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Volume 88

Kenneth C. Shields

A History of Indo-European Verb Morphology

A HISTORY OF
INDO-EUROPEAN VERB
MORPHOLOGY

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Lancaster, Pennsylvania

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Lancaster, Pa.
September 1991

Kenneth C. Shields

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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 Kurylowicz 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. Kurylowicz 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 Brugmannian 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 theoretical 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

"Kurylowicz-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 *hi*-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 **-ŷN* (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. *éphér-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 **g^Wow*, the form which originally functioned as the uncharacterized stem. In preconsonantal position **g^Wow* passed to **g^Wō*. Thus **g^Wow-s* > **g^Wōs* which gave Doric Gk. *bōs* and Latin *bōs*, and **g^Wow-m* > **g^Wōm* which gave the Doric acc. sg. *bōn* and Skt. *gām*. The prevocalic form of the root **g^Wow-* is retained in Gk. gen. sg. *bowós*, dat. *bow-í*, Latin gen. sg. *bōv-is*, dat. sg. *bōv-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. *traūma* 'wound', but the etymological preconsonantal form **trō* < **tra-w* is found in Gk. *ti-trō-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 *stoj-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. *stoti*. In Sanskrit the present conjugation of *tisthāmi* has passed into the (first) thematic class, but the stem *sthā* is found in the aorist (1st sg. *ástthām*) beside the zero-grade 3rd sg. middle *ástthita* (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 **edōd bhrātrai* "er gab dem Bruder" = ai. *édād bhrātre*; **tāz dhughāteres* (*dhugdheres*) "diese Tochter" = ai. *tā duhitāres*

[...], ai. *súre duhitá* "Töchter der Sonne" aus **sūraz d-* [...]; gr. *Athénadze* = *Athénaz de*, gortyn. *uíéed dé* "filii autem" aus *uíéez dé*; aksl. *poz-dъ* *poz-dě* "spät" zu av. *pas-ča* lat. *pos-t* [...].

Moreover,

stimmhafte Verschlusslaute im Wortauslaut wurden vor stimmlosen Gerauslauten selbst stimmlos [...]. Etwa **tot péku* "dieses Vieh" = ai. *tót pášu*; lat. **tot per* (*topper*), **it circō* (*icctircō*), **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. *kápr̥th* zu Stamm *kapr̥th*, *suš̥túp* "schön rauschend": Stamm *suš̥tubh-*. 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: Pre-flexional 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 *apratī*, *jāmī*, 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. *-p*, 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 Unterschied *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 ausgenutzt 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 *prākēs*, 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"; (*-hi* 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 *-t* (e.g., *něčp-t* "you, he began") and *-st* (e.g., *byst* "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^{wt}* > 3. Sg. Verb **nek^{wt}-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 ϕ , got. ϕ , 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 $*-\phi$ as a third person desinence. Of course, the occurrence of $*-\phi$ in the second person function is still attested in the singular imperative ($*age$ "lead": Skt. *ájā*, 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 $*-\phi$:

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 $-a$ $-t\bar{h}a$ $-e$ in Italic $-ai$ $-tai$ $-ei$ > Lat. $-i$ $-(is)ti$ $-i(t)$. The same occurred independently in the Hittite *hi*-conjugation: $-ha$ $-ta$ ($*-e?$) > $-hi$ $-ti$

$-i$. 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 *hi*-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 *jāni* "was born", which shows the absence of secondary *vrddhi* as in *jāni*. The augment (*ājāni*) 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*/*mā*, similarly du. *vas*/*vā*) 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 $\cdot tá$ "ist", $\cdot tēt$ "geht", $nī$ "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 $tāith$, $tēt$, 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" < **něst*, **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. *vėžs*" 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 *neu* 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.

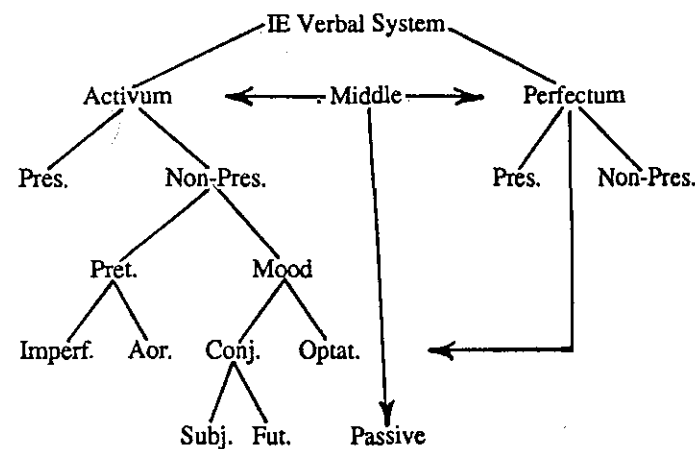
Therefore, on the basis of extant linguistic data, it seems that the grammaticalization of temporal specifications precludes the inflectional expression of not-now, even though the lexical expression of this concept is a possibility.² Because, as Comrie (1985:9) says, "there are very heavy constraints 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 **eġh-* (e.g., Skt. *ahám*, Osc. *ílu*) (Schmidt 1978:35). Of course, a personal marker in **-h* is most clearly seen in the Hittite *hi*-conjugation (cf. *-(a)hi*, *-hun*, *-ha(ha)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 *gh^wen-:

*és- <i>ṛ</i>	*gh ^w én- <i>ṛ</i>
*és-s	*gh ^w én-s
*és-t	*gh ^w én-t
*(e)s-e/ont (?)	*gh ^w (e)n-e/ont (?)

should be modified in the following manner:

*és- <i>ṛ</i>	*gh ^w én- <i>ṛ</i>
*és- <i>ϕ</i>	*gh ^w én- <i>ϕ</i>

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 *-*ϕ*, two morphological reanalyses were possible:

- 1) *-*ϕ*X > *-X
- 2) *-*ϕ*X > *-X-*ϕ*.

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 *Rômā-nus* and *silvā-nus* "forest deity". At some point these were analyzed as *Rôm-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, Kurylowicz (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. *-io* < **-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-va* '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-phereon*, ai. *é-bharam* 'ich trug'), als angetretene Postposition hinter Kasusformen, z.B. ai. Dat. *asvāj-a*, abg. *kāmen-e* usw. und in ai. *ā-sāu* 'jener', gr. *ekei* '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. *ā-sja*, D. *ā-smāi*, im Germ. ahd. *e-s*, imu, im Umbr. Dat. *e-smēi* 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. *áp-o*, *húp-o*, ai. *áp-a*, *úp-a*, 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. *āhe* '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. *ē* 'in der Tat, wirklich', *ē* 'wenn', ahd. *ich-ē*, *nein-ē*, ai. *ā* hervorhebende Partikel, sowie als Verbalpräfix [...] und Prä- und Postposition [...]. Zusammengesetzt wohl auch in gr. *e-dé* 'und', *ē-dē* 'jetzt, schon' usw.", while **ō* appears "in dem ai. *ō*, 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 hinweist" (Brugmann 1911:347; cf. also Brugmann 1916:969-971). "In den andern Sprachen haben wir vereinzelte Reste wie l. *jam* 'jetzt, bereits, schon', lit. *jaũ* 'schon', lett. *jau*, abg. *ju* 'schon', got. *ju* 'schon', got. *jabaí* '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 "l. *ubi* 'wo', l. *u-ti* 'so', aw. *u'tti*, gr. *ē-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 *-xъ*, 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-ššan*, directly comparable to Lat. *ci-s*; Gk. **ky-* in Ion. *sētos* = Att. *tētos*; 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 *-xъ*, 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*, *-oto*, *-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. *sā/si*, 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. *kalāyām* and OPschisman (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-in*, *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. *osteóphin*; instr. sing. *blēphin*, plur. *theóphin*; loc. sing. *eskharóphin*, plur. *ikríóphin*. Here, too, one must place Dor. *emín*, *tín*, Boeot. *hein* < **sewin*, Lesb. *ammi(n)*, *ummi(n)*, Attic *hēmín*, *humín* (Gray 1932:192-193).

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

similar construction is described by Brugmann (1911:181): "Umbrisch. Neben *tote*, *Akeřunie*, auch *-em*: *Acersoniem*, *totem-e* (mit *-e(n)* 'in')". In Shields (1982c), I maintain that the Tocharian locative suffixes A *-am*, B *-ne* derive etymologically from the same Indo-European locative case in **-N*. Moreover, I find it important that **-N* is also evident in the genitive case as well, specifically in the genitive plural suffix **-ōN*: Gk. *-ōn*, Skt. *-ām*, Lat. *-um*, Hitt. *-an* (also sing.). The validity of the reconstruction of a deictic in **N* is further indicated by the existence of "die *n*-Demonstrativa **no-*, **eno-*, **ono-*, **oino-*, **aino-*" (cf. Skt. *anā-*, OCS *onъ*, Lith. *anā-s*), with "die Grundbedeutung" of these demonstratives being 'Jener-Deixis' (Brugmann 1904a:90, 1911:335-336). These demonstratives thus imply an original 'there and then' meaning for the particle which underlies them etymologically.

2.1.9 The Deictic **(e/o)l*

Evidence for the reconstruction of this deictic particle comes from the attested *l*-demonstratives of Indo-European Proper. Among these historical forms are

lat. *olius ille* und ir. *tall, anall*. Sie gehören vermutlich ebenso mit lat. *alius* 'alter' griech. *állos* usw. etymologisch zusammen [...]. Lat. *olius* wohl aus **olno-s*: slav. **olnъ* "im vorigen Sommer (Jahr)" aksl. serb. *lani*, poln. *loni*; dazu *ul-s* *ul-tra ul-timus*, osk. *últiumam* "últimam", ir. *ind-oll* "ultra", *ol* "ultra" (Brugmann 1911:340).

The occurrence of *-el* as a marker of the pronominal genitive in Hittite and of *-l* as a marker of the nominal (dative-)locative in Lydian is in keeping with the original deictic properties of this element. I believe that the original deictic force of the particle **(e/o)l* was 'Jener-Deixis', attested in the *l*-demonstratives (Brugmann 1904a:95, 1911:340).

2.1.10 The Deictic **(e/o)T*

It is clear that deictic particles in **(e/o)t*, **(e/o)th*, and **(e/o)dh* can be reconstructed for Indo-European. Because of the developmental parallelism of these elements which will be established below and because of the possible sandhi relationship between them (cf. Section 1.3.2), I want to propose that they derive etymologically from a single morpheme in early Indo-European, i.e., **(e/o)T*.

In regard to the possible sandhi variation among the three, it can be observed that if one assumes the basic variant was **(e/o)dh*, then the other

forms can be derived from it as specialized forms. Before initial voiced phonemes, the variant in **-/dh/* would have originally appeared, while that in **-/th/* would have occurred before voiceless stops and spirants.⁴ The variant appearing in pause would have obviously been unaspirated, although it is difficult to determine the value which this segment would have shown for the feature *voice*. However, according to traditional phonological analysis, a voiceless segment is to be expected here, for, as Schane (1973:114) observes: "The normal state for sonorants is voiced, whereas for obstruents it is voiceless." Moreover, he says: "For obstruents to become voiceless in word final position is more expected than for obstruents to become voiced in that environment" (1973:111). In other words, the 'laws' of natural phonology suggest that voicelessness is universally unmarked.⁵ In a position such as this where the phonemic distinction voiced/voiceless tends to be neutralized, the unmarked variant will generally appear. This conclusion is supported by Ward's observation (1946:102) that in Indo-European "voiced stops became voiceless [...] possibly in pause also" and by the testimony of Sanskrit, where voiced aspirated stops appear as voiceless unaspirated stops in pause. As Burrow (1973:100) observes: "Of the occlusives only the unvoiced series *p*, *t*, *č*, *k* are allowed to stand in absolutely final position, and in their place the corresponding voiced series *b*, *d*, *g* are substituted before voiced consonants and vowels."

However, some evidence has recently come to light which suggests that the sandhi variant of **-/dh/* appearing in pause was **-/d/*, not **-/t/*. Szemerényi (1973:62-63) concludes that "in a fair number of IE languages single stops, perhaps also spirants, in word-final position became voiced. The number of instances we can quote is small, and the stop is mostly the dental; but we must bear in mind that in morphology only *-ti/-t* played a role, there were no suffixes *-pi/-p*, *-ki/-k*". The situation he describes may be a result of the fact that a sandhi variant in **-/d/* with widespread occurrence was created in pause from forms in original final **-/dh/* and that its voicing (along with that of various other 'naturally' occurring final voiced sounds) was generalized to other stops and to all other word-final environments. He further suggests that a voiceless variant in **-/t/* was derived from **-/d/* at a later date. Thus, "We must [...] conclude that Italic as a whole shows the development of final voiceless stops to voiced stops; but in Oscan and Umbrian, as indeed in Latin (cf. *nec* beside *neg-*, *op-tinui* etc.), the prepositions, being proclitic, could re-acquire, and even generalize, voiceless variants" (1973:59).

Likewise, in regard to Sanskrit, without definitively locating the time of development, he says:

It seems clear that these sandhi rules, sometimes merely residual rules, continue an earlier state of affairs in which final stops and spirants were generally voiced; at a subsequent stage the voiced sounds were unvoiced by the voiceless initial of the following word, and this could again be generalized (1973:62).

It is with the advent of this voiceless variant that we would arrive at the form $*(e/o)t$, which became an autonomous particle with sandhi variants in $*/t/$ (voiceless) and $*/d/$ (voiced). It should be emphasized, however, that if the form in $*/t/$ is assumed to have been the original pausal sandhi form, then a variant in $*/d/$ would have been the one to develop before voiced consonants (and perhaps vowels) at a later date, after the generalization and the functional specialization of $*(e/o)t$. Similarly, if Szemerényi is correct, then the appearance of the variant in $*/th/$ may also have actually been a later development than the appearance of that in $*/d/$, with $*/th/$ stemming from the de-voicing of $*/dh/$ in such voiceless sandhi environments.

The validity of Szemerényi's hypothesis is also suggested by other linguistic data. First,

The assignment of markedness values is not always as straightforward as it may seem [...]. Martinet (1936) argues that $/t/$ is marked in French and $/d/$ unmarked. He cites examples such as [metsɛ] *médecin* "doctor" where he claims that $[t]$ is lax and unvoiced. Normally, $/t/$ and $/d/$ have the following feature specifications in French:

$/t/$	$/d/$
[- voice]	[+ voice]
[+ tense]	[- tense]

Thus, from a logical point of view, $/t/$ could be unmarked (because it lacks voicing) or marked (because it is fortis, or [+ tense]). Martinet argues for the second interpretation (Hyman 1975:145).

It is this observation which Szemerényi uses to explain the occurrence of voiced stops in word-final position: "[...] in modern terminology, the voicing is the result of the fact that the final stop is unmarked in respect to the feature tenseness" (1973:71). Moreover, Meillet (1964:172) notes that in regard to Indo-European root-final consonants,

Il y a aussi quelques cas d'alternances de sonores aspirées et sonores simples, ainsi $*/dh-$ et $*/d-$ dans skr. *budhnáh* "fond", gr. *puthmén*, avec $*/dh-$ et

v. angl. *botom* "fond", avec $*/d-$. Dans une série de cas, skr. $*/h-$ répond à un $*/g-$ des autres langues: skr. *ahám*, av. *azəm* "moi (nominatif)": gr. *egō*, lat. *ego*, got. *ik*. [...] skr. *duhitā*, gāth. *dugadā* (avec *gd* issu de $*/gh-$, ce qui atteste que la sonore aspirée est indo-iranienne): gr. *thugátēr*.⁶

However, although Szemerényi's position is an interesting one, the more traditional analysis is perhaps implied because of his admittedly scanty evidence (1973:62). Nevertheless, both theories are consonant with the analyses presented in this study.

I wish to emphasize that my proposal does not negate the widely accepted view that the voiceless aspirated stops constitute a secondary development in the history of Indo-European. Many comparativists see the derivation of $*/th/$ "probably from IE t + laryngeal" (Peeters 1971:4), although "the time of the origin of the voiceless aspirates is disputed" (Lehmann 1952:81). However, Burrow (1973:72) points out that despite the fact that the origin of the surd aspirates "can be attributed to a combination of IE H with a preceding un-aspirated surd, some possible cases of spontaneous aspiration in combinations with s (Skt. *sthaḡ-*, etc.)" must be acknowledged. Now if positing two sources for the voiceless aspirated stops is admissible, then I see no problem in suggesting a third source — sandhi. In other words, all three processes would yield the new phonemic type.⁷

Despite these phonological complexities, the deictic in $*/t-$ is widely attested in the dialects. For example, it is seen in contamination with the deictic $*/ē$ in "lit. *tē* 'da', gr. *tē* 'da, nimm'; dazu l. *is-te*, abg. *kŭ-to* 'wer'" (Hirt 1927:12). Brugmann (1904b:619) also etymologically relates these forms to "ai. *tād* 'infolge, davon' aksl. *ta* (*ta-že*) 'dann'" and proceeds to posit a connection between all these items and the demonstrative stem $*/to-$ (neut. sg. Skt. *ta-d*, OCS *to*, Go. *pa-ta*, Gk. *tó*). This observation is crucial in determining the original meaning of $*(e/o)t$, for the demonstrative stem $*/to-$ possessed 'Dér-Deixis' (Brugmann 1904a:20, 1911:312-313). The deictic particle in $*/t-$ is also attested in contamination with other deictic elements, although these contaminations do not show as clearly the original denotation of this deictic form. The particle $*/tu$, a contamination of the particles $*/t$ and $*/u$, appears in "ai. *tū* etwa 'doch' in Aufforderungen und Behauptungen" and in "Got. *pau pau-h* [...] 'doch, wohl, etwa', ags. *ðeah*, ahd. *doh* 'doch'" (Brugmann 1904b:615), while $*/ti$, a contamination of $*/t$ and $*/i$, is attested in "gr. *éti* 'nochdazu, ferner', lat. *et* (das sich auf Kosten von *que* stark ausbreitete) und got. *ip* 'und, aber'" (Brugmann 1904b:615), as well as in "ai. *iti* 'so', lat. *iti-dem* 'ebenso'" (Brugmann 1904b:614).

and "av. *u¹ti* 'so, auf diese Weise', lat. *ut* (*uti-nam*) ursprgl. 'so', in Wunschsätzen z.B. *ut Danaum omne genus pereat!*" (Brugmann 1904b:614-615). It is interesting that "Houwink ten Cate (1967) has identified in Old Hittite texts instances of *-t marking the locative case in enclitic possessive pronouns, e.g., *a-u-ri-iš-mi-it* 'in your' (plur.) or 'in their watchtower'" (Shields 1982a:50), while "Schmid (1973:300) posits a 'hethitischen Kasusendung -t, die man auch in heth. *ket* 'hier(her)' zum Pronominalstamm *ka-* mit Dat.-Lok. *keti* (*apeti*, *edi*) feststellen kann'" (Shields 1982a:50). I believe the same suffix in *-t is attested in genitive singular function in Tocharian B (*-ntse*, *-mtse*) and Hittite (*-etaš* [demons.]) (cf. Schmalstieg 1980:72). In Shields (1982a:49-50), I relate all of these forms to the ablative suffix **-ē/ōt/d*, while in Shields (1987a), I show, by way of the Greek adverbial suffix *-then*, that the original 'ablative' suffix of Indo-European derives ultimately from the deictic **(e/o)T*, with Greek attesting an aspirated sandhi variant and other dialects attesting unaspirated sandhi variants in **/t/* and **/d/*.

Phonological developments in the historical dialects make it difficult to identify specifically attested reflexes of the etymon **(e/o)th*. However, Hirt (1927:12) does reconstruct a deictic particle **tha* (< **(e/o)th* + the deictic particle **a*) or **th* on the evidence of "gr. *én-tha*, dor. *prós-tha* neben sonstigem *prós-then* 'vorn'". To these forms he relates "Endung 2. Sing. ai. *vēt-tha*, gr. *oīs-tha*" (1927:12), as well as

ai. *áthā* "dann, und, ferner, darum" = d. *und*; *kathā* "wie", auch *kathām*; *it-thām* "so, auf diese Weise"; *it-thā* "recht, gerade", und überhaupt verstärkend; *ta-thā* "so, auf diese Weise"; *ja-thā* "wie", *vrthā* "nach Belieben" [...]. *th* hinter Nomina. Hier kommen zunächst die beiden Neutra *ásthi* "Knochen" und *sák-thi* "Schenkel" in Betracht, [...] ai. *uk-thām* "Spruch", *učá-tham* "Spruch, Preis": ai. *vāc*; ai. *sравé-tham* "Fließen": gr. *hróos* "Strömung" (1927:131-132).

Although the original 'not-here-now' signification of the particle **-dh* has been similarly obscured by contamination and subsequent semantic shift, the formal existence of such a deictic element is easy to establish. It can be found, for instance, in the particle **dhe/i* (< **(e/o)dh* + **e* or **i*), which "liegt selbständig nicht vor, wohl aber als angehängte Partikel. vgl. ai. *kú-ha* 'wo', *i-há* 'hier, hierher': l. *u-bi* 'wo', *i-bi* 'dort', gr. *pó-thi* 'wo', abg. *kū-de* 'wo', *sī-de* 'hier' usw." (Hirt 1927:13). The original meaning of the *dh*-element is perhaps more distinctly seen in the Homeric adverbs *autó-thi*,

oíko-thi, and *áu-thi* "on the spot, there" (cf. Brugmann 1904b:454). The particle **dhi*, likewise attested in **me-dhi* "in the midst of", cf. Gk. *mé-ta* "among, besides, afterwards" (but containing **-ta*), which, in turn, serves as the basis of **me-dhi-o-s* "middle", cf. Skt. *má-dhy-a-s* (Brugmann 1904b:454), may also show its original 'then and there' deixis in these forms, since the middle is a location between 'here' and 'distant there'. A third person pronoun in **dhi-* (or possibly a sandhi variant in **di-*), which is attested only in accusative forms like "av. apers. *dím* 'ihn, sie', Akk. Pl. av. apers. *diš*, Akk. Sing. N. av. *diš*, Nom.-Akk. Plur. N. av. *dī*, die, wie ihre Stellung im Satz zeigt, unbetont waren. Preuss. *din dien* 'ihn, sie', Akk. Plur. *dins diens*" (Brugmann 1911:390-391), may be related to these items in the same way that the demonstrative stem **to-* is related to the *t*-formations described earlier. Even though its use as a demonstrative is not historically attested, the close association between 'Dér-Bedeutung' and 'Er-Bedeutung' (Brugmann 1911:389-390) makes it possible to view **dhi-* as an original demonstrative which has become specialized as a personal pronoun. A parallel situation is attested in the case of the Hittite enclitic personal pronoun in *-a-*, which "in form [...] belongs with the demonstratives" (Sturtevant 1933:108).

2.2 The Deictic **(elo)s* and Its Formations

In recent years a great deal has been written about the sigmatic verbal formations of Indo-European. (See, e.g., Ambrosini [1962], Gonda [1962], Watkins [1962], Pariente [1963, 1965], Adrados [1964, 1971], Gil [1964], Kuryłowicz [1964:109ff.], and Narten [1964].) The most salient feature of these constructions built on an *s*-element is their wide variety of functional roles. Sigmatic verbal formations are historically attested as marking the aorist, the future, the subjunctive, the desiderative, the preterite, and the present, as well as generally indicating the second and third persons. Although most scholars agree that "sigmatic verbal stems are relatively recent formations" (Adrados 1971:97), the original signification of **-s-* in Indo-European has been the subject of great debate. Adrados (1971) and, less recently, Meillet (1908) have asserted that "sigmatic verbal stems [...] proceed from an *s*-enlargement of undifferentiated meaning, [...] which afterwards produced independent evolutions in different languages" (Adrados 1971:97), while many other Indo-Europeanists "think in terms of the original unity of *s* and consider its differentiations as to meaning a secondary fact or the result of the organization of a system of categories which still did not exist in the oldest Indo-European" (Adrados 1971:96). Thus,

Ambrosini [(1962)] believes that *s* was the marker of intransitivity; Pariente [(1963, 1965)] calls it an injunctive characteristic; Watkins [(1962)] locates it in the preterite. Kurylowicz [(1964)], quite reluctantly, adopts the old interpretation [...] in accordance with which *s*-subjunctive and *s*-aorist are two old *s*-formations which became afterwards intermixed (Adrados 1971:96-97).

The fundamental problem with assigning an original meaning to **-s-* is, as Adrados (1971:97) points out, that the manifold uses of sigmatic formations in the historical dialects speak against a single, original function of **-s-* in the proto-language itself. Although I would agree that specifically dialectal developments had much to do with the evolution of the role of the sigmatic element, I would like to suggest that **-s-* did evolve from functionally well-defined formations in Indo-European but that these formations were very different from any which have heretofore been proposed. In sum, I believe that all cases of **-s-* except those marking the iterative/intensive stem derive from an original deictic particle with 'there and then' meaning which eventually became incorporated into verbal structures in the manner devised above. It is this proposal that I want to pursue now. The origin of the sigmatic marker of the iterative/intensive stem will be considered in the next chapter.

The most widespread non-personal function marked by **-s-* is the aorist. "The *s*-aorist is found in Greek (*édzeuksa*, *édeiksa*, etc.) and Slavic (*věst*, *slux*, etc.)" as well as in Indic (Skt. *ānaiṣīt*). "In Latin *s*-aorist forms have coalesced with perfect forms to make one tense (perf. *dīxi*, *dūxi*, etc.). In Irish injunctive and subjunctive forms of the *s*-aorist are retained (the *s*-subjunctive)" (Burrow 1973:338-339) (see Kurylowicz [1964:113-116] and Watkins [1962:124-125] for contrasting views on the complicated etymological relationship between the *s*-aorist and the *s*-subjunctive), while some scholars believe that the *s*-preterite of Tocharian probably shows

der idg. *s*-Aorist (ai. *aprākṣīt* ~ B *prekṣa* [A *prākās*], das idg. Perfekt mit Abtönung des Wurzelvokals (ai. *paprāccha*, lat. *poposcī* ~ B *prekwā* [A *prakwā*]; lat. *nocuī* ~ B *nekwa*) sowie nur im Otoch. der idg. athematische Wurzel aorist (ai. *ayukta*, *apāci*, **apakta* ~ A *pakāt*) kontaminert (Krause & Thomas 1960:247).

Meillet (1964:214-215) describes the other non-personal sigmatic formations:

Le futur indo-iranien en **-syə-*, attesté par skr. *vək-syā-mi*, gâth. *vəx-syā* "je parlerai" est à rapprocher du futur lituanien: *lik-siu* "je laisserai", et du suffixe **-se/o-* de gr. *leipsō* "je laisserai", lat. *capsō*, etc.; l'alternance de **-syə/o-* et **-se/o-* est comparable à celle des désinences de génitif **-syo* et

**-so* dans gâth. *čə-hyā* "de qui" et v.sl. *če-so* "de quoi", v.h.a. *hwe-s* "de qui". Le futur est une rareté dans les plus anciens textes indo-iraniens: le *Ṛgveda* tout entier n'a qu'une quinzaine d'exemples de formes personnelles du futur [...] et la forme du futur ne devient fréquente que dans les textes sanskrits postérieurs; de même le slave n'en a qu'un exemple, le participe *byšęšteje* "ce qui doit être". D'autre part le futur lituanien ne répond pas exactement au futur indo-iranien: la flexion est en *-si-* ou en *-s-* suivant les dialectes; par exemple la Ire personne du pluriel est *likšime* ou *likšme*, différente du type skr. *vək-syāmaḥ* "nous parlerons". La place du ton attestée par gr. *leipsein*, *leipsōn* ne s'accorde pas avec celle qu'indique le skr. *vəkṣyāti* "il parlera", mais avec celle du participe lit. *likęs* "devant laisser".

Au latin et à l'irlandais, la formation en **-se/o-* fournit des subjonctifs, type lat. *faxit*, v.irl. *téis* (de **steik-se-t*) "qu'il aille". En irlandais, ces thèmes en **-se-* accompagnés de redoublement fournissent un futur; ainsi en face de v.irl. *guidim* "je prie" on a le subjonctif *-gess* "que je prie" et le futur *-gigius* "je prierai".

A côté de **-se/o-* il existe, surtout après sonante finale de racine, une formation en **-se/o-*: skr. *kār-iṣyā-ti* "il fera", gr. *men-ēō*. De même que le futur grec des verbes à racine terminée par *n, r, m, l-* est en *-ēō* (ancien **-asō*), le désidératif sanskrit a pour suffixe i.-e. **-se/o-* après consonne, et i.-e. **-se/o-* après sonante; en face de *rīrikṣati* "il désire laisser", on a ainsi *cīkīrṣati* "il désire faire" où *-irṣ-* représente **r + *as* (la racine est monosyllabique, comme le montre *kṛtāḥ* "fait"); le lituanien a de même *klāusia* "il interroge" (il veut entendre) de **klow-as-*, en regard de *klāuso* "il entend" de **klow-s-*.

Although there is no *s*-aorist or future in Hittite, "there are certain preterite forms in the 2 and 3 singular which have final *-s*: 2 sg. *da-a-as* 'you took', *tarna-a-s* 'you put in', *da-iš* 'you placed', *pa-iš* 'you gave'; 3 sg. *da-a-as* 'he took', *da-a-iš* 'he placed', *ag-ga-as* 'he died', etc." (Burrow 1973:339). Burrow (1973:339) notes that although "these forms are compared to the *s*-aorist of other IE languages [cf. Kronasser (1956:191)] it seems unlikely that they are simply remains of a fully developed IE *s*-aorist system." Moreover, "there is some agreement between Hittite and Tocharian on this point, since the latter language has also a certain type of preterite using an *s*-stem in the 3 sg: A. *prākās*, B. *prekṣa* 'he asked', and this coincidence does not seem fortuitous" (Burrow 1973:339). However, even though these forms do not seem to be original *s*-aorists, they are probably etymologically related to other *s*-formations (cf. Burrow [1973:339], Watkins [1962:97-106]). Watkins (1962:90-93) argues further that "the use of an *-s* as desinence of the 3 sg. preterite [...] recurs in other Indo-European languages", specifically in Indo-Iranian forms like Skt. *bhūyās* "he should have been", *dhās* "he put" and OPers. *āiš* "he went", *akunaš* "he made".

Although Hittite, Tocharian, and Indo-Iranian attest a sigmatic suffix as a third person (and a second person, in the case of Hittite) marker in the preterite tense, other languages and other constructions in these same languages show it as a personal indicator with no such limited temporal signification. Of course, the marker of the second person which is generally reconstructed for Proto-Indo-European is **-s(i)* (Skt. *-s(i)*, Gk. *-s(i)*, Hitt. *-š(i)*, Lat. *-s*, Go *-s*). And besides the Hittite, Tocharian, and Indo-Iranian attestations of **-s* as a third person preterite suffix, Krause & Thomas (1960:259) note that there exists in Tocharian A a third person singular suffix in *-s* in present function (*pālkās* < **bhlg-si*) and that "eine ähnliche Übertragung findet man in an. *brǣtr* (< urgerm. **breutiz*) 'du brichst' und 'er bricht', vielleicht auch in gr. *phérei* (< idg. **bheresi*) sowie in altnorthumbr. *findes* (neben *findep*)". The appearance of **-s* in both second and third person function is, as proposed in Chapter I, a result of the original unity of these two categories.

An additional function of the sigmatic formant in Indo-European was as a derivational suffix marking the present stem. However, "Diese Bildung lässt sich in den übrigen idg. Sprachen nur spärlich nachweisen, z.B. ai. *rakṣati* 'schützt' (neben *s-losem* ags. *ealgian*), gr. *hépsō* 'koche' (neben *s-losem* arm. *ep^cem*), gr. *a(w)éksō* 'vermehrte', ahd. *wahsan* (neben *s-loser* Wz. *auk-*)" (Krause & Thomas 1960:206). The unproductive, secondary nature of present stems in **-s-* is emphasized in Burrow's description (1973:338) of such formations in Sanskrit:

There are indeed in the Veda certain isolated forms of the present made in this way (*stuṣé*, *hīṣe*, *kṛṣe*) as well as some anomalous formations containing *s* which cannot be referred to the *s*-aorist stem (i. *arcase*, *rñjase*, ii. *grñīṣé*, *punīṣé*) but these have the appearance of being tentative formations which never developed very far rather than relics of an earlier system.

