quantitative data contained in the statistical study of Indo-European consonantism by Jucquois (1966). He notes that

> the importance which they assign [Jucquois (1966)] justifies a more thorough discussion of [...] the alternative hypotheses which emerge from Jucquois' data — e.g., the theory that the relatively high frequency of **m* may result from a pre-PIE merger of **b* and **m* .

It is "the absence of securely reconstructable forms with **b*" that serves as a fundamental argument for the glottalic theory. Moreover, Vine (1988:397-398) chides them for failing to deal sufficiently with the data provided by the Austronesian language Kelabit, "which has been claimed to have a stop system like the one traditionally reconstructed for IE", for the Kelabit data could present 'crucial' obstacles to the validity of their typological objections to the traditional interpretation of the Indo-European stop system.

3) A reconstruction should be founded on recognized processes of linguistic change. In the realm of phonology, one must acknowledge, for example, that sound changes tend to operate with regularity. The 'regularity principle' has been the foundation of historical linguistics for over a century. However, in addition to borrowing and analogy, it is now recognized that "there are a number of types of conditions on sound change which have a well-motivated theoretical interpretation that cannot be reconciled with the EH [the (neogrammarian) Exceptionless Hypothesis]", including structural constraints on sound change, morphological conditioning of sound change, frequency, and lexical diffusion (Kiparsky 1988:372-373). Therefore, I do not believe that a reconstruction can be dismissed simply because it is not based on the premise of exceptionless sound change. Because lexical diffusion plays a key

role in certain analyses which appear in this volume, I want to emphasize that it "need not imply that sound change is sporadic; in due course, all words might be affected by the change, though the protracted course of the change allows for interruption, reversal, and interference with other changes in mid-course" (Kiparsky 1988:373).

Since borrowing, analogy, and other factors may prohibit a sound change from manifesting full regularity, and since the chances of these phenomena affecting the results of a sound change increase with time, it follows that the greater the time depth at which one reconstructs, the less regular phonological correspondences will become. This is the problem which has led some scholars to question the validity of research into distant linguistic affinities, like the Afro-Asiatic and Indo-European (cf. Bomhard 1984), and research into earlier stages of Indo-European itself. In other words, 'sound laws' are less verifiable as time passes because the measure of their verifiability — regularity — is less obvious. Thus, the correspondences upon which Schmalstieg's theory (1973) of early Indo-European monophthongization (see below) is based are more abstract, i.e., less obvious, than those upon which traditional neogrammarian reconstructions rest because these ancient sound changes have been obscured to some degree by a variety of other linguistic changes. However, I believe that although some sound changes are more difficult to reconstruct as a result of their non-obviousness, one cannot simply ignore the evidence which suggests that they operated. I feel that the internal and comparative evidence on which Schmalstieg's theory is built remains convincing, and I use it in developing my own reconstructions, even though his theory does not meet neogrammarian standards of evaluation. Yet, laryngeal theory at one time found itself in a similar position because of the abstractness of phonological analysis which underlay it. My hope is that just as laryngeal theory gained wider acceptance because of its demonstrated utility in historical explanation, so this study of mine may in some way demonstrate the utility of this theory of monophthongization.

In the area of morphology, one must recognize three 'aspects of change': the morphologization of phonological alternations (including stem-forming elements), the morphologization of syntactic structures, and changes in morphology itself "without involving extra-morphological material" (Anderson 1988: 327). At the center of all of these changes is the process of analogy, both proportional and non-proportional (Anttila 1972:88-94, 1977:65-86):

> [...] the principal mechanism involved in the morphologization of phonological rules is the development of opacity, or the loss of motivation for deriving a surface

> form from a more abstract underlying form by phonologically motivated principles alone. When the properties of surface forms are no longer manifestly correlated with apparent phonological generalizations, but are better aligned with morphological categories, it seems that linguistic change tends to emphasize this by replacing originally phonological rules (which happened to apply in some morphological categories and not others) with ones that operate directly in terms of the morphology. The morphologization of syntactic rules is in fact based on essentially the same principle (Anderson 1988:349).

This latter point is exemplified in the process of cliticization and subsequent morphologization.

> When (some form of) an element becomes specialized in use in a way that limits its positional freedom to some location which is possible for special clitics, it may be morphologized as the marker of a phrasal property, introduced by a special clitic rule. If the host with which a special clitic typically occurs belongs to some specific word class, it may further be reanalyzed as introduced by a word formation rule applying to that class. Other factors, especially semantic and prosodic ones, are of course relevant to the treatment of individual examples, but the primary role in this development is played by rules of special cliticization construed as intermediate between word formation rules and fully independent words (Anderson 1988:354).

Anderson (1988:352) acknowledges the idea that "the category with which a morphological rule is associated must be one which is already established in the language", but then notes that

> while plausible [...] this [...] strong requirement that the category in question be a pre-existing one cannot be correct, since in some cases the morphologization of a syntactic construction is precisely the mechanism by which a new category is created, as in the case of [...] Georgian imperfectives.

Changes within the morphological system of a language itself have generally been termed 'leveling' and 'extension' (Anttila 1972:104). Of course, the morphological element which plays the primary role in the leveling or extension process may have its ultimate origin in another system of the language; that is, it may be the result of a morphologization. The reconstructions posited in this volume conform to these general principles of morphological change. Although I may emphasize one analogical process or another to a greater extent than traditionalists, I cannot be accused of violating established opinion on the nature of the evolution of morphological systems. Consideration of more specific constraints on morphological change leads to the inconclusive

"Kuryłowicz-Mańczak controversy about the 'laws' of analogy" (Anttila 1977:76-80) and the subsequent criticism to which the views of both participants have been subject (cf. Anttila [1977:76-80] and Hock [1986:210-237]). Realistically, such 'laws' can be characterized only as 'developmental trends'.

4) A reconstruction should show internal consistency. Although I reject Lass' pessimism (1980) regarding the identification of the causes of linguistic change, I feel that he is correct in his assertion that explanatory models must be evaluated in terms of their internal logic.[1] He says:

> [Our ultimate inability to explain linguistic change] doesn't mean that we have any right to stop inventing myths (even causal ones, if we want), and trying our best to defend and argue for our own, and attacking what others produce (or attacking our own, and defending those of others [...]). What is incumbent on us is to do this while adhering to the strictest standards of public rationality that we can, even when much of the material we are attacking or defending is (apparently) beyond rationality.
>
> This can prevent us from lapsing into irrationalism; we must avoid irrationalist programmes [...].
>
> What I am advocating is the conduct of a rational 'metaphysical research programme' [...], in which non-empirical positions are argued, as far as possible, according to the canons of reason, and criticized, and the worst idiocies pared away (1980:171).

Thus, even if one cannot know what is empirically true, one can at least attempt to evaluate 'truth' on the basis of simple logic. It is an obvious fact that a proposed reconstruction must be self-consistent and non-contradictory in order for it to be given serious consideration as a possible explanatory statement. This point is especially crucial in the evaluation of reconstructions, like mine, which incorporate theories of various other scholars. For example, in my own reconstruction of early Indo-European, I accept the view that the language possessed only one laryngeal consonant. This position is most consistent logically with my acceptance of Schmalstieg's theory of monophthongization, for Schmalstieg explains in an alternative way many data used in the reconstruction of multiple laryngeals.