Only Tocharian and Hittite show the sigmatic formant as a productive present indicator (cf. Toch. B 3rd pers. pres. *kālpāṣṣām*, Hitt. *park[u]-wešzi*), although "den otoch. *s*-Präsentien entsprechen im Wtoch. nur zum geringeren Teil ebenfalls *s*-Bildungen (VIII), in weiterem Umfang dagegen *sk*-Bildungen (IX, s.d.)" (Krause & Thomas 1960:206).

I believe that all of these verb formations arise from an original second/third person construction in **-ø-s* (= second/third person suffix **-ø* + non-present deictic particle **(e/o)s*). This structure was subject to two reanalyses:

- 1) **-s*
- 2) **-s-ø*.

Watkins (1962:100-102) presents a similar theory of the origin of the *s*-aorist and the person marker **-s*, although he sees **-s(-)* as an original root enlargement. It was the first of these reanalyses which accounts for the origin of second/third-person preterite formations in **-s* (e.g., Hitt. *deiš*) and the general second/third person suffix **-s*. The latter emerged with the passage of time as **-s* generally lost its temporal value and became simply a personal indicator, although its original value is residually retained in archaic formations like Hitt. *deiš*. On the other hand, the second reanalysis of this non-present structure is responsible for the emergence of **-s-* as a stem-formant. Because **-s(-)* originally embraced the notions of both past and future time in its non-present semantic value, it would have naturally served as the basis for aorist and future structures as late, dialectal Indo-European began to divide the *not-now* into *past* and *future*. I maintain that at this point in the evolution of Indo-European, the aorist category was already a preterite tense, in contrast to its earlier aspectual character; so the non-present formation in **-s-* was integrated into the existing aorist system. Lehmann (1974:189-190) explains:

In the course of syntactic change a given feature may come to predominate, somewhat as a given phonological feature may change in sound. In late PIE, features of tense became predominant [...]. The aspectual meanings thereupon were expressed lexically or by derivational processes. Forms in which the shift from a predominant aspectual to a tense meaning was not carried out provide excellent evidence for the development. Among such forms are the Germanic preterite-presents [...]. Thus, both of the PIE perfective aspect forms, the aorist and the perfect, were shifted to preterite tense forms as opposed to present-tense forms.

The integration of **-s-* formations into the subjunctive system and their appearance in the desiderative are natural results of the fact that two of the most common atemporal functions of the future tense are the indication of these moods (cf. Ultan 1978:102-105). Indeed, it would seem that in late Indo-European the subjunctive itself could be used to indicate futurity (cf. Kurylowicz 1964:137-138), further strengthening the naturally close association of future tense and subjunctive mood. Ultan (1978:105) maintains that "the reason for the preponderance of modal applications of future tenses must lie in the fact that most modal categories refer to differing degrees of uncertainty, which correlates with the element of uncertainty inherent in any future event".

The problem which remains is to explain how the deictic particle **(e/o)s*, with non-present meaning, came to appear as a marker of the present stem. It is clear that the original meaning of this particle prohibits the direct derivation

of a present-stem formant in **-s* from the simple attachment of **(e/o)s* to a verbal construction. Moreover, the fact that sigmatic present formations are generally quite rare in the dialects seems to suggest their secondary analogical origin. As a result, I feel that they, too, are a product of a still later morphological reanalysis. I have already proposed that the original exponent of the second/third person category in Indo-European was **-ø* with two elements — **-s* and **-t* — eventually coming into competition with it. The functional equivalence of these desinences resulted in their contamination as **-st* (cf., e.g., Hitt. *-šta*, Toch. A *-št*, B *-sta*, Gk. *-stha*, etc.). That this contamination **-st* also began to compete with **-s* and **-t* is demonstrated by the fact that the preterite of the Hittite *hi*-conjugation attests *-š*, *-ta*, and *-šta* as markers of the second and third persons. I would like to suggest that the desinence **-st* was later subject to reanalysis as **-s-t* because the suffix **-t* alone marked the same personal function. In other words, **-s-* was reanalyzed as a simple stem formant, which was then subject to generalization, the extent of the generalization depending on the individual dialect. Perhaps it was the significant generalization of the *s*-presents in Hittite which inhibited the evolution of *s*-preterites in this dialect. After this reanalysis took place, the suffix **-st* itself was apparently retained as a desinence with only a very limited distribution, as the few attested occurrences of **-st* demonstrate.

2.3 The Deictic **(e/o)T* and Its Formations

The deictic particle **(e/o)T*, with its original sandhi variants in **/dh/*, **/th/*, and **/t/* (and later **/d/*), each of which eventually became an autonomous morpheme subject to generalization and specialization, was likewise affixed to non-personal verbal formations in **-ø* (i.e., **-ø-(e/o)T*). These formations were similarly subject to reanalysis as **(e/o)T* or **(e/o)T-ø*. The former reanalysis was responsible for the appearance of the dental element characteristic of various dialectal endings of the second and third persons: e.g., 2nd sg. imper. **-dhi* (Skt. *-dhi*, *-hi*, Avest. *-dī*, OPers. *-diy*, Gk. *-thi*, Lith. *-di*, OCS *-dъ*); 2nd sg. act. perf. **-thə* (Skt. *-thə*, Gk. *-tha*, Go. *-t*); 2nd sg. mid. **-thēs* (Skt. *-thās*, Gk. *-thēs*); 3rd sg. act. **-t* (Skt. *-t*, Osc. *-d*, OLat. *-d*); 3rd sg. mid. **-to* (Skt. *-ta*, Avest. *-ta*, Gk. *-to*); 2nd pl. act. **-t(h)e* (Skt. *-tha*, Gk. *-te*, OCS *-te*); 2nd du. act. prim. **-t(h)es* (Skt. *-thas*, Lat. *-tis*, Go. *-ts*); 2nd du. act. sec. **-tā* (Lith. *-ta*, OCS *-ta*, Umbr. *-to*), **-tom* (Skt. *-tam*, Gk. *-ton*); 3rd du. act. prim. **-tes* (Skt. *-tas*, Avest. *-tō*, OCS *-te*, *-tā*); 3rd du. act. sec. **-tām* (Skt. *-tām*, Avest. *-tem*, Gk. *-tēn*). A number of dialectal endings

whose ultimate source can be traced to Indo-European but whose variability in form does not allow the reconstruction of specific Indo-European etyma also show the same dental consonant: e.g., 2nd pl. mid. prim. Skt. *-dhve*, Avest. *-duyē*, Gk. *-sthe*; 2nd pl. mid. sec. Skt. *-dhvam*, Avest. *-dūm*, Gk. *-sthe*; 2nd du. mid. prim. Skt. *-thē*, Gk. *-sthon*; 2nd du. mid. sec. Skt. *-thām*, Gk. *-sthon*; 3rd du. mid. prim. Skt. *-te*, Gk. *-sthon*; 3rd du. mid. sec. Skt. *-tām*, Gk. *-sthēn*. The diversity seen here is merely a function of the specialization of the three sandhi variants and their contamination with a variety of other particles and desinences.⁸

Before proceeding to a discussion of other suffixes derived from the reanalysis of original non-present structures in **-ø-(e/o)T*, two comments are in order. First, the proposed development of verbal suffixes in **-th* as sandhi variants of a form in **/dh/*, not from the phonological influence of a laryngeal on a voiceless unaspirated **/t/*, is given support by weaknesses in the laryngeal explanation itself. Thus, in regard to the second person singular perfect suffixes of Greek (*-sthe*) and Sanskrit (*-tha*), Cowgill (1965:171-172) says:

It has been suggested that where Greek *ph*, *th*, *kh*, correspond to *ph*, *th*, *kh*, or *ch* in Indo-Iranian or to reflexes of plain voiceless stops elsewhere (i.e., the traditional 'voiceless aspirates'), the Greek consonant actually reflects a plain stop followed by a laryngeal [...]. The positive evidence for laryngeals following any of the Greek aspirates involved here seems in fact extremely weak. The only example of any plausibility seems to be the 2d singular (perfect) personal ending *-stha* (e.g., *oīstha* "thou knowest"), whose cognates include Indo-Iranian *-tha* (e.g., Skt. *vettha*), Hitt. *-tta* (e.g., *da-at-ta* "you took"), OLat. *-istei* (*gesistei*), and Germanic *-þ* (OE *earð* "thou art"). Evidence for laryngeal here is the Indo-Iranian aspirate (cf. also the Sanskrit 2d singular middle ending of secondary tenses *-thās*) and the Greek *ə*-vocalism. But the Indo-Iranian aspiration is possibly secondary (cf. Kurylowicz [1956:381-382]), and the Greek *-ə* can have been taken over from the first singular. A theoretical consideration against setting up a PIE 2d singular perfect ending **-tA-e* is that the prosopic kernels of other personal endings (aside from the obscure 2d plural middle) contain only a single consonant: 1st sg. **A*, **m*, 2d sg. **s*, 3d sg. zero, **t*, 1st pl. **me*, 2d pl. **ē*, **té*, 3d pl. **(ē)r*, **(ē)n* (combining with the 3d sg. to form **(ē)r-ø* and **(ē)n-t*). Other examples are less well founded.

To be sure, although I disagree with some of Cowgill's alternate non-laryngeal explanations of the data, I feel he does demonstrate that the reconstruction of a laryngeal in the verbal endings containing **th* in Sanskrit and Greek is by no means a necessary assumption. Whatever its origin, it seems that **-th* came

to be specialized primarily as a second person marker, despite the fact that its distribution was severely restricted after the widespread generalization of **-s* as the productive desinence of the second person and **-t* as the productive desinence of the third person.

Second, since I have assumed that **-dh* was the original base form of the second-third person suffixes containing a dental stop, a few words should be said about the archaic character of this suffix. I believe it to be especially important in this regard that it is attested in the imperative (**-dhi*, a contamination of **-dh* and the particle **-i*), since the imperative regularly retains inflectional archaisms. For example, the very ancient second-third person suffix **-ø* is attested in the second person singular imperative. This development does reflect one of Kuryłowicz' 'laws' of analogy: "Quand à la suite d'une transformation morphologique une forme subit la différenciation, la forme nouvelle correspond à sa fonction primaire (de fondation), la forme ancienne est réservée pour la fonction secondaire (fondée)" (1960:79). Moreover, I suspect that the imperative suffix reconstructed as **-tōt/d* (Skt. *-tāt*, Gk. *-tō*, Lat. *-tō*, OLat. *-tōd*) also represents an archaic formation. Instead of the traditional explanation of the ending as "the ablative singular of the pronominal stem **to-*, used adverbially and attached to the verb stem in imperative use" (Buck 1933:303), I see it as a contamination of the suffix **-t* and the preconsonantal sandhi variant of the deictic (> verbal desinence) **oN*, to which was attached at a later date (perhaps the dialectal period) another occurrence of **-t/d* as a means of hypercharacterizing the frequent third-person function of **-tō*. The archaic quality of the suffix lies in its testimony to the undifferentiated second/third person function of the marker **-t*. As Meillet (1964:236) observes about this imperative desinence: "En sanskrit et en latin, [**-tōt/d*] sert à la fois pour la 2e et la 3e personnes; en grec, seulement pour la troisième, mais, élargie par *-s* [a further hypercharacterization], aussi pour la seconde dans certains parlers". This imperative formation can be compared to that of Hittite "verbs with the suffix *nu* and also the defective verb *i-* 'go', [which] take an ending *t* in imper. 2 s.; e.g., *it* (*i-it*), *arnut* (*ar-nu-ut*) 'bring'" (Sturtevant 1933:256). Here Hittite attests the use of **-t* alone in the second person imperative function. The appearance of the non-present deictic **-ō* (< **-oN*) in the suffix of Indo-European Proper is, as we shall repeatedly see in my later discussion of imperative suffixes, a demonstration of the close association between imperative mood and non-present tense. Thus, Weinreich (1963:151) establishes the principle that "the indication of the imperative seems typically to intersect with deictic categories";

and Ultan (1978:102-104), in his study of universals regarding the nature of future tenses, confirms that one of the most common atemporal functions of the future tense — embraced by the more general non-present — is the indication of imperative mood. The archaic nature of the suffix **-tōt/d* is also manifested by its variability in number specification, since it is attested in the singular, plural, and dual.⁹ It thus reflects that "earlier period in which there was no verbal inflection for number" (Lehmann 1974:201). In any event, it is clear that **-dh* itself came to be specialized in secondary formations, including the imperative and the middle.

2.3.1 The second reanalysis of **-ø-(e/o)T*, i.e., **-(e/o)T-ø*, is, in my opinion, responsible for the origin of one of the most difficult-to-explain constructions in Indo-European studies — the Germanic dental preterite. Since Diederich von Stade first attempted a diachronic explanation of the Germanic dental preterite in the early eighteenth century, there have been no less than fifteen major approaches to the question and literally tens of variations on these basic proposals (cf. Tops 1974:8). Nevertheless, nearly all of these theories can be grouped into two broad types: *dh*-theories and *t*-theories (Tops 1974:7-8) (the laryngeal origin of the construction proposed by Rosén [1957] represents an exception to this dichotomy). The former group involves the derivation of the dental marker from a *dh*-determinative (Lehmann 1943b) or a compound whose second member generally begins with **dh-*, especially the verbal root **dhē/ō-* "do" (e.g., Loewe [1894, 1898, 1933:111-120], von Friesen [1925]), while the latter group derives the dental suffix from a wide variety of Indo-European morphological entities, including nomen agentis in **-te/o* (Hammerich 1964), the third person singular middle perfect ending **-tai* (Collitz 1912), the present stem-formant **-to-* (Brugmann 1930:369, 513), the demonstrative pronoun **to-* (Odé 1926), and the second person singular active perfect ending **-tha* (Must 1951).

My alternative solution to the origin of this construction derives the dental preterite from functionally parallel Indo-European verbal formations in **-t-* and **-dh-*, original sandhi variants of a non-present deictic. By the time of the appearance of the non-present dental formation, these markers had probably become autonomous, though still functionally identical, morphemes. In other words, a genuine mixed origin is suggested for the attested Germanic construction. Concerning such an alternative explanation, Tops (1974:9) says:

[...] genuine mixed theories do not seem to exist. The only work that defends a mixed origin whole-heartedly is Guxman's (1966). But he does not give an actual

theory, only a status question, from which he concludes that a mixed origin must be assumed; there are no details about its mechanism. The other so-called mixed theories are actually theories that seek a primary origin in a *dh*-formation, but accept, as an afterthought, influence from *t*-formations, or vice versa.

I believe that both deictics played a role in the emergence of the dental preterite; for, although the two are generally realized the same way phonologically in the historical Germanic dialects through the operation of Grimm's Law and Verner's Law, it is nevertheless impossible to "derive the [dental suffix] of Gothic *kunþa* [*þaurfta*, *bauhta*, etc.] from IE *dh*", and "the preterites OS *habða*, *hogða*, *lagða*, *libða*, *sagða* are still unexplained according to any *t*-theory" (Lehmann 1943a:317).

The question naturally arises as to why this dental preterite formation is attested in Germanic alone. It seems to me that the answer to this question is connected to that of still another question: why is it that "no trace of [the *s*-aorist] appears in Germanic"? (Burrow 1973:339). Although I shall need to qualify Burrow's assessment shortly, it is clear that the *s*-preterite (aorist) never became a productive formation in Germanic as it did in many other dialects. Since the original non-present formations in **-s-* and **-T-* and their reanalyzed variants largely overlapped in function, they would have been competing constructions. It is reasonable to suggest that the sigmatic preterite formation was largely generalized, though not in Germanic, where the dental formation became fully productive at the expense of the sigmatic one. If Germanic is truly "an archaic Indo-European language" which split early from the main Indo-European stock (cf. Polomé 1982a:51), then such a development would not be unexpected. Indeed, as Polomé (1982b:15-16) observes:

[...] it is probable that Germanic represents a stage of PIE prior to the development of the complex mood and tense system reflected by the Greek and Old Indic conjugation systems — presumably a pattern close to the Proto-Anatolian [...]. [I]t is plausible to assume that the IE group from which Germanic ultimately emerged left the original speech community at an early stage in the diachronic development of the verb system, possibly soon after the Proto-Anatolians. This would also account for the numerous other archaisms that are being identified at all levels of Germanic grammar.

Before concluding my discussion of the dental preterite, I wish to address two related problems whose solutions must be sought within the context of any theory about the development of the Germanic dental preterite — the origin of the indicative singular endings of the Germanic weak preterite (cf. Go. *-ða*,

-ðēs, *-ða*) and the origin of the so-called long Gothic endings (*-ðēdu*, *-ðēduts*, *-ðēdum*, *-ðēduþ*, *-ðēdun*, etc.).

It is generally assumed that "old subjunctive endings seem to have been added also to the class sign of the Germanic [dental] preterite" in the singular indicative (Must 1951:132), although the reason for this development has been a puzzlement to scholars. However, I feel that my general analysis of the origin of the weak preterite does indeed provide a natural explanation for this addition. The subjunctive category itself is a rather late innovation in Indo-European (see Chapter V for details). As Burrow (1973:348) explains, "The subjunctive is absent over a considerable part of Indo-European, and has the appearance of being a comparatively late formation." It is possible, then, that the subjunctive endings **-ō*, **-ēs*, and **-ēt* became contaminated with the non-present dental formations because, as noted earlier, such modal categories as the subjunctive "refer to differing degrees of uncertainty, which correlates with the element of uncertainty inherent in any [non-present] event" (Ulan 1978:105). The close relationship which exists between the subjunctive and the non-present tenses is demonstrated by the secondary future use of the subjunctive in the dialects (cf. Kurylowicz 1964:137-139). In fact, it is probably true that these so-called subjunctive endings never achieved true modal status in Germanic (cf. Burrow [1973:348] and Tops [1974:42]), retaining their non-present value in this Indo-European dialect. It is also probably true that these 'subjunctive' endings were associated with the non-singular indicative and the optative of the dental preterite, but that they were replaced gradually by other suffixes in these functions, i.e., those of the strong preterite (cf. Prokosch 1939:197). Of course, the first person singular indicative ending of the weak preterite requires special explanation. The traditionally reconstructed suffix **-ōm* results from a contamination of the 'subjunctive' desinence **-ō* with the old secondary ending **-om*, common throughout the Indo-European dialects in non-present function (although in historical Germanic dialects, it, like all the secondary endings, "cannot be ascertained with certainty" [Prokosch 1939:209]) (cf. Lehmann 1943a:315).

The long Gothic endings, which have an extra syllable *-ēd-*, probably derive from a contamination of the two dental formations (**-dh-* and **-t-*). The occurrence of *-ē-* in these endings can be explained as a case of morphological reanalysis. That is, since a fully morphologized subjunctive category never developed in Germanic, dental preterite constructions containing old non-present ('subjunctive') endings, e.g., **-dh/t-ēt* (and likewise **-dh/t-ēs*), were reinterpreted as showing a stem-formant in **-dh/tē-* and

occurrences of the indicative personal suffixes, e.g., **-dh/tē-t* (and likewise **-dh/tē-s*). Thus, because of this development and the subsequent paradigmatic generalization of **-ē-*, the long Gothic suffixes reflect an original **-dhē-tē-* (or **-tē-dhē-*) > **-dēdē-*. This suffix, preserved only in the dual and plural, was later remodeled on the basis of the strong preterite, thereby eliminating the use of **-ē-* as a suffix-final element and replacing it with *-u-* in the indicative and *-ei-* in the optative. In all of the Germanic dialects except Gothic, "the dual and plural indicative and the optative endings are like those of the strong preterite" (Lehmann 1943a:313). It would seem, then, that although the long endings developed in Common Germanic, they were eliminated by analogical forms in the pre-literary period of the North and West Germanic dialects.¹⁰ Only in East Germanic did the long endings become productive.

2.4 Some Further Implications of the Deictic Origin of Verbal Markers in **-s(-)* and **-T(-)*

I now want to explore the versatility of the theories just presented in explaining a number of Indo-European and dialectal verbal constructions.

2.4.1 The Origin of the Germanic *r*-Preterites

One of the perennial problems of Germanic historical linguistics is the origin of the preterites in *-r*, attested in Old High German (e.g., *ana-sterozun* "pushed" [inf. *stōzan*], *scriun* "screamed" [inf. *scrian*], Old Norse (e.g., *sera* "sowed" [inf. *sá*], *rera* "rowed" [inf. *róa*]), and the Anglian dialect of Old English (e.g., *reord* "advised" [inf. *rēdan*, WSax. *rædan*], *leort* "let" [inf. *lētan*, WSax. *lætan*]). The most widely accepted view of their origin is that they are remnants of reduplicated perfect forms (cf. Prokosch [1939:176] and Krahe [1963:109]). However,

among the weaknesses of this theory is the lack of reduplicated preterite forms in OHG [and the other Northwest Germanic dialects]; there is no evidence that any [...] verb forms [in these dialects] developed from reduplicated forms like **spespume*. Moreover, the dissimilations are unusual; Loewe [(1907)] posits a dissimilation of **stesteute* to **steseute* and of **spespume* to **spesume*. In the Gmc. languages *st* and *sp* are treated as units, both in sound shifts and alliterative verse; consequently dissimilation of *sp* to *s* is as little likely as dissimilation of *b* to *p* (Lehmann 1952:57).¹¹

"Because this traditional explanation is phonetically difficult, Lehmann [(1952:56-61, 1954)] proposed that the *r* of the [...] *r*-preterites is the

regular reflex of an IE laryngeal. In certain limited environments the laryngeal did not drop, but fell together with Gmc. *r*" (Connolly 1983:325). Lehmann's theory has not gained wide acceptance because of its own inherent phonological inconsistencies (see Connolly [1983:326] for a summary); indeed, Lehmann himself admits that "this hypothesis has been generally received with skepticism" (1965:218). However, on the basis of some recent research of his own, Connolly (1983) has attempted to make revisions in Lehmann's original proposal so that a laryngeal explanation is more tenable. Still, it is clear that Connolly's modifications have little to offer those scholars who accept a more conservative view of the role laryngeals played in Indo-European and the early dialects, especially those who believe, along with Szemerényi (1967:95), that "there is *only one laryngeal* [...], the glottal fricative *h*". Moreover, Connolly (1983:338) admits that his approach "has no applicability at all to the ON and OE *r*-preterites"; its relevance is limited to Old High German.

In the spirit of Connolly (1983), I, too, feel that an older theory can be 'rehabilitated' in the light of new analyses. Specifically, the theory of mine outlined above permits the establishment of an etymological relationship between the *r*-element of these German preterites and the sigmatic marker of the *s*-aorist, as Knoblauch (1852), Schmidt (1877), Streitberg (1896:281), and Brugmann (1904b:541) have proposed.¹² This is not to say that Germanic lost a fully developed *s*-aorist formation whose existence is implied by the *r*-preterites (cf. Brugmann 1904b:538); I fully subscribe to Watkins' view (1962:101-102) that

the classical sigmatic aorist must be a late phenomenon. It appears only in part of the Indo-European dialects, and there is no reason for supposing that it was ever developed in others, e.g., Baltic or Germanic. Chronologically the creation of a sigmatic aorist must be an innovation of late, dialectal Indo-European, which was completed only after the complete separation of these dialects;

(cf. Kerns & Schwartz [1971:15], Burrow [1973:339], and Adrados [1981a: 97]). Indeed, it is probably the case that the entire aorist category itself is a late, dialectal development which never evolved in Germanic or Anatolian (cf. Meid [1975] and Polomé [1982b:15-16]). Thus, in my opinion, the Germanic *r*-preterites and the classic sigmatic aorists have a common origin in an Indo-European sigmatic preterite (< non-present) construction which failed to become productive in Germanic. As I argued above, at the time of the emergence of the *s*-aorist, the aorist category itself had come to express past time

(Lehmann 1974:190), allowing for the incorporation of the preterite sigmatic construction into the existing aorist system of some dialects. However, Germanic, which obviously would have inherited the sigmatic non-present formation, merely specialized it as a simple preterite construction in a manner similar to Hittite (e.g., *daiš*), without its incorporation into the aorist system. I believe the *r*-preterites to be relics of this specialized construction, which was never fully developed and generalized in Germanic because of the ensuing productivity of the functionally parallel dental-stop preterite. Unlike many dialects where sigmatic non-presents "became so popular [...] that they were set up even where older aorists were already in use" (Kerns & Schwartz 1971: 15), Germanic shows a divergent development.

It is interesting that even the few attested relic sigmatic preterites which happened to survive in Northwest Germanic were subject to integration into the productive preterite system. Because in Germanic both the strong preterite and the weak preterite were functionally equivalent to sigmatic preterites, these latter irregular forms show some variety in the ways in which they were remodeled on the basis of regular ones. Thus, Lehmann (1952:56) notes in regard to attested *r*-preterites in Old High German: "[...] we find in addition to the *r*-preterite, regular preterite forms, some of them weak, for these verbs". Moreover, Einarsson (1949:104) points out that Old Norse *r*-preterite verbs "take the endings of the weak preterites", in contrast to the corresponding Old English verbs, which take strong endings.

When the Germanic *r*-preterites are viewed in the context of my theory of the origin of 'the *s*-aorist', then the objections to the hypothesis that the *r*-element is relatable to the sigmatic-aorist marker disappear.¹³ Lehmann's first argument against the latter theory is that "we have no other evidence that an *s*-aorist was ever found in the Gmc. languages" (1952:57). However, my analysis supposes that although Germanic never developed an *s*-aorist, it most certainly inherited the 'material' from which an *s*-aorist was constructed in other dialects. Indeed, Germanic clearly shows a completely parallel construction to 'the *s*-aorist' — the dental preterite, which ultimately came to displace it.

Moreover, he says that "proponents of this explanation [...] must further explain the *r* of the pret. ptc." (1952:57). But if the sigmatic preterite was developmentally and functionally parallel to the dental preterite, which developed a corresponding preterite participle, then it would be expected that preterite participles in **-s-* should likewise be found. Finally, also in reference to preterite participles, Lehmann (1952:57) maintains that supporters of

the sigmatic theory "may assume spread by analogy in the form [OHG] *erscrirena*, but we have no evidence that *r*-preterites were made from [OHG] *spiwan* from which the *r* may have spread to *perspien*." Yet, if one assumes that the sigmatic preterites were gradually eliminated through the analogical extension of dental and strong preterites, then the posited development of a participle in **-r-* without a corresponding *r*-preterite is not unexpected. Indeed, such a 'mixing' of preterite types in the paradigm of a single verb is attested in the Modern English verb *swell*. For some speakers, the original strong preterite participle *swollen* is preserved, while the original strong preterite *swole* has been replaced by the weak form *swelled*. Thus, an irregular (from the standpoint of Modern English) strong preterite participle stands beside a productive weak preterite, although a weak preterite participle *swelled* does continue to gain popularity among speakers.

2.4.2 The Origin of the West Germanic Second Person Singular Verb Ending -st

In Old English two suffixes are attested in the indicative present of the second person singular of all verbs — *-s* and *-st* — with these same two desinences also appearing in the indicative preterite of the second person singular of weak verbs (*-des*, *-dest*). "The forms in *-s* frequently prevail in the older texts, almost to the exclusion of others, but are afterwards supplanted by those in *-st*" (Sievers 1970:258). According to traditional theory, the source of *-s* is PG **-z(i)* (< IE **-s(i)*), which in West Germanic "had become exceptionally unvoiced to *-s* in the 2 sg. ending and [...] survived in final position" (Fullerton 1974:87). There is also general agreement that

-the ending *-st* arose partly from analogy with the preterite-present forms *wast*, *pearft*, *scealt*, etc. and partly from a false etymological division of the pronoun and the verb to which it was often attached enclitically, thus *birispu* became *biristu*, from which *birist* was extracted as the verbal form (Wright 1925:256).

An identical process of reanalysis is ascribed to Old High German since both *-s* and *-st* are attested there as well in the second person singular present function of all verbs (e.g., *bintis*, *bintist*) and in the second person singular preterite function of weak verbs (e.g., *sagētōs*, *sagētōst*) (Wright 1925:256). As Russ (1978:114) says:

In later OHG the ending *-st* appears for the second person sg.; this is probably the result of a wrong division of the inverted verb plus personal pronoun in the interrogative construction, e.g., *gibistu?* = *gibis du?* From this form *-st*

instead of *-s* was incorrectly separated off and used in non-interrogative sentences, e.g., *du gibist*.

But recently some dissatisfaction with this traditional explanation of the origin of *-st* has been appearing in print. King (1968:260) tersely dismisses it as "strictly ad hoc with no basis in available fact", while Fullerton (1974:88) asks "how *p* becomes *t*, i.e., *bindis + pu > bindistu*. In Old High German, [...] the unconditioned reflex of *p* is *d*. Why is the OHG ending not *-zd(u)*, with revoicing of *s* before voiced *d*? Or, if *p* became *d* prior to rhotacism, why should not *-zd(u)* appear as OHG *-rd*, e.g., **bintird*?" Although King (1968) avoids the question of the origin of *-st*, he does maintain that it is "clearly a secondary development" (1968:247). Fullerton (1974) attempts to explain its origin by incorporating the traditional hypothesis into a broader generative phonological analysis of Grimm's Law. However, on the basis of my theory of the origin of the verbal desinences **-s* and **-t* in Indo-European, I want to suggest that *-st* represents an ancient suffix dating to the Indo-European period, not a West Germanic innovation.

I should point out that I am not ignoring here the historical existence of forms which show the coalescence of the second person singular pronoun with verbal elements, "especially often in the formula *wēn(e)stu*, *wēnsðu* from *wēnan*, 'think'" (Sievers 1970:258), cf. also OHG *gilaubistu* "do you believe?" (Fullerton 1974:100). However, I would consider them to be just sporadic enclitic formations, not later-occurring parallels to the formation whose supposed reanalysis brought the suffix *-st* into existence (cf. Fullerton 1974:100). In other words, *-stu* derives from **-st-pu*, with **-tp-* passing to *-tt-* (cf. Brunner 1965:163), which then becomes **-t-* in the rapid style that produces enclitic forms (cf. Rubach 1977:80),¹⁴ while *-spu* represents a hypercorrected variant of *-stu* (< **-st-pu*).

Actually, the idea that West Germanic *-st* is an inflectional archaism is not new. Krause & Thomas (1960:258) propose an etymological connection between certain Tocharian second person singular preterite endings and a number of other dialectal desinences, including the West Germanic suffix under consideration: "B *-sta* [A-*št*] enthält eine Verbindung der idg. Sekundärendung *-s* mit der [perfect] Endung *-tha* [...]" (vgl. etwa gr. *éphestha*, corn., mbrit. *cares* (< **carestha*) 'du liebtest', ahd. *neritōs(t)* usw." Unfortunately, Krause & Thomas provide no real explanation of these data beyond positing a common contamination of suffixes. My theory provides such a coherent explanation for these dialectal correspondences. WGmc. *-st*

results from the contamination of two functionally equivalent non-personal markers **-s* and **-t* (with several sandhi variants), a contamination already alluded to above.¹⁵ The contamination was motivated by the fact that these two markers were competing to replace a still earlier non-personal marker in **-Ø*. Because of its rather late appearance, **-st* was specialized in various ways in the individual dialects. For example, in Hittite, Tocharian, and Celtic, it is attested in the active preterite (the Celtic suffix actually marks the imperfect, which "denotes [...] repeated or customary action in the past" [Lewis & Petersen 1961:268]), while in Latin it is found in the perfect. In Greek it serves (originally) as a marker of the perfect (*-stha*) and the present/imperfect middle (*-sthe*, *-sthon*, *-sthān*). Although the elements with which **-st* itself was subsequently contaminated may explain such variant specializations, it should be kept in mind that the Indo-European dialects frequently show divergent utilizations of the same formant. A classic example of this phenomenon involves the oblique case-marker (< deictic particle) **-bh-*, which in Indo-Iranian appears as an indicator of the instrumental plural (Skt. *-bhis*, Avest. *-bīš*, OPers. *-bīš*), the dative and ablative plural (Skt. *-bhyas*, Avest. *-byā*), and the dative, ablative, and instrumental dual (Skt. *-bhyām*, Avest. *-bya*, OPers. *-biyā*), while Homeric Greek attests it (*-phi(n)*) as a marker of the ablative, instrumental, and locative in both the singular and plural numbers. Armenian shows the ending *-b* (*-w* in post-vocalic position) in the instrumental singular and *-bkh* (*-wkh* in postvocalic position) in the instrumental plural. In the Italic and Celtic groups, reflexes of **-bh-* serve generally in the plural function of the dative and ablative cases, although traces of their use in the dual are attested in Irish (Lat. dat.-abl. pl. *-bus*, Osc. dat.-abl. pl. *-fs*, OIr. dat. pl. *-b*, OIr. dat. du. *-b*). The late appearance of this inflectional element also contributed significantly to its different dialectal functions (cf. Shields [1982a:50-52] and Markey [1979:66]).