Again, I want to emphasize that the novelty of my approach to the reconstruction of Indo-European lies only in the way I have integrated some relatively standard views of linguistic change and linguistic reconstruction and some recent proposals of other scholars based on the same principles. By looking at old issues in this new way, I am helping to explore all the

possibilities provided by standard historical linguistic theory and inviting further research into the refinement of that theory.

1.3 *Summary*

This volume explores the development of many significant features of the Indo-European conjugational system. The main body of the text is divided into an introduction and five following chapters. Chapter II concerns the origin of the singular person markers and the evolution of the category of tense and related grammatical categories, while Chapter III deals with the origin of the non-singular person markers and the iterative. In Chapter IV, the emergence of the Hittite *ḫi*-conjugation, the perfect, and the middle voice is addressed, and Chapter V focuses on the formation of the subjunctive and optative moods. The discussion ends with a brief summary chapter. Throughout the volume there is a consideration of selected problematic dialectal constructions whose origins can now be traced to specific Indo-European verbal structures. However, before I begin to present my proposals, I must first outline in some detail certain assumptions which underlie them. It is to the presentation of these assumptions that the remainder of this chapter will be devoted.

1.4 *Indo-European Monophthongizations*

In what follows, I subscribe to the conclusion of Schmalstieg (1973, 1974, 1980:21-45) that "within the development of Indo-European there took place a monophthongization" of various preconsonantal diphthongs "at least for word-final position" (1973:101). Those specific monophthongizations of diphthongs which are relevant to this discussion of the evolution of verbal constructions include, first of all, the passage of **-V̆N* (short vowel + nasal) to **-V̄* (long vowel). In support of this claim, he says:

> The Indo-European 1st sg. secondary ending **-om* and the primary ending **-ō* (derived from **-om* in preconsonantal sandhi) were originally merely sandhi variants [...]. In general the phonologically newer form in **-ō* takes over the primary function of the present tense, whereas the older form, the ending **-om*, is found in the non-present formations. Thus, for example, we find the 1st sg. pres. Gk. *phér-ō*, Skt. *bhár-ā-mi* vs. the 1st sg. imperfect Gk. *épher-on*, Skt. *ábhar-am* (1974:187-188; cf. also Szemerényi 1980:199-200, 217, 308).

This example demonstrates that the sandhi variants resulting from the process of monophthongization were subject to morphological specialization and analogical generalization. Other instances of this same process involved the

passage of both **-ow* and **-aw* to **-ō* and the passage of **-ay* to **-ā*. Thus, for example,

> The Indo-European word 'cow' was undoubtedly **gʷow*, the form which originally functioned as the uncharacterized stem. In preconsonantal position **gʷow* passed to **gʷō*. Thus **gʷow-s* > **gʷōs* which gave Doric Gk. *bôs* and Latin *bōs*, and **gʷow-m* > *gʷōm* which gave the Doric acc. sg. *bôn* and Skt. *gām*. The prevocalic form of the root **gʷow-* is retained in Gk. gen. sg. *bowós*, dat. *bow-í*, Latin gen. sg. *bŏv-is*, dat. sg. *bŏv-i*, Skt. inst. sg. *gáv-ā*, dat. sg. *gáv-e*, loc. sg. *gáv-i*, gen. pl. *gáv-ām* (Schmalstieg 1973:114),

while "the etymological prevocalic reflex of Indo-European **tra-w* is found in Gk. *traûma* 'wound', but the etymological preconsonantal form **trō* < **tra-w* is found in Gk. *ti-trṓ-skō* 'I wound'" (Schmalstieg 1973:120). Similarly,

> there existed in Indo-European a stem **st(h)a* "to stand" which could be supplied with the element *-y*, thereby giving the form **st(h)a-y*, a form which is attested in Slavic *staj-ati* "to stand, be in a standing position". In preconsonantal position the stem **st(h)a-y* gave **st(h)ā*, the stem which is attested in Lat. *stāre*, Slavic *stati* "to stand up, to arise", Lith. *stóti*. In Sanskrit the present conjugation of *tiṣṭhāmi* has passed into the (first) thematic class, but the stem *sthā* is found in the aorist (1st sg. *ásthām*) beside the zero-grade 3rd sg. middle *ásthita* (Schmalstieg 1973:125-126).

1.5 *Consonantal Sandhi*

It is also an assumption of mine regarding the phonology of Indo-European that stops similarly participated in alternations resulting from external sandhi. Ward (1946:102) summarizes the processes operating in the language as follows:

> 1. voiceless stops and spirants became voiced before voiced consonants, but it is by no means certain that they did so before vowels as well; 2. voiced stops became voiceless before voiceless stops and spirants, and possibly in pause also; 3. aspirates probably lost their aspiration in pause. (cf. R. Gauthiot, *La fin de mot en indo-européen*, 79f., and H. Hirt, *Indogerm. Gram.* 1. 314f.).

Thus, Brugmann (1930:883-884) says:

> Stimmlose Geräuschlaute im Wortauslaut wurden vor stimmhaften Geräuschlauten selbst stimmhaft. Etwa **edŏd bhrātrai* "er gab dem Bruder" = ai. *ádād bhrā́tre*; **tāz dhughəteres (dhugdheres)* "diese Tochter" = ai. *tā́ duhitáras*

> [...], ai. *sū́re duhitā́* "Töchter der Sonne" aus **sūraz d-* [...]; gr. *Athḗnadze = Athḗnaz de,* gortyn. *uiéed dé* "filii autem" aus *uiéez dé;* aksl. *poz-dъ poz-dě* "spät" zu av. *pas-ča* lat. *pos-t* [...].

Moreover,

> stimmhafte Verschlusslaute im Wortauslaut wurden vor stimmlosen Geräuschlauten selbst stimmlos [...]. Etwa **tot pe͡ku* "dieses Vieh" = ai. *tát páśu;* lat. **tot per (topper), *it circō (iccircō), *at serō (asserō,* vgl. osk. *aserum).* Auch vermuten Einige, vielleicht richtig, dass diese Consonanten auch im Satzauslaut stimmlos gesprochen worden sind.

Finally, in regard to the third point summarized above, Hirt (1927:316) explains:

> Die Aspiraten verlieren im Indischen im Auslaut ihren Hauch, und die Medien werden weiter unter gewissen Umständen zu Tenues. So heisst ai. Nom. *kā́pṛt* zu Stamm *kapṛth, suśṭúp* "schön rauschend": Stamm *suśṭubh-*. Wir können diese Regelung in keiner andern Sprache nachweisen, sie ist aber doch wohl indogermanisch, und man kann dadurch vielleicht den Wechsel von Media aspirata mit Media und Tenues erklären.

As I noted in my discussion of Indo-European monophthongizations, it frequently happens in the development of languages that one sandhi variant is generalized at the expense of the other (cf., e.g., the generalization of the 'voiced form' of a great many prepositions in Slavic languages — Sl. *iz* "from" (= Lith. *iš,* OP *is-,* Gk. *es,* Lat. *ex,* OIr. *ess* [Shevelov 1965:366]) and that sandhi variants can be morphologized (cf., e.g., the "grammatical exploitation" of the English variants *my, mine* "to distinguish possessive adjectives from pronouns" [Strang 1970:262]).

1.6 *Laryngeals*

A final assumption about the phonology of Indo-European which has an impact on my reconstructions is my view of the status of laryngeals. In short, I believe that Common Indo-European possessed only one laryngeal consonant, directly attested to some extent only in Hittite. That is, I accept Szemerényi's statement (1967:95) that there is "no reason for assuming more than one laryngeal, namely the glottal spirant *h*", and Burrow's assessment (1973:89) that "for all practical purposes it is possible to operate with a single, undifferentiated *h*." "In some instances *h* disappears without a trace [...] but in others its effects survive" even in the non-Anatolian dialects (Burrow 1973:85). Among these effects, the combination of a short vowel plus *h*, "a combination which remains in Hittite", often results in a corresponding long vowel in Indo-European Proper, while "another effect of *h*, observable in languages other than Sanskrit, is the coloration of a succeeding vowel by *h*, producing notably a change from *e* to *a*" (Burrow 1973:85-86). Still,

> the current doctrine that Pre-IE had only *one vowel is false*. Pre-IE, like IE, had the full complement of the classical five-vowel triangle, *a, e, o, i, u* [...]. Corresponding to these short vowels, the IE languages also have *phonemic long vowels* [...]. In part, [...] they represent original long vowels already in IE, and appear as such in all languages of the family (Szemerényi 1967:95-96).

1.7 *Pre-Inflectional Indo-European*

In Shields (1982a:12-17), I commit myself to the view that Indo-European, in its earliest stages, "was probably an isolating language like Chinese". Biese (1950:3) expresses the same opinion when he says that "the early history of Common Indo-European, a highly inflectional language, goes back into a non-inflectional or pre-inflectional stage, inflection in the form in which we find it in Common Ie. being of comparatively late development." More recently, Adrados (1987:1) describes what he calls "Stage 1: Preflexional Indo-European" or "IE 1" as follows:

> 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.

Especially significant is his assertion that systematic stem-oppositions, largely expressed through ablaut variation, are to be ascribed only to post-Anatolian Indo-European (Adrados 1987:1; cf. also Shields 1982a:52). Evidence for the gradual development of inflection in the Indo-European verb can be found by analyzing data attested in the historical dialects themselves. These data are manifested in a variety of grammatical categories, including the categories of number, person, and tense.

1.7.1 *Number*

In Shields (1982a:63-72), I argue that in noun declension "the appearance of specifically non-singular constructions was rather late in the evolution of the Indo-European language" (1982a:63) and that still later was the bifurcation of the *non-singular* into *dual* and *plural*. These observations are supported by

attested formal identities among markers of the various number categories. For example, in Hittite both *-aš* and *-an* function as markers of the genitive singular and genitive plural (Kronasser 1956:104-105), while Sanskrit neuter *i*-stem nouns like *aprati, jāmi,* and *śāmi* have structurally identical nominative-accusative singular and plural forms. Likewise, "the **o*-stem ending **-oi* furnishes nominative plurals for masculine nouns in Balto-Slavic (cf. OCS *grad-i* 'cities' Lith. *výr-ai* 'men' [< **-oi*]), but duals for neuters in Slavic and Sanskrit (cf. OCS *měst-ě* '(two) places', Skt. *phal-e* '(two) fruits')" (Schmalstieg 1974:192). In addition, "the fact that the dual number is only primitively developed in Hittite (cf. Ivanov 1958:250) implies that the division of the non-singular into dual and plural occurred near the end of the Common Indo-European period" (Shields 1985:190; cf. Adrados 1975: 440ff., 1987:7). In regard to verb conjugation, Lehmann (1974:201-202) also suggests that the appearance of a special inflectional non-singular was a late development, principally dating from the time when the various dialects had begun to emerge as autonomous entities. He says:

> The system of verb endings clearly points to an earlier period in which there was no verbal inflection for number [...]. For the dual and the plural endings are obviously defective. We cannot reconstruct endings in these two numbers which are as well supported as are those of the singular, except for the third plural.

1.7.2 *Person*

The attested tripartite division within the category of person in the verb also appears to have developed gradually. Watkins (1962:105) therefore argues that "the rigid paradigmatic structure for the three persons of the singular, *-m(i), -s(i), -t(i),* belongs only to the latest period of Common Indo-European, and was completely achieved only after the separation of the dialects", while Erhart (1970:113) more specifically proposes that in early Indo-European "es bestand wohl damals noch kein Unterschied zwischen der 2. und der 3. Person, zwischen dem Plural und dem Singular usw." Erhart (1970:56-58) supports this assertion by noting that the *t(h)*-element which is traditionally ascribed to the third person (singular) (e.g., Skt. *-t, -ti,* Gk. *-ti,* Hitt. *-t, -zi,* Lat. -t) is also attested in the second person singular (e.g., Hitt. *-t, -ta, -tari,* Toch. AB *-t,* A *-tār, -te,* B *-tar, -tai,* Skt. *-tha, -thās,* Gk. *-thēs,* Go. *-t)* and non-singular (dual-plural) (e.g., Skt. *-ta, -tha, -tam,* Gk. *-te, -ton,* Hitt. *-teni,* Toch. A *-c, -cār,* Lat. *-tis, -te,* Go. *-þ,* Lith. *-te,-ta*) and that "in einigen Personalendungen der 2. Person (Sg. u. Pl.) stehen die Elemente *s* [the traditionally reconstructed marker of the second person (singular), cf. Skt. *-s, -si,* Gk. *-s, -si,* Hitt. *-š, -ši,* Lat. *-s*] und *t(h)* nebeneinander: gr. *stha,* het. *šta, šten(i),* toch. A *st,* B *sta,* lat. *istī, istis*". All in all, then,

> die Endungen der 2. Person (aller drei Numeri) enthalten zum Teil denselben Kern [...] wie die meisten Endungen der 3. Person Sing. Der Unterscheid *t* (3. u. 2. Ps.) : *th* (nur 2. Ps.) ist vielleicht in der Weise zu deuten, dass die schon seit der pie. Periode bestehende phonetische Variation *t~th* später zur sekundären Differenzierung grammatischer Formen ausgenützt worden ist (Erhart 1970:58).