Of course, the West Germanic suffix in **-st* must have originally possessed a final vowel sound, or the consonant **-t* would have been lost. Although the original identity of this vowel cannot be definitively known, the frequent occurrence of **-a* in cognate suffixes makes this a likely candidate. The Hittite ending *-šta* can be derived directly from **-sta*, as can the Tocharian desinences *-sta* and *-št* (cf. Van Windekens 1976:132), the Celtic suffix *-s*, and the Greek ending *-stha*. Even the Old Church Slavonic aorist suffix *-stŭ* can be derived from **-sta* (see Adrados [1975:622] for a similar phonological explanation of *-stŭ* < **-sta* < ***-sto*). As far as the origin of **-a* itself is concerned, I would propose that it is the deictic particle

**a*, which became enclitically attached to the marker *-*st*. Since the dialectal forms in *-*sta* function primarily as preterites or perfects (two closely related grammatical categories, cf. Lehmann [1974:189-190]), the non-present signification of **a* is contextually appropriate. Ironically, in Germanic *-*sta* is attested in both present and past formations. However, this development is easily explained. The same changes which generally blurred the distinction between primary and secondary endings in Germanic also worked against the limitation of *-*sta* to past function. Once the *-*a* of the suffix was lost through phonological change, any overt marking of its temporal role disappeared, making it a candidate for analogical generalization, especially since in the past formations where it originally appeared the dental element became responsible for marking the past tense. In such formations, -*st* (< *-*sta*) looked merely like a personal indicator; and it was subsequently analyzed as such.¹⁶

Before concluding this discussion of WGmc. -*st*, I must emphasize that the relative rarity with which -*st* is attested in the earliest English (and Old High German) texts in no way implies that it constitutes an innovative form. To be sure, the number of very early English texts is extremely limited (cf. Campbell 1959:4-11); and therefore they may not actually reflect the true linguistic situation at the time of their appearance. In fact, there is significant variation in early texts regarding the degree of occurrence of -*st*. As Campbell (1959:301) says: "VP [*Vespasian Psalter*, mid-ninth century] has -*st* [...] in monosyllabic forms, e.g., -*sist*, -*fōest*. eW-S [Early West Saxon, from the mid-ninth to mid-tenth century (cf. Campbell 1959:8-9)] has already always -*st* [...]. Ru. 1 [the Mercian part of the *Durham Ritual*, tenth century] has both -*st* and -*s*".¹⁷

Moreover, it is quite possible that an inherited suffix -*st*, which existed as a secondary morphological marker in early Old English (and early Old High German), simply evolved into the primary marker of the second person singular in later stages of the language. As a parallel to what may have happened in the case of -*st*, I would mention the development of *do*-questions (e.g., *Does he go there?*) and inversion-questions (e.g., *Goes he there?*) within the Modern English period. Early Modern English shows both types, with the former representing a rare variant. But between 1650 and 1800, this originally secondary formation eliminated the originally primary inversion-question formation (cf. Hook 1975:200).

2.4.3 *The Origin of the Copula *es-*

It is, of course, a well-known fact that the paradigm of the verb *to be* in Common Indo-European was suppletive in nature, with the roots **bhew-* and **es-* serving as bases for the paradigm. Although the nature and the distribution of both roots are fairly well understood in regard to that stage of Indo-European reconstructed by the comparative method, the original function of the root **es-* in Pre-Indo-European is not nearly so uncontroversial or complete. In my opinion, it is no coincidence that the verbal root **es-* and the deictic particle in *(*e*)/*s* are homophonous. I want to propose that this verbal root may very well derive etymologically from an earlier demonstrative/deictic *(*e*)/*s*. Although Benveniste (1971c) has claimed a pronominal source for **es-*, he does not make an explicit proposal in the context of a coherent theory about early Indo-European pronominal and verbal structure. I wish to make such a proposal on the basis of my reconstruction of the nature and sources of early Indo-European conjugation.¹⁸

I have already established that deictic particles frequently evolve into demonstrative pronouns and have argued that the deictic *(*e*)/*s* is attested in the demonstrative stem **so-*, the zero grade of the deictic in probable contamination with the deictic particle *(*e*)/*s* (i.e., **s* + *(*e*)). Although the *e*-grade of this deictic is not attested in demonstrative function in the dialects (unless one prefers to analyze nominative singular demonstratives like Osc. *es-īdum*, Umbr. *es-to*, etc. as **es-∅* rather than **e-s*), it is not difficult to assume that it once existed and that the zero grade came to be generalized at a later date. In Shields (1982a:21-40, 1986), I maintain that early Indo-European "possessed only two case categories — a nominative and an objective. In the animate nouns, the marker of the nominative was **-∅*, cf. Kurylowicz (1964:197-198), and that of the objective was **-N*" (Shields 1986:12). This **-∅* marker of the nominative in noun declension was, of course, 'homophonous' with the marker of the second/third person in verb conjugation.

The process which I would like to suggest whereby the demonstrative/deictic stem **es* came to assume a copulative function, in addition to its demonstrative/deictic one, is a direct result of what Brugmann & Delbrück (1900:117-121) call 'Ellipse der Kopula', or what today is generally termed 'copula deletion'. Lyons (1971:322) describes this phenomenon as follows:

It is a well-known fact that in many languages the sentences [...] *Mary is beautiful* and [...] *Mary is a child* would take the form 'Mary beautiful' and 'Mary (a) child'; that is to say, the predicate adjective or noun would be combined directly with the subject-noun without a copula. Even in the Indo-European languages the

copulative function of 'the verb *to be*' appears to be of secondary development [...]. [This] is illustrated by contemporary Russian: *Marija krasivaja* ("Mary is beautiful") and *Marija rebēnok* ("Mary is a child"), where *krasivaja* is the feminine form of the adjective in concord with *Marija* and *rebēnok* is a noun (in the nominative case). In Latin and Greek 'the verb *to be*' was optional in such sentences. However, if we put them in the past tense (or in some other mood than the indicative), they would necessarily have the appropriate form of 'the verb *to be*' in Russian (*byla*, *budet*, etc.), and also in Latin (*erat*, etc.) and Greek (*ēn*, etc.).

Brugmann & Delbrück (1900:117-121) note that copula deletion is attested in Indo-Iranian, Germanic, and Baltic, as well as in Italic, Greek, and Slavic, although in Slavic and Baltic such deletion is preferred rather than merely optional. The exact degree to which the rule of copula deletion operated in early Indo-European is not relevant here; it is necessary only to emphasize that the ellipsis of the copula was a frequent (though not invariant) phenomenon under the conditions just described.

I assume that in early Indo-European the verbal root **bhew-* was generally employed in both the copulative and the existential functions of the verb *to be*, although from an early date it may have been the case that "other roots, meaning 'remain, stay', 'stand', or 'sit', [...] furnished some of the forms" of the copula (Buck 1949:635). I also believe that the demonstrative pronoun/deictic particle **es* was used in an identical fashion to anaphoric *that* in topic-comment constructions like the following:

Seeing him happy, that is the puzzle.

According to Lehmann (1974:156-158), such topicalized structures are common in the early dialects and must be assumed for the parent language. Moreover, when **bhew-* was employed as a copula, it was frequently deleted. Because of the frequent deletion of the copula in sentences of this type, the demonstrative/deictic **es* came to be interpreted as a third person (singular) verb form. Simply,

*Seeing him happy, that [*es] is [*bhew-] the puzzle* >

*Seeing him happy, ('that') is [*es] the puzzle.*

In other words, what can be seen here is a case of what Anttila (1974:6) calls "surface ambiguity" [or opacity], which is the traditional name for a situation characteristic for an invitation to reanalysis". Anttila (1973:8-9) presents "a clear traditional example of [this process] from the history of Finnish":

At the time of the final *-m's* we had sentences of the type

<i>näe</i>	—	<i>m poja</i>	—	<i>m mene-vä</i>	—	<i>m</i>
see		I boy		acc. go-ing		acc.

"I see the boy go"

where the participle agrees in number and case with its head (*boy*). Then final *-m's* were replaced by *-n's* through sound change and we get a sentence *Näen pojan menevän*, where the previous grammatical rules operate as well as before. Now, however, the surface is ambiguous, because the accusative merged in form with the genitive *pojan* "of the boy". And indeed, somebody reinterpreted this accusative as a genitive. This is an abduction that would not show anywhere as long as the original distribution is not transgressed. The abduction surfaces in the new plural, which takes on deductively the genitive:

<i>Näen</i>	<i>poik</i>	—	<i>i</i>	—	<i>en</i>	<i>menevän</i>
I see	boy		pl.		acc.	go

for the old *Näen pojat menevät* [...]. The participle has thereby cut loose from the paradigm and become an uninflected infinitival form.

In the case of the Indo-European root **es-*, the surface ambiguity (opacity) results from the fact that many sentences did appear with a phonologically realized copula and that the original marker of the third person singular in the Indo-European verb was **-ø*. That is, Indo-European speakers, being familiar with sentences containing copula verbs and with the use of **-ø* as the indicator of the (second-)third person (singular), simply reinterpreted the demonstrative **es* "that" as **es-ø* "that is" (a copula), with **-ø* representing the inflectional marker of the non-personal, not the nominative case ending **-ø*. After **es* came to be established as the (second-)third person copula, its use spread analogically to the first person (cf. Benveniste 1971b).

It is significant that Li & Thompson (1978) cite evidence from Mandarin, Hebrew, Palestinian Arabic, and Wappo "to show that one possible source of the copula morpheme in predicate nominal sentences is an anaphoric pronoun, with the mechanism of change involving a reanalysis of a topic-comment construction" (1978:419). For example, they argue that in Mandarin the copula *shì* "developed through the reanalysis of the topic-comment construction:

Topic		Comment		Subject		Predicate
NP		<i>shì</i>	NP	>	NP	<i>shì</i> NP

this/that referring to the topic" (1978:427).

The typological plausibility of my proposal thus seems assured.¹⁹

One of the interesting consequences of this analysis of the origin of copulative **es-* is that it explains in a natural way the frequent observation that **es-* originally appears exclusively in present formations (e.g., Pokorny [1959:340]). Although **es-* gradually came to acquire full status as a substantive verb (in addition to its copulative function) (cf. Pokorny (1959:340), on analogy with its sister root **bhew-* and because of the natural tendency for a copulative to be generalized to express state or existence (cf. Cassirer 1955:

317), the restriction on the distribution of **es-* just noted is a result of its original occurrence only in those environments where copula deletion is possible (i.e., the present tense).

2.5 More on the Imperative: The deictics in **u*, **k*, and **(e)l* and their formations

I have already dealt with the origin of imperative formations in **-ø* and **-tôt/d*, emphasizing their place in the general theory being developed in this chapter. I now want to turn to some additional imperative (and related) constructions which result from the reanalysis of other deictic particles. Before I begin this discussion, I should reemphasize two important points already made in regard to imperative structures: 1) the imperative is closely related etymologically to the non-present, and 2) as a secondary formation, the imperative is frequently a 'dumping ground' for archaisms and forms which never became fully productive.

2.5.1 The endings of the imperative mood of the Hittite verbal system generally show an element *-u*, e.g., *mi*-conjugation (active): 1st sg. *-(a)llu*, 3rd sg. *-du*, 3rd pl. *-andu*; *hi*-conjugation (active): 1st sg. *-allu*, 3rd sg. *-u*, 3rd pl. *-andu*; *mi*-conjugation (middle): 1st sg. *-haḥaru*, *-haru*, 2nd sg. *-hut(i)*, 3rd sg. *-taru*, 2nd pl. *-dumat(i)*, 3rd pl. *-antaru*; *hi*-conjugation (middle): 1st sg. *-haḥaru*, *-haru*, 2nd sg. *-hut(i)*, 3rd sg. *-aru*, 2nd pl. *-dumat(i)*, 3rd pl. *-antaru* (cf. Friedrich 1974:77-78). The antiquity of this element is suggested by the existence of parallel Indo-Iranian affixes in *-u*: Skt. 3rd sg. *-tu*, Avest. 3rd sg. *-tu*, Skt. 3rd pl. *-ntu*, Avest. 3rd pl. *-ntu* (cf. Meillet 1964:236-237). It has been argued traditionally that Gothic shows a reflex of the imperative suffix **-tôt/d* with an affixed *-u* (3rd sg. *-dau* < **-ðōu* < **-tôt + u*, and 3rd pl. *-ndau*; cf. Wright & Sayce 1954:137-138), although I prefer to derive this Gothic ending from the addition of **-u* to the unhypercharacterized suffix **-tō*. Such an analysis avoids ad hoc explanations concerning the disappearance of the second dental phoneme. The **-u* itself has traditionally been identified as a particle of some sort (cf. Brugmann [1904b:557], Marstrand [1919:94], Wright & Sayce [1954:137], Thumb & Hauschild [1959:199], Burrow [1973:349], and Szemerényi [1980:245], even though a precise description of the original nature of the particle **-u* and an explanation of its occurrence in the imperative are omitted in all of the references just noted. To my mind, the **-u* attested in these imperative formations is the deictic **u* with 'there and then' meaning, attached to an original non-personal suffix **-ø* to indicate non-present function of some sort.

The morpheme sequence **-ø-u* was ultimately reanalyzed as **-u*, and this new desinence was subject to paradigmatic generalization and specialization as an imperative marker. The suffix **-u* in uncontaminated form is attested in the 3rd sg. imper. of the Hittite *hi*-conjugation, "e.g., *aku* (*a-ku*) from *ak-* 'die', *memau* (*me-ma-aú*) from *mema-* 'say', *tau* (*da-a-ú*) from *tai-* 'place'" (Sturtevant 1933:261). The importance of these forms in establishing the origin of imperative structures in **-u* was recognized by Sturtevant (1933:261) when he wrote: "The existence of the ending *u* in Hittite confirms Brugmann's conjecture that the Indo-Iranian ending *tu* is composite; his connection of the element *u* with the particle *u* remains problematic." Of course, the close association of the non-present and imperative categories provides the theoretical basis for the connection which both Brugmann and Sturtevant could only acknowledge. The suffixes **-Tu* and **-nTu*, attested in Hittite and Indo-Iranian, result from the contamination (paradigmatic extension) of **-u* with the non-personal marker **-T* and its plural counterpart, while the Hittite imperative system shows widespread generalization of the suffix **-u* to a variety of dialectally innovative suffixes. Apparently the suffix **-u* was a productive morpheme in Hittite and early became a relic in Indo-Iranian. In any event, the distributional parallels between the deictic **i* (e.g., **-i*, **-ti*, **-nti*) and the deictic **u* are striking.

In fact, I would argue for the existence of a contamination of the non-personal marker **-s* and **-u* which parallels the contamination of **-s* and **-i*. The Sanskrit second person singular (middle) imperative ending *-sva* is generally "considered to be the stem of the reflexive pronoun" (Burrow 1973:349); however, it is possible that it represents the verb ending **-s* in contamination with the imperative marker (< deictic particle) **-u*. The element **-o* (> Skt. *-a*) may be an occurrence of the non-present deictic **o* or a result of a later remodeling of **-su* based on the second person singular middle ending **-so*. Krause & Thomas (1960:259) very tentatively suggest that the Tocharian A 3rd sg. imper. *pāklyossū* may also show this same suffix and that this desinence is perhaps present in Mid. Welsh 2nd sg. subjun. *bych* as well, although Burrow (1973:349) strongly asserts that "a corresponding formation is found only in Iranian: *baraḡuḥa*".

I cannot conclude my discussion of the verbal element **-u* without acknowledging that an element **-u* is attested in other parts of the Indo-European verbal paradigm as well. It is a frequent marker of the first person, e.g., 1st du. act.: Skt. *-vas*, Avest. *-vahi*, Go. *-ōs* (primary); Skt. *-vā*,

Avest. *-va*, Go. *-u*, *-wa*, OCS *-vě*, Lith. *-va*; 1st du. mid.: Skt. *-vahe* (primary); *-vahi* (secondary).

Hittite contains a termination which is related to these forms, P. *weni*, S. *wen*, but it is used as a plural side by side with the rarer *-meni/men*. The most satisfactory explanation of this is that there existed originally in IE parallel formations beginning with *w* or *m* which were optionally used as I plur. ending. Hittite has preserved this state of affairs but restricted the use of the *men*-termination to stems in *-u*. The above-mentioned languages have kept both types of ending but specialized as duals the *w*-variety. About the remaining IE languages it is not possible to say anything owing to lack of evidence (Burrow 1973:310).

Erhart (1970:17) proposes that this alternation was morphophonemic in nature, with the morphophoneme which he reconstructs as $*M^2$ having been realized sometimes as *m* and sometimes as *w*. The variants of this morphophoneme found in the first person marker under consideration were morphologized (*m* = plural, *w* = dual) in the dialects of Indo-European Proper. Anatolian also seems to attest $*-u$ in the first person singular, cf. Hitt. 1st sg. pret. *-u(n)*, Lyd. 1st sg. pres. *-u(n)*, Luw. 1st sg. pres. *-w(i)*, Hier. Hitt. 1st sg. pres. *-wi*, as does Tocharian, cf. Toch. 1st sg. pret. A *-wā*, B *-wā*, 1st sg. mid. A *-we*. In my opinion, the first person marker $*-u$ is indeed to be related to the imperative marker $*-u$, even though it would seem incongruous for a deictic particle with 'there and then' signification to be used to indicate first person function — a function associated with 'here and now' deixis. However, two points must be kept in mind. First, the emergence of the opposition between personal (first person) and non-personal (second/third person) occurred quite early in the evolution of Indo-European verbs; and second, through time deictic particles can lose some of their deictic force. At the time of the emergence of the personal category, $*u$ probably had 'here and now' deixis and therefore became a natural candidate to mark first person. On the other hand, by the time that the deictic particle $*u$ again came to be incorporated into verbal paradigms, it possessed 'there and then' value. As noted above, the deictic particle $*k$ seems to attest this same shift in meaning, since it shows a different deixis in different dialects.

Moreover, a *u*-element is attested in the perfect. Burrow (1973:343-344) says:

Instead of the normal endings [Sanskrit] roots in *ā* terminate in *-au* in the I and 3 sg. of the active: *dadaú*, *dedhaú*, *tasthāú*, *ajāñāú* from *dā-* "give", *dhā-* "to

place", *sthā-* "to stand", *jñā-* "to know" (for IE $*dedōH-u$, etc., with *vrddhi* before laryngeal). The final *u*-element, which appears here in place of a personal termination, is found also in Latin, incorporated into certain perfect forms: *nōvīt* "knew", cf. Skt. *ajāñāú*; *plēvīt* "filled", cf. *paprāú*.

In fact, Markey (1979) ascribes to Indo-European a 'u-perfect'. He says:

Postulation of an IE 'u-pft.' is based on the presence in Germanic, Italic, Indic, Armenian, Tocharian, and Anatolian of a segmentable *-u* element in the formation of the perfect (Arm. aorist mediopassive, Hitt. pret., Luw. pres.), primarily in the 1st and 3rd persons singular of *Tē*-roots, cf. Skt. *ajāñāú*, Lat. *(g)nōu-i*, OE *cneow* (*cneowan* infin.) and note *-u-* as the regular 3rd sg. ending of the mediopassive aorist in Armenian: *cneow*, beside isolated *etew*. Finally, note its presence in the 1st sg. pret. in Toch. A *prak-wā*, B *prek-wā*, beside the isolated corresponding middle (A) *yāmwe*, as well as in Anatolian, i.e., Hitt. 1st sg. pret. *-u(n)*, Luw. 1st sg. pres. *-u(-i)* (1979:68).

Because of the great divergences in dialectal distribution and function of the suffix $*-u$, I am reluctant to reconstruct a formal *u*-perfect for Indo-European. Also, because I see some of the dialectal forms cited by Markey as attesting instances of the personal marker $*-u$ (specifically, the Anatolian and Tocharian suffixes), I am in disagreement with his general assessment. However, I do believe that in very late Indo-European Proper, as the perfect (and the aorist) assumed a preterite value, the deictic particle $*u$ "there and then" was incorporated again (for the third time) into verbal formations as a means of hypercharacterizing the preterital meaning of the perfect (and aorist, in the case of Armenian). Even Markey (1979:68) himself admits: "The fact that the 'u-pft.' is found in such widely separated dialects suggests that it is sporadic, phonologically conditioned, and an innovation subsequently morphologized in some dialects." In short, its appearance was largely dialectal — the proto-language provided only the 'stuff' of which it was made.²⁰

2.5.2 Among the traditional etymological puzzles posed by the Hittite system of verbal inflection is the first person singular imperative suffix *-lu*. Despite the appearance of a wide variety of proposals concerning the Common Indo-European etymon of this inflectional element (see Solta [1970:44-48] for a summary of scholarship), none has represented, until recently, a truly convincing alternative to Petersen's early assessment (1932:193) of this desinence as one "which suggests nothing whatsoever in other IE languages." That first plausible demonstration that cognates do indeed exist in Indo-European Proper

was made by Georg Solta (1970). Specifically, Solta (1970:82-83) argues: "Der Imperativ auf *-lu* aber gehört unbestreitbar in die Kategorie der idg. *l-*-Bildungen desiderativen Charakters, bei dem höchstens die Beschränkung auf die 1. Person auch den Einfluss einer fremden Sprache, des Hurritischen, zeigen könnte." Solta (1970:47-48) identifies a desiderative element **-l-* in Hittite, Indic, Greek, Armenian, Latin, Germanic, Tocharian, Baltic, and Slavic (cf., e.g., Skt. *śayālu-* "sleepy"). Although I accept the basic outlines of Solta's etymology, I feel that the source of the 'desiderative' element **-l-* itself is the non-present deictic particle **(e/o)l*, incorporated into the verbal system in the same manner as other deictics, i.e., as **-ϕ-(e/o)l*. This structure was reanalyzed as **(e/o)l-ϕ* and **(e/o)l*, the former eventually giving rise to a derivational suffix with desiderative value in various Indo-European dialects, the latter giving rise to an inflectional suffix with imperative value only in Hittite. Of course, the reconstruction of a derivational suffix with desiderative character (or implication) should in no way be construed as a claim that Indo-European possessed a fully grammaticalized desiderative modal category like the sigmatic one attested in Sanskrit (cf. Adrados [1971:114] and Lehmann [1974:105-106]).

The semantic association of the imperative and non-present categories has already been established. As I suggested in my discussion of the origin of Indo-European sigmatic constructions, a similar semantic connection exists between desiderative and non-present meaning. Because the non-present embraces the notion of 'inherent uncertainty' (Ulan 1978:105), it bears a natural affinity to the concept of 'wish'.

Once the reanalyzed suffix **-l-* was generalized to the first person and was specialized as a desiderative element in the verb, it then spread as a derivational suffix from the verb to other classes of words, where it tended to undergo further specialization. In fact, it frequently underwent significant changes in signification, e.g., becoming an exponent of *nomina agentis* (Lat. *figulus* "potter"). Indeed, Solta (1970:83) notes that "Die desiderative Grundfunktion ist im Ind., Griech., Arm., Lat., Germ. deutlich zu fassen"; elsewhere it has shifted to a large degree.²¹ (See Solta [1970] for a very detailed summary of these developments.) Such secondary specialization and semantic shifting is probably a result of the element **-s-* becoming associated with desiderative function. Apparently Hittite also shows traces of this derivational element **-l-* since, e.g., "wenn wir die Frage aufwerfen, ob im Hethit., Belege für die adjektivische bzw. substantive *l*-Bildung auf deverbalen Grundlage also Reflexe des Typus *bibulus*, *figulus* erhalten sind, so kommt

zunächst das Formans *-ala-* in *Betract*", cf. Hitt. *appala-* "net" (Solta 1970:80-81).

Again, the reanalysis of **-ϕ-(e/o)l* as **-l* explains the origin of the Hittite first person singular suffix *-lu* with inflectional function. Like Solta (1970:46n.7, 82-83), I believe that the specialization of the inflectional **-l* in the first person is a result of the influence of a phonologically similar suffix in *-l* with imperative force in Hurrian (cf. Speiser 1941:154-155). The *u*-element of the ending *-lu* simply represents the imperative suffix **-u*, added to **-l* as a way of hypercharacterizing the imperative value of the latter desinence. In closing, it should be recalled that although many dialects show evidence of both derivational and inflectional reanalyses of the deictic particle **(e/o)s*, only Germanic attests both for **(e/o)T*. In the case of **(e/o)l*, it is Hittite alone that shows evidence of both reinterpretations.

2.5.3 In Section 2.1.6, I reconstructed a deictic particle in **k*, noting that the original deictic force of **k* seems to have been 'Ich Deixis', as the Armenian and Hittite data indicate, although the dialectal evidence generally points to 'Dieser-Deixis'. I concluded that, in the history of late Indo-European, **k* shifted its primary meaning to 'Dieser-Deixis' from its original 'here and now' deictic force. In my opinion, it is this deictic particle **k* with reduced deictic force which is seen in the Lithuanian imperative suffix *-k(i)*.²² One may perhaps object, however, that deictic **k* was subject to the satem palatalization in Pre-Baltic, as Lith. *šis* (< **ki-*) implies. But the palatalization of **k* here is a result of the fact that in Indo-European the [k̑] allophone of the phoneme **k/* appeared before a following front vowel (cf. Allen 1978:101) and that this allophone was subject to the satem palatalization.²³ In absolute final position, the tendency to palatalize was not as great, although I must admit that "unmotivated conversions of velar to palatal" (Allen 1978:104), i.e., the palatalization of non-fronted allophones of **k/*, are attested. Still, the suggestion that the deictic particle **k* is realized in Lithuanian as both *š* and *k* is in keeping with the existence of other such palatalized and non-palatalized doublets in Baltic and Slavic, "e.g., OCS *kloniti*, *sloniti*, Lith. *klānas*, *šlānti*; [...] Lith. *kleīvas*, *šleīvas*; Lith. *gliūti*, *žlibti*; *kliūkti*, *šliaūkti*; *glėgžnas*, *žlėgžnas*" (Kortlandt 1978:240; cf. Shields 1981:211).

Of course,

In Lithuanian now the usual (for the second and first person) imperative forms are made from the infinitive stem with the particle *-ki*, e.g., second person sg.

imperat. *eĩk(i)* "go" (cf. Lat. *i* "go"), second person plur. imperat. *eĩkite* (dual *eĩkita*), first person plur. imperat. *eĩkime* "let's go" (dual *eĩkiva*),

while in the third person imperative of Modern Lithuanian "generally the particle *te-*, *tẽ-gu-* (*tegũ-*), *tẽgul-* (*tegũl-*) is prefixed to [the] indicative form", e.g., *tẽperka* "may he buy" (Endzelins 1971: 242). But "in the oldest Lithuanian texts there occur imperative forms of the third person in *-k* or *-ki* alongside of second person singular forms in *-k* or *-ki*", e.g., *Buk walia tawã kaip Dangui taip ir Szeme* "May your will be both in heaven and on earth" (Ford 1970:71-72). (Ford [1970:74] argues convincingly against Stang's view [1929:177] that the third person singular imperative forms in *-k(i)* are a result of Polish influence.) This third person suffix *-k(i)* eventually "was replaced [...] by the permissive formation with *te-*", which "does not occur in the oldest Lithuanian manuscript text" (Ford 1970:74). The secondary nature of the *-i* component of the ending is demonstrated by its optional use. *-ki* probably originated from a contamination of *-k* with an imperative marker *-i*. Endzelins (1971:243) points out that "in old Lithuanian texts and in dialects here and there we find second person singular forms with *-i* which have the meaning of an imperative", e.g., *vedi* "lead".

If the Lithuanian imperative suffix *-k* is assumed to derive from the reanalysis of an old second/third person non-present construction in **-ø-k* (> **-k*), then the original unity of the second and third persons naturally explains the "very strange" fact "that the same formant *-k(i)* should serve for both the second person singular and third person singular imperative" (Ford 1970:71). From the second/third person, **-k* was extended to other members of the verbal paradigm, as suffixes like Lith. *-kime* attest. Moreover, if one assumes that Lith. *-k(i)* derives from an original non-present formation, then it is easy to explain its relationship to other dialectal verbal constructions in **-k*. As Markey (1980:290-291) observes, "the *k*-enlargement is found in Tocharian, Italic, Venetic, Greek (also Mycenaean), and Phrygian", and in each of these dialects it is "initially preterital (perfect, aorist)", e.g., Gk. (perf.) *dẽdorka* "I have seen", while Kerns & Schwartz (1971:14) do indeed note the possibility of an etymological relationship between the Greek 'first perfect' and "the *k*-extension of the Lith. imperative". In late Indo-European, as the aorist and perfect were shifting to preterite meaning, I believe that non-present verb forms in **-k* were integrated into the perfect and aorist systems of some dialects, although the late date of this integration results in much dialectal variation in the way the adaptation proceeded. Lithuanian shows a somewhat greater divergence from other dialects in its unique specialization of non-

present formations in **-k* in imperative function, but this specialization is quite consistent with the evolutionary trends in Indo-European in particular and human languages in general.

2.5.4 I cannot conclude this discussion of *k*-formations without considering the Umbrian perfect suffix **-nky-*, which is attested in this dialect in the form *-nši-* (*-ns-*, *-nç-*), cf. *purdinšust* < **por-di-nky-ust* "he will have given forth, presented", *combifianšust* < **combifi(fi)š-nky-ust* "he will have given notice, announced". This affix has recently been the subject of a very reasonable etymological analysis by Markey (1985), based on some of his previously published theories (1979, 1980). In short, he argues that "the uniquely Umr. *-nky*-perfect is distinctly an oddment, but one with a traceable [...] history. What we have here is a reduced form of a radical that figured prominently in denoting the aorist of verbs of motion, particularly so in Celtic, or so it appears [i.e., **enek-* / **enk-*]" (1985:267).²⁴ Of course, my own theories lead me to a very different assessment of its etymology. It is my contention that Umbrian **-nky-* is in origin, though not in attested function, an archaic structure with Indo-European sources.

It seems to me that the nasal element of this Umbrian perfect suffix reflects the reanalysis of **-ø-(e/o)N* (second-third person marker + non-present deictic **-(e/o)N*) as **-N-ø*. The close semantic relationship between the non-present signification of this formation and the meaning of the late Indo-European perfect made it a likely candidate for inclusion there. The element **-ky-* appears to have been a reflex of the original deictic in **ki*, used to hypercharacterize the non-present semantic value of verbal forms in **-N-*. In other words, **-N-ø* probably first became **-N-ø-ki*; and then this latter hypercharacterized formation itself underwent reanalysis as **-nky-ø*. Thus, Umbrian differs from the other dialects identified above which attest *k*-formations only by showing the contamination of two non-present deictics, **(e/o)N* and **k(i)*, instead of **k(i)* alone. It is interesting to note that as far as the Greek *k*-perfect is concerned, "there is only one Homeric perfect not preceded by a long vowel, namely *deĩdoika*" (Sturtevant 1940:276) — a fact that has been difficult to explain. However, if within Indo-European **-ŷN* (short vowel + nasal) passed to **-ŷ* (long vowel) in preconsonantal sandhi position, and the latter variant was subject to analogical extension, then perhaps the Greek *k*-perfect with its immediately preceding long vowel results from an original contamination of **k(i)* with the preconsonantal sandhi variant of **-ŷ* (stem-final vowel) and **-N* (deictic particle) (> **-ŷ*). Such non-

present formations in $*-\bar{v}-k(i)$ were then analogically extended (cf. Buck 1933:289-290).²⁵ Although this hypothesis is, admittedly, offered only as an afterthought, if it is correct, then Greek attests a direct formal parallel to the Umbrian perfect suffix in $*-nky-$.