Additional evidence for this hypothesis comes from the fact that **-s* occurs dialectally in certain third person (singular) endings (cf. Hitt. *daiš* "he placed", Toch. A *präkäs,* B *preksa* "he asked", Skt. *bhūyās* "he should have been", *dhās* "he put", OPers. *āiš* "he went", ON *brýtr* (< **breutiz*) "he breaks"). Schmalstieg (1980:101) points out

> the [actual] identity of the 2nd and 3rd person singular endings in the following forms: Hittite preterits (*-mi* conjugation) *e-eš-ta* "was", *e-ip-ta* "took", *i-ya-at* (beside the 2nd sg. *i-ya-aš* "made"; (*-ḫi* conjugation) *a-ša-aš-ta* "set", *da-a-aš* "took", *da-(a-)iš* "placed", *tar-na-aš* "put in", *me-mi-iš-ta* "said" [...]. Note also the Slavic 2nd and 3rd sg. aorist forms in *-tъ* (e.g., *načę-tъ* "you, he began") and *-stъ* (e.g., *bystъ* "you were, he was"), and the identity of the Gk. 2nd and 3rd sg. dual endings *estón* "you two, they two are";

(cf. also Toporov [1961:68-70], Adrados [1975:538], and Schmalstieg [1977a, 1980:107-108]).

What all of this seems to imply is that the second-third (non-personal) category, whose original exponent was probably **-ø*, utilized both **-s* and **-t* (and the contaminated form **-st*) as its markers, with **-s* gradually becoming specialized primarily in the second person and **-t* in the third, although remnants of the original vacillation between the suffixes can still be seen in the dialects. That **-ø* was the original marker of the non-personal category has been proposed by Watkins (1962:90-106, 1969:49-50). He says:

> Der funktionale Status der 3. Person also zéro- oder Nicht-Person hat die allgemeine sprachliche Tendenz zum formalen Ausdruck durch ein zéro-Zeichen zur Folge; das bedeutet, dass in der gegebenen syntaktischen Funktion des Prädikats eine Nominalform als Verbalform mit 3. Sg.-Endung *ø* (zéro) aufgefasst werden kann: Nomen **nek^{W}t* > 3. Sg. Verb **nek^{W}t-ø* (1969:49).

Erhart (1970:57-58), too, indirectly lends support to the existence of a third person marker in **-ø* when he observes:

> In einem kleinen Teil der Fälle sind die Endungen der 3. Person Sg. akosonantisch: aind. *a, e,* gr. *ei, e,* het. *i, a, ari,* toch. AB *ø,* got. *ø,* lit. *a* usw. [...]; als ihre Bausteine sind der thematische Vokal und der Präsensdeterminativ *i* (bzw. *r*) zu erkennen.

Such elements, I believe, attest to the use of **-ø* as a third person desinence. Of course, the occurrence of **-ø* in the second person function is still attested in the singular imperative (**age* "lead": Skt. *ája,* Gk. *áge,* Lat. *age*).

That the non-personal category came to be expressed in a variety of ways is not an unusual circumstance, for, as Wandruszka (1969:218) emphasizes, paradigmatic polymorphy — "die Tatsache, dass in einer Sprache immer wieder verschiedene Formen für dieselbe Funktion verwendet werden" — is a common property of natural languages. It should be emphasized, however, that the subsequent specialization of these variants can be construed as a result of the opposing developmental tendency for there to be "as much one-to-one symbolization between meaning and form as possible" (Anttila 1977:55).

1.7.3 *Tense*

I subscribe to the view that throughout most of the Indo-European period, "tense and the time of the action were not indicated by means of verbal affixes" but instead "were given by means of particles or adverbs or were implicit in the aspects of verb forms" (Lehmann 1974:139). It was only in late Indo-European and the early dialects that "features of tense became predominant", with inflectional endings marking temporal distinctions (Lehmann 1974:189-190). The origin of these inflectional suffixes belies the way in which tense was indicated in earlier stages of the language, for inflectional suffixes with temporal signification resulted from the incorporation of enclitic deictic particles into verbal suffixes as a means of 'strengthening', i.e., hyper-characterizing (Safarewicz 1974:52), the temporal value of a verb form. Watkins (1962:102-103) thus proposes that **i,* a deictic with 'here and now' meaning, was frequently combined with various verbal suffixes, including the second-third person (singular) desinence **-ø*:

> This particle was freely combinable with the personal endings, as in *-m/-mi, -t/-ti, -nt/-nti.* We know furthermore that the free combinability of this particle existed down through the period of the formation of the individual dialects, since these show divergent utilizations of *-i.* It has been suffixed to the perfect endings *-a -tHa -e* in Italic *-ai -tai -ei* > Lat. *-ī -(is)tī -ī(t).* The same occurred independently in the Hittite *ḫi*-conjugation: *-ḫa -ta (*-e?)* > *-ḫi -ti*

> *-i.* In Slavic the same change *-a* > *-ai* is attested in 1st sg. *vědě.* We know as well that IE *-i* was combinable with a 3rd sg. zero ending, as is proved by the Greek thematic 3rd sg. present *-ei* < *-e + i,* where *-e* is simply the thematic vowel. The Hittite *ḫi*- conjugation 3rd sg. *-i* may also contain deictic *-i* suffixed to a zero ending. The deictic *-i* alone, suffixed to the bare root with zero ending, occurs finally in a very archaic category in Indo-Iranian: the 3rd sg. aorist passive. The most archaic form of this class in the *Rg Veda* is *jani* "was born", which shows the absence of secondary *vr̥ddhi* as in *jáni.* The augment *(ájani)* is likewise secondary, subsequent to and conditioned by the identification of this form with the aorist system [...]. Functionally, the type is only secondarily a passive, and the basic value is that of an intransitive [...]. What this implies is that the form is in origin simply the bare root, the neutral verbal notion alone, in the 3rd sg., [...] with zero ending.

The late origin of tense as an inflectional category is also suggested by the very late development of the primary/secondary opposition in verbal endings, since this opposition bears a central role in characterizing the present and past tenses. Burrow (1973:314) emphasizes this fact when he writes:

> It does not seem that the distinction between primary and secondary terminations was fully worked out in the IE period. For instance, in the 1 plur. and in the 2 plur. Greek makes no distinction (P. S. *-men*), and this indifference is shared by other languages (O. Sl. *nesemŭ, nesomŭ,* Goth. *bindam, witum, -budum*). The distinction appears in Hittite and Indo-Iranian, but it is effected by quite different means. In Hittite *-weni, -meni* beside *-wen, -men* is clearly a private innovation modeled on the three persons of the [present] singular [...]. In Indo-Iranian the distinction is effected by the choice of two different forms of the suffix (*mas/ma,* similarly du. *vas/va*) and there is no evidence to show that this variation was connected with the distinction between secondary and primary in the IE period.

Although the distinction appears to be more firmly established in the singular and in the third plural, these attested non-singular forms imply that it probably became obligatory only in the dialectal period. The original optional character of all primary suffixes is clearly demonstrated by the fact that

> im Altirischen haben wir ursprünglich athematische Verba mit sekundären Endungen in Präsensfunktion in den konjunkten Formen *·tá* "ist", *·tét* "geht", *ní* "ist nicht", *-t* "ist", *tarti* "gibt" < **(s)tā-t, *ten-t, *ne est (*nēst), *d(e) est* (enklitisches Verbindungselement **de*: gr. *de*), **(to-ro-ad) dhēt.* Die entsprechenden absoluten Formen sind *táith, téit, is* < **(s)tāti, *ten-ti, *es-ti.* Vgl. ved. *sthāt(i), (a)tan, asti* (Imperf. 3 Sg. *ās* 3X), *dhāt(i).* Ausserhalb des Keltischen haben wir ein einziges klares Beispiel einer alten Form

> mit sekundärer Endung in Präsensfunktion: aksl. und aruss. *ně* "ist nicht" < **nēst, *ne est* (neben 'regelmässigem' aksl. *něstъ*), das direkt mit air. *ní* gleichzusetzen ist (Watkins 1969:45-46).