Chapter III

The Origin of the Non-Singular Category

The emergence of the inflectional category *non-singular* in the Indo-European verb parallels the emergence of this category in nouns, for the same markers are attested in both form classes. Three inflectional suffixes — $*(e/o)N$, $*(e/o)s$, and $*-i$ — were the primary exponents of the category, although some other elements, particularly $*-e$, were secondary markers. It is interesting that all of these endings are homophonous with certain deictic particles, but I leave open the matter of their ultimate etymological connections. Schmalstieg (1977c:145n.5) comments on the possibility of an etymological relationship between the suffixes of the plural and the inflections marking certain oblique cases, the latter obviously having deictics as their etyma:

The elements $*-N$, $*-i$, and $*-s$ may or may not have had an original etymological connection with the same phonemes when they functioned as case markers in the noun. Thus, for example, one can compare the usage of the English morpheme $-s$ which functions with both a plural and a genitive meaning, but for the average speaker of English there is no common semantic bond between the two functions.

In any event, it is probable that the non-singular markers derive immediately from enclitic quantitative adverbs, which gradually achieved full inflectional status and then tended to specialize in function (*dual* vs. *plural*) and distribution (e.g., $\bar{a}$ -stems vs. o -stems).

Before proceeding to a discussion of the appearance of these suffixes in verbal paradigms, I want briefly to establish their existence by focusing on their role in noun declension. Traces of the nasal non-singular desinence can be seen in certain Tocharian non-singular nominative plural forms, e.g., AB $riñ$ "cities"; B $pyäpyaiñ$, A $pyäpyañ$ "flowers"; AB $käntwāñ$ "tongues", A $yukañ$ "horses" (cf. Schmalstieg 1980:75). Moreover, all Tocharian nomina-

tive-accusative dual (paral, cf. Krause & Thomas [1960:76-77]) nouns are terminated in a nasal (e.g., A $-(\tilde{a})m$, B $-(\tilde{a})ne$) (Shields 1982a:64). $*-N$ is attested also in contamination with the non-singular ending $*-T$ (cf. Schmalstieg 1980:75-76) in the plural suffix $*-nt$: Toch. A $-nt$, $-ntu$, Toch. B $-nta$, Luwian $-nzi$ (nom.), $-nza$ (acc.-dat.). Since the collective is a secondary function of the non-singular (cf. Kurylowicz [1964:204] and Shields [1982a:63-64]), it is important to note that

in Hittite, Indo-Iranian, Slavic and perhaps in Greek, we find $-nt$ more or less clearly as a collective suffix according to Erhart [(1970:79)]. Sturtevant (1933: 70) cites such forms as $an-tu-uh-\tilde{s}a-an-na-an-za$ "people" as opposed to $an-tu-uh-\tilde{s}a-a\tilde{s}$ "man"; $ud-ne-ya-an-za$, $ud-ni-ya-an-za$, $ud-ne-e-an-za$, acc. $ud-ni-an-da-an$ "population" as opposed to $ud-ne-(e)$, $ud-ni-e$, $ud-ni(-i)$ "country" (Schmalstieg 1980:75).

In Shields (1977:61), I propose that the nasal in certain Sanskrit nominative-accusative neuter plural substantives like $bhūvanāni$ "worlds", $śúcīni$ "bright ones", and $vāsūni$ "possessions" is not analogically introduced from the n - and nt -stems but is this same non-singular affix. In addition, the o -, i -, and $ū$ -stem nominative-accusative dual endings $*-ō$ (Skt. $vṛk-ō$, Gk. $lúk-ō$ "two wolves"), $*-ī$ (Skt. $āv-ī$ "two sheep", Lith. $nakt-ī$ "two nights"), and $*-ū$ (Skt. $sūn-ū$, Lith. $sūn-u$ "two sons") are derivable from $*-oN$, $*-iN$, and $*-uN$, according to Schmalstieg (1973:147-151), while in Shields (1982a: 67-68) I argue that the neuter nominative-accusative plural desinences $*-ā$ (Skt. $yug-ā$, OCS $ig-a$ "yokes"), $*-ī$ (Skt. $śúc-ī$ "bright ones"), and $*-ū$ (Skt. $mādh-ū$ "honeys") likewise can be ascribed to the monophthongization of $*-aN$, $*-iN$, and $*-uN$.

In Shields (1982b:30), I maintain that the contamination of the sandhi variants $*-VN$ and $*-V$ also "produced a suffix in $*-V$, i.e., a form which shows the short vowel of the prevocalic variant and the loss of nasal evidenced in the preconsonantal variant, with the latter adopting the vocalism of the former." Such a remodeled affix is attested in the nominative-accusative dual suffix $*-e$ (cf. Gk. $mētēr-e$ "two mothers", Lith. (dial.) $žmun-e$ "two men", OIr. $rig < *rēg-e$ "two kings"), a contamination of $*-eN$ (e -grade of the thematic vowel + non-singular $*-N$) and $*-ē$ (cf. Skt. $pitār-ā < *-ē$ [Meillet 1964:297]). That $*-e$ became an independent non-singular marker is demonstrated by its appearance in the consonant-stems already cited and in the Tocharian B paral suffix $-an-e$ ($< *-o$, the o -grade variant, cf. Van Windekens [1979:243] and Shields [1985:194-196]).

The existence of a non-singular marker $*-i$ is clearly attested in such forms as Hitt. $kurur-i$ "hostilities", Gk. $khōra-i$ "lands", and Lat. $equa-e$ "mares". Sanskrit nouns like $vāsūni$ "possessions" and $bhūvanāni$ "worlds" contain $*-i$ in contamination with $*-N$. In Shields (1977:60) I maintain that the palatalization of the Tocharian plural suffix $-ñ$ is the result of the influence of a following non-singular desinence $*-i$. The latter two Sanskrit items also show the contamination of the original prevocalic variant of $*-VN$ and the preconsonantal variant $*-V$, yielding $*-VN$. As a dual marker, $*-i$ can be seen in items like Skt. $bālī-e$ "two maidens", OCS $rpc-ē$, and Lith. $rank-i$ "two hands" ($< *-a-i$). That $*(e/o)s$ functioned as a non-singular marker is easily demonstrated by dialectal plural forms like (nom.) Skt. $devās$ "gods", Go. $dagōs$ "days"; (acc.) Lat. $lupōs$, Lith. $vilkūs$ "wolves"; (nom.) Skt. $sunāvas$, OCS $synove$, Go. $sunjus$ "sons"; (nom.) Skt. $mātāras$, Gk. $mētēres$, OIr. $māthir$ "mothers".

3.1 The Third Person

It was emphasized earlier that dialectal evidence allows only the reconstruction of a non-singular verbal affix in the third person plural, implying the late emergence of the non-singular category in conjugation. This third person plural suffix is traditionally reconstructed as $*(e/o)nt(i)$, with the acknowledgement that the element $*-i$ is a still later addition. However, I believe that the original form of the Indo-European third person plural ending was $*(e/o)N$. Schmalstieg (1974:190) supports this same conclusion:

The Greek 3rd pl. active imperfect $ēpher-on$ is usually considered cognate with the Sanskrit form $ābhar-an$. It is usually assumed that in these forms a final $*-t$ has been lost both in Greek and Sanskrit, but the assumption is unnecessary. Both forms could reflect final $*-oN$, i.e. the thematic vowel plus the plural marker $*-N$. Likewise, it is usually thought that the OCS 3rd pl. aorist ending encountered in $(id-)p$ "they went" reflects Indo-European $*-ont$. Again the assumption of a final $*-t$ is unnecessary. An Indo-European final $*-oN$ would have passed to Proto-Slavic $*-uN$ which could have developed either into $*-u > -v$ or $-u = -p$. In this case the latter variant was chosen. (See Schmalstieg 1971:139-140.) Similarly, the Gothic 3rd pl. secondary ending $-un$ may reflect IE $*-N$ without a final $*-t$.

Schmalstieg (1976:25) additionally argues that "the older verbal ending $*-oN$ is preserved [...] perhaps in the Lith. nom. pl. pres. act. participle in $-p$, if this is an etymological 3rd pl. as Cowgill (1970) suggests" and that "the same thing seems to be true for the Tokharian B 3rd pl. $palk-em$ ($pālken-ne$) [...].

[T]he 3rd pl. ending *-en(-)* could be derived from Indo-European **-on(-)*" (1977b:295). Thus, I maintain that only the very late primary third person plural ending **(e/o)nti*, which results from a contamination of the old ending **(e/o)N* and the third person singular primary suffix **-ti*, shows the marker **-t*, while the secondary form of this suffix retains into the dialects the original form in **-N*. Of course, the contamination of the **(e/o)N* suffix and **-ti* served to hypercharacterize the third person function of the former desinence and to extend the primary/secondary dichotomy to the third person plural.

Now although Schmalstieg (1974:190) makes the reasonable proposal that the nasal element of the third person plural ending is a non-singular marker, it may have had a different original function. It could represent an original deictic particle with 'there and then' signification which only later came to be re-analyzed as a non-singular desinence. That is, a verbal structure in **-ϕ-(e/o)N* (non-personal suffix + deictic particle), already posited as the basis for the nasal in the Umbrian perfect suffix **-nky-*, was reinterpreted as **(e/o)N* (non-singular suffix). The specialization of this formation in non-singular function, which would have begun after the emergence of the non-singular category in nouns, was largely the result of the nature of the congruence system of Indo-European. It was the importance of congruence in Indo-European that actually led to the development of a third person verbal suffix in the first place. As Lehmann (1974:202) says: "Only the third plural [verbal desinence] can be posited for an early [i.e. non-dialectal] period of PIE. The development of precisely third person forms to express number supports the assumption that the number category was used for congruence." The congruence system of Indo-European has been characterized by Fodor (1959:34) as 'assonance-like motion'; that is, phonologically identical formants appeared on the lexical items participating in a syntactic relationship governed by congruence (see also Shields [1982a:54-55]). As far as verb/subject agreement was concerned, the original **-ϕ* suffix marking third person in the verb was paralleled by a nominative case suffix in **-ϕ*, the original exponent of this case (cf. Kurylowicz 1964:199). In Shields (1982a:58-60), I propose that as **-s* gradually began to replace **-ϕ* in the (second-)third person function, so **-s* began to replace **-ϕ* as a nominative marker in nouns because of the constraints imposed by the congruence system (see Shields [1978a:199-202] concerning the gradual replacement of 'assonance concord' by the type of congruence seen in later stages of Indo-European and in the dialects themselves). As a result of the phonological identity of the

verbal formation in **-ϕ-N* and the substantival non-singular formation in **-N*, and because the two stood in a relationship typically governed by assonance-like motion, the verbal construction could have become reinterpreted as marking the (second-)third person non-singular. When **-N* assumed this new verbal function, it lost its association with tense. Although this theory of the origin of the non-singular verbal affix **(e/o)N* cannot be proven absolutely correct, it does interrelate several syntactic and morphological subsystems in the language and demonstrate how the evolution of deixis, congruence, and number together could produce a change in verbal structure.

The lack of dialectal agreement among desinences of the first person and second person in the dual and plural may perhaps imply that the suffix **(e/o)N* served an original general non-singular function (first-second-third person) and that it was only gradually specialized in the third person. The validity of this conclusion is suggested by the rather late contamination of **(e/o)N* and the third person singular primary suffix **-ti* as a means of hypercharacterizing the third person function of **(e/o)N*. Moreover, it is interesting that the original non-singular desinences of nouns "initially served as generalized non-singular markers" in terms of case function (Shields 1982a:66). Thus,

the Hittite relic form of the dual, *šakuwa* "eyes" functions in the most ancient texts not only as nominative and accusative, but also as dative. This should be compared with the fact that in other Indo-European languages the oblique cases of the dual originated in the period of dialectal development on the basis of the form later functioning as nominative (e.g., ancient Indian *dvā* : *dvā-bhyām*, Lat. *duō* : *duō-bus*, etc.) (Kurylowicz 1958:250).

3.2 The First and Second Persons

When attempts are made to reconstruct non-singular verbal affixes other than **(e/o)N*, **-me* and **-te* are most commonly posited for the first and second person plural (cf. Kerns & Schwartz 1971:3-4), with an acknowledgement that the number of attested variations in these persons implies that "die Formen im Idg. selbst nicht einheitlich waren" (Watkins 1969:35). Watkins (1969:35) thus notes:

In der 1. und 2. Pl. haben wir die globalen Zeichen *-me -te* angenommen, obwohl die meisten idg. Sprachen auf Varianten mit Ablaut oder Erweiterung (oder beidem) deuten wie **-mo* (air. *-m*), **-me/osi* (ved. *-masi*), **-mos* (lat. *-mus*), **-mes* (dor. *-mes*), **-men* (gr. *-men*), **-meni* (heth. *-meni*), **-teni* (heth. *-teni*), **-tes* (lat. *-tis*), u.a.

In order to understand the origin of these suffixes and similar ones, and to establish their relationship with the third person non-singular, it is instructive to begin with a discussion of the Greek first person plural suffix *-men*.

The origin of the *n*-element of this suffix has been a persistent problem in historical Indo-European linguistics. As Buck (1933:245) observes: "The *-men* of Attic-Ionic, etc., agrees with Skt. secondary *-ma* except for the final *-n* (of uncertain source)". A concise summary of the scholarship of the past century devoted to the question of the source of this nasal element appears in a recent article by Cohen (1979), along with a novel proposal that "*-n* in *-men* is derived from the **-m* [...] reconstructed [in Cohen (1975)] for 1 pl. mid. *-metha* < **-methm*" (1979:109). After documenting that "a 2 pl. ending can be tacked onto a 1 pl. ending", as in the Cypriote Greek suffix *-mente* (< *-mem-te*) and Russian imperative constructions like *pojděmte* (< *pojdēm + -te*) "let's go", Cohen (1979:109-110) argues that **-methm* represents a contamination of the Indo-European first person plural ending **-me* and the zero-grade form of the second person plural ending **-dhwom* (see Cohen [1979] for details). But although Cohen (1975) does present evidence that a suffix of the second person plural can be analogically extended within a verbal paradigm to the first person plural, when one considers such analogical extensions of personal markers, one naturally thinks of Benveniste's assertion (1971b) that in the singular it is the third person "which will tend to impose its form on the rest of the paradigm, irrespective of the form of [...] any other person" (Watkins 1962:90). This same developmental tendency also manifests itself in the plural number. Kurylowicz (1964:150) thus says:

In the plural the 3rd p. forms the semantic foundation for the 1st and 2nd p. plur. In O. English and in O. Saxon the prehistoric endings of the strong verbs were **-ap* in the 2nd p. plur. and **-enp* in the 3rd p. plur. The disappearance of the nasal before the fricative *p* engendered the following relation:

3rd p. plur. **-óp* (long vowel)

2nd p. plur. **-ap* (corresponding short vowel).

The merger of the desinences *-np* and *-p* entailed the identification of the accompanying prosodic feature: the length of **-óp* was imparted to the vowel of the subordinate 2nd p. plur. Hence **-óp*, phonetically shortened to *-ap* in the historical languages. Another consequence of this semi-phonetic, semi-morphological merger was the introduction of **-óp* (> *-ap*) into the 1st p. plur.: '*vos laudant*' for *laudatis* entails '*nos laudant*' instead of *laudamus*, hence one form only for the plur., viz. the old form of the 3rd p.

I am reluctant to elevate the importance of the third person in analogical paradigmatic change to the status of an absolute universal because of extant counter-evidence (cf. Rudzite [1964:359], Puhvel [1970:631-632], Schmalstieg [1975], Cohen [1975:69]) which suggests that "a more careful theoretical stance in evaluating paradigmatic person hierarchies is strongly indicated" (Puhvel 1970:632). Nevertheless, the existence of a powerful developmental tendency for the third person to extend itself within a verbal paradigm is beyond question, and I wish to make use of this tendency in my explanation of the origin of *-men*.

Quite simply, what I want to propose is that the *-en* of the suffix represents an analogical extension of the third person plural (< non-singular) suffix **(e/o)N* to the first person desinence **-m*, making the primary value of **(e/o)N* in the verbal system that of non-singular and reducing its indication of the third person to a secondary function. Indeed, I believe that there was a widespread extension of this suffix in late, dialectal Indo-European and in the early dialects themselves. Burrow (1973:308) points out that the same *-en* is found in the first person plural of Hittite:

In Greek there is a [...] termination *-men*, used both as a primary and secondary ending. It was customary to regard the final *-n* of this form as epheleystic, and to equate the Gk. ending with the Skt. secondary ending [*-ma*], but it is now clear from Hittite that this is not so. The Hittite terminations are: P. *weni*, *meni* (with *i* appended as in Skt. *masi*), S. *wen*, *men*.

Moreover, Vedic Sanskrit attests an alternate form of the first person plural active ending in *-mā*. Burrow (1973:308) notes that "forms with long vowel which appear [...] particularly in the perfect (*vidmā*, etc.) appear to be ancient, and not merely metrical lengthening, on account of the occurrence of similar formations in other languages: Lith. *sukomē-s* (reflexive), Goth. *baíraíma* opt. (out of **mē* or **mō*). In my opinion, such forms show the preconsonantal, monophthongized variant of **-eN*, i.e., **-ē*, or its *o*-grade variant, i.e., **-ō* (< **-oN*). Likewise, a form such as Skt. *-mā* derives from the contamination of the preconsonantal and prevocalic sandhi variants of **-e/oN*, i.e., **-ē/ō + *-e/oN* > **-e/o*.

In the second person plural, the same extension of **(e/o)N* and its variants is also attested. Burrow (1973:309) says: "The primary endings with aspiration [i.e., Skt. *-tha*] do not appear outside Indo-Iranian. The other languages have normally one form which serves as both primary and secondary ending, and this corresponds to the secondary ending of Indo-

Iranian [i.e., Skt. *-ta*]. Whether the aspiration in Sanskrit is to be ascribed to the specialization of a naturally-occurring sandhi variant or to the influence of a laryngeal, it is clear that Skt. *-tha* and *-ta* should be derived ultimately from the same etymon. Burrow (1973:309) continues:

Hittite has evolved a distinction between primary and secondary ending here in quite a different way (P. *teni*, S. *ten*). The longer forms [of the Sanskrit endings] were analyzed as *tha-na* and *ta-na*, the *na* being regarded as an appended particle, and the whole form as a Sanskrit innovation. In view of Hitt. *-ten* we should analyze rather *-tan-a* of which *ten* corresponds exactly to Hitt. *ten*.

Skt. *-t(h)a* probably shows the contamination of **-ē* and **-eN* as **-e*, the latter element also appearing as the final morpheme in *-t(h)an-a*. The Baltic languages perhaps attest a related second person plural suffix in **-tē*, the preconsonantal sandhi variant of **-ten*. Endzelīns (1971:205) notes that "Common Baltic *-tē* is reflected in the Lith. reflexive *-tē-s(i)*, e.g., *juñtatės* '(you) feel' beside the active form *-t(e)*, e.g., *juñtate* and in the Latv. dial. reflexive *-tē-s* beside the active form *-t(e)* and perhaps, in Pr. *-ti*, e.g., *asti* '(you) are', *immaiti* '(you) take', *turriti* '(you) have'." Although Endzelīns (1971:205) believes that this Baltic suffix "probably developed [...] from the first person plural ending *-mē*", this is by no means a necessary assumption.

Despite the fact that the analogical extension of the (third person) non-singular suffix **-(e/o)N* throughout the non-singular verbal paradigm took place in a variety of dialects, the category *non-singular* appeared so late in the evolution of Indo-European that the linguistic change involving the extension of **-(e/o)N* and its variants probably began just before the disintegration of the Indo-European speech community and was completed only within the individual dialects. Of course, according to contemporary variation theory, a linguistic change "begins variably rather than categorically; that is, it begins as a rule that sometimes operates and sometimes does not" (Bailey 1973:157). After a linguistic innovation is initiated and begins to alternate with an original variant, it may or may not be generalized (cf. Labov 1966:328-329). The fact that the extension of **-(e/o)N* was a 'change in progress' at the time of the disintegration of the Indo-European speech community explains why in some dialects it 'lost out' to competing changes (cf. Wang 1969), like the extension of the non-singular suffix **-(e/o)s* as a means of hypercharacterizing a personal suffix with non-singular signification (e.g., Dor. *-mes*, Lat. *-tis*), and why different dialects utilized the sandhi variants of **-(e/o)N* in different

ways. It was, of course, through such divergent utilization of variants that individual dialects created the opposition between dual and plural, cf. Gk. 2nd pers. du. *-ton* vs. 2nd pers. plur. *-te*.

3.3 More Difficult Dialect Data

The explanatory power of the general analysis just presented can be demonstrated by looking more closely at some problematic dialectal data. I first want to consider the development of the Indo-European third person plural present active indicative form of the verb *to be* (**sénti*: Dor. *énti*, Skt. *sánti*, Umbr. *sent*) within Germanic.

Besides Gothic (*sind*), this verb form "is preserved in OE OS OHG, partly with the addition of the ending [**-un*]" (Prokosch 1939:220), i.e., OE *sind-on*, OS *sind-un*, OHG *sind-un*.²⁶ But there are problems in deriving these Germanic cognates from the Indo-European etymon **sénti* because of the Germanic realization of the obstruent in the ending. According to the traditional view, Proto-Germanic possessed a third person plural present verbal ending in **-nǝ-* and in **-nþ-*, both of which derive from IE **-(e/o)nti*. The first shows the operation of Verner's Law and the second does not. During the period of dialectal development within Germanic, it is assumed

that Gothic, Old Norse, and Old High German had generalized Indo-European present forms in which the original accent rested on the root and not on the thematic vowel [i.e., Verner's Law variants]. On the other hand, Old English, Old Saxon, and Old Frisian [...] had generalized Indo-European verb forms with accent on the thematic vowel, thus leading in this group of dialects to the voiceless spirant (King 1968: 248).

Now if the original Indo-European third person plural present of the verb *to be* was **sénti*, then this form should have developed into PG **sinþi*. However, the attested Germanic items point to PG **sinǝi*. Equally puzzling is the fact that Old English and Old Saxon continue to show a voiced consonant in the desinence here in spite of the widespread generalization of the voiceless spirant in the third plural suffix (and in other verbal endings).

The first anomaly has been explained in various ways. For example, Prokosch (1939:220) says that "probably we must assume IE **sentí* by the side of **sénti*", while Brugmann (1894:552-553) suggests that **sinǝi* "is either the unaccented form of the word [...] or has taken the place of the regular **sinþi* = Goth. **sinþ* OHG **sind* [...] on analogy of *bairand berant*". Brugmann's first hypothesis has recently been endorsed by Bennett (1972:

109), who proposes that **senti* was "subject to reduced syntactic stress". The second anomaly has largely been ignored in the literature. However, I believe that the reconstruction of an original third person plural suffix in **(e/o)N* and the recognition of the late emergence of the primary/secondary dichotomy together provide a coherent explanation for both apparent anomalies.

Before I demonstrate this point, I must outline my view of the chronology of certain relevant sound changes within Germanic. I subscribe to Lehmann's opinion (1961) that

the consonantal shift [...] occurred in pre-Germanic (with an allophonic variation between voiced and voiceless spirants conditioned by the position of the still movable accent), while the stabilization of the accent and the resulting phonemicization of the voiced and voiceless spirants fall in the Proto-Germanic stage (Antonsen 1965:21).²⁷

The important matter here is that the sound changes which altered IE **-t(-)* took place at a very early date; indeed, even the accent shift is to be ascribed to the earliest "establishment of an independent Germanic linguistic community" (Antonsen 1965:22).

As I noted earlier, **-ti*, as the exponent of primary suffix in the third person plural, did not become an obligatory (or nearly so) component of third person plural verb forms until the period of dialectal development. With the completion of pre-Germanic consonantal changes, the hypercharacterized (primary) third person plural present suffix had two variants, conditioned by accent — **(e/o)nđi* and **(e/o)npi* — although the non-hypercharacterized (secondary) suffix **(e/o)n* was still frequently used in present function. When the accent shift was completed, the distribution of the two hypercharacterized variants was no longer predictable phonologically. Since they had never been obligatory components of third person plural present verbal formations and therefore were never fully integrated into particular verbal paradigms, there was now a great deal of variation in their use with individual verbs. But gradually, as hypercharacterized third person plural suffixes became the norm in the present, one variant or the other tended to be generalized in the various Germanic dialects. This generalization was based on the phonological shape of the third person singular (**-ð* or **-p*), which was defined by the way in which the individual dialects leveled their verbal paradigms.²⁸ However, relics like OE *sind* (< **sinđi*) demonstrate the existence of an original alternation between voiced and voiceless spirants in the

third person plural which was motivated by more than phonological considerations. That is, early Germanic showed **sin*, **sinpi*, and **sinđi* as third person plural present forms of *to be*, with the latter two variants (or their later forms) eventually supplanting **sin* as the primary/secondary dichotomy became obligatory. **sinđi* was then apparently made the normal form,²⁹ and it continued to survive probably because the paradigm of *to be* was so irregular (i.e., it defied conventional morphological analysis) that speakers soon reinterpreted its members as constituting single morphemes.³⁰

Excellent evidence for this morphological reinterpretation is provided by the fact that even those dialects which generalized the voiceless spirant in the suffix of the third person plural (i.e., Old English and Old Saxon) maintain the voiced spirant (or its reflex) in the inflectional ending of this form. The reanalysis just described also provides an explanation for the addition of the desinence **-un* to **sind*. Since the morpheme **sind* now had no explicit morphological marking as a third person plural, **-un* was affixed as a means of hypercharacterizing this function.

The suffix **-un* is traditionally viewed etymologically as the third person plural preterite (< secondary) ending **-pt* (cf. Prokosch [1939:220] and Krahe [1963:140]). Of course, I prefer to see it as an occurrence of the third person plural ending **-p* (> PG **-un*) in present function. It may perhaps be objected that the derivation of **-un* from **-p* (cf. Schmalstieg 1974:190) is problematic because within Germanic short vowels "in final syllables [...] tend to disappear" (Prokosch 1939:133) and "final consonants in unaccented syllables disappear [...] with the exception of *s* and *r*" (Prokosch 1939:140). Thus, according to Krahe (1963:131), word-final **p* became **un* and then was lost completely or passed to *u*, depending on a variety of conditioning factors. However, I would suggest that the shift of final **un* to *u* "in zweiter Silbe" (Krahe 1963:131) was not a totally regular change; in other words, some residual occurrences of final *un* continued to exist, including the third person plural suffix **-un*. The survival of this desinence in di-syllabic verbs made it subject to analogical extension. The hypothesis that such residue exists is quite in keeping with current views about the morphological conditioning of sound change (cf. Anttila 1972:77-78) and the lexical diffusion of sound shifting (cf. Chen & Wang 1975).³¹ As Anttila (1972:85-86) emphasizes: "The Neogrammarian *absolute* regularity [...] of sound change is untenable", for "frequent forms, such as pronouns and grammatical morphemes are [...] prone to undergo irregular changes".

Besides the third person plural marker **-un*, I believe that a final *un* (< **p* or **m*) is preserved in certain numerals, i.e., IE **newp* "9" > Go. *niun*, OE *nigon*, OHG *niun*, IE **septm* "7" > Go. *sibun*, OE *seofon*, OHG *sibun*, and "Idg. *dǎkm* [>] got. *taihun*, ags. *tīen*, *tȳn*" (Krahe 1963: 90) ("as. *tehan*, ahd. *zehan* fordern eine Grundform **dekom*" [Krahe 1963: 90]). Although the preservation of final *n* in these items is traditionally ascribed to the influence of the corresponding ordinal (cf. Streitberg [1896:218] and Prokosch [1939:288]), this is not a necessary assumption. Indeed, as Schmalstieg (personal communication) points out, "If one were to accept the notion that the derived form does not influence the fundamental form [cf. Jeffers & Lehiste (1982:70)], then the proposed analogical development of ordinals influencing cardinals would not be possible."

3.3.1 Another persistent enigma of comparative Indo-European linguistics whose solution is suggested by the approach defined above is the origin of the Oscan-Umbrian third person plural secondary ending *-ns*. Through the years this morpheme has engendered an incredible number of theories concerning its appearance in these dialects. For example, von Planta (1897:281) argues: "Dass die in Frage stehende Erscheinung daraus zu erklären ist, dass das ursprüngliche *-t* zu *-d*, das urspr. *-nt* zu *-ns* wurde, während aus den prim. Endungen *-ti*, *-nti* durch Abfall des *-i* [...] *-t* *-nt* entstand, ist nicht wohl zu bezweifeln." On the other hand, Ehrlich (1900:306-307) concludes:

In uroskisch-umbrischer Zeit eigneten sich die *en*-Stämme, damals wie im Lat. abstuft flektiert und weit verbreitet, in Verbindung mit dem verbum substantivum die Kraft des alten Perfekts und verbale Rektion an. Ihre Pluralformen gewährten insbesondere nach Aufhebung der Kopula dem Sprechenden die Möglichkeit, ein Suffix *-ns* zu abstrahieren, das, ursprünglich beschränkt verwendet, durch die Gunst der Umstände zum Perfektsuffix erhoben wurde. Dies Suffix gelangte schliesslich, mit dem Sekundärsuffix des Singulars eng verbunden, zu allen Tempora und Modi, die bisher das Sekundärsuffix *-nt* gehabt hatten; zum Imperfekt, vermutlich auch Plusquamperfekt und zu den Konjunktiven. Ein Nachspiel hatte der Prozess im Oskischen, wo auch der Imperativ die Pluralendung *-ns* empfing.

The nominal origin of the morpheme is also asserted by Buck (1904:152): "The original endings of the Third Singular and Third Plural were primary *-ti*, *-nti*, secondary *-t*, *-nt* [...]. The *-nt* probably became first *-nd*, then *-n* (cf. L. *dan-unt* etc.) and to this an *s* was added under the influence of the plural ending of nouns." Brugmann (1904b:593) maintains:

Die SE *-ns* erklärt sich am einfachsten, wie mir scheint, so, dass zu der Zeit, als in der 3. Pl. *-nt* und *-r* (im. Med. *-nto* und *-ro*) nebeneinander standen, nach der Nebenform des letzteren *-rs* (av. *-r^əs*) die Endung *-nt* zu *-nts* erweitert worden ist [...]. Diese Übertragung geschah, nachdem uridg. *-ts* bereits zu *-ss* geworden war (daher umbr. *sins* "sint" gegen *zeřef* "sedens"),

while Gray (1927:82) proposes that "this Osco-Umbrian *-ns* was derived from **-nts*", with **-s* representing the same suffix that appears in other plural verbal endings.

In my view, the Oscan-Umbrian secondary suffix *-ns* shows the expected third person plural form in **-N* in contamination with another suffix, **-is*. Now Watkins (1969:156-158) argues that Proto-Italic possessed an "alte 3. Sg. Form *-is*", attested widely in the Latin perfect tense, e.g., in the second person singular perfect suffix *-isti*. Actually, I believe that this Latin ending shows a contamination of the ancient non-personal suffixes **-(i)s* and **-t*, plus a perfect suffix *-i* (< **-ai*, whose origin will be pursued in Chapter IV). The suffix **-is* is also probably seen in the Latin third person plural perfect suffix *-erunt* (< **-is-onti*, a contamination of **-is* and the third person plural primary desinence). The suffix **-is* has traditionally been connected with the *-is*-aorist of Sanskrit (cf. Meillet 1964:214); but, as Kurylowicz (1964:109n.8) points out, "Whether there are inherited *-is*-aorists [in Sanskrit] with a genuine *i*, corresponding to Lat. *-is*- in *pupug-is-ti*, seems doubtful—the total absence of *-is*- in Iranian points to the contrary." Watkins (1962:13) also says that Lat. *-is*- most emphatically has nothing to do with the Indic *-is*-aorist". Nevertheless, the connection of the Latin formation with the *-s*-aorist is still generally assumed (cf. Buck [1933:297] and Watkins [1969:155]). The origin of the *i*-element remains an enigma in the literature (cf. Kurylowicz 1964:125); but its antiquity is suggested by the existence of a cognate *-is*-formation in the preterite of the Hittite *hi*-conjugation, e.g., *daiš* "he placed" (Watkins 1969:55). However, I would like to suggest instead that the Latin (and Hittite) ending *-is*- represents a reflex of the ancient non-personal suffix **-s* in contamination with an element **-i*, which itself probably represents an occurrence of the deictic particle **i* added to a non-personal verbal formation in **-ø* (cf. Gk. 3rd sg. pres. *-e-i*, "where *-e* is simply the thematic vowel" [Watkins 1962:102]) and subsequently reanalyzed as a person marker in the manner outlined in Section 2.2 (i.e., **-ø-i* > **-i*). Apparently **-i* never gained productivity in the proto-language, but its existence seems to be attested in this contamination. Although "the traditional view that the Latin perfect is a blend of the IE perfect and

orist" (Buck 1933:291) is generally a valid assessment, it is not necessary to assume that the *-is*-formation is therefore to be traced directly to an inherited sigmatic aorist, just as perfect forms like *dīxī*, *coxī*, *auxī*, etc. are. As Watkins (1962:90) himself says, "The use of an *-s* as desinence of the 3 sg. preterite (or secondary ending) recurs in [...] Indo-European languages". I argued in Chapter II (2.2) that the deictic origin of **-s* was responsible for this state of affairs. Moreover, in Italic the Indo-European Proper perfect, which "indicated a fulfilled state" (Lehmann 1974:141), had become a preterite tense. Lehmann (1974:180-190) thus notes: "Latin *vīdi* 'I have seen' [...] illustrates the normal shift to a 'preterite' tense, a shift also exemplified in Armenian *egit*, which corresponds to Skt. *āvidat* 'he found'". Therefore, it could very well be that the ancient (second-)third person preterite (< non-present) formation in **(i)s* was assimilated into the perfect system because the perfect came to be a preterite tense (cf. the discussion of the incorporation of sigmatic constructions into the aorist system of some dialects). In a real sense, then, this perfect formation in *-is-* represents a specifically Latin development, although the *-is*-element itself is an ancient suffix, just as Germanic *r*-preterites show a specifically Germanic utilization of ancient sigmatic forms.

The perfect formations of Oscan-Umbrian present distinct contrasts to those of Latin. Buck (1904:169-170) says: "This tense, as in Latin, includes various formations. While the *vi-* and *s*-Perfects of the Latin are lacking, their place is taken by others specifically Oscan-Umbrian". But although the ancient secondary ending **-is* is not found in the Oscan-Umbrian perfect, it can be assumed, on the basis of Hittite correspondences, that it was an inheritance of Common Italic. I believe, however, that it is to be found in Oscan-Umbrian in the third person plural secondary ending *-ns*, affixed to **-N* as a means of hypercharacterizing it. That is, just as **-ti* was added to **-N* to emphasize its third person primary status, so **-is* was added here to emphasize its third person secondary status. Of course, "in final syllables [of Oscan-Umbrian] also, syncope is far more widespread than in Latin. A short *o*, *e*, or *i* is dropped before final *s*" (Buck 1904:59). Thus, **-nis* became *-ns* in Oscan-Umbrian, since "secondary final *ns* resulting from syncope of vowels remains unchanged" (Buck 1904:73). Apparently the suffix **-is* in third person singular function comes to be lost in Oscan-Umbrian, perhaps undergoing reinterpretation as a second person desinence. I am tempted to argue that such Umbrian third person singular future forms as *fus*, *heries*, etc., which occur in place of the expected *fust*, *heriest*, etc., may represent

old non-present (> preterite and future) formations in **-is* rather than cases where "the primary *-ti* became *-t* through Proto-Italic loss of the *i*, and this *t* is partly preserved, partly lost" (Poultney 1959:121). That is, the old non-present suffix **-is* came to assume a primary future signification in Oscan-Umbrian. However, if Nussbaum (1973:365) is correct in ascribing this alternation in the future tense to scribal error, then this subsidiary proposal of mine must be discounted.

3.3.2 As a final illustration of the utility of my analyses of the categories of person and number in the Indo-European verb as a means of explaining difficult dialectal data, I want to explore one of the most intriguing questions concerning Gothic verb morphology — the origin of the second person dual ending *-ts*. The problem here stems from the fact that the suffix appears to be cognate with the Sanskrit second person dual ending *-thas*, both forms implying an Indo-European **-te/os*. Thus, the Indo-European dental consonant should have produced Gothic *-þ*, not *-t*, according to the operation of Grimm's Law.

Among the early explanations of the origin of Gothic *-ts* are two suggested by Brugmann (1916:641). He says:

Die Annahme, dass *-ts* zunächst nur hinter *s*, *f*, *h* gestanden habe und von da aus verallgemeinert worden sei, eine Auffassung, die durch das *-t* der 2. Sing. Ind. Perf., z.B. *skalt*, nahe gelegt ist [...], ist wenig wahrscheinlich, weil keine Form auf *-sts* oder dgl. erscheint: es heisst z.B. *ga-sēhvuts*, nicht **ga-sēhts*. Eher ist glaublich, dass *t* vor dem stimmlosen *-s* lautgesetzlich aus einem Spiranten entstanden war, vgl. aisl. *z* aus *ðs* in *góz*, Gen. zu *góðr* "gut" u. dgl. Mark. 10, 38 steht *witups* in CA.

Most other explanations of the ending tend to follow one of the two theories which Brugmann propounds here. Prokosch (1939:212), for example, says of the suffix: "The ending of the 2nd pers., *-ats*, must be identical with Sk. *-a-thas*, IE *-o-tes/-tos*, probably for earlier *-e-tes/-tos* (Sk. *th* may be an Indic innovation). This should give us Go. *-aps*; *t* for *p* is probably dissimilation, somewhat similar to the fact that *st* never became *sp*." Wright & Sayce (1954:137-138), on the other hand, accept the first proposal made by Brugmann (1916:641):

nimats has *-ts* from the pret. dual; [...]. The pret. indic. is morphologically an old perfect, which already in prim. Germanic was chiefly used to express past tense [...]. *-tha*, the original ending of the second pers., would have regularly become

-þ in Goth [...], except after prim. Germanic *s*, *t*, *x* where it regularly became -t, as Goth. *laest* "thou didst gather" [...]. This -t became generalized in prim. Germanic, as Goth. O.Icel. *namt*. But in the West Germanic languages the old ending was only preserved in the preterite-present verbs.

Hirt (1932:139) also prefers a modified version of Brugmann's first suggestion, "stating that regular /ð/ or /p/ < /t/ had become /t/ again before /s/ after the loss of the preceding vowel" (Schmidt 1974:83-84).

Some innovative proposals, however, have been made in recent years. Stang (1949:33) maintains that the original ending included *-t plus a laryngeal consonant, which became -th in Sanskrit and generally -þ/-ð in Germanic with complete loss of the laryngeal. But the Gothic ending, he believes, continues to reflect the influence of the laryngeal, which prevented the shifting of *-t to *-þ. Schmidt (1974:84-85) makes the interesting suggestion that the ending "must be traced back to the Proto-Indo-European numeral for 'two', *dwō- or its weak form *dwo-/dwi-". He says:

If we conclude that the same numeral from *dwo-/dwi- is reflected in the Gothic inflectional endings of the dual 2, we have a solution for the troublesome -ts, because now it can be explained according to regular phonologic developments rather than through spasmodic, unpredictable changes. The development of *dw(o)-s/dw(i)-s > *-t(w)-z > *-t(u)z > Go. -t-s follows exactly definable phonologic processes: first, short -o-/-i- regularly disappears in weakly stressed final syllables; the preceding -w- becomes -u- and is lost in third or subsequent syllables; /d/ becomes /t/ according to the Proto-Germanic consonant shift; and P. Gmc. /z/ becomes Go. /s/ in final position. The final -s of the dual 2 may have its origin in the *-si/-s ending of the sing. 2, in the -s of the dual 1 (IE. *-wes/wos), or the plural 1 (IE. *-mes/mos).

I follow Schmidt in maintaining that the -t of the Gothic ending derives from an earlier *-d. However, I feel that Schmidt's argument that this *-d is part of the numeral '2' is weak for two reasons: first, the occurrence of this numeral as a desinence is attested elsewhere only in the pronouns; and second, the correspondence between the Gothic form and the Sanskrit ending is so close that any proposal should attempt to account for their common origin.

I would suggest that the Gothic second person dual ending -ts and the Sanskrit second person dual ending -thas both derive from an original IE *-dh + *-e/os, a contamination of the old second-third person desinence *-dh (or *-T) and the non-singular marker *-(e/o)s. However, Gothic attests the voiced form of the deaspirated sandhi variant of the suffix (*/d/),

while Sanskrit attests the devoiced variant (*/th/). It is possible that Sanskrit shows the voiceless deaspirated sandhi variant (*/t/), which was 'reaspirated' under the influence of a following laryngeal, but this complication is quite unnecessary in light of the arguments presented in 2.1.10 regarding the origin of the dental stop markers of the second and third persons. Apparently when the contaminated ending *-T-e/os was being created, speakers could choose either sandhi variant as the basis of the suffix, resulting in a period of vacillation in use when two alternate forms of the ending *-Te/os existed side by side, with the Indo-Iranian dialects eventually generalizing the one containing */th/ and the Germanic dialects eventually generalizing the variant containing */d/. The ending *-de/os would then yield Go. -ts through the operation of Grimm's Law and the loss of weakly accented short vowels in final syllables.

3.4 The Iterative

I believe that a discussion of the origin and development of the category *non-singular* in verb conjugation should consider the emergence of the iterative formation. Now one of the most widely attested stem-forming verbal suffixes in the Indo-European language family that can be traced to a Proto-Indo-European etymon is *-sk-, cf., e.g., "hitt. 3e sg. -škiži, 3e plur. -škanzi; tokh. B. 3e sg. -iṣṣam, 3e plur. -əṣkam; 1re pers. sg. act. gr. -skō = lat. -scō = v.h.a. -sku; [...] le sanskrit a -ccha- et l'avestique -sa-" (Meillet 1964:220). Until recently, scholars were perplexed about the original function of this suffix because it plays a variety of roles in the historical dialects themselves. As Szemerényi (1980:253) says:

Semantisch zeigen die verschiedenen Sprachen sehr verschiedenartige Entwicklungen. Die im Latein so bedeutend gewordene inchoative Funktion ist in den anderen Sprachen kaum bekannt, sicher ist sie sekundär von Fäulen verbreitet worden, in denen der Stamm die inchoative Nuance nahelegte, wie bei *crēscō*. Im Hethitischen, wo die Bildung sehr produktiv ist, kann ein iterativ-durativ-distributive Bedeutung festgestellt werden, vgl. *walliskitsi* "er preist wiederholt", *atskantsi* "sie fressen (die ganze Nacht hindurch)". Interessant ist, dass im Tocharischen (B) -sk- gewöhnlich ein kausative Bedeutung entwickelt: *rittāskau* "ich verbinde"; es gibt aber noch Reste einer iterativen oder durativen Bedeutung.

However, Dressler, in a brilliant study (1968) based on typological considerations, maintains that the iterative function of *-sk-, so prominent in Hittite (cf. Friedrich 1974:140-141), is basic, with the other attested functions developing from it (1968:233). The iterative category itself is viewed by Dressler (1968:43) as a variant of the category *plurality*, manifested in verbs as well as

in nouns. Erhart (1973:245) characterizes Dressler's thesis in this way: "[...] der nominale Plural und die Aktionsarten der verbalen Pluralität als kombinatorische Varianten des Semems 'Pluralität' aufzufassen sind".

I believe that the etymological analysis of **-sk-* and, indeed, the iterative category itself can proceed still further by pursuing some of the ideas inherent in Dressler's proposal about the relationship between verbal and nominal plurality (non-singularity).³² Dressler (1968:51-91) emphasizes the close functional and formal relationship between verbal and nominal plurality. Functionally, the distinctly 'quantitative' nature of the iterative aspect (and the closely related intensive, distributive, and durative aspects, cf. Dressler [1968:42]) constitutes a vivid parallel to the notion of quantity inherent in nominal plurality. Formally, the two major variants of the plural category are both frequently manifested "durch Reduplikation oder Verdoppelung (Epanadiplosis)" (1968:84). Moreover, Dressler (1968:85) indicates that both plural variants also commonly share "ein lexikalisches Mittel" of marking, apart from epanadiplosis. For example, in this regard, Jespersen (1935:210) writes: "If we say 'they often kissed' we see that the adverb expresses exactly the same plural idea as the plural form (and the adjective) in *many kisses*." The parallel lexical expression of verbal and nominal plural can be seen even more clearly in a pair of expressions like *He walks frequently* and *He takes frequent walks*. Finally, Dressler (1968:85) notes that sometimes nominal and verbal plural variants are marked by the same affixes, although this situation is rare because verbal plurality tends to be less grammaticalized than its nominal counterpart (1968:94).

I noted above that the non-singular markers of Indo-European included the suffix **(e/o)s*, in origin an enclitic adverb. It is my opinion that this suffix is a component of **-sk-*. In support of this claim, I must point out that the independent existence of **-s-*, apart from **-k-*, in the suffix **-sk-* is strongly suggested by the existence in Hittite of a suffix in **-s-* which is functionally identical to **-sk-*. Watkins (1969:73) thus observes:

Wir haben im Hethitischen nur noch eine Handvoll Formen mit dem iterativ-durativ-(imperfektiven) Suffix *-ša-*, das der Funktion nach mit *-šk-* identisch ist: *ešša-* "machen" von *ie-* (*iya-*), *halzešša-* "rufen" von *halzai-* (*halziya-*), *warešša-* "zu Hilfe kommen" von *warrai-* [...]. Es sind Reliktförmchen; die Kategorie ist früh [...], und so gut wie ausgelöscht worden durch die im Hethitischen alles überschwemmenden *-šk-* Formen.

Apparently these relics are preserved in other Anatolian languages: "Vgl. pal. 3 Sg. Präs. *mari-šši* 'zerstückelt' (*hi*-Konj.), neben heth. Simplex *marriya-* 'id' [...]. Im Luwischen haben wir das Suffix *-šša/i-*, hierogl. luw. *-sa-* und im Lykischen *-s-*" (Watkins 1969:73). Such evidence leads Szemerényi (1980:253) to conclude that "Formal wird *-sk-* eher eine Vereinigung zweier Suffixe, also *s + k*, darstellen," although he does not explicitly identify the nature of these original forms (cf. also Watkins 1969:56). Since verbal plurality and nominal plurality share a number of common formal markers, including lexical means of expression, it would not be unreasonable to suggest that in Indo-European the same adverbial element may have served as an exponent of both. This element became enclitic in nature and eventually evolved into a specialized bound morpheme, but still retained its optionality until the late Indo-European Period, at which time application of the number category "became more regular" (Lehmann 1974:202).

When the enclitic adverb (> non-singular marker) **(e/o)s* was added to non-personal (second-third person) verbs, the following formation resulted: **-ø-(e/o)s* (person marker plus enclitic adverb). To this 'verbal plural' structure could also be added a deictic particle — namely **k*, with original 'here and now' signification later weakening to 'there and then' signification — whose function was to indicate the time of the action. The weaker deictic force of **k* perhaps explains the 'remarkable' fact that "the iteratives in *-šk-* [...] take secondary endings" (Lehmann 1974:148). It would seem that the formation in **-ø-s-k* was reanalyzed as **-sk-ø*, with **-k* losing its temporal meaning, perhaps through the simple process of contagion (condensation) (cf. Bloomfield 1933:438-439). In any event, the continued existence of Hittite iteratives in **-s-* demonstrates the original optionality of the deictic element **k*. **-sk-* was subsequently analogically extended to the first person as a 'plural' stem-formant.³³

Chapter IV

The Origin of the *hi*-Conjugation, the Perfect, and the Middle Voice

No formation in the Indo-European family of languages has remained more of an enigma for historical analysis than the Hittite *hi*-conjugation. As Morpurgo-Davies (1979:577) recently commented: "The discussion about the origin of the Hittite *-hi*-conjugation continues nor is there an end in sight". The general association of the Hittite desinences *-hi* (Old Hittite *-he*), *-ti*, *-i*; the perfect endings **-e*, **-tha*, **-e* of Indo-European Proper; and "the oldest forms of the middle endings, which in the 1-3 sg. and 3 pl. differed only in vocalism from those of the perfect" (Jasanoff 1979:79) is widely accepted, although "serious obstacles [...] stand in the way of a direct identification of the present of the *hi*-conjugation with either the IE perfect or present middle" (Jasanoff 1979:79).

The perfect denoted a state in the parent language (cf. Ved. *véda*, Gk. *(w)óide*, Go. *wait* "knows"; Gk. *mémone* "intends", Lat. *meminit* "remembers", Go. *mañ* "thinks"), but stative *hi*-verbs are neither especially numerous nor associated with roots which can be shown to have formed perfects in Indo-European [...]. A straightforward derivation of the *hi*-conjugation from the middle is not easily reconciled with the fact that the middle remains a living category in Hittite, with endings (*-ha(ri)*, *-ta(ti)*, *-(t)a(ri)*, etc.) which contrast in both form and function with those of active *hi*-verbs (Jasanoff 1979:79).

Cowgill (1979:25) echoes the same conclusion when he asserts: "[...] the correspondences between Anatolian active *hi*-conjugation and IEP perfect is in form only. On the one hand, the stem shapes and the endings of the two formations correspond well [...]; on the other, the functions and lexical constituencies of the two formations correspond very, very poorly." In light of these problems, the continued widespread acceptance of such theories can be

ascribed only "to the apparent absence of serious alternatives" (Jasanoff 1979: 81). However, I would like to submit such an alternative analysis. In brief, I propose in this chapter that the Hittite *hi*-conjugation and the perfect of Indo-European Proper both represent innovative developments from an earlier category in Common Indo-European — a class of verbal stems in **-ǵ-*.³⁴

Despite Kurylowicz' assertion (1964:58) that "the perfect and the (medio)-passive are genetically related", I find more plausible Cowgill's analysis (1979:27) "that Anatolian and IEP mediopassives correspond rather exactly to each other and are sufficiently different from perfect and *hi*-conjugation that the two categories must have been distinct far back into the prehistory of our language family." Cowgill (1979:25) says, in more detail:

[...] of the three basic types of verb inflection in Anatolian, the mediopassive and the active *mi*-conjugation correspond quite satisfactorily in form, in function, and in lexical distribution to the mediopassive and active present formations of Indo-European Proper. In particular, the fit between the mediopassive of Anatolian and that of (P)IEP is so good in all regards, despite numerous surface innovations everywhere in endings, and these formations are so distinct from both the Anatolian active *hi*-conjugation and the IEP perfect, that they must be descended from a formation that was a distinct entity in the proto-language of our entire family and which had there more or less the same shapes, functions, and lexical distribution as do the mediopassives of Hittite, Vedic Sanskrit, and Homeric Greek.

Still, there do exist "manifest relations, both formal and semantic", between the perfect and the mediopassive (Cowgill 1968:26); but the formal correspondences are the result of analogical reformulations motivated by certain natural functional similarities. As Lehmann (1974:143-144) puts it:

The meaning of the perfect in PIE must be proposed on the basis of the thoroughly explored Vedic and Homeric texts, though the other dialects confirm the stative, resultative meaning, as in the Germanic preterite-presents [...]. The middle [...] indicates that the result of action expressed by the verb has an impact for the subject [...]. Since both the perfect and the middle in this way have implications based on the result of an action, their forms show a natural relationship. But apart from their relationship in sharing resultative meaning, they should not be more closely aligned.

The appearance of the perfect middle category is a very late innovation, for, as Szemerényi (1980:270) observes, "Ursprünglich hatte das Perfekt nur 'aktive' Endungen". But since ancient endings can come to mark new functions, it is possible that the formal exponents of the perfect middle are themselves ancient.

I shall add further support to these claims about the relationship between the middle voice and these other constructions when I consider the origin of this voice category below.

4.1 Verbal Stems in **-ǵ-*

In Shields (1980), I first proposed that Indo-European possessed a class of verbal stems which were terminated in **-ǵ-*. Although I now believe that some modifications of specific analyses made in that paper are required, it seems to me that this basic tenet of the article remains valid. Since the existence of these verbal forms in early Indo-European is the basis on which my theory of the origin of the Hittite *hi*-conjugation and Indo-European Proper perfect is built, I shall review in detail my key arguments in support of this assertion.

In the first place, it is probably true that the Indo-European verb and noun shared a common lexical origin. Thus,

Hirt (1904/05: 38ff.) notes that we encounter both thematic and athematic nouns and verbs, verbal and nominal stems in *-ǵ-*, *-jē-* and with the suffix *-sk-*. In the Indo-European nominal and verbal endings we find only the sounds *m*, *s*, *t* (*d*), and *ǵ*. The velars, labiovelars, labials (except for *bh*), and *l* are completely missing from the aforementioned morphological categories (Schmalstieg 1976:23).

Now in Shields (1977:56-57), I wrote:

In reconstructing the early stages of Indo-European, I assume on the basis of their inflection three major nominal declensions: 1) consonant stems, 2) vocalic resonant stems, and 3) vowel stems [...]. The vowel stems had **-ǵ-* and **-o-* as stem-final phonemes. That Indo-European had [...] nominal forms in **-ǵ-* is suggested by substantives like Gk. *númpḥa* "nymph", *nephēlegerēta* "cloud-gatherer", *hippēlāta* "horseman", *peīra* "test", *gēphūra* "bridge", Umbr. *Tursā* "Tursa", Lat. *mensa* "table" (also perhaps resulting from the iambic law), OCS *ženo* "woman", *glavo* "head", etc. These nouns function as nominatives and vocatives in Greek and Italic, while Old Church Slavic utilizes them only as vocatives. At a later date the *ǵ*-declension was generally assimilated to the relatively recent *ǵ*-stems [cf. Shields (1982a:63-77)].

Therefore, if one assumes the validity of the hypothesis concerning the common origin of the noun and the verb, then it would be expected that the verb would also have a stem-final phoneme in **-ǵ-* as well as in **-e/o-*.

Secondly, remnants of the ancient verbal stems in **-ǵ-* are still attested in a rather small group of relic verbs which survive in Greek, Sanskrit, and Irish.

In Greek they are generally limited to middle voice: 1st pers. sg. middle *ága-mai* "I revere", *kréma-mai* "I hang", *deá-mai* "I seem", *péta-mai* "I fly", *éra-mai* "I love passionately". Sanskrit forms which show this construction include: 3rd pers. sg. pres. act. *vámi-ti* "he vomits", *svápi-ti* "he sleeps", *śvási-ti* "he snorts", and *ródi-ti* "he cries"; while Irish shows this stem in the pret. *do cer* "he fell" (< **kerǵ-t*). These verbs have generally been reconstructed as consisting of a verbal root plus a suffix in *-ə. However, I believe "that IE [a] and [ə] are allophones of the same phoneme, and that /a/ developed to [ə] only under certain conditions" (Wyatt 1970:17) (Shields 1980:262),

i.e., under conditions of weak stress. Both allophones of */a/ pass to /a/ in all dialects except Indo-Iranian, where "*/a/ passes (to [ə]) to /i/ in unstressed open syllables, [...] save when grammatically relevant [...], but remains elsewhere" (Wyatt 1970:52-53). "Thus, the original phoneme here is to be reconstructed as *ə" (Shields 1980:262).

I want to emphasize that the traditional reconstruction of an Indo-European phoneme *ə which passed to *i* in Indo-Iranian and *a* elsewhere is by no means established fact. Thus, Burrow (1973:106) argues:

Among the vowels of Primitive Indo-European it has been customary to postulate the so-called 'schwa' (ə). This is based on such comparisons as Skt. *pítar* "father": Gk. *patér*, etc. Skt. *sthítá-* "stood": Gk. *statós*, etc. In such cases the ə was considered to represent the reduced grade of the original long vowels, corresponding to the zero grade of the short vowels *e*, *a*, *o*. It was supposed to have become *i* in Indo-Iranian and *a* in all the other IE languages [...]. If this ə had been confined to the comparatively few words in which Sanskrit *i* appeared to correspond to ə in the other languages, it would never have acquired very great importance in Indo-European theory. It was due to its becoming a basic element in the early theories of apophony that it acquired such importance in the traditional theory of Indo-European.

Likewise, Wyatt (1970:50) maintains: "[...] however theoretically unsatisfactory and disquieting their conclusion may be, Wackernagel and Petersen are correct in deriving all forms showing final -/a/ in European languages from IE */a/, regardless of whether Sanskrit has -/a/ or -/i/." Although Wyatt's assertion (1970) is very controversial, I agree with Collinge (1971:73) that it represents "a notable plea for sane simplicity in PIE phonology".

Third, I also feel that the zero ending of the second-third person of the *a*-conjugation could be strengthened by the deictic particle *-i in the manner outlined in Chapter II: *-ə- ϕ -i. As the *a*-class verb began to disappear as a productive type (see below), some of its members which showed the

morphological sequence *-ə- ϕ -i underwent reanalysis, with *-ai- ϕ as the resulting morphological segmentation. In other words, a new stem-formant was created and then generalized throughout the paradigm. The prevocalic sandhi variant, *-ai-

[...] can be seen in such Homeric Greek forms as *antáō* "I approach", *askhaláō* "I am grieved", *apolikhmáō* "I lick off", *dípháō* "I seek", *eilupháō* "I roll along", *eirótáō* "I ask", *koimáō* "I calm", *kubernáō* "I steer", *kukáō* "I stir up", *nómáō* "I distribute", *skirtáō* "I leap", *strôpháō* "I turn", *trôpáō* "I change", *trôkháō* "I run", *psêlapháō* "I feel". These forms show a later contamination of the stem element of the thematic forms in *-o- and the original sequence in *-ai- [...]. The preconsonantal sandhi variant in *-ā- [with analogical restoration of *-i, resulting from a contamination of the sandhi variants *-ai- and *-ā-] is seen in a number of Sanskrit forms. As Whitney (1973:390) observes: "A number of denominative stems occur in the Veda for which no corresponding noun-stems are found, although for all or nearly all of them related words appear [...]. A Vedic group of stems in *āya* [...] have allied themselves to present-systems of the *nā*-class, and are found alongside the forms of that class: thus, *gr̥bhāyāti* beside *gr̥bhñāti*. Of such, RV. has *gr̥bhāyā-*, *mathāyā-*, *pruṣāyā-*, *śrathāyā-*, *skabhāyā-*, *stabhāyā-*. A few others have no *nā*-class companions: thus, *damāyā-*, *śamāyā-*, *tudāyā-* (AV.); and *panāya-*, *naśāya-*, *vṛṣāyā-* (vṛṣ- 'rain'), *vasāyā-* (vas- 'clothe'), and perhaps *aśāya-* (aś- 'attain')." In regard to these verbs, Sturtevant (1929:13) notes that "peculiarly significant is the fact that in the oldest documents of IE speech there are numerous *āyo*-verbs for which no nouns of any form can be cited as primitives." This leads him to conclude "that the suffix was originally independent of nouns in *ā*, and that it was probably more ancient than they [...]. *āyo* is to be considered a unit; it was not, as has usually been supposed, a conglomerate of stem-final *ā* and suffix *yo*." Sturtevant (1929:13) also supports this claim by noting that "Brugmann [(1916:198)] mentions as examples of old *āyo*-verbs of unknown source Lat. *hio*, Lith. *žiōju* 'yawn'; [...] Lith. *ulōju* 'shout, call', Lat. *ululo* 'yell'; Lat. *iuvo* 'help'; Lat. *mico* 'vibrate'; OIr. *scaraim* 'separate'; Goth. *mitōn*, OHG *mezzōm* 'measure'; Lith. *lindoju* 'stecke worin'; Ch. Sl. *razvr̥žajā* 'open'" (Shields 1980:263-264).

Perhaps the uncontaminated preconsonantal variant of the stem-formant *-ai-, i.e., *-ā-, is attested in such forms as Lat. *eram* "he was", "from **esā-*, the root **es-* with an *ā* which sometimes occurs elsewhere in past tenses, as in Lith. *buvo* 'was' from **bhuāt* (as in L. **fuat* instead of *erat*)" (Buck 1933:278). As the overtly present element *-i disappeared through monophthongization and as new forms generally began to replace the *a*-class verbs,

this stem-formation was perhaps specialized in this secondary function (past tense) in some dialects.

4.2 Early Indo-European Verb Classes. If one assumes the existence of an original Indo-European class of verbs in **-ǵ-*, then Indo-European possessed three major verbal types at some point in its evolutionary development: *a*-verbs, *o*-verbs (with an *e*-grade variant only as ablaut gradually emerged as a morphological marker), and consonantal verbs (including resonant stems). Originally these verbs showed the following paradigms:

	<i>a</i> -class	<i>o</i> -class	consonantal class
1 pers.	<i>-a-m(/-h)</i>	<i>-o-m(/-h)</i>	<i>-C-m(/-h)</i>
2/3 pers.	<i>-a-∅</i>	<i>-o-∅</i>	<i>-C-∅</i>

These three classes were functionally equivalent; their only difference involved the phonological nature of the stem-final phoneme. This Indo-European verbal system underwent a vast number of changes within a relatively short period of time, including the appearance of the first-person marker **-w-*, the second-third person markers **-s-* and **-T-*, and a set of inflections denoting middle voice. However, before I begin my discussion of those changes relevant to the emergence of the Hittite *hi*-conjugation and the perfect of Indo-European Proper, I want to consider the process by which verbal stems in **-a-* and **-o-* evolved. For the sake of simplicity and clarity, I shall begin with the thematic (**-o-*) stems.

4.2.1 The Origin of the Thematic Vowel

In traditional Indo-European studies, an important characteristic of Indo-European conjugation is the division of verb stems into thematics and athematics. "It is generally admitted that the thematic verb stems [...] are of more recent origin than the athematics, and have increased at their expense" (Kerns & Schwartz [1968:717]; cf. Brugmann [1916:33] and Meillet [1964:202]). Indeed, Kerns & Schwartz (1968:717) emphasize that "the paucity (if not complete absence) of simple thematics in Hittite" (cf. Sturtevant [1933:303] and Kronasser [1956:89]) suggests "that all ultimately monosyllabic verb bases of PIE were [...] biphasal athematics of the type **és-/s-* 'be', **éy-/i-* 'go', **bhā-/bhē-* 'appear, seem, become', **wōid-/wid-* 'know, see'". In contrast to the lack of simple thematics,

there are frequent Hittite thematics characterized by the counterparts of suffixal formants *-ye* and *-ske* of IE proper [...]. [T]he formants *-ye* and *-ske* (and possibly a few others) are indeed the earliest if not the only progenitors of the

thematic verb stems, even though the ablaut variants **e/o* may not yet have been apportioned in the ultimately characteristic pattern of IE proper (Kerns & Schwartz 1968:717-718).

Thus, "during the emergence of Anatolian, the thematic type was becoming popular in incipient IE proper, so that old biphasal **leik^w-/*lik^w-* developed a thematic competitor [...]" (Kerns & Schwartz 1971:3). I am in essential agreement with these conclusions reached by Kerns & Schwartz. What I wish to do here is to present a theory of the original nature of the thematic vowel itself within the broad context of their observations and the more narrow context of the theories already developed in this volume.³⁵

In 2.2, after arguing that ablaut variations post-date the development of the earliest Indo-European conjugation, I reconstruct the following paradigm for athematic 'biphasal' verbs like **es-* and **gh^wen-*:

1 pers.	<i>*és-ŋ</i>	<i>*gh^wén-ŋ</i>
2/3 pers.	<i>*és-∅</i>	<i>*gh^wén-∅</i>

In sum, such verbs did not show a biphasal structure in early Indo-European. Now I have also demonstrated that Indo-European possessed deictic particles in **e/o* and **yo*, both with non-present value (cf. Sections 2.1.2 and 2.1.3). I assume that at some point in its development, **yo* acquired the accent (> ablaut) variant **ye*. In Shields (1980:264n.8), I point out that the passage of **o* to **e* is a natural function of placing the accent on an originally unaccented **o*. In my opinion, the deictic element **yo* was enclitically attached to active verbs in Indo-European as a means of indicating the non-present function, while the deictic particle **e/o* became contaminated with the iterative verbal structure in **-s-k-* to reinforce the non-present value of **-k-*:

Verb-∅-yo
Verb-∅-s-k-o.