Kerns & Schwartz (1971:4) also maintain that "in some of the dialects 'secondary' endings regularly occur in some present forms, e.g., Dor. sg. 2 *phére-s*, Lat. *vehi-s*, Lith. *vẽža*" and "the OIr. conjunct presents". These data thus lead Watkins (1963:47) to conclude:

> We may state that from the formal point of view the Old Irish conjunct forms reflect the Indo-European secondary endings, and the absolute forms reflect Indo-European primary endings. But functionally the two sets of endings reflect the Indo-European opposition primary/secondary. The development of that opposition, as we know it in 'classical' Indo-European, is only a dialect feature, in which Celtic did not take part. It is clear in most of the early Indo-European languages that the formation of the primary endings was basically by the suffixation of the enclitic particle *-i* [...] on the secondary [...] ending. The transition was simply from the optional use of the particle *-i* to its obligatory use.

1.8 *The Spatio-Temporal System of Early Indo-European*

I fully subscribe to Gonda's position (1956:28-29) that the early Indo-European system of spatio-temporal relations was binary, based on the primary opposition 'now-here : not-now-here'. He says:

> From various idioms it appears that, temporally as well as spatially, the main distribution often is between the near and the far, between the here-and-now, or here or now, and the not-here, there, or not-now. One might compare the 'double meaning' still inherent in such a comparatively recent vocable as the Dutch *stracks*, a temporal adverb meaning "presently" and "just now". In Sanskrit, *tatra* "there" when used in a temporal sense, can refer to the past [...] and the future [...]. Cf. also G. *póte* "at some time or other", *tóte* "at that time, then" which are used in reference to the past as well as the future; the Eng. *then* "at some former time", but also "at that time in the future" [...]. Do we err greatly if we consider these words to reflect an ancient distinction: now-here : not-now-here?

This same assessment is more forcefully made by Neu (1976), who posits such a binary system of deixis for the stage of Indo-European just before and just following the departure of the Anatolians (cf. Polomé 1982b). Thus, I believe that one function of certain deictic particles of Indo-European, especially **i*, was to indicate 'here and now' (the *present*), while others indicated various degrees of remoteness from that deictic reference point (the

non-present). The division of *non-present* into *past* and *future* occurred only in very late, dialectal Indo-European.

The typological plausibility of such a spatio-temporal system is supported by two important recent studies concerning the nature of tense in extant languages — Traugott (1978) and Comrie (1985). In Traugott (1978:371-272),

> *tense* is defined as the semantic category that establishes the relationship which holds between the time of the situation or event talked about and the time of the utterance, 'sequencing' as ordering of events or situations talked about, and 'aspect' as the way of viewing the situation or event, for example, as continuative, habitual, iterative, completive, perfective and so forth. In no language are the distinctions absolute in surface structure.

Because this study emphasizes the correlation of spatial categories and temporal categories, "temporal categories are defined not morphologically but semantically" (1978:372). These categories thus

> may appear overtly in very different ways in different languages or even in the same language. They may be realized as grammatical formatives like inflections [...], derivative affixes [...], particles [...], auxiliary verbs [...], or fully lexicalized adverbs [...]. Finally, they may be expressed covertly, that is, they may be part of the lexical meaning of the verb and have no independent morphological realization (1978:372-373).

Traugott (1978:374-375) is quick to establish that

> as a deictic, tense is basically a Proximal-Distal relation, formalized as [+/- Proximal]. This is reflected not only in its lexicalization by adverbials like *now* and *then*, which are sometimes indistinguishable from locative deictics, cf. OLD ENGLISH *þa* "there, where, then, when", but also in its grammaticalized forms. For example, the *na*-anterior of KATHLAMET is derived from pan-CHINOOKAN *na*-factive "there-then", as is probably the *na*-factive/past of TILLAMOOK (Silverstein 1974:S68-69, S82-83). Caldwell hypothesizes that the CARANESE preterite *d* and present *utu* both derive from the demonstrative **-d* (Caldwell 1956:381, 391,402). *Then* may be simply *not-now*, with subcategorizations according to the degree of closeness to speaker or secondary reference point. Thus HIGHLAND TOK PISIN has a particle *nau* that indicates both immediate past ("just now", action started in the immediate past) and "immediate future" (Wurm 1971:41,48); EWE *etso* is a term for both "yesterday" and "tomorrow" (Blok 1955-56:388). In some languages [+/- Proximal] may be the only organization of tense, without any concept of time-line [...]. Orientation to a time-line involves division of *then* into past and future.

Comrie (1985:vii) "take[s] tense to be defined as the grammaticalization of location in time", with the result that "much of what has traditionally been called tense does not fall under this definition". Although his perspective thus contrasts with Traugott's more inclusive view, the insights which he gains from this vantage actually complement her observations and allow for a more complete understanding of temporal specification in language. Moreover, Comrie (1985:15) maintains that

> although location in time is in many ways similar to location in space, and the expressions used in languages for location in time are often derived etymologically from spatial expressions (cf. Traugott 1978), there are some crucial distinctions that should be noted [...]. First, as far as space is concerned, not-here defines a continuous area, i.e., everything which is not the location of the speech situation (or, more narrowly, of the speaker). For location in time, however, because of the one-dimensional nature of time, not-now does not define a continuous area, but rather the discontinuous area consisting of past and future, but separated by the present moment. Languages do often have lexical items referring to the not-now, such as English *then* "at that time", i.e., at some time other than now, but grammaticalization of not-now as a single tense seems not to exist as a possibility, despite the widespread grammaticalization of now as present tense, and the existence of past and future tenses.