Both constructions were then reanalyzed:

Verb-yo-∅
Verb-sko-∅.

However, as the second-third person marker **-∅* was gradually replaced by **-s* and **-T*, and as the precise indication of tense became more and more a function of the distinction between primary and secondary endings, **-yo* evolved into a purely formal element associated with verbs (similar to the formal stem-elements **-i-*, **-u-*, etc. found in nouns), while a single morpheme **-sko-* came to indicate only the iterative function, having likewise lost all temporal significance. This is the situation attested in Hittite according to Kronasser (1956:179,185), who assigns "iterativ-durative Aktionsart" to

-šk- and who ascribes with certainty only one productive function to the Hittite reflex of *-yo- — the derivation of denominative verbs. In the dialects of Indo-European Proper, *-yo- did become associated with a variety of more specialized meanings (cf. Meillet 1967:138-142), probably resulting from the influence of the inherent meanings of certain verbs with which *-yo- habitually appeared. A parallel development occurred in the case of the feminine markers *-ā-, *-ī-, and *-ū- of nominal declension, which acquired their value in Indo-European Proper from the semantic structure of certain items (e.g., *g^wenā- "woman": Skt. *gnā* < *g^wnā, Gk. *gunē*, OIr. *ben*, Go. *quinō*, OCS *žena*; *mā "mother" [with reduplicated variants *māmā, *mammā]: Skt. *mā*, Gk. *māmmē*, Lith. *mamė*) to which they were attached (cf. Brugmann 1897). The multiplicity of attested functions of *-yo- strongly speaks for dialectal specialization.

I would also suggest that before the separation of the Proto-Anatolians and before the development of verbal stress patterns other than root-accent, the deictic *e/o was beginning to be added to simple verbal stems as a means of indicating the non-present:

Verb- ϕ -o.

This structure was reanalyzed as:

Verb-o- ϕ

and *-o- similarly became a purely formal stem-element without temporal value. Hittite apparently never made *e/o a productive element, resulting in its eventual disappearance there. However, in Indo-European Proper, it achieved productivity and was gradually extended analogically until it became a primary marker of the present stem. It was probably the development of polythematic verbal structure (cf. Adrados 1981a), or multiple stem conjugation (cf. Kerns & Schwartz 1946), in Indo-European Proper which was responsible for its specialization and survival there. Such polythematic verbal structure itself was a function of the great increase in the number of grammatical categories explicitly expressed by Indo-European Proper verb forms. In any case, I believe that the attested use of *e/o to form the subjunctive (a development from the non-present, cf. Neu [1976] and see Chapter V) in Greek, Latin, and Indo-Iranian (cf. Kuryłowicz 1964:137-138) represents a hold-over from the time when the primary value of *e/o was non-present deixis. In other words, *-e/o residually retains here its original primary function (non-present) as a secondary function (cf. Kuryłowicz 1964:15-16), just as the personal marker *-s residually retains its original undifferentiated second-third person function in such secondary verbal forms as

Hitt. *daiš* and Skt. *bhūyās*. As Adrados (1981b:54) points out: "It is [...] an erroneous conception to claim that there were always 1 : 1 ratios in [...] Indoeuropean, that is, that each morpheme marked one category and vice-versa [...]. Only the context dispelled ambiguity."

4.2.2 The Origin of the Stem-Formant *-a-

The same processes which brought about the emergence of thematic conjugation were also responsible for the appearance of ancient verbs with a stem-element in *-a-. In Section 2.1.4, I posit a deictic particle *a, which was similarly attached enclitically to second-third person verbal forms in *- ϕ :

Verb- ϕ -a.

After reanalysis, this formation was segmented morphologically as:

Verb-a- ϕ

with *-a- representing a purely formal stem-element.

4.3 The Evolution of Indo-European a-Class Verbs

Within early Indo-European the a-stem class of verbs began to disappear as a productive linguistic category, as the attested binary system of thematic and athematic verbs demonstrates. I believe that this class was eliminated through a merger with the o-class and especially with the consonant-class. The complete formal merger of certain a-stem verbs with the o-stems was effected, to a large extent, after the introduction of the personal suffix *-w, for *-a-w would have become *-ō in preconsonantal position — a formant which is homophonous with the preconsonantal reflexes of *-o-m and *-o-w. As noted above, sometimes the merger of the a-class and the o-class forms was not complete, resulting in the appearance of a minor class of verbs in *-ayo-. The merger of members of the a-class with the consonant class was precipitated by the following reanalysis:

1 pers.	-a-m/-h	>	-am/-ah
2/3 pers.	-a- ϕ	>	-a.

Of course, all verbal paradigms at this stage of development could optionally incorporate the deictic particle *i, among others, resulting in the suffixes:

	a-class	o-class	consonant class
1 pers.	-ami/-ahi	-o-mi/-o/hi	-C-mi/-C-hi
2/3 pers.	-ai	-o- ϕ -i	-C- ϕ -i.

It should be emphasized again that in addition to the general reanalysis just described, the second-third person formation *-a- ϕ -i of a few a-class verbs was reanalyzed as *-ai- ϕ , with the subsequent generalization of this new stem-formant throughout their paradigm. As we have already seen, such

multiple reanalyses of the same sequence of morphemes are quite common in the evolution of Indo-European conjugation.

The various *a*-class inflections reconstructed here are clearly attested in the historical dialects. The first person suffix **-ah* is seen in the Hittite *hi*-conjugation first person marker *-ahhi*, a contamination of the suffixes *-ah* and *-hi*. The suffix *-hi* itself comes from the original consonant class ending **-h* as a result of mutual analogical influence between the old *a*-class and the consonantal class (see below). The *-i*-element of this ending may represent the deictic particle **-i* or the paradigmatically extended second-third person affix **-ai*. The first person singular perfect middle suffix **-ai* (Skt. *-e*, Gk. *-m-ai*, with *-m-* coming from the active ending **-m(i)*, cf. Szemerényi [1980:221]) of Indo-European Proper also perhaps derives from **-hai*, while the first person singular perfect active desinence **-a* (Skt. *-a*, Gk. *-a*) derives from **-ha* (cf. Neu 1967:225), a contamination of the first person marker **-h* and the paradigmatically extended non-personal suffix **-a* (lacking the deictic particle **-i*). This same **-ha* ending is seen in various first person endings of the mediopassive in Hittite and in uncontaminated form in the Luwian first person preterite active desinence *-ha*. The attested functions of this inflectional element within Anatolian clearly demonstrate that such specialization of variant forms was largely a dialectal phenomenon. Because of the close association which developed in Indo-European Proper between the perfect and the middle, it is possible that the first person singular secondary middle suffix **-m-ā* (Gk. *-mē-n*), shows **-m* with the original *a*-stem suffix **-ah* or **-am* (> **-ā* in preconsonantal position). The ambiguity of Hittite orthography makes the identification of such long-vowel formants impossible in that language. The Sanskrit first person singular middle secondary ending *-a*, seen in the optative, probably reflects the same **-ha* as the Hittite mediopassive. For reasons explained below, I reject Szemerényi's claim (1980:221-222) that Skt. *-a* represents a shortening of **-ā*.

The suffix **-a(i)* is seen in second person singular present function in the Hittite *hi*-conjugation ending *-ti* < **-T-ai*, a contamination of the non-personal suffixes **-T* and **-ai*, while the *hi*-conjugation attests *-ta* < **-T-a* in the second person singular preterite. In the latter case, the old non-personal suffix **-a* is not extended by the deictic element **-i*. Indo-European Proper shows the cognate suffix **-Ta* in the second person singular perfect active (cf. Skt. *-tha*, Gk. *-tha*).

The Hittite third person singular present active ending *-i* of the *hi*-conjugation is probably a reflex of **-ai*, as is the third person perfect middle

ending **-ai* (Skt. *-e*) of Indo-European Proper. The third person singular perfect active ending **-e* (Skt. *-e*, Gk. *-e*) requires special explanation. I believe that the original form of this ending was **-a* (cf. also Neu 1967:226) and that the innovative third person singular perfect active suffix **-e* perhaps represents an analogical extension of the vowel grade (**e*) of the stem-final vocalic element which is found in the third person singular present-stem of thematic verbs. The appearance of this ending then resulted in the specialization of **-a* to middle voice in the third person. The homophony of the first person (**-ha(i)* > **-a(i)*) and the third person (**-a(i)*) in the perfect active may have encouraged this analogical development. The existence of a third person ending in **-a* (without **-i*) is perhaps directly attested in the secondary middle suffix *-a* in Indo-Iranian (cf. Ved. *aīśa* "he ruled", *āduha* "he milked"). Moreover, Kurylowicz (1964:58) observes: "Concerning the regular ending *-ta* of the 3rd p. sing. one must take into account an older form **-a*, indirectly attested by Vedic *āduhat*, *āsayat* for **āduha*, **āsaya* representing mediopassive forms." The origin of this ending is much disputed, although most scholars (e.g., Watkins [1969:84]) suggest that it derives from an original **-o*. However, this is not a necessary assumption, since an original **-a* is also a possibility. Indeed, the only other language where such a construction is directly attested, Hittite (*eša* "he sits", *kiša* "he becomes"; cf. Burrow 1973:312), also permits the reconstruction of an original **-a*.

Although in later Common Indo-European the original *a*-class verbs were now generally converted into thematics or athematics, their inflection would have characterized them as a special subclass within the latter type. Yet, as part of the athematic group, their inflectional pattern tended to be extended to original consonant stem forms; and analogical reformulation probably worked in the opposite direction as well. Perhaps contaminations of the two gradually crystallizing inflectional patterns brought about such suffixes as **-T-a(i)* < the consonant stem second-third person suffix **-T* plus the original *a*-stem (> consonant stem) second-third person suffix **-a(i)*, and the appearance of the original consonant stem first-person marker **-hi* beside **-ah* in the *hi*-conjugation. In any event, I believe that some athematic verb forms came to adopt the inflectional pattern largely based on that of the old *a*-stems, while others came to adopt the inflectional pattern largely based on that of the old consonant stems, although sharp differences between patterns evolved very slowly and were not fully present until the dialectal period because of widespread paradigmatic polymorphy.

It is at this point that Anatolian and Indo-European Proper began to diverge in their utilization of the two sets of verbal inflections, which were still functionally equivalent before the disintegration of Common Indo-European.

In Hittite the two sets of desinences never show functional specialization. But their distribution in this language does undergo significant changes. With the passage of **o* to *a* in Hittite, parts of the inflectional pattern of 'thematic' verbs, which was very similar to that of the old consonantal class but with the thematic vowel **-o-* placed before the endings, came to look very much like parts of the old *a*-stem class, e.g., both **-o-h* and **-ah* would have become *-ah*, just as both **-o-ø* and **-a* would have become *-a*. Because of this fact, originally thematic verbs were largely remodeled on the pattern of the original *a*-stems (> athematics), which became the so-called *hi*-conjugation. Such remodeling perhaps contributed to "the paucity (if not complete absence) of simple thematics in Hittite" (Kerns & Schwartz 1968:717) referred to above. (Although the context of his argument is different, Kronasser [1956:178-179] also proposes that simple thematic verbs were recast as athematics in Hittite.) Of course, the inflectional pattern of old consonant stem verbs evolved into the *mi*-conjugation. However, since these conjugations remained unspecialized, they were subject to the vagaries of further formally motivated analogical changes, resulting in many reclassifications of verbs. Indeed, some verbs continue to vacillate between the two conjugations into the historical period. As Friedrich (1974:78) says: "Manche Verba flektieren überhaupt nach beiden Konjugationen: *deleahhi* und *deliyami* 'ich lasse'".

In Indo-European Proper, the reinterpreted inflectional pattern of the *a*-class verbs did develop a specific function — the indication of stativity. A further reanalysis, identical in nature to the one which brought about the functional specialization of the primary markers of the feminine gender (**-ē*, **-ī*, **-ā*) of Indo-European Proper nouns, operated here. That is, "the semantic feature (FEMALE) was given formal expression because one or more forms possessing this feature had the formal property which came to serve as its exponent" (Shields 1977:58). The feminine suffixes were then analogically extended to other female-denoting forms; and non-female forms possessing these suffixes were interpreted as grammatical feminines, although some relic items retained their original gender, e.g., masculine *ā*-stems like Lat. *navita* "sailor". (See Shields [1982a:72-81] for further details.) In the case of the perfect paradigm, a number of forms possessing the original inflectional pattern of *a*-class verbs were semantically stative (cf. Ved. *vāda*, Gk. (*ω*)/*ōide*, Go. *wait* "knows"; and this inflectional pattern was interpreted as a

formal exponent of that semantic feature. As in the case of the origin of the feminine markers, the number of relevant lexical items could have been small. The inflectional pattern of these items was then analogically extended to statives which originally did not manifest it and eliminated as an inflectional pattern for non-stative verbs. It was this analogical development which most directly accounts for the fact that "when we try to set up equations between Hittite *hi*-verbs and IEP perfects, we find almost none" (Cowgill 1979:26). The Hittite cognates of the few forms of Indo-European Proper which motivated the origin of the perfect could have very readily been lost by the time of historical records.

Since the inflectional pattern which characterized the stative verbs of Indo-European Proper was at the time of its specialization a variant of athematic verbal inflection, it follows that the perfect of Indo-European Proper does not show a 'regularly developed' thematic type (Kerns & Schwartz 1968:717). But because the thematic class remains viable outside the perfect in Indo-European Proper and because laryngeal consonants are lost in these dialects, additional variant forms are in evidence. As noted earlier, the thematic first person singular suffix **-ō* can have its origin in **-om*; but etyma in **-o-h* and **-o-w* are also possible. Probably the attested suffix finds its origin in all three. With the loss of **-h* after a consonant in word-final position, athematic non-stative verbs adopted the suffix **-m(i)* as a marker of the first person function.

4.4 Theoretical Implications. As in the case of other analyses presented in this volume, I want to explore the explanatory power of the general theory just outlined. Specifically, I wish to demonstrate how the reconstruction of an Indo-European class of verbs in **-a-* can serve as the basis for an explanation of the origin of two problematic structures — the Germanic third weak class and the Sanskrit aorist passive.

4.4.1 The Origin of the Germanic Third Weak Class

Perhaps no problem of Germanic verb morphology has generated so much debate among scholars as the origin of the predesinential element of the third class of weak verbs (cf. Go. *haban*, ON *hafa*, OHG *habēn*, OS *hebbian* "to have"). As Jasanoff (1973:850-851) points out:

Not only do the verbs of this class show peculiarities in all the older Germanic languages, but they differ remarkably in their conjugation from one language to another, so that it is not at all obvious how the Common Germanic paradigm should be reconstructed [...].

The situation is simplest in Old High German. The entire conjugation of *habēn* is athematic (to the extent that this term still has any meaning), and is based on a single stem *habē-*: 1 sg. *habēm*, 3 sg. *habēt*, 3 pl. *habēnt*, [...] pret. 1 sg. *habēta*; pres. ptc. *habēnti*, past ptc. *gihabēt* [...].

The OHG pattern is not found in any other Germanic language. In Gothic the corresponding verb *haban* exhibits a systematic opposition between stem forms *habai-* [...] and *haba-*. To the *habai-* group belong 2 sg. *habais*, 3 sg. *habaiþ*, 2 pl. *habaiþ*, the corresponding imperatives (2 sg. *habai* etc.), the weak preterit 1-3 sg. *habaida* etc., and the past ptc. *habaiþs*. The rest of the paradigm is indistinguishable from that of a normal strong verb: 1 sg. *haba*, 1 pl. *habam*, 3 pl. *haband* [etc.]. The Gothic alternation of the stems *habai-* and *haba-* is not completely isolated. It recurs almost exactly in Old Norse, where a typical 3rd class weak verb, *vaka* "wake", is conjugated in the pres. indic. as 1 sg. *vaki*, 2-3 sg. *vakir*, 1 pl. *vakum*, 2 pl. *vakið*, 3 pl. *vaka*. Except for 1 sg. *vaki*, each term is directly equatable with its Gothic counterpart; and *vaki* itself is almost certainly an analogical form, created to conform to the otherwise regular pattern 1 sg. = 3 sg. minus *-r* [...]. In other moods and tenses the picture is the same [...].

The greatest complexity is found in Old Saxon and Old English. In both languages, the 3rd weak class is a mere vestige of a category, the great majority of originally 3rd class verbs having been absorbed into the productive 2nd, or *ō*-class. Old Saxon has carried this development to an extreme, and only two verbs, *hebbian* "have" and *seggian* "say", are usually considered to represent the unmixed type. Their inflection is characterized by an alternation between a stem in *-e-* (or *-a-*), from older **-ē-* < **-ai-*, and a stem in *-ja-*. The forms in *-e-* correspond in distribution to the *-ai-* forms of Gothic (e.g., 2 sg. *habes*, *habas*, 3 sg. *habed*, *habad*) with the significant exception of the short preterit 1-3 sg. *habda* and the matching ptc. *gihabd*, which have the appearance of archaisms. The remaining forms, corresponding to those with the simple thematic vowel in Gothic, show general agreement with the 1st weak class [...]. The situation is very similar in Old English. *Habban*, *secgan* "say", and one or two others follow a paradigm essentially identical to that of Old Saxon [...]. In a number of other verbs, however, Old English has introduced a regularized paradigm (type Anglian *lifzen* "live", 1 sg. *lifze*) which has no counterpart in Old Saxon. This type appears to have been created analogically on the basis of inherited 2 sg. and 3 sg. forms with **ē* stem vocalism (earlier **ai*).

Such complexity leads one to concur with Fullerton's assessment (1977:58) of these data: "Accounting for the various alternations of third-class weak verbs, reconciling them with each other and with non-alternating OHG *ē*, and deriving the third-class patterns from Indo-European has seemed like an insurmountable task."

In developing my own view of the Indo-European origin of the pre-desinential element of the core forms (present active indicative) of the

Germanic third weak conjugation, I shall focus on the Gothic data. This approach is quite traditional, for, as Bennett (1962:135) says: "[...] most discussions of the subject lean heavily on the evidence provided by Gothic". Still, in order to develop a comprehensive explanation, I shall consider other dialectal data as well. Alternate interpretations of these data "have been nicely summarized by Bennett (1962). Flasdiek (1935) discusses in detail the studies which had appeared before his own" (Fullerton 1977:58), and Fullerton (1977:58-69) provides an especially useful review of scholarship since 1962.

I begin by noting that, in spite of the fact that I do not agree with the particulars of his analysis of the origin of the third weak class, I do believe Jasanoff (1973:851) is correct in asserting: "Although it displays an extraordinary degree of paradigmatic diversity in the older Germanic languages, the 3rd class is not a late category". To my mind, this situation is merely another manifestation of the archaic nature of the Germanic languages.

Now if one accepts the idea that at some point in its development Indo-European showed the following verbal paradigm (strengthened for present tense by the deictic **i*):

1 pers.	-a-h-i
2 pers.	-a-φ-i
3 pers.	-a-φ-i,

the idea that once the *a*-class non-singular formation in **-a-N* appeared, it, too, was subject to deictic extension (**-a-N-i*), and the idea that the second-third person singular members of this paradigm could be reinterpreted as **-ai-* (a stem-formant) with a tendency towards subsequent paradigmatic generalization, then the following paradigm would have emerged before such paradigmatic generalization took place:

1 pers.	-a-h-i
2 pers.	-ai-φ (later -ai-s)
3 pers.	-ai-φ (later -ai-T)
non-sg.	-a-N-i.

The reanalysis of **-a-φ-i* as **-ai-φ* would have caused the loss of the specifically present value of the second and third person singular forms, making it likely that the first person singular and the non-singular members of this paradigm also became unspecified (unstrengthened) for tense:

1 pers.	-a-h
2 pers.	-ai-φ (later -ai-s)
3 pers.	-ai-φ (later -ai-T)
non-sg.	-a-N.

Moreover, if one accepts the view that the Gothic evidence regarding the predesinential element of the third weak class reflects the Proto-Germanic situation, then the Proto-Germanic distribution of stem-formants can easily be derived from this ancient Indo-European paradigm:

- 1 pers. sg. (Go.) *haba* (< *-ō < *-ā < *-ah)
- 2 pers. sg. (Go.) *hab-ai-s*
- 3 pers. sg. (Go.) *hab-ai-p*
- 3 pers. pl. (Go.) *hab-a-n-d* (< *-a-N-ti).

The first person plural (Go. *hab-a-m*) was constructed on the basis of the first person singular, just as the second person plural (Go. *hab-ai-p*) was constructed on the basis of the second person singular. Quite clearly, the assertion that "the distribution of forms in *-a-* and *-ai-* in the Gothic (and Common Germanic) 3rd class paradigm is not easy to motivate historically" (Jasanoff 1973:855) holds little validity when the data are analyzed in this way.

In addition, Jasanoff's observation (1973:862) "that 3rd weak class verbs in Germanic commonly correspond semantically to middles in other IE languages (cf. Meid 1971:7)" and that "this is hardly surprising, for the 'internal' value of the IE middle [...] is very close to stative [...]" is also easily explained by my theory. Simply, because the perfect, like the middle, possessed an original stative meaning and because the perfect and the third weak class share a common origin in *a*-class verbs, there exists a natural connection between the stative function and the third weak class. As I noted above, I do not see this semantic function as necessarily implying an etymological relationship between the middle and the present active indicative of the third weak class, as Jasanoff (1973) does. Indeed, I agree with Fullerton (1977:59) that "the theory of Jasanoff (1973) deriving the stem suffix Go. *ai* [...] from middle endings", i.e., from the activization of an older middle paradigm, is rather 'farfetched'; and I believe that Jasanoff's theory, to a large extent, actually denies the archaic character of the Germanic verb since it suggests that the third weak class as it is attested in Gothic is only indirectly derivable from Indo-European sources.

Although the focus of my discussion here is on the forms of the present active indicative, it is clear that other members of the attested Gothic third weak paradigm are explained as naturally within the context of my theory as are these core items. Among the other problematic forms showing a stem in *-ai-*, the second person singular imperative (*habais*) and the second person plural imperative (*habaip*) are quite predictably built on the stem of the second person singular and plural of the present active indicative (just as the third person

plural imperative in *-a-* [*habanda*] is built on the third plural of the present active indicative). The appearance of *-ai-* throughout the preterite (e.g., 1st pers. sg. indic. *habaida*) is likewise expected. Historically, weak verbs show a dental element as the primary indicator of the past tense and a lack of vowel gradation in the preterite stem. The third weak class was made to conform to this pattern through the generalization of *-ai-* in the preterite stem. The choice of *-ai-*, instead of *-a-*, as the predesinential element was motivated by the fact that it is the form of the paradigmatically dominant third person. As far as the Gothic subjunctive and passive are concerned, Polomé (1967:83) points out that "in the other Gothic forms of the 3rd weak class the very same thematic vowel as in the 1st weak class and in the strong verbs is to be found before inflectional endings." Though many details need further elaboration, it appears that analogical influences are at work here. Such a claim is quite reasonable, for since the mediopassive was a dying category in Gothic (and probably late Proto-Germanic), its forms were naturally subject to inter-paradigmatic influences.

But despite the fact that Gothic attests an ancient predesinential formation in the present active indicative of third class weak verbs, one cannot deny the antiquity of the Old High German data, which point to the existence of a predesinential element **-ē-*, for an apparently cognate element is attested in stative formations of Italic, Greek, and Balto-Slavic. It is precisely the seeming antiquity of this latter suffix which has led many scholars to attempt to reconstruct a common source for both Germanic predesinential formations. However, as Jasanoff (1973:850) notes: "[...] no IE present built on the stative suffix **-ē-* will account phonologically for the form of the suffix [*-a(i)-*] in Germanic", just as **-a(i)-* cannot serve as the etymon for the *-ē-* of Old High German and the other Indo-European dialects. Still, I believe that my analysis provides an explanation for the appearance of this stative suffix **-ē-* in the Germanic third weak class. It is important to remember that *a*-class verbs were largely achieving relic status in Common Indo-European itself, as they were assimilated into the thematic and especially the athematic conjugation, although their inflectional pattern as athematics served as the basis for the perfect of Indo-European Proper and the *hi*-conjugation of Hittite. I would argue that the suffix **-ē-*, whatever its origin, started to become a productive stative suffix in late Indo-European Proper and began to be extended to remaining stative verbs with predesinential **-a(i)-*, especially in the central group of dialects. That this generalization of **-ē-* began in late Indo-European Proper is suggested not only by the limited geographical

distribution of the suffix but also by the differing degrees of paradigmatic integration which it shows in the historical dialects.

In Greek the main older function of the suffix is to provide aorists, denoting entry into a state, to otherwise characterized presents — *ekhārēn* to *kheirō* “rejoice”, *ekāēn* to *kaíō* “burn” [...]. Particularly in view of its expanding role in the formation of the future (*skhēsō* < *ékhō* “have” [...]) and perfect (*nenēmēka* < *nēmō* “distribute” [...]), the exclusion of *-ē-* from the present system is remarkable. This aspect of the Greek situation recalls the state of affairs in Baltic and Slavic, where the suffix **-ē-* supplies preterits (aorists) and infinitives to ‘stative’ verbs whose presents typically continue a formation akin to the IE perfect. Parallel to Gk. aor. *emánēn*, pres. *maínomi*, Lithuanian has inf. *minėti* “remember”, pret. 3 sg. *minėjo*, but pres. 3 sg. *mini* < pf. 3 sg. **mone-i* [...]. Only Latin, with *-ē-*presents like *habēō* “have”, *manēō* “remain”, *taceō* “be silent” etc. departs significantly from the Greek and Balto-Slavic pattern. It is far from clear that this situation is old. The Latin 2nd conjugation is notoriously a mixed category, comprising in addition to the *habēō* type both denominal formations (e.g., *albeō* “be white”, *seneō* “be old”, *rubeō* “be red”) and iterative-causatives in **-eye/o-* (e.g., *moneō* “warn”, *noceō* “harm”, *doceō* “teach”). In all probability the *-ē-*inflection of deverbal statives in the present tense is an innovation of Latin; a stative present like *habēō* follows the model of denominal *rubeō* (and/or causative *moneō*, where *-ē-* < **-eye-*) in precisely the same way that the dialectal Lith. pres. 3 sg. *minėja* (for *mini* < **mone-i*) follows that of denominal 3 sg. *rudėja* “rubet” (Jasanoff 1973:855-856).

Within the Germanic group, only Old High German shows the fully regular generalization of **-ē-* in the verb forms under consideration. In contrast, other members of the Germanic family show, to varying degrees, the archaic predestinential elements in **-a-* and **-ai-* associated with stative verbs.

Before concluding this section, I would like to make a suggestion about the origin of the stative suffix **-ē-*. The Greek and Balto-Slavic evidence implies that originally “the stative suffix **-ē-* was restricted to one or more non-present functions” (Jasanoff 1973:856). It should be recalled that a deictic particle in **ē* with non-present signification can be reconstructed for Indo-European. Thus, a specifically non-present athematic formation in **-ϕ-ē* can logically be posited for Indo-European conjugation. This non-present structure itself would have been subject to reanalysis as **-ē-ϕ*, with **-ē-* eventually undergoing paradigmatic generalization and acquiring a secondary stative value because of the influence exerted by the inherent meanings of the verb forms to which it happened to be frequently attached. Through time, the secondary stative function of **-ē-* tended to become primary.

4.4.2 The Origin of the Sanskrit Aorist Passive Marker *-i*

Another enigmatic construction which has been observed by comparative Indo-European linguists is the Sanskrit aorist passive. Burrow (1973:341) describes the formation as follows:

There exists a passive aorist in *-i*, used only in the 3rd person singular, which is independent of any [...] aorist stems: *ājñāyi* “was known”, *ādarśi* “was seen”, etc. Unaugmented forms (which appear in both indicative and injunctive use) are always accented on the root syllable: *śrāvi*, *pādi*, etc. Roots having *i*, *u*, *r* as medial vowel appear in the guṇa grade (*aceti*, *ābodhi*, *asarji*); elsewhere there is normally vṛddhi (*āgāmi*, *ākāri*, *āstāvi*, *āsṛāyi*), more rarely guṇa (*ajāni*, *avādhi*). The formation is taken by some 40 roots in the RV., to which others are added later. It appears also in Iranian (Av. *srāvi*, OPers. *adāriy* = Skt. *śrāvi*, *ādhāri*), but not elsewhere in Indo-European.

I have already made reference to Watkins’ reasonable assertion that this suffix is to be related etymologically to the deictic particle **i*. However, I believe it to be possible that this suffix is a reflex of the old *a*-class third person suffix **-a*.

Earlier I defended the view that the Indo-European vowel phoneme **a/* had [a] and [ə] as its allophones and that the latter allophone appeared primarily under conditions of weak stress. Both allophones passed to /a/ in all dialects except Indo-Iranian, in which [ə] is realized as /i/ in unstressed open syllables, “save when grammatically relevant” (Wyatt 1970:52-53). I have also demonstrated above the frequent specialization of linguistic doublets, and I have referred briefly to the lexical diffusion of sound change. This latter theory should perhaps be more fully explicated. In this regard, Wang (1969:15) says:

[When sound change occurs,] what actually takes place is a kind of diffusion from morpheme to morpheme in [...] the speaker’s vocabulary. This diffusion within a lexicon is basically the same mechanism as the more observed forms of diffusion across dialects or languages, and differs only in its scope of operation; lexical diffusion is more local, the other forms are more global.

We do not need to insist that lexical diffusion is the only means by which the pronunciation of morphemes changes. It is sufficient for the argument here that this is one of the primary means through which a sound change implements itself. According to this view, during the early phase of the change only a small sector of the relevant morphemes is affected. Some of the affected morphemes may change to the Y-pronunciation directly. Other morphemes, however, will at first have both the X-pronunciation and the Y-pronunciation, fluctuating either randomly or according to some such factor as tempo or style [...]. But the X-pronunciation will gradually be suppressed in favor of the Y-pronunciation. These doublets, then, serve as a kind of psychological bridge between the two end-points of a sound

change, carrying along with them even those morphemes which do not go through a doublet stage.

This hypothesis of lexical diffusion suggests that, at a given time in any living language, we should expect to find several sets of morphemes with dual pronunciations.

It is these originally functionally equivalent dual pronunciations which become independent morphological markers through functional specialization. All three of these proposals play a role in my own explanation of the origin of the Sanskrit aorist passive.

Now Indo-Iranian shows a first person singular middle secondary ending in *-a*, which is preserved in the optative (Skt. *bhāvey-a* "be", Avest. *vāuray-ā* "choose") and which stands beside a thematic ending in *-e* (< **-hai*) (Skt. *ābhav-e*). I believe that the ending *-a* derives from an inherited **-ha*. It is significant that Indo-Iranian also shows an alternate first person secondary middle suffix in *-i*, limited to athematic stems (e.g., Skt. *āduhi* "I milked", *ākri* "I have done", Avest. *aojī* "I said"). I would like to suggest that the endings *-a* and *-i* are etymologically related. Simply, as the [ə] allophone of **-a* began to pass gradually to *-i*, producing doublet forms, *-i* became specialized in athematic stems, with the result that both forms of the morpheme have been preserved. The fact that the original suffix **-ha* was at times accented would have also contributed to its retention in the language, and accent was thereby analogically extended to some occurrences of the *-i* ending itself after its appearance. The laryngeal of the desinence **-ha* has simply been lost here.