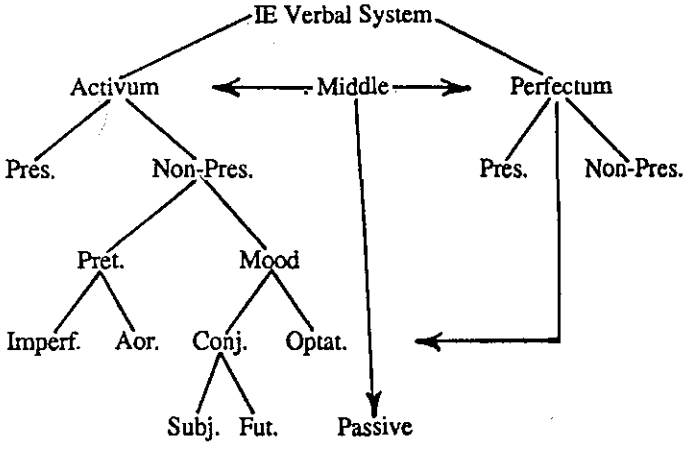
Therefore, on the basis of extant linguistic data, it seems that the grammaticalization of temporal specifications precludes the inflectional expression of not-now, even though the lexical expression of this concept is a possibility.[2] Because, as Comrie (1985:9) says, "there are very heavy constraints that language imposes on the range of expressions of [temporal] location that can be grammaticalized", he posits "a possible universal of tense systems: in a tense system, the time reference of each tense is a continuity. If this universal can be maintained in general, then it would exclude the possibility of discontinuous tenses" (1985:50). In considering degrees of remoteness (closeness) relevant to the expression of tense, Comrie (1985:87) notes that even in languages with grammaticalized tense distinctions, "five-way oppositions are attested from Africa, Australia, and the Americas, while one Amerindian language, Kiksht, has been claimed as having a system of around seven oppositions." Such oppositions may occur in the past, future, or both, resulting ultimately in a still larger number of temporal specifications. It is interesting that in his characterization of deictic structure, Schmid (1972) identifies five degrees of remoteness from 'here and now' and ascribes this system to Indo-European.

It would thus appear that the reconstruction of the nature and development of the category of tense which I have posited for Indo-European is typologically sound, for binary spatio-temporal systems using deictic particles to express 'here and now' and various degrees of remoteness from that deictic point are consistent with universal constraints.

1.9 *The Evolution of the Conjugational System*

Although I do not agree with all the details of Neu's theory (1976) elaborating in a step-by-step fashion the evolution of the Indo-European conjugation system (see Figure 1), I basically endorse his views. My own specific modifications of Neu's model will become apparent in the chapters which follow. In any event, I subscribe fully to Meid's arguments (1975) for the necessity of characterizing the chronological scheme of reconstruction. I also accept the position that "the wealth of forms, tenses, and moods that characterize Greek and Sanskrit, and in which an earlier generation saw the prototype of exemplary Indo-European grammatical structure in the verbal system, is nothing but a recent common development of this subgroup of languages" (Polomé 1982a:53). Such a conclusion is obviously based on the primacy of Hittite and Germanic data — a primacy which, as noted earlier, cannot be proven absolutely, despite impressive analyses like that of Adrados (1982).

Figure 1



(Adapted from Polomé [1982a:53])

At this point I do want to address one possible objection to Neu's theory in light of my earlier comments about the original nature of temporal specification in Indo-European. It is well known that in the dialects future time is often expressed "by the use of the present indicative" (Hudson-Williams 1972:78). Indeed, in Hittite itself, "the forms of the [...] present tense may denote a future tense" (Held et al. 1987:36). The question thus arises as to how the non-present subcategory *future* comes to be associated with the present and to be formally expressed by present-tense markers. I believe that the answer is provided by Comrie's proposed universal of tense systems. As the category of tense gradually came to be grammaticalized (i.e., inflectionally marked) in late Indo-European (cf. Lehmann 1974:189-190), the universal of tense systems concerning temporal continuity prohibited the grammaticalization of 'not-now', originally expressed lexically by means of deictic particles. The result was the appearance of a system consisting of the inflectional opposition *past : non-past* (cf. Comrie 1985:44), with secondary dialectal tendencies towards the expression of future time apart from present time (cf., e.g., the *s*-futures in Indo-Iranian, Greek, Italic, and Baltic).

Chapter II

The Origin of the Singular Person Markers, Tense Markers, and Related Grammatical Categories

As Indo-European moved from a pre-inflectional structure to an inflectional structure, one of the earliest inflectional oppositions which emerged involved the grammatical category of person. Specifically, the verb came to mark a personal (first-person) form and an impersonal (second-third person) one. I believe that the original exponent of the personal was **-m* (cf. Skt. *-m*, Hitt. *-m-i*, Gk. *-m-i*, Lat. *-m*, Go. *-m)*, probably to be connected etymologically with the first person (singular) personal pronoun (cf. **(e)m* [acc. sg.]: Hitt. *amug*, Gk. *emé*, OCS *mene*, Go. *mik* [Szemerényi 1980:195-197]) by way of enclitic attachment. Schmalstieg (1980:105) similarly derives the first person desinence in **-m* from an enclitically attached pronoun. In addition to **-m*, Indo-European eventually developed first person suffixes in **-w* and **-h*. Erhart (1970:54) derives "der Personalexponent *w*" from the same source as the marker **-m*, since, according to his view, **m* and **w* were realizations of the same morphophoneme. In any event, I feel that the Hittite 1st person sg. nom. personal pronoun *u-k* (acc. *am-u-g*) attests this first person pronominal element in **u*, as do first person plural (nom.) pronouns like Skt. *vayám*, Go. *weis*, and Hitt. *wēš*. This element is generally attested in non-singular function in dialectal verbal paradigms (cf. du. Skt. *-vas*, *-va*, OCS *-vě*, Go. *-u*, *-wa*; pl. Hitt. *-wen(i)*). The existence of a first person pronominal morpheme in **-h* is suggested by the reconstruction of **eĝH-* (e.g., Skt. *ahám*, Osc. *íiu*) (Schmidt 1978:35). Of course, a personal marker in **-h* is most clearly seen in the Hittite *ḫi*-conjugation (cf. *-(aḫ)ḫi*, *-ḫun*, *-ḫa(ḫa)ri*).

I have already stated my belief that the exponent of the non-personal was **-ø* and that non-singular forms of the verb emerge at a very late date in the

development of Common Indo-European. Since "it is generally admitted that the thematic verb stems [...] are of more recent origin than the athematics" (Kerns & Schwartz 1968:717) — a matter about which more will be said later — and since

> the development of the complicated system of vowel gradation, or ablaut, so important in late Indo-European and the dialects [was] very gradual, with the ultimate origins of this morphological device stemming from a number of separate linguistic changes (including accentual alterations) whose results were eventually assimilated into a unified scheme (Shields 1982a:52),

Watkins' reconstruction (1969:40) of the early paradigm of athematic biphasal verbs like **es-* and **ghʷen-*:

**és-m̥*	**ghʷén-m̥*
**és-s*	**ghʷén-s*
**és-t*	**ghʷén-t*
**(e)s-e/ont (?)*	**ghʷ(e)n-e/ont (?)*

should be modified in the following manner:

**és-m̥*	**ghʷén-m̥*
**és-ø*	**ghʷén-ø*

and this inflectional pattern should be acknowledged as the standard paradigmatic type.[3] I also argued earlier that enclitic deictic particles could be added to verbal forms in order to characterize the tense of the construction. It was the addition of such deictics to impersonal verbal constructions and the subsequent morphologization of these deictics which was ultimately responsible for the remarkable increase in the number of grammatical categories marked by the verb. That is, when deictics (*X*) were attached to impersonal forms in **-ø*, two morphological reanalyses were possible:

1) **-øX* > **-X*
2) **-øX* > **-X-ø*.

The first gave rise to new inflectional suffixes, and the second to new formative (derivational) elements. Because the (second-)third person tends to impose its form on other members of its paradigm (cf. Benveniste 1971b), such reanalyzed structures were subject to analogical extension to the first person.

This process of morphological reanalysis is common in the evolution of languages, although its motivation is often difficult to assess. In this regard, Anttila (1972:93-94) cites the example of Latin *-nus:*

> Latin had a suffix *-nus* (e.g., *domi-nus* "master" and *fāgi-nus* "of beech"). Applied to *ā*-stems, we get forms like *Rōmā-nus* and *silvā-nus* "forest deity". At some point these were analyzed as *Rōm-ānus* and *silv-ānus*, because new derivations were formed with a suffix *-ānus* on stems without *ā*, for example, *mundānus* "of the world" (*mund-*), *urbānus* "of the city" (*urb-*), and *montānus* "of the mountains" (*mont-*).

Anttila (1973:10) asserts that "the linguistic literature is full" of such cases of reanalysis in which "no proportions need work" (1972:94).

2.1 *Indo-European Deictics*

In the course of its evolution, Indo-European utilized many deictics as spatio-temporal lexemes. Those which had an impact on the development of conjugation because of their participation in reanalyses like those just described will now be identified. However, two points must be emphasized. First, not all of these deictics were used at the same stage of evolution. Some appeared, became productive, and then disappeared as independent entities, while others continued to exist as independent elements over long periods of time but displayed differing degrees of productivity at different times. Second, it was possible for the same deictic to be reanalyzed in different ways at different stages of the language because even after morphologization in particular contexts, these elements continued to maintain their autonomy in others. Watkins (1962:102) makes note of this situation when he says that "the free combinability of [the] particle [**i*] existed down through the period of the formation of the individual dialects, since these show divergent utilizations of *i* "; and Hazelkorn (1983) amply documents this same tendency in the Finno-Ugric languages. She observes

> that [...] deictic particles, which originally referred to the participants in the communication act and to their location, came to be used as definiteness markers [i.e., as demonstratives, personal pronouns, possessive suffixes, and subject agreement markers in verbs], in order to indicate the focus of the utterance. In subsequent developments, these same elements came to be interpreted as, on the one hand, person markers, and, on the other hand, accusative markers, plural markers, etc. (1983:110).

2.1.1 *The Deictic *i*

The reconstruction of a deictic marker in **i* with 'here and now' signification is well established (cf. Seebold [1971:189], Szemerényi [1980:301]). Its general use in the language is indicated by its function as a locative-case

marker (loc. sg. *-i : Skt. -i, Gk. -i, Lat. -e). Moreover, Lyons (1971:388-395) emphasizes that there exists an intimate formal and semantic connection between genitive and locative constructions in many of the world's languages; and the detailed study done by Clark (1978:117-118) points out that "the existential, locative, and possessive constructions examined in the present sample of languages are related to one another in word order, in verbs used, and in their locative characteristics". I believe that it is this naturally close association of the locative and the genitive cases that accounts for their identity in the dual number of Indo-European (*-ous: Skt. -os, OCS -u). Since the two cases share this common form, Kuryłowicz (1964:200) argues: "The paradigm of the dual attests an original identity of the gen. and the loc., i.e., a prehistorical stage attested in neither the sing. [...] nor in the pl." Once this formal and semantic relationship between the locative and the genitive is understood, the origin of such adverbial forms as OLat. *nox*, Gk. *nuktós*, Go. *nahts*, etc. "at night" is obvious. Brugmann (1904b:451-452) refers to them as original genitives, or, as he puts it: "Der Gen. von räumlichen und zeitlichen Begriffen" (1904b:438); but they seem to attest to the ancient identity of the two cases. It is important to note that I have argued elsewhere (Shields 1979, 1982a:45-49) that Indo-European possessed a genitive suffix in *-i. This suffix is attested, for example, in the o-stem genitive ending generally reconstructed as *-syo (Skt. -sya, Av. -he, Hom. -ío < *-osyo) and in the Tocharian genitive desinence -i (cf. Krause & Thomas 1960:105). (See Shields [1982a:45-49] for further details.) Apart from its locative-possessive uses, the particle *i is found dialectally in such forms as "gr. i-dé 'und', l. i-bi 'hier', l. i-ta 'so', i-tidem, ai. i-há 'hier', ai. i-vá 'wie', ai. i-ti 'so' ai. i-d hervorhebende Partikel" (Hirt 1927:11).

2.1.2 *The Deictic *e/o*

According to Hirt (1927:10-11), the particle

> e erscheint als Verbalpräfix, namentlich als Augment (gr. é-pheron, ai. á-bharam "ich trug"), als angetretene Postposition hinter Kasusformen, z.B. ai. Dat. asvāj-a, abg. kamen-e usw. und in ai. a-sáu "jener", gr. ekeî "dort", wohl auch in gr. ei "wenn", eig. "da" < e + i, vielleicht auch in é-ti "ferner", l. et "und" [...]. e- hat sich im Aind. Gen. a-sja, D. a-smāi, im Germ. ahd. e-s, imu, im Umbr. Dat. e-smei durch Antritt von andern Partikeln zum Pronomen entwickelt.

Brugmann (1911:311), too, emphasizes that "vielleicht sind alle Demonstrativa einmal deiktische Partikeln, also indeklinabele Wörter gewesen."

Beside *e "steht ein Verbalpräfix o, das namentlich im Griech. ziemlich häufig zu belegen ist. Es steckt ferner also Postposition in gr. ápo, húpo, ai. ápa, úpa, auch wohl in idg. pro" (cf. also Brugmann 1916:983-984). This ablaut (accent) variant of *e (cf. Hirt 1927:11) is also attested in the Hittite personal pronoun in -a-, which has its origin as a demonstrative (Sturtevant 1933:198). The etymological connection between *e and *o is emphasized clearly by Sturtevant (1933:199) when he says in regard to the Hittite enclitic pronominal stem -a-: "Hittite -aš 'is' contains the pronominal stem that appears in Skt. asya, Av. ahe 'eius', Osc. es-ídum 'idem', etc., but as is natural in an enclitic, it shows the vowel o instead of e". The two variants appear to be contaminated in the demonstrative stem *eo- (e.g., Lat. eum, Osc. ion-c). The proposed use of *e/o as both a verbal prefix and suffix attests to the importance of deictics as temporal indicators in Indo-European and to the fact that the position of adverbial elements within the Indo-European sentence was variable, as in attested languages (cf. Jackendoff 1972:67). The deictic force of *e/o was 'Dér-Deixis' (Brugmann 1904a:32-38, 1911:333, 347), with non-present signification.

Hirt (1927:11) notes that "tatsächlich finden wir ē und ō neben e und o in weitem Umfang, wenngleich bei dem Schillern der Bedeutung nicht auszumachen ist, wie weit e und ē, o und ō eins sind". *ē is attested in "gr. ḗ 'in der Tat, wirklich', ē 'wenn', ahd. ich-ā, nein-ā, ai. ā hervorhebende Partikel, sowie als Verbalpräfix [...] und Prä- und Postposition [...]. Zusammengesetzt wohl auch in gr. e-dé 'und', ḗ-dē 'jetzt, schon' usw.", while *ō appears "in dem ai. ā, das Verbalpräfix, Prä- und Postposition ist [...], sowie in dem gr. Präfix ō sowie in ahd. uo. Auch in der Endung ō des Instrumentals" (Hirt 1927:11). I leave open the question about the etymological relationship between the long and short vowel particles and merely acknowledge the existence of these pairs.