As I argued earlier, the existence of an inherited third person singular middle secondary ending in *-a* is also directly attested in Indo-Iranian (Ved. *aiśa* "he ruled", *āduha* "he milked") and reflects an ancient *a*-class ending **-a*. Now as some occurrences of this third person singular secondary middle suffix **-a* began gradually to pass to *-i* in Indo-Iranian, I believe that the resulting doublets were also morphologically specialized, just as they were in the case of the first person suffix **-(h)a*. However, in this case the specialization of *-i* was as a passive aorist marker. It is interesting that in Vedic and Avestan there is a third person singular primary middle desinence *-e* (*duhé* "he milks"), which probably comes from the old *a*-class suffix **-ai*. This ending is limited to passive and reflexive function in transitive roots (Insler 1968:325). According to Insler (1968:329-330), the existence of this suffix provides the reason for the specialization of *-i*:

[...] the invariable occurrence of the 3rd sgl. primary ending *-e* (< **-ai*) is confined to the passive employment of transitive roots in both Vedic and Avestan. Yet in form it is completely homonymous with the 1st sgl. ending *-e* [< **-hai*] which is also invariable, so to speak, in all classes of medial athematic presents (both transitive and intransitive). The replacement of the likewise older invariable 3rd sgl. IIr. **-a* by IIr. **-i* in the passive aorist of transitive roots was the attempt to utilize in this class a desinence homonymous with the innovated 1st sgl. **-i*,³⁶ an ending which was also invariable in all athematic classes. In other words: If in the present passive employment of transitives one was permitted in Indo-Iranian to use only the 3rd sgl. ending **-ai* (as in *bruve*, Av. *tmruve*), a form coinciding with the 'universal' 1st sgl. **-[(h)]ai*, then in the aorist passive employment of the same transitives, a category where likewise one and only one form of the 3rd sgl. was permitted, one analogically replaced 3rd sgl. **-a* by **-i* in order to utilize a desinence that equally coincided with the (newer) 'universal' **-i* of the 1st sgl.³⁷ The secondary use of 3rd sgl. *-i* in the Indic deponents *abodhi*, *apadi*, etc. may be a development only in that branch, but the absence of comparable Avestan forms leaves the issue undecided.

This analysis of the origin of the passive aorist suffix *-i* perhaps sheds light on a certain development which Wyatt is hard pressed to explain. Simply,

it is not easy to believe (and Wyatt [1970] admits that his own heart is not in it, p. 51) that the absence of the Indo-Iranian shift of unaccented *-a* > *-i* in the singular perfect active answers to the morphological significance of *-a* in distinguishing indicative *-dha* from imperative *-dhi*; after all, *viddhī* differs from *véttha* in three other phonological features (Collinge 1971:72-73).

Now it can be argued that the retention of *-a* as the marker of the first-person perfect active was motivated by the fact that this would have provided a means of distinguishing to a large degree the first-person perfect active and the first-person secondary middle. The only remaining homophony would have occurred in the case of the unaccented secondary middle *-a*, since *-e* would have marked this latter function in thematics, *-i* would have generally marked it in athematics, and *-ā* would have marked it in certain athematic stems. This retained first person perfect suffix may then have exerted some analogical pressure on the second person ending *-tha*, resulting in the retention of *-a* there also. After all, it was noted before that although the third person is the starting point for most analogical changes within verbal paradigms, cases of analogical remodeling based on the first person are not unknown. Moreover, the theory of lexical diffusion provides still another approach to the difficulties posed by these forms, since, as Chen & Wang (1975:226) observe, "more

often than linguists have thought, a[n innovative] phonological rule peters out toward the end of its life span, or is thwarted by another rule competing for the same lexemes." That is, the rare exceptions to Wyatt's theory concerning the development of IE */a/ in Indo-Iranian, which his reviewers (e.g., Collinge [1971] and Szemerényi [1972]) have been so quick to point out, may simply be residue resulting from the incomplete spread of the change throughout the lexicon. In this regard, Reighard (1974) has established that certain lexical classes relevant to the diffusion of a number of phonological changes in Latin are morphologically defined. The exceptions to the phonological change proposed by Wyatt which are attested in the perfect may thus be a function of the perfect endings constituting a unified lexical class which did not undergo a phonological innovation. This assessment is actually a refinement of Wyatt's own view (1970:51) that the exceptions constitute cases of morphologically conditioned sound change.

4.5 The Origin of the Middle Voice

The Indo-European language that is reconstructed for the period before the disintegration of the unified Indo-European speech community clearly shows two voice categories — an active and a middle.³⁸ However, the existence of these two separate morphological entities in the earlier stages of the language is by no means as certain. Indeed, Kerns & Schwartz (1971:5) observe that "[...] the implementation of different voices seems to have evolved from a unitary morphological situation", for "the middle endings were not so much established in the parent speech, as the active" (Misra 1968:100). My theory of the origin of the middle is based on the assumption that the appearance of two diatheses is characteristic of later stages of Common Indo-European, before significant dialectal development. In my opinion, the original exponents of the middle voice were reanalyzed dative-case enclitic pronominal forms with a deictic origin. It is important to remember that even after successive reanalyses in particular constructions, the deictics of Indo-European maintained their morphological integrity, making them subject to still further reanalyses.

Among the proposals which underlie my central thesis is the idea that the middle voice endings originally indicated "that the verbal meaning, whether action or state, is to be interpreted with respect to the subject" (Lehmann 1974:127) (or, as Lyons [1971:373] puts it: "The implications of the middle [when it is in opposition with the active] are that 'action' or 'state' affects the subject of the verb or his interests"). I have already expressed my acceptance of the position that the middle and perfect do not bear a direct etymological

relationship, though some apparent formal correspondences between the two categories cannot be denied. These correspondences result from analogical reformulations motivated by the fact that both categories "have implications based on the result of action" (Lehmann 1974:143-144). Moreover, I feel that the original marker of the middle voice was *-o (cf. Lehmann [1974:103], Adrados [1975:605], Szemerényi [1980:225]), although it was extended by *-r in some dialects (cf. Kerns & Schwartz 1971:26), e.g., Lat. 3rd sg. -tur, OIr. 3rd sg. -thir, Skt. 3rd pl. -ran. I am comfortable with Watkins' suggestion (1969:194-197) that this r-element originally had nothing to do with the middle voice, but was merely an appended particle (cf., e.g., "gr. *ára, ár, hra*, kypr. *ér* 'also', lit. *if* 'und auch' [...], ai. *ar-am* 'füglich, passend, zurecht, genug'" [Hirt 1927:12]). I leave open the question of this particle's original meaning, noting that the widespread geographical distribution of the suffix (Anatolian, Armenian, Celtic, Indo-Iranian, Italic, Phrygian, Tocharian, Venetic) and its diverse formal and functional dialectal manifestations (e.g., 3rd sg. mid. Lat. -tur, 3rd pl. mid. Skt. -ra, 3rd pl. act. Skt. -ur, Hitt. -ir) (cf. Adrados [1975:628-630], Flobert [1975:453-478], Szemerényi [1980: 224-225]) suggest that it probably "was of Pan-IE extent, at least optionally" (Wyatt 1972:613), and played a role in conjugation which is no longer directly attested in any historical dialect. However, I think it is interesting that Indo-European possessed a non-singular marker in *-(e/o)r, about which Erhart (1970:80) says: "Eine andere Pluralendung [...] liegt vielleicht in den armenischen Formen auf -er, -ear, und in den keltischen (mittelirischen, mittelnordischen) Formen auf -ar vor; alle diese Formen gehen wohl auf ein i.e. r-Kollektivum zurück." Beekes (1987:215-216) identifies this same non-singular (< collective) element in the numeral '4', *k^wetwor-. I feel it is possible that the r-endings of the verb derive from non-singular *-(e/o)r. This non-singular suffix was apparently never very productive, so as other markers were generalized at its expense, it became subject to reinterpretation. The frequent observation (cf. Szemerényi 1980:225) that r-endings were originally limited to third person is also explained by this proposal, for, as noted earlier, the appearance of specialized first and second person non-singular suffixes was a late development in Indo-European. The extension of *-(e/o)r to the third person singular was perhaps motivated by its frequent collective value.

Another assumption of mine is more broadly syntactic in nature. Simply, under various circumstances, the verb could assume initial position in its clause.³⁹ As Meillet (1964:365) points out:

Aucun mot n'avait dans la phrase indo-européenne une place définie et constante. La plupart des langues indo-européennes ont tendu à fixer plus ou moins l'ordre des mots, et la prose sanskrite par exemple offre presque un ordre fixe. Mais cet ordre varie d'une langue à l'autre, et presque partout il subsiste des traces importantes de la liberté ancienne.

This freedom, Meillet (1964:365) maintains, was the result of the fact that "les rapports entre les diverses parties de la phrase étaient indiqués par la flexion et par l'accord; [...] les mots étaient placés de manière à attirer l'attention sur les parties de la phrase importantes pour le sens. Ainsi l'ordre des mots avait une valeur expressive, et non syntaxique." Recently a great deal has been written about the nature of word order in Indo-European, and in such discussions "the 'verb' [...] is the most powerful unit variable [...]" (Friedrich 1976:476). Although the SOV order is most commonly ascribed to Indo-European, arguments against this theory, which is most emphatically advanced by Lehmann (e.g., 1974) and his students (e.g., Justus [1976, 1978]), are quite common. As Jeffers (1976:983) notes: "[...] certain of L[ehmann]'s claims about word order in the dialects are highly exaggerated [...]. Moreover, L[ehmann]'s data offer significant problems which, for the most part, he fails to confront [...]. In many situations, conflicting evidence is ignored" (cf. also Section 1.2.2). Indeed, Friedrich (1975, 1976) argues at length that Indo-European was an SVO language, while Hall & Hall (1971) and Miller (1975) propose that it was VSO. I believe that whatever the 'basic' word order pattern was, the possibilities of multiple interpretation of the data suggest a language with significant flexibility in word order, as Meillet indicates. Even Friedrich (1976:477), while espousing his 'Type II Hypothesis', admits that "a case system of [the Indo-European type] is congruous with and typical of a loose, partly disharmonic type II structure".

Turning now to my assumptions about noun declension which have an impact on my theory of the origin of the middle voice category, I provide extensive arguments in Shields (1982a:33-60) that the Indo-European accusative, genitive, ablative, dative, instrumental, and locative cases all share a common origin in an objective case category. In Shields (1983), I attempt to relate etymologically the Old Hittite directive case in *-a* to this same ancient morphological category. Of course, such a view about the gradual development of the late Indo-European system of nominal inflection is not new. Specht (1947:353), for example, writes that "die Zahl der nachweisbaren 7 oder 8 idg. Kasus ist sicher nicht auf einmal entstanden, sondern sie ist

allmählich ausgebaut worden." In what follows, special emphasis is placed on the original unity of the dative and genitive cases. Therefore, it is important to note that Kurylowicz (1964:199-200), before stating that the locative and the genitive constituted an original single case (see Section 2.1.1), stresses that the dative and the instrumental were at first merely secondary functions of the locative. The universal linguistic connections between the locative and the genitive have been described by Lyons (1968:496-500, 1971:388-395) and Clark (1978:117-118), so it is not surprising to see within Indo-European a similarly close connection between the dative case and possessive meaning, cf. Lat. *Gaius mihi est nomen* "Gaius is my name" and Hitt. *ANA SES-IA NUGÁL kuitki* "My brother has nothing", where "das Verbum 'sein' kann ein possessivischen Dativ(-Lokalis) bei sich haben" (Friedrich 1974:121).

As far as the personal pronouns of Indo-European are concerned, I believe that enclitic forms, still attested in various dialects, especially Hittite, were very common, if not normative, in earlier stages of the language. Such pronouns were always appended to the first word of the sentence, as in Hittite (cf. Friedrich 1974:147). There was no special reflexive form in Indo-European, as "the lack of a reflexive pronoun in Sanskrit and the variation in forms from dialect to dialect indicate" (Lehmann 1974:128). "The late origin of the reflexive pronoun may also be demonstrated by noting its defective set of forms in the dialects, even in a contemporary dialect like German. A full paradigm was never developed" (Lehmann 1974:128). Typically, reflexive function was originally marked by the personal pronouns themselves. The same situation is also attested in Hittite, where "unser Reflexivpronomen kann durch das entsprechende Personalpronomen [...] ausgedrückt werden", although the particle *-za* (*-z*) can perform the same role (Friedrich 1974:63).

Various Indo-European dialects attest personal pronouns in **moi* and **toi* with dative function: Skt. *me*, Avest. *me*, OPers. *mai*, Gk. *moi*, OIr. *-m-*, Lith. *mi*, OCS *mi*; Skt. *te*, Avest. *te*, *tōi*, OPers. *ta*, Gk. *toi*, Lith. *ti*, OCS *ti* (cf. Petersen 1930:172-173, 176-177). Many of these languages attest these forms as genitive and, less frequently, accusative markers as well (cf. Petersen [1930:173,177] and Schmidt [1968:227-228]); and they also use them enclitically. The Latin pronouns *mīs*, *tīs* (< **-oi-* + **-s* = genitive marker) are to be related to these other dialectal forms, although they show specialization in the genitive and subsequent hypercharacterization. The multiple functions of the attested items, which Petersen (1930:173) describes as "survivals rather than innovations", result from the original unity of these cases. Hittite generally shows enclitic personal pronouns in *-mu* and *-ta*

with accusative-dative function. However, rare alternates in *-me* (*-mi*) (< **moi*) and *-te* (*-ti*) (< **toi*) are attested (Sturtevant 1933:194).⁴⁰ According to Kronasser (1956:142), *-mu* represents **me* with the vowel of *ammuk* "I", while *-ta* does indeed derive from **toi*, with the *-a* here representing a case of orthographic *a* for *e* (cf. Kronasser 1956:38-39).⁴¹ I follow Sturtevant (1933: 194) in deriving the Hittite enclitic possessives *-me-* (*-mi-*) and *-te-* (*-ti-*) "from the combination of a stem in *oi* with the case endings", i.e., apparently Hittite largely specialized **moi* and **toi* as genitives (like Latin) and later reanalyzed the case suffix as part of the stem, creating possessive pronoun forms.

Indo-European did not possess a third person personal pronoun; instead, demonstratives served in this capacity (cf. Brugmann 1904b:408). But Hittite does attest a third person dative enclitic *-še* (*-ši*) (< **soi*, cf. Neu [1979: 188]), which Kronasser (1956:144) relates to the demonstrative stem **so-*. I believe that Hittite *-še* thus reflects the Indo-European use of the enclitic forms of the demonstrative **so-* as third person pronouns. It is clear that Indo-European also possessed a demonstrative stem in **e-* (e.g., nom. sg. masc. **e-s*: Umbr. *es-to-*, OIr. *ē*, OHG *ēr*; acc. sg. masc. **e-m*: OLat. *em*, Skt. *im-ām*; cf. Brugmann [1904a:32, 1911:326-327]), whose use as an enclitic third person pronoun is attested in Hittite forms like *-aš* (nom. masc.), *-an* (acc.), etc. In Section 2.1.2, I note that Sturtevant (1933:199) sees the *o*-grade of the demonstrative stem **e-* (cf. Skt. *aśya*, Osc. *es-idum*) in Hitt. *-aš*, etc. Although Hittite attests no dative form of this enclitic, and the cognate demonstratives of the other dialects generally show complicated reformulations involving 'formative elements' in **-s-*, **-sm-*, and **-sy-* in the dative, ablative-genitive, and locative cases (Lane 1961:470-475), I would suggest that a parallel enclitic form in **-oi* with dative function probably existed, especially in light of Brugmann's reconstruction (1911:327) of a "Lok. Sing. **ei* als Adverbium [...] in folgenden Formen: griech. *ei* 'so, wenn', *ei-ta* 'dann', got. *ei* Relativ-partikel [...], aksl. *i* (*ji*) 'und' [...]."

One final observation is necessary before I present the specific reanalyses which gave rise to the middle voice. Fillmore (1968:65) emphasizes the close deep semantic 'connection' between dative case forms and "the various uses of the middle voice". He also notes "the parallels one finds" between middle voice, dative case, and "certain [...] uses of 'reflexive pronouns'" (1968:65). Baldi (1976:242) maintains "that the entire middle system of Indo-European [i.e., all of Hirt's 'types of middle' (1934:197-203)] can be classified as a

system of covert reflexivity (as opposed to overt reflexivity, marked by the use of the Active voice with reflexive pronouns." More precisely, Baldi (1976: 234,142-243) argues that in the middle voice the deep agent is coreferential with what Fillmore (1968:24) calls the deep dative element (if the verb is intransitive, the agent may also be coreferential with what Fillmore calls the deep object [Baldi 1976:234]). In any event, it is clear that the dative and the middle bear an intimate semantic relationship to one another; and it is the semantic connection between these two categories which allowed the reanalyses of the surface-ambiguous constructions presented below to proceed.⁴²

In early Indo-European, then, the notion of "verbal state or action interpreted with respect to the subject" (e.g., *he sacrifices for himself*) would have been expressed by *verb* (frequently in clause-initial position) + *dative case of the appropriate enclitic personal pronoun* (coreferential with the subject). At the time of the origin of the formal middle voice category, **-s* and **-T* were competing with older **-o* as markers of the non-personal (second-third person); and deictic particles, including **i*, could optionally be added to these markers as a means of temporal specification. Therefore, the following non-personal verbal formations with enclitic personal pronouns in dative function existed in Indo-European:

Verb-o-toi (Verb + non-personal marker + enclitic pronoun)

Verb-o-soi (Verb + non-personal marker + enclitic pronoun).

Such formations were reanalyzed because of inherent surface ambiguities (cf. Anttila 1972:92-94). The element **-i* was associated with the optional deictic particle **i*, and the elements **-t* and **-s* were associated with the homophonous verbal markers of the non-personal. **-o-* was then segmented as a verbal marker bearing the meaning of "verbal state or action interpreted with respect to the subject".⁴³

Verb-t-o-i (Verb + non-personal marker + middle voice marker + deictic particle)

Verb-s-o-i (Verb + non-personal marker + middle voice marker + deictic particle).

It should be emphasized that the operation of this process of reanalysis at one stage of the linguistic development of Indo-European did not preclude the eventual re-emergence of verbal formations containing enclitic personal pronouns in reflexive function since these pronouns continued to exist as autonomous entities in other environments in the language. That is, just as the continued independent existence of deictic particles led to their subsequent enclitic attachment to new verbal formations after they were reanalyzed as

suffixes in others, so the continued productive use of enclitic personal pronouns in Indo-European, along with the general lack of specifically reflexive pronominal elements and the permitted morpho-syntactic patterning of these forms, made possible the creation of new reflexive constructions involving enclitic personal pronouns.

As the non-personal marker **-t* became specialized in the third person and as the distinction between primary and secondary endings (based centrally on the presence or absence of deictic [$>$ inflectional] **i*) gradually crystallized, **-t-o* became the secondary suffix of the third person middle (Skt. *-ta*, Gk. *-to*) and **-t-o-i* the primary marker of the third person middle (Skt. *-te*, Gk. [Arcad.] *-toi*) (cf. Szemerényi 1980:220-223). Likewise, as **-s* became specialized in the second person, **-s-o* (Avest. *-sa*, Gk. *-so*) and **s-o-i* (Skt. *-se*, Gk. [Arcad.] *-soi*) became parallel second person middle desinences (cf. Szemerényi 1980:220-223). As far as the crucial Greek evidence is concerned, I thus consider Attic *-tai*, *-sai* to be innovative analogical forms (cf. Kuryłowicz [1964:59-60] and Ruipérez [1952]), or perhaps generalizations of the old *a*-class third person suffix **-ai* to **-t* and **-s*, which then underwent specialization in the middle voice. In any event, it seems that they do not represent original middle desinences. Kuryłowicz (1964:60) says in this regard: "The testimony of Arcadian (*-toi*, *-ntoi*) and Cypriote (*-tui*) [...] has recently been reinforced by the Mycenaean primary ending *-to* representing *-(n)toi* [...]", although it must be acknowledged that Schwink (1989:140) views "the Mycenaean evidence [as] quite ambiguous". Once the middle was established as a formal category, other suffixes — like those of the old *a*-class verbs — were integrated into it.

A comparable personal (first person) construction would have taken the following form:

Verb-m-moi (Verb + personal marker + enclitic pronoun).

This formation, of course, did not possess the inherent surface ambiguity of the parallel non-personal structures and therefore was not subject to reanalysis. Indeed, the variety of attested first person middle endings (e.g., prim. Skt. *-e*, Gk. *-mai*; sec. Skt. *-i*, *-e*, Gk. *-mān*; cf. Szemerényi 1980:220-221), implies that they were later middle desinences, formulated in order to complete the middle paradigm. However, instead of deriving Gk. *-mai* from an extension of **-m* to the ancient *a*-class suffix **-(h)ai*, as above, one could derive it from **-moi*, "in which *-a-* has replaced *-o-* on the basis of forms with *-a-* ($< *-\eta$)" (Schmalstieg 1976:33). A suffix **-moi* itself could result from a reanalysis of the fast speech alternate of the personal verbal con-

struction in **-m-moi* that appears above. Simply, in allegro style, *Verb-m-moi* could have passed to *Verb-moi* through degemination (cf. Rubach 1977:80), with the latter structure being resegmented as *Verb-m-o-i* (Verb + personal marker + middle voice marker + deictic particle), especially under the influence of non-personal constructions.⁴⁴

While I am considering alternative explanations, I also want to present still another explanation of the origin of middle forms like Ved. *āduha* "he milked", *aiśa* "he ruled", and Hitt. *ēsa* "he sits", *kiša* "he becomes". If one accepts Watkins' assertion (1969:84-85) that these items show an original ending in **-o*, instead of **-a*, then the **-o* suffix may be a result of the reanalysis of *Verb-ø-oi* (Verb + old non-personal marker *-ø* + enclitic pronoun) as *Verb-ø-o-i* (Verb + old non-personal marker *-ø* + middle voice marker + deictic particle) — a reanalysis parallel to the ones which gave rise to the middle suffixes **-to(i)* and **-so(i)*. Again it is obvious that "there are very few unique solutions to the problems posed by historical and comparative linguistics" (Shields 1982a:2).

Chapter V

The Origin of the Optative and the Subjunctive

In this brief chapter I want to deal with the origin of the optative and subjunctive moods of Indo-European. Traditional reconstructions of Proto-Indo-European ascribe to the language independent optative and subjunctive categories (cf. Brugmann [1904b:551-557] and Meillet [1964:223-226]). In athematic verbs, the optative is believed to have been formed by the modal suffix **-yē-* “in sg. 1, 2, 3 and mostly in pl. 3, and by **-ī-* in pl. 1 and pl. 2. Thus, operating with the verb **és-/s-* the optative stem is **s-yē-* in the first group of forms and **s-ī-* in the second. If the indicative stem is thematic, its form with stem final *-o-* [was] extended by *-i-*, as **bhero-i-*” (Kerns & Schwartz 1971:22). In athematic verbs, “The subjunctive mood was formed with [...] a modal suffix *-e-/o-* e.g. IE *es-o-t* (beside indicative *es-ti*) > Skt. *aset* (beside indicative *astí*); with a verbal base ending in a primary vowel, the modal affix *-e-/o-* was contracted to the final vowel of the base,” resulting in **-ē-/ō-* (Misra 1968:105). (On the origin and nature of the *ē*-subjunctive, see below.) The formal sources of these markers remained quite obscure to traditional theorists, as they still do today. Moreover, no consensus was ever reached about the original signification of these two modal categories, although Delbrück’s view that the optative expressed “primarily wish (secondarily potentiality)” and the subjunctive “primarily will (secondarily future)” (Hahn 1953:138) was and remains the most popular.⁴⁵

More recent approaches to Indo-European morphology and syntax, which emphasize the absence of these categories in Hittite, suggest that “the optative and subjunctive are IE proper neo-categories” (Kerns & Schwartz 1971:21). On the basis of this idea, Neu (1976:251-253) maintains that at the time of the

migration of the Proto-Anatolians, the Indo-European active-voice verb showed a present and a non-present form. After the departure of the Proto-Anatolians, this non-present category bifurcated into a preterite category and a mood category, and then the mood category bifurcated into the optative and the subjunctive. Obviously, the imperative category had an independent existence from a much earlier date. The idea that the optative and the subjunctive originally constituted a single grammatical category within Indo-European is not new, even though it was never widely accepted. Thus, Hahn (1953:140) points out that in contrast to Delbrück,

Others believe that the sharp distinction between the two moods is an independent development of Greek and Sanskrit. The leaders here are Morris and Oertel. Like Bergaigne, Morris [...] — followed by Nutting [...] — holds that the categories in the original language were vague and indefinite; later Oertel and Morris jointly [...] maintain that the undifferentiated condition of Latin, not the modal distinction of Sanskrit and Greek, represented the state of affairs in Indo-European.

What is novel about Neu's hypothesis is the supposition that it was the non-present category that gave rise to both of these modal categories. Although I do not fully agree with every detail of Neu's analysis, I believe that his derivation of the optative and the subjunctive from an original Indo-European non-present formation is an accurate portrayal of linguistic history. To my mind, the logical etymological source of the markers of these original non-present constructions would be deictic particles.

5.1 *The Theory*. As I maintain in Sections 2.1.1 and 2.1.2, Indo-European possessed deictic particles in **i* and **e*. These two deictics are attested in the particle **ei*, a contamination of the two (cf. Hirt 1927:15). According to Brugmann (1916:990), "**ei* 'in dem, in dem Falle, da (lokal), so'" is seen in "griech. *ei ei-ta*, got. *ei*, wahrscheinlich auch aksl. *i*", as well as in the "Lok. Sing. [demonstrative] **ei*" which he reconstructs for the demonstrative stem **e-* (1911:327; cf. 4.5). This particle is most likely attested in the nominative singular masculine demonstrative form **ei* (i.e., **ei-φ*: Skt. *ay-ám*, Avest. *ay-ām*, Lat. *is* [*< OLat. ei-s*]). Indeed, it seems that a demonstrative stem **ei-* is found in other case-forms as well, e.g., dat.-abl. pl. **ei-bh(y)os*: Skt. *ebhyas*, OLat. *ibus*; loc. pl. **ei-su*: Skt. *eṣu*, OCS *ixъ* (Szemerényi 1980:190). With the monophthongization of preconsonantal word-final diphthongs in late Indo-European, **ei* would have developed two

variants — **-ei* and **-ī*. I would like to suggest that the nominative singular feminine demonstrative form **ī* (Skt. *īyám*, Avest. *īyām*, OPers. *īyam* *< *ī + am*; Gk. *īa* [with *-a* from the accusative (cf. Brugmann 1911:328)]; Lith. *jī*) represents the preconsonantal sandhi variant of **ei*. According to Szemerényi (1980:190-191), a demonstrative form **ī* is also to be reconstructed for the nominative-accusative plural neuter (see Szemerényi [1980:190-191] for details). Moreover, the deictic particle **ī*, which is attested in Avest. *ī*, Gk. *ī*, OCS *-i*, and Skt. *ī-drś-* "such a one, a similar one" (cf. Brugmann [1916:980-981] and Hirt [1927:11]), is probably to be related to the demonstrative stem **ī-* (Hirt 1927:27) and can therefore be analyzed as a preconsonantal sandhi variant of an original deictic element in **ei*. It would seem that the deixis of both **e* and **ei* was non-present, for Brugmann (1911:312) observes that the demonstrative stems **e-* and **ī-* "waren vermutlich im Uridg. in der Bedeutung von **to-* nicht wesentlich verschieden, also allgemeindeiktisch". The fact that deictic **e* came to be used as a marker of the dialectal imperfect (i.e., as the so-called augment) and that the Greek particle *ei(-ta)* (*< *ei*) continues to maintain the meaning "then (and there)" (cf. Brugmann 1916:990) makes the original non-present temporal signification of **e* and **ei* completely clear.

On the basis of such views, it seems to me that a new theory of the origin of the optative and subjunctive markers can be constructed. Simply, the deictic particles **e* and **ei* were among those which were suffixed to non-personal verbs in **-φ* in order to indicate the non-present. In athematic conjugation, **e* was enclitically attached to the non-personal in **-φ*, yielding **-φ-e*, which was then reanalyzed as **-e-φ* (*>* subjunctive function). In thematic stems, the addition of **e* to **-e-φ* resulted in **-e-φ-e*, which, of phonological necessity, became **-ē-* and was reanalyzed as **-ē-φ* (cf. Burrow 1973:346). That is, when the vowel **a*, **e*, or **o* was followed immediately by another occurrence of itself or an occurrence of one of the other two vowels, contraction took place. "The product regulated itself after the quality of the first", with a few possible exceptions (Brugmann 1888:106). The thematic subjunctive marker **-δ-* probably results from the addition of **e* to non-personal verbal forms in **-o-φ*, i.e., **-o-φ-e* *>* **-δ-φ*, while the athematic variant **-o-* was created from the following proportional analogy (cf. Misra 1968:105):

<i>ē</i>	:	<i>e</i>
<i>ō</i>	:	<i>x</i> .

The question naturally arises as to why the *o*-grade variant of the stem vowel, as well as the expected *e*-grade, is ascribed to the second-third person. Since, according to the Greek evidence, the thematic subjunctive distributes the stem-vowels **-ō-* and **-ē-* "the same as in the indicative" (Brugmann 1894:465-466), it could be argued that the variant **-ō-* is itself merely a secondary analogical creation:

e : *ē*
o : *χ*.

However, I have argued above that patterns of vowel gradation, which had their source in a variety of linguistic changes, developed only gradually within Indo-European into a coherent morpho-syntactic device. Under such circumstances, complete consistency would have been difficult to achieve, and therefore some vacillation in use is expected, especially in a secondary formation like the subjunctive, which tends to be archaic despite recent functional specialization (cf. Kurylowicz 1960:79-80). More importantly, although the thematic optative generally shows the *o*-grade variant of the stem-vowel in the second and third person singular, Baltic attests to the fact that an alternate *e*-grade form once existed in this construction: "Diese Erklärung könnte im Baltischen eine Stütze finden, wenn dort die mit *-ei-* gebildeten Imperative (ursprünglich Optative), wie apreuss. *weddeis*, wirklich auf idg. *-ei-*, nicht *-oi-*, zurückgehen" (Szemerényi 1980:241). In other dialects, the thematic optative shows the generalization of the stem-variant in **-o-* (Szemerényi 1980:241). Since the subjunctive and the optative develop from a common source, it would seem natural that the thematic subjunctive, too, once showed a stem in **-o-* in the second and third person function. After the subjunctive marker **-ō-* came into existence, its distribution was generally defined by the distribution of *o*-grade in the indicative, cf. the Greek data, although specifically dialectal developments, including the emergence of the *ā*-subjunctive (see below), disrupted the pattern of occurrence. For example, in Sanskrit the distinction between a subjunctive in **-ō-* and a subjunctive in **-ē-* was lost when the vowels **ō* and **ē* merged as *ā*. The Latin data are complicated by the fact that the optative and the subjunctive never fully bifurcated and that a modal formation in **-ā-* developed at the expense of one in **-ō-*, resulting in the loss of the marker **-ō-*. In Celtic, the apparent generalization of a subjunctive suffix **-ā-* also led to the disappearance of **-ō-*, as well as **-ē-* (cf. Lewis & Petersen 1961:288-289). All in all, the original distribution of the thematic subjunctive formant **-ō-* is difficult to assess.

The athematic optative suffix **-ī-*, I believe, represents the preconsonantal variant of the verbal construction **-φ-ei* (i.e., non-personal marker **-φ* + deictic particle **ei*) > **-φ-ī* > **-ī-φ*, while **-yē-* shows a contamination of the modal suffix **-ī-* and the modal (> subjunctive) marker **-ē-* (i.e., **-ī-* + **-ē-* > **-yē-*). The thematic optative formation in **-o-i-* derives from **-o-φ-ī* (< **-ei*) (cf. Burrow 1973:351), which was subsequently reanalyzed as **-o-i-φ*. It is interesting to note that in Greek the particle *ei* "knüpfte Wünsche und Aufforderungen, wie das nächstverwandte ai. *ayē* 'so'" (Brugmann 1904b:616). I believe that Greek attests to a late Indo-European Proper specialization of the meaning of this particle — a meaning closely related to the indication of non-present time. It was this implication of 'wish' in the meaning of **ei*/**ī* which was central in its coming to serve as a marker of the specifically optative function.

I also want to point out that Watkins (1969:232) reconstructs the original second-third person singular thematic optative desinence as **-φ*, i.e., **-o-i-φ*. He says:

Der alit. Imperativ auf *-ī*, refl. *-ie-s* gibt direkt die endungslose 2. Sg. **-oi* wieder. Im Slawischen können wir die Imperativ *nes-i nes-ēm nes-ētē* von einem ebensolchen Paradigma mit 2. Sg. **-oi*, 1. Pl. **-oi-mo*, 2. Pl. **-oi-te* herleiten [...]. Die 3. Sg. **-oi* mit zéro-Endung ist sozusagen belegt in der Optativform *śáyet*, die dreimal im MS [...] erscheint; ein *-t* ist angefügt zur Verdeutlichung der 3. Sg.-Funktion wie in *śáya(t)* und Opt. *duhīya(t)*.