2.1.3 *The Deictic *yo*

The deictic *yo "als Relativum fungierte seit uridg. Zeit [e.g., Skt. yá-s, Gk. hó-s, OCS i-že]. *yo-s war dann ursprünglich ein anaphorisches Demonstrativum, das auf einen nominalen oder pronominalen Substantivbegriff des vorausgehenden Satzes hinweis" (Brugmann 1911:347; cf. also Brugmann 1916:969-971). "In den andern Sprachen haben wir vereinzelte Reste wie 1. jam 'jetz, bereits, schon', lit. jaũ 'schon', lett. jau, abg. ju 'schon', got. ju 'schon', got. jabai 'wenn' usw., die wohl eine Partikel jo erschliessen lassen" (Hirt 1927:13). Like *e/o, it is clear that the original

temporal meaning of **yo* was non-present, i.e., 'Dér-Deixis' (Brugmann 1904a:37, 1911:333, 347).

2.1.4 *The Deictic *a*

The deictic **a* is reconstructed because of historical forms like "gr. *ai* 'wenn', gr. *aû* 'wiederum', l. *au-t* 'oder', got. *au-k*, d. *auch* 'noch dazu', l. *ad* 'zu', l. *ab*, gr. *an*, got. *an* usw." (Hirt 1927:12).

2.1.5 *The Deictic *u*

Hirt (1927:11-12) reconstructs a particle in **u* on the basis of such evidence as "1. *ubi* 'wo', l. *u-ti* 'so', aw. *u^{i}ti*, gr. *ĕ-úte* 'gleichwie', ai. *u-tá* 'auch sogar'. Aus dem Gegensatz von *i-bi* und *u-bi* ergibt sich wohl die Bedeutung 'hier' und 'da' für *i* und *u*." The element **-u* is also to be seen in the locative case endings **-su* (loc. pl., cf. Skt. *-su*, OCS *-хъ*, Lith. *-su*) and **-ous* (gen.-loc. du., cf. Skt. *-os*, OCS *-u*) (Shields 1977b: 344).

2.1.6 *The Deictic *k*

Markey (1980:280-281) reconstructs a deictic in **k-* (cf. also Hirt 1927: 12)

> which figures in the formation of, for example, Lat. *ci-s;* Gmc. *hē-r*, OE *hē*, Goth. *hi-mma*, OHG *hi-tumum* (cf. Lat. *ci-timus*), Goth. *hi-dre* (cf. Lat. *ci-tra*); OIr. *ce-n*, Corn. *ke-n*, Gaul. *du-ci;* Hitt. *kāš, ki-šša-n*, directly comparable to Lat. *ci-s;* Gk. **ky-* in Ion. *sêtos* = Att. *têtos;* Lith. *šis;* OCS *si;* Armen. *s-* (radical of the 1st pers. demonstrative, "this" *hic*, near the speaker, opposed to *d-* = near the person spoken to, "that" *iste*, *n-* = near a third person, far from the speaker and person spoken to, "that", *ille*).

In regard to the semantic value of the particle, Markey (1980:291) points out:

> Deictic *k(-i-)* may originally have designated 'Ich deixis', retained in Armenian, but could also be transformed to anaphoric usage [...], so in Lat. *cis*, Goth. *hi-*. And, as Specht (1947:303,309) notes, there is hardly semantic identity within and across dialects for deictic elements, cf. Indo-Iranian cases formed from **-bh-* vs. Goth. adv. *-ba*.

Friedrich (1974:135) says that the Hittite demonstrative *kā-* can likewise be used in reference to the speaker, reinforcing the testimony of Armenian. In short, **k* probably had lost much of its deictic force in late Indo-European, coming eventually to assume a non-present temporal value. This is in keeping

with Lane's observation (1961:469) that a deictic element "tends to become weaker and weaker in its deictic force", with the frequent result that it "is [...] reinforced by being compounded with itself or with other [deictics]". This circumstance probably led to its frequent contamination with **i*.

2.1.7 *The Deictic *(e/o)s*

The existence of a deictic particle in **-s* (a reduced form of **e/os*) is suggested by a number of data. In the first place, just as the deictic particles **i* and **u* are attested in the locative case, so there appears a deictic **-s* as a marker of this case (e.g., loc. pl. **-si:* [**-s + *-i*]: Gk. *-si; *-su* [**-s + *-u*]: Skt. *-su*, OCS *-хъ*, Lith. *-su;* loc. du. **-ous* [the thematic vowel + **-u + *-s*]: Skt. *-os*, OCS *-u*). Moreover, I feel it to be significant that **-s*, like **-i* and **-u*, is also found in the genitive case as well (**-es, *-os, *-s, *-syo, *-so:* Skt. *-as, -sya*, Gk. *-os, -oio, -oo*, Lat. *-is*, etc.). Since demonstratives have their origin in deictic particles (cf. Brugmann 1911:311), the deictic **(e/o)s* is probably present in the demonstrative pronoun **so-* (Skt. *sá[s]*, Gk. *hó*, Go. *sa*), deriving from the contamination of **(e/o)s* and the deictic **o* or from the thematization of **(e/o)s*. This pronominal form implies that **(e/o)s* originally expressed what Brugmann (1904a:20, 1911:312) calls 'Dér-Deixis', since its demonstrative signification is 'this'. Other dialectal manifestations of this particle cannot be found. As Hirt (1927:13) observes: "Als einfache Partikel scheint sie nicht mehr vorhanden zu sein".

2.1.8 *The Deictic *(e/o)N (N = m or n)*

The existence of this particle is again suggested by its appearance in the historical dialects as a marker of the locative case. A locative formation in **-N* is attested in lexical items like Skt. *kaláyām* and OP*schismən* (cf. Gray 1932: 192).

> A similar element *-i(n)* [perhaps a contamination of the deictics **-i* and **-N*] is found in Skt. and Av. loc. types like *a-sm-ín, a-hm-i, a-hm-y-a*, and in Homeric ablatives, instrumentals, and locatives (both sing. and plur. without distinction of form) in *-phi(n)* < **-bh-i(n)*: abl. sing. *melathróphin*, plur. *osteophín;* instr. sing. *bíēphin*, plur. *theóphin;* loc. sing. *eskharóphin*, plur. *ikrióphin*. Here, too, one must place Dor. *emín, tín*, Boeot. *hein* < **sewin*, Lesb. *ammi(n), ummi(n)*, Attic *hēmîn, humîn* (Gray 1932:192-193).

A related nasal locative suffix is perhaps found in Hitt. *kedani* and Sanskrit adverbs like *idā́nīm, tadā́nīm* (cf. Josephson 1967:137-138). Likewise, a