Such an assessment lends support to the theory presented here, since the existence of a zero marker in the second-third person (singular) is a necessary prerequisite for its validity.

Apparently Hittite lost the non-present formations in **-e* and **-ei* (**-ī*) which gave rise to the optative and the subjunctive of Indo-European Proper. Because Hittite failed to specialize them as modal structures, it found them unnecessary when other non-present constructions became more productive. The same general explanation applies to the apparent lack of the subjunctive, i.e., the markers **-ē-* and **-ō-* in modal function, in Germanic, Armenian, Baltic, and Slavic. Since the subjunctive and the optative were never formally differentiated in these dialects, such redundant elements tended to disappear.

5.2 Some Implications of the Theory. My theory of the origin of the optative and the subjunctive markers naturally accounts for the particular inflectional endings utilized by each modal category. In the dialects, the optative takes

only secondary endings, while the subjunctive takes both primary and secondary. Since these categories derive from a non-present formation, it is to be expected that secondary endings would have become associated with them. But in the subjunctive, "this partial use of primaries was encouraged by the future-tense implications of certain [...] subjunctive functions" (Kerns & Schwartz 1971:24; cf. also Burrow 1973:348). That is, in very late Indo-European and the dialects, as tense became a fully grammaticalized category, the present-tense forms came to be the primary exponents of future time-reference. But the residual future function of the subjunctive, resulting from both its general non-present origin and its specialized modal uses, led to the extension of primary endings to this category.

Before concluding, I want to say a few words about the so-called $\bar{s}$ -subjunctive of Latin, Irish, and Tocharian (cf. "lat. *feram ferās ferat* [...] air. *bera berae beraid*, beide aus **bher- $\bar{s}$ -m*, *- $\bar{s}$ -s(i)*, *- $\bar{s}$ -t(i)* usw., [...] toch. (A) *-am*, *-at*, *-as* usw., z.B. *kalkam* 'eam'" [Szemerényi 1980:242]). Kurylowicz (1964:137) maintains that this formation "most certainly represents the modal residue of an old $\bar{s}$ -preterite, well attested in Baltic and Slav. (Lat. *fuat* : Lith. *būvo*)" (cf. also Szemerényi 1980:242). But if one accepts the derivation of the other subjunctive and optative markers which was presented above, then it is clear that the origin of $*\bar{s}$ - can really be found in the general non-present category of Common Indo-European. In fact, it is possible to show that its origin is even formally the same as that of $*\bar{s}$ - and $*\bar{s}$ -. If the deictic particle $*e$ was added to non-personal s -class verbal forms to hypercharacterize non-present meaning (i.e., $*s\bar{s}\phi e$), then the resulting structure, after contraction and reanalysis, would have been $*\bar{s}\phi$. Only Latin, Irish, and Tocharian specialized this formation as a modal construction; Baltic and Slavic specialized it as a preterite, and other dialects lost it completely.⁴⁶

Chapter VI

A Brief Chronological Summary

For the sake of clarity and coherence, my presentation in this volume has been organized topically. However, in order to remain true to my conviction that establishing relative chronology is a central concern of linguistic reconstruction (cf. Meid 1975), I now want to outline briefly the chronological development of the verbal categories of Indo-European which have been considered. This chronology is largely inherent in the analyses which I have already devised; here I am merely making this chronology explicit. In what follows, I find it useful to present my remarks in terms of a five-stage evolutionary model.

6.1 Stage I

After emerging from an isolating stage, Indo-European introduced into its conjugation the opposition *personal* (first person) : *non-personal* (second-third person) through the incorporation of enclitic first-person pronominal elements into verbal paradigms. This development also established the relevance of assonance concord to verbal formations, since both the non-personal category and the nominative case category were marked by $*\phi$. At this point in time, there were no formal markers for voice, aspect, or mood, but tense was indicated by means of enclitic deictic particles which signified 'now' or various degrees of 'not-now'. Of course, this method of temporal specification continued well into the dialects. During Stage I, which might be termed 'Primitive Indo-European', the language was clearly more agglutinative than inflectional.

6.2 Stage II

With the rise of allomorphy and polymorphy, Indo-European became truly inflectional. Such polymorphy evolved from the reanalysis of various non-personal verbal constructions in $*-\phi$ with an enclitically attached deictic. Thus, $*-s$, $*-T$, and $*-\phi$ all came to mark the non-personal. At the same time, original sandhi variants tended to become reanalyzed as independent suffixes, and extant suffixes were subject to frequent contamination. In addition to creating polymorphy, these developments led to the formal expression of certain functions which were inherent in context or in the meanings of individual verb forms. For example, the imperative mood came to have specific exponents, like $*-u$ and $*-toN$, associated with it. A series of derivational suffixes marking the 'non-present' (especially $*(e/o)s-$ and $*(e/o)T-$) appeared by way of alternative reanalyses of formations which led to the existence of inflectional suffixes (like $*-s$ and $*-T$); and stem-formants in $*-\phi$ and $*-o$ shared this same origin. The 'Common Indo-European' Stage ended with the emergence of the copula in $*es-$, the middle voice category, and the use of enclitic quantitative adverbs to specify non-singularity. Thus, my assessment comes close to that of Polomé (1982b:15), who argues that the disintegration of the Indo-European speech community commenced at a time when the language "contrasted an 'active' and a 'perfect', to which a 'middle' was added", even though I would derive his 'perfect' from a class of verbs in $*-\phi$.

6.3 Stage III

It is in this period that dialectal differentiation was initiated with the first migrations of the Anatolians. This stage can thus be called 'Late Indo-European'. Although desinences in $*-s$ and $*-T$ began to assume their historical distribution by the end of this stage, resulting in the appearance of specialized second person and third person formations, non-personal constructions in $*-\phi$ continued to be common throughout most of this era, along with vacillation in the function of $*-s$ and $*-T$. Additional non-present constructions, e.g., those in $*-k$ and $*(e/o)l$, were introduced, with subsequent morphological reanalysis. The number of desinences available for allomorphic variation or morphological specialization increased, too, because of the monophthongization of preconsonantal diphthongs. It is at this time that the ϕ -class verbs started the process of assimilation into the thematic (o -class) and athematic (consonant class) types. The use of non-singular affixes became more widespread and consistent — the iterative came to be well established,

and first and second person non-singular suffixes began to evolve, although their shape did not crystallize until much later. This stage ended with the introduction of the opposition between primary and secondary endings (an opposition which was strictly optional) and the bifurcation of the non-singular into dual and plural. Although ablaut had not yet fully emerged as a formal morpho-syntactic device, its foundation was laid in the form of frequent accent and sandhi variation.

6.4 Stage IV

After the departure of the Anatolians was complete, we enter the Indo-European Proper Period — an era which ended rather quickly with the separation of the Germanic group. It was during this time when the perfect emerged as a formally and functionally identifiable category from the old ϕ -class verb endings, which came to mark the *hi*-conjugation of Hittite. A special aorist stem, whose original meaning Lehmann (1974:145-146) (cf. Hoffman 1967:214-234) identifies as "resultative statement of confirmation", also appeared at this point in the development of the language (though perhaps just after the exodus of Germanic), and was probably derived from the same process of semantic specialization as the perfect (see Section 4.3). Szemerényi (1980:213) likewise posits a late origin of the aorist: "Von den Tempora gehören die Systeme des Präsens und Aorists eng zusammen"; and Adrados (1985:42) traces its origin in 'IE III' to the non-present. The appearance of special stem-formations like the perfect and the aorist marked the full development of what Adrados (1981a:96-97) calls 'polythematic' inflection ("stems which are in opposition, systematically, to that of the present"), a primary characteristic which separates Indo-European Proper and Anatolian. As Adrados (1981a:99) says: "In this new [Indo-European Proper] system each stem had two different ones opposed to it, those called aorist and perfect, which join to differences of meaning others related to vowel gradation, lengthenings and endings (and possible augment and reduplication)." In keeping with this developmental tendency, a special 'modal' stem evolved from the non-present at the end of this period.

6.5 Stage V

This stage is characterized by rapid dialectal differentiation within Indo-European Proper. Stage V probably began with the shift of the meaning of the perfect and aorist to past tense, resulting in the incorporation of certain older non-present formations into the aorist (e.g., *s*-formations) and the perfect

(e.g., *k*-formations). 'Allomorphization' is the name which Adrados (1987:7) uses to refer to this process whereby "different stems become part of one and the same term of an opposition". Additional stems were created in some dialects with the bifurcation of the modal category into subjunctive and optative. Dialectal differentiation proceeded further with the emergence of special future forms and the appearance of the imperfect. Generally speaking, we witness in this period the frequent dialectal adaptation of elements which first became available at much earlier stages of the language (cf. also the Umbrian perfect suffix **-nky-* and the Lithuanian imperative suffix *-k(i)*).

6.6 Conclusion

I want to emphasize again that the reconstructions posited in this volume cannot be verified as historical facts; but, in light of current historical linguistic theory and methodology, they do represent plausible explanations of the data. I feel it to be especially significant that the data are viewed here in terms of a consistent and coherent framework, so that the plausibility of one reconstruction lends plausibility to another, and vice versa. I am aware that 'plausibility' may not be a sufficient goal for some Indo-Europeanists; yet, when I consider that the expanse of the 'laboratory' of historical linguistics includes the entire world and its recorded languages of the past five millennia, I am reminded of the motto displayed in the laboratory of Auturo Rosenblueth: "In this laboratory the only one who is always right is the cat" (quoted in Fromkin & Rodman [1988:430]).

Endnotes

1) According to Anttila (1988:171), "Lass [...] has now expressly changed his position to the side of teleology; see now Lass (1987)." The complicated issue of the causality of linguistic change (i.e., the why, not the how) is, of course, a hotly debated matter (cf. Anttila 1988:174-178), although some recent major studies are prevailingly functional (teleological) (cf. Haiman [1985], Anttila [1989], Wurzel [1989]).

2) In regard to lexical encoding of temporal relations, Comrie (1985:8) distinguishes *lexically composite expressions* (e.g., *five minutes after John left*) and *lexical items* (e.g., *yesterday*). "Since the stock of items listed in the lexicon is necessarily finite, the range of distinctions possible lexically is necessarily smaller than that which is possible using lexically composite expressions" (Comrie 1985:8). According to Comrie (1985:9), Modern English possesses thirty temporal items. Of course, deictic particles would constitute a very restricted subclass of lexical items in any given language.

3) Although ablaut, as a morpho-syntactic device, is a late phenomenon in Indo-European, the time it begins to emerge is difficult to assess largely because "PIE ablaut [...] was due to mechanical causes and only secondarily, to a limited extent became functional" (Kerns & Schwartz 1972:456). Still, in some form, it must be placed "before the departure of the Anatolians" (Kerns & Schwartz 1972:456; cf. also Kronasser 1956:45-47).

4) Something should perhaps be said in regard to the phonetic realization of the phoneme represented by **/dh/*. Because it is probably true that the phoneme **/th/* is a secondary development in Indo-European (see below), the reconstruction of **/dh/* as a voiced aspirated stop seems to present typological problems, for, as Jakobson (1962:526) observes: "To my knowledge no language adds to the pair */t/ - /d/* a voiced aspirate */d^h/* without having its voiceless counterpart */t^h/*, while */t/*, */d/*, and */t^h/* frequently occur without the comparatively rare */d^h/* [...]; therefore theories operating with the three phonemes */t/ - /d/ - /d^h/* in Proto-IE must reconsider the question of their phonemic essence." This 'reconsideration' has prompted the so-called glottalic theory, in which the old voiceless unaspirated stops are viewed as glottalized ones (cf. Gamkrelidze & Ivanov [1973, 1984], Hopper [1977]). In light of the controversy surrounding this theory (cf. Section 1.1.2 and Szemerényi 1985:11-15), I shall continue to utilize the more traditional phonemic system ascribed to Indo-European. I do, however, want to make some reference to a recent reasonable analysis done by Peeters (1971), where it is suggested that "those phonemes [the so-called voiced aspirates] were most probably no real voiced consonants and are defined in terms of distinctive features as *neither voiced nor voiceless and non-stop*. They would better be symbolized as *b^h*, *d^h*, *g^h*, or possibly *b̥*, *d̥*, *g̥*" (1971:4). That is, "the presence or the absence of voice in *b^h* was irrelevant for the maintenance of the oppositions *b^h - b* and *b^h - p*" (1971:2). If I read Peeters correctly, I believe he is suggesting that just as the PIE phoneme **/s/* had a voiced (*[z]*) and a

voiceless ([s]) allophone (cf. Lehmann 1952:9), so */dh/ had both varieties. Peeters' "assumption accounts equally well for the later development in Greek, in which *bh*, *dh*, *gh* were made voiceless (perhaps analogically with the series of voiceless stops) and in Sanskrit, in which they were voiced (perhaps analogically with the series of voiced stops)" (Peeters 1971:4). In regard to the precise mode of articulation of the 'voiced aspirates', Peeters (1971:4) simply observes: "[...] phonemics does not enable us to decide between a fricative or aspirate articulation, since they would both have the same functional role in supporting an opposition: non-stop v. stop." It is interesting to note what Peeters' analysis implies about the proposed sandhi alternations: simply, the voiceless allophone of */dh/ would appear in voiceless sandhi environments, while the voiced allophone would appear in voiced ones. Although I do not intend to pursue the matter here, the approach devised by Peeters may constitute the basis for a plausible theoretical alternative to the glottalic model.

5) Hyman (1975:147) describes this hypothesis as follows: "Voiceless stops, as suggested by the implicational universal of Jakobson [(1968)], are universally less marked than voiced stops, voiceless fricatives, etc. Thus, markedness is no longer treated as a property of the phonologies of individual languages, but rather as part of general phonological theory, which aims to capture the linguistically significant generalizations characterizing sound systems. It derives its support from studies of universals in language acquisition, linguistic typologies, and linguistic change.

6) Meillet (1964:172) notes that this alternation exists beside one where "à la fin des racines, les occlusives sonores aspirées alternent parfois avec les sourdes aspirées: *-g^{wh}- : *-kh-: gr. *ónuks*, *ónukhos*, lat. *unguis*, v.irl. *ingen* 'ongle', lit. *nāgas* 'ongle', v.sl. *nogŭtŭ* 'ongle': skr. *nakhāh* persan *nāxun* 'ongle'. *-dh- : *-th-: skr. *ádha* : *átha* 'et, alors'. *-bh- : *-ph-: skr. *nābhīh* 'nombril, moyeu de roue', v.pruss. *nabis* 'nombril'; lat. *umbilicus*, irl. *imbiu* : av. *nāfō*, pers. *nāf* 'nombril'; le *ph* de gr. *omphalós* et le *b* de v.h.a. *nabolo* peuvent reposer soit sur **bh*, soit sur **ph*". Of course, these latter phonological data provide strong evidence for an Indo-European voiced/voiceless sandhi alternation involving so-called aspirated stops.

7) I leave open the question of the time of origin of this phoneme. Lehmann (1952:80-84; cf. Kurylowicz 1956:381-382) presents rather strong evidence "that the laryngeal /h/ survived into the dialects after the PIE voiceless stops. In all dialects but Ind.-Ir. the clusters of voiceless stops plus /h/ did not become phonemes; we have, however, in the patterns of development of these clusters in other dialects some evidence for PIE clusters with aspiration. These clusters became separate phonemes only in Ind.-Ir. presumably after merging with allophones of PIE /bh dh gh/. Phonological developments in Ind.-Ir., that is, the absence of palatalization of /kh/, and the variety of development of stop plus laryngeal clusters in other dialects support the conclusion that /ph th kh/ were phonemes only in Ind.-Ir., not PIE" (1952:84). Now since a sandhi variant is a conditioned variant and since Lehmann admits there is evidence for a PIE phone-type (although no phoneme) *[th], my hypothesis that the deictic in *-[th] derived from *-[dh] within Indo-European is consistent with Lehmann's observations. I do want to emphasize, however, that if Szemerényi (1967) is correct in reconstructing for Indo-European the traditional neogrammarian system of four

types of phonemic stops, including voiceless aspirates, this hypothesis presents no particular problem for my analysis, since */dh/ would simply have passed to */th/ or */t/ (*d/? in certain sandhi environments.

8) The appearance of the dental in the first person dual and plural of the middle voice (Skt. *-mahi*, *-mahe*, Gk. *-methon*, *-metha*) results from analogical pressure exerted by the (second-)third person on the other members of the paradigm.

9) Specifically, Sanskrit shows its use in the singular, dual, and plural, although it most frequently appears in the singular (second person) (Burrow 1973:349). "In Greek the inherited *-tō* is restricted to the third singular" (Buck 1933:303). "In Latin the *-tō* serves as second and third singular" (Buck 1933:303).

10) Of course, in Alemannic the indicative plural unexpectedly shows the vowel *-ō-*. However, in this discussion I shall not consider the origin of this problematic dialectal development; for, as Lehmann (1943a:316) points out: "Since OHG has a number of innovations in its verbal system, e.g., the 1st pl. *-mēs* ending, [...] that are not found outside the OHG dialects, it seems to me that one cannot ascribe so much importance to forms that are found only in OHG. The customary explanation of the endings *-ōm*, *-ōt*, *-ōn* as Alemannic innovations [...] is plausible." The occurrence of *-ī-* in the first and third singular optative of Alemannic should be similarly viewed, being an analogical lengthening based on other optative forms (Lehmann 1943a:316).

11) In his refined version of the 'reduplicated perfect theory', van Coetsem (1983:60) ascribes to analogy a more important role in accounting for the attested lexical distribution of *-r-* and says that "verb types with single initial consonants were probably more plausible candidates for the analogical spread in question than those with initial consonant clusters" (cf. Bech 1969). Thus he observes: "In the particular case of OHG *steroz*, one could consider *r* a development of *s* from the *st* anlaut [i.e., 'PGmc. **ste-staut-* (cf. Goth. *staistaut*) supposedly became **stesaut-* > **stezaut* > *-steroz*' (Connolly 1983:325)]. However, this seems less plausible in view of the general analogical expansion of *r* as attested in the ON and OHG *r* preterites" (1983:84). Nevertheless, this approach leads van Coetsem (1983:60) to admit that he has trouble in explaining "the choice of *z* (> *r*) as a model for analogical extension, rather than another consonantism, such as *l* (cf. Gothic *laillaik*)".

12) I leave open the question of whether or not "a few [sigmatic] forms have [...] contributed to the system of the weak preterite, as Goth. *vissa* O.H.G. *wissa* 'he knew' whose plurals *wissum wissut wissun* may be compared with Gr. *ísen*" (Brugmann 1894:365). Although these items may be relatable to the *s*-aorist, a phonological explanation of *-ss-* seems very plausible (cf. Prokosch 1939:85).

13) I ignore here the complicated developments affecting the vocalism of these preterite verb forms in **-r-* (cf. Prokosch [1939:176-182] and Meid [1971:90-106]). My focus is on the *r*-element itself.

14) Rubach (1977:80) says: "It goes without saying that with the increase of casualness and the tempo of speech all articulatory processes will tend to simplify, i.e., those articulatory movements which can be avoided will be avoided. It is precisely this tendency which is reflected as assimilations and deletions in the phonological system of the language."

15) The Greek endings *-sthe*, *-stheon*, and *-sthan* should be added to the list of contaminated forms identified by Erhart (1970:58): "gr. *stha*, het. *šta*, *šten(i)*, toch. A *št* B *sta*, lat. *isti*, *istis*". The Greek suffix *-stha*, which was originally found in the perfect (cf. Buck 1933:245), is obviously not viewed here as the result of "the regular treatment of two dentals" in Greek, i.e., **-d + *-t(h)a > -stha* (Buck 1933:286). Instead, it is assumed that "the preform of Greek *-stha* is [...] **st/hə*" (Cowgill 1965:173). Adrados (1975:622) proposes that the Old Church Slavic aorist ending *-stv* bears an etymological relationship to the Hittite suffix *-šta*, and Schmalstieg (1977a:73) also notes "the striking parallels" between Hittite *-šta* and "the OCS aorist in [...] *-stv* (2nd and 3rd sg.) *bystv* 'was'". Moreover, Watkins (1969:217) mentions the parallels between these suffixes and the Venetic ending *-sto*.

16) This generalization even spreads to the preterite indicative of the strong verbs "in *Ru.1* and North." (Campbell 1959:302). In Old High German *-st* comes to appear in the subjunctive (present and past) as well (cf. Braune & Mitzka 1963:259).

17) Old High German also attests *-st* from only the ninth century (Braune & Mitzka 1963:259); but, again, pre-ninth century texts are very rare. Lockwood (1965:8) observes: "The earliest continuous texts in OHG date from about 750, but not until well on in the next century do the records become at all extensive."

18) Benveniste (1971c) primarily makes note of a number of languages in which the form of the third person pronoun is related to the copula. However, such examples in themselves do not explain their origin. Thus, Benveniste (1971c:164-166) begins his brief discussion of their development by asserting that such languages (including Indo-European) originally had no copula verb. He then suggests that the use of third person pronouns in copula function results from structures like *I he his servant*, *The man he his servant*, where the non-possessive pronoun serves a kind of appositional function, with the eventual "syntactic assigning of the pronoun to the function of a copula". Although I find this explanation plausible, I would note first that, although linguistic redundancy of this type is not exactly uncommon, it is by no means a widespread phenomenon, and second, that there is no structural evidence that Indo-European possessed such appositional constructions. It is also not clear how Benveniste can explain in a natural way certain distributional features of the copula, viz. its possible deletion only in the present tense, or how he can account for the integration of the new copula into the existing inflectional system of the language. Indeed, Benveniste provides no real insight into how such 'syntactic assignment' proceeds.

19) When I first proposed, in Shields (1978b), a form of this hypothesis that the Indo-European copula stem **es-* derives from the reinterpretation of an old demonstrative, I was unaware that Li & Thompson (1978) had documented the same general developmental

process in certain other languages. However, typological considerations — the fact that copula sentences have compulsory subjects (cf. Benveniste 1971c) — have now led me to incorporate some of their findings into my own analysis of the Indo-European data.

20) Although our analyses differ in details, Schmidt (1985) also derives the *-u-* of Latin perfects like *amāvī*, *nōvī* and the *-u-* of some other dialectal verb forms (e.g., Toch. B *prekwa*, Skt. *jaḥāu*) from the deictic particle **u*.

21) Solta (1970:83) notes that the relation between some non-verbal functions of **-i-* (e.g., its use as a marker of the diminutive) and its original desiderative function is difficult to explain. Unfortunately, I can offer nothing further in this regard.

22) Although Kerns & Schwartz (1971:14) and Endzelīns (1971:242) view Lith. *-k(i)* as an original deictic particle, they offer no explanation as to how or why it appears in the Lithuanian imperative. Indeed, Kerns & Schwartz merely say that the Lithuanian imperative marker *-k(i)* "possibly" derives from "an assertive particle **ge*", while Endzelīns makes no attempt at identifying the element.

23) I subscribe to the hypothesis of Meillet (1964:91-95) and Lehmann (1952:8) that Indo-European possessed only two voiceless velar consonant phonemes — */k/* and */kʷ/* — with *[k]* constituting an allophone of */k/*. As Allen (1978: 104) points out: "[...] it is a general characteristic of most satem languages, persisting into their individual histories, to palatalize the velar consonants before front vowels". See Shields (1981) for a further discussion of my views regarding the satem palatalization.

24) For a survey of previous scholarship regarding the origin of **-nky-*, see Markey (1985:262-263). Buck's characterization (1904:172-173) of his own theory is revealing about the nature of scholarly opinion concerning this matter: "But neither this nor any of the other explanations is entirely convincing."

25) Kerns & Schwartz (1971:12) thus observe that "these *-k-* perfects proliferated analogically until they far outnumbered the IE type".

26) OE *sint* represents an unaccented form of *sind* (cf. Wright 1925:297). The regular Old High German form is *sint* (< PG **sinði*). *sind(-un)* is merely a spelling variant with no phonological significance (cf. Braune & Mitzka 1963:304).

27) The term 'Pre-Germanic' "designates a particular segment of Indo-European, or perhaps of western Indo-European, which is not yet clearly definable and may well have included at some time non-Germanic dialects" (Antonsen 1965:22).

28) Since Verner's Law and the accent shift occurred at such an early date, it is clear that the standardization of verbal paradigms within the various Germanic dialects must have been subsequent to these sound changes. The dialects thus generalized a particular inflectional pattern, not a particular accentual pattern (cf. Prokosch 1939:210).

29) Although the precise motivation for the generalization of **sinði* is unclear, the change itself is in keeping with the linguistic tendency for there to be "as much one-to-one symbolization between meaning and form as possible" (Anttila 1977:55).

30) Of course, these morphemes must be characterized as 'portmanteau morphemes' (cf. Hockett 1957:236). A parallel to the results of this reanalysis would be the manner in which speakers of English have come to analyze pronominal paradigms like *we/us/our(s)*.

31) Chen & Wang (1975:256) argue that "a phonological rule gradually extends its scope of operation to a larger and larger portion of the lexicon, until all relevant items have been transformed by the process. A phonological innovation may turn out to be ultimately regular, i.e., to affect all relevant lexical items, given the time to complete its course. But more often than linguists have thought, a phonological rule peters out toward the end of its life span, or is thwarted by another rule competing for the same lexemes." Even though he has some misgivings about certain aspects of the theory of lexical diffusion, Labov (1981:271) concludes that "we have arrived at a situation where no reasonable person can maintain what might be called the Neogrammarian dogma: that sound change is always gradual, always regular, affecting all words at the same time."

32) Although until this point I have used and will continue to use the term *plurality* in reference to the quantitative category under consideration because it is associated with Dressler's analysis, I frankly prefer the term *non-singularity* since the dual and the plural of Indo-European originally constituted a unified non-singular category.

33) Of course, the suffix **-s(k)-* was further subject to the process of thematization (see Section 4.2.1). I am tempted to propose that the alternate form **-isk-*, especially common in Greek and Armenian, "vgl. gr. *thnēiskō, klēisketai, mnēisketai*" (Watkins 1969:56), shows a contamination of the quantitative adverbial particles **-i* and **-(e/o)s*.

34) My approach is thus similar to that of Cowgill (1979) and Jasanoff (1979) in that the *hi*-conjugation and the perfect of Indo-European Proper are not derived from any traditionally recognized category of the parent language. Of course, the nature of the original entity from which the two formations evolve differs considerably among the three theories. For a summary of other recent hypotheses about the origin of the *hi*-conjugation, see Jasanoff (1979:79-82).

35) There have been a number of recent proposals concerning the origin of the thematic vowel. For example, Knobloch (1953:411) says that "c'est l'insertion d'une marque pronominale pour renvoyer à l'objet (complément direct) dans le complexe verbal, la conjugaison objective." Schmalstieg (1980:92), too, derives it from a pronominal source, although he posits no 'objective conjugation'. Watkins (1969:106) sees its origin in *o*-stem nominal forms which began to function as verbs, while Adrados (1975:539-540) believes it to be a reanalyzed segment of the enlargements **-e/om*, **-e/os*, **e/ot*, and **e/ont*, which came to serve as person markers.

36) Of course, Insler's ideas about the origin of this ending are quite different from my view that it is a specialized phonological doublet. He says: "Already in Indo-iranian times, the relationship between 1st pl. primary **-madhai*: secondary **-madhi* caused the analogic creation of a new 1st sgl. secondary **-i*: inherited primary **-ai*, again pressured by the attempt to distinguish between 1st and 3rd singular, with these endings developing into Indic *-mahe, -e, -mahi, -i*" (1968:323).

37) Insler (1968:330n.27) explains: "Although the general tendency is toward differentiation of 1st and 3rd sgl., the adoption in the passive aorist of the 1st sgl. ending **-i* by the 3rd sgl. was permissible since no 1st sgl. passive forms seem to have been used in the older language." It should also be emphasized that even though I follow Insler in his analysis of the motivation for the adoption of *-i* in the third person passive aorist, I obviously do not see the origin of the suffix as a direct analogical extension of the first person desinence *-i*, but rather as a phonological doublet whose specialized function is a result of the analogical pressure that Insler describes.

38) "[...] the passive developed only after PIE, in the various dialects. This assumption is [...] supported by the diversity of passive formations" (Lehmann 1974:184).

39) I subscribe to the position of Lehmann (1974:160) that since "sentence-connecting particles [...] are infrequent in Vedic and relatively infrequent in the earliest Hittite texts, [...] we may conclude [...] that formal markers of sentence coordination were not mandatory in PIE", although they frequently served as the initial element of Indo-European sentences.

40) In Hittite, the *e*-vowel is "very frequently [...] written with the vowel *i*" (Sturtevant 1933:50-51).

41) It could also be true that *-te* represents an old directive in general dative-locative function (cf. Neu 1979:189). Of course, in later Hittite the directive and the dative-locative do fall together (cf. Friedrich 1974:121).

42) It is possible that, in terms of deep case analysis, the dative and the benefactive must be distinguished (cf. Chafe [1970:148] and Stockwell et al. [1973:743-744]); but since in the surface structure of Indo-European, this distinction is not manifested (i.e., Indo-European had no special benefactive case), the matter will not be pursued here. Baldi (1976), however, does adopt this dichotomy, using the terms *experienter* and *benefactive* in reference to what I call the *dative*. According to Chafe (1970:148), deep benefactives underlie the possessive function of the surface dative case-forms noted above.

43) Thus, I believe that the marker **-o(-)* of the middle voice has a different origin from the thematic vowel (cf. also Adrados 1981b:47-55). For this reason I reject the conclusions of Bader (1975) regarding the nature of the thematic vowel in Hittite and its origin in the middle voice. See also Watkins (1969:107-108) concerning a middle/stative origin of the thematic vowel.

44) After the middle voice became an established category, some verbs which "were so definitely characterized as either active or middle [...] could not admit the double diathesis of which the other verbs were capable" (Benveniste 1971a:147). These verbs constitute the so-called *activa tantum* (e.g., Skt. *ésti*, Gk. *ésti* "he is") and *media tantum* (e.g., Lat. *nascor*, Gk. *gígnomai* "I am born").

45) Summaries of various theories about the original meaning of these categories, including Delbrück's Sanskrit- and Greek-based views, appear in Hahn (1953:1-51). Of course, Hahn herself (1953:139) believes both to be original futures (i.e., *subjunctive* = "more vivid futurity" : *optative* = "more remote futurity [or potentiality]"). More recently, Gonda (1956) argues that the subjunctive indicated "visualization" (i.e., "existence in [...] [the mind] or before [one's] mental eyes") (1956:69) and the optative "contingency" (i.e., "the possibility of non-occurrence") (1956:51), while Lehmann (1974:130-131) similarly maintains that "any attempt to equate the uses of the subjunctive and optative in Sanskrit or Greek with the uses of their earlier forms in PIE will lead to serious misinterpretations" and concludes that the subjunctive originally indicated necessity or obligation and that the optative was originally voluntative in nature (1974:184).

46) Of course, Latin may show a trace of the use of **-ā-* in simple preterite function — "the isolated [...] *eram* [...] from **esā-*" (Buck 1933:278), although it is possible that this preterital **-ā-* may have a different origin (deriving from **-ai*, cf. Section 4.1) than modal **-ā-*. I should point out that my theory of the origin of the optative and subjunctive markers also provides an explanation of the apparent relationship between the aorists in **-ā-* of Greek, Baltic, and Slavic, and the optative/subjunctive suffix **-ē-* (cf. Kurylowicz 1964:140), for the aorist category incorporated non-present structures in late, dialectal Indo-European, after its development into a preterite tense. Indeed, Neu (1976:253n.1) emphasizes "dass Präteritum und Modus am gleichen Knoten sitzen, zeigt sich auch morphologisch u.a. dadurch, dass dieselben Formantien (wie **-ā-*, **-ē-*, **-yē-/*-ī-*, **-s-* etc.) in Präterital- wie Modalkategorien auftreten" (cf. also Szemerényi 1980:242-243).

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