ON EARLIER STAGES
OF THE INDO-EUROPEAN NOMINAL INFLECTION

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0. Statement of problem. Our descriptions of the system of noun inflection in Proto-Indo-European have been modified little since the beginning of this century. At that time Schmidt, Jacobi, van Wijk, and others were discussing the case endings; Brugmann was examining the gender categories, primarily to propose that the feminine gender was secondary. Although numerous attempts

1 The footnotes in this article may seem extensive; their length is determined by the state of the study of Indo-European morphology. At the end of the nineteenth century many Indo-Europeanists were attempting to reconstruct older stages of Indo-European, but most of their proposals met with little success. The classical instance of such neglect is Saussure's assumption of laryngeals in 1878, which was disregarded until 1927, when Kurylowicz demonstrated reflexes of laryngeals in Hittite. To incorporate all previous proposals in an article would confuse the course of exposition and would disturb specialists through its repetition of familiar data. On the other hand, omission of all reference to them would be unjust and might occasion difficulties for nonspecialists who become interested in consulting older materials. My notes will therefore survey materials which now have significance merely for the history of Indo-European studies and for the data they contain. Some footnotes will of course fulfill the common role of discussing matters germane to the text but of secondary importance in establishing the matter in hand.

Among the fundamental studies are the following. In Die Pluralbildungen der indo-germanischen Neutra (Weimar, 1889), Johannes Schmidt studied the various methods of forming nominative/accusative plural neuters in the Indo-European dialects, found that none of them were distinct from methods of forming nominative singular feminines, and concluded that in Proto-Indo-European neuter plurals were actually singular collectives. His conclusions have often been repeated and reaffirmed, as in J. Kurylowicz, L'apophonie en indo-européen 58 and 84 (Wrocław, 1956). Kurylowicz says (84): 'On sait depuis le travail célèbre de J. Schmidt (PdiN) que le pluriel du neutre provient d'une transformation d'un abstrait (> collectif) du genre féminin.' Schmidt showed that the two forms were alike in origin; his demonstration did not establish the presence of feminine gender in pre-Indo-European. For a discussion of the faulty methodology which leads to such a conclusion see §2 of this article.

In Compositum und Nebensatz (Bonn, 1897), Hermann Jacobi reviewed the oldest types of compounds in Indo-European, and against a background of examples from many languages assumed that nouns at an early stage of Indo-European had not been inflected. He assumed that congruence classes had their origin in natural gender, the nominative singular in the pronoun so; despite these untenable assumptions, his short book is still of interest.

In Der nominale Genetiv singular im Indogermanischen in seinem Verhältnis zum Nominativ (Zwolle, 1902), N. van Wijk reviewed the various methods of forming genitives. He concluded that the genitive and nominative singular of consonant stems were alike at an early stage of Indo-European.

2 K. Brugmann treated the origin of gender in a number of articles and books, e.g. Zur Frage der Entstehung des grammatischen Geschlechtes, PBB 15.523-31 (1891), and The nature and origin of the noun genders in the I.E. languages (New York, 1897), summing up his views in Gdr.2 2.2.1.82-109 and in KVG 354-62. It was one of his achievements, in the argumentation surrounding his writings on gender, to carry through the view that the same linguistic conditions obtained five thousand years ago as today. In insisting on this principle in his lecture at Princeton in 1897, Brugmann gracefully cited Whitney's statement:
were made in publications by these scholars and others to revise traditional views on the Proto-Indo-European and pre-Indo-European systems of noun inflection, virtually all of our handbooks maintain positions that differ little from those of nineteenth-century linguists. Pedersen for example maintains the nineteenth-century view entirely on noun genders, stating that the Indo-European system included three: masculine, feminine, and neuter. Accordingly he and others disregarded, for the reconstruction of Proto-Indo-European and pre-Indo-European, Schmidt’s detailed study relating the Indo-European nominative singular feminine ending \(-a\) with the nominative/accusative plural neuter \(-a\). Pedersen was also quite explicit in his sharp opposition to Meillet’s closely reasoned writings. And Friedrich, following Pedersen, states that the feminine gender was lost in Hittite—though the position arrived at by Schmidt through comparative analysis of the non-Anatolian languages would seem to fit the Hittite data better. Moreover, while our handbooks continue to make use of a pre-Brugmann analysis of Indo-European, our description of Indo-European phonology has been considerably improved over that of Brugmann, partly

1. The features that produced changes in human speech five thousand or ten thousand years ago cannot have been essentially different from those which are now operating to transform living language’ (Nature and origin 2).


3. H. Pedersen, *Hittitisch und die anderen indo-europäischen Sprachen* (Copenhagen, 1938), rejects the conclusions of Meillet’s article in BSL 32.1–28, and insists (14–8) that Indo-European had feminine gender as well as neuter. Which one was older he does not attempt to decide.

4. A. Meillet dealt at various times with the ‘origin’ of the feminine gender. Following Schmidt’s conclusions he vigorously repudiated this category for Indo-European, e.g. BSL 32.1–28 and Linguistique historique et linguistique générale 1.199–229, 2.22–8 (Paris, 1938). It is strange, however, that Meillet so emphatically posited an animate : inanimate distinction in Indo-European, though formally the contrast could be based only on the nominative and accusative singular, as he points out, *Ling. hist.* 1.208: ‘La distinction du masculin-féminin, d’une part, du neutre, de l’autre, n’existait, on l’a déjà noté, qu’à deux cas, au nominatif et à l’accusatif.’ See KVG 335 for a similar observation, with examples.

A. Martinet, *Le genre féminin en indo-européen: Examen fonctionnel du problème*, BSL 52.83–95 (1956), re-examines the problem and Meillet’s approach to it. Like Brugmann and Wheeler he finds in adjectives and demonstratives the origin and reason for spread of the feminine gender category. See also the comments on his paper, BSL 52.x1r-x11.

Louis Hjelmslev has recently concerned himself with the problem of gender in language, as in his article Animé et inanimé, personnel et non-personnel, *Travaux de l’Institut de Linguistique* 1.155–99 (1956).

5. Pedersen, *Hitt. 29*, infers from the presence of a Hittite nominative/accusative plural in \(-a\) that there had been an \(-a\)-declension in Hittite. This inference illustrates how even distinguished Indo-Europeanists have held to the assumption of a Sanskrit-like system of noun inflection for pre-Indo-European. From the presence of a Hittite nominative/accusative plural in \(-a\) we may merely infer that there had been a previous \(-eh\). It remains for us to determine its position in the Proto-Indo-European and the pre-Indo-European systems of noun inflection.

Referring to Pedersen, *Hitt. §8–12, J. Friedrich, Hethitisches Elementarbuch* 1.14 (Heidelberg, 1940), says flatly that the old masculine and feminine have fallen together in one of the two genders in Hittite, the genus commune. Pedersen’s treatment needs serious reworking.
through the use of new materials which antedate by centuries anything available to Brugmann, partly as a result of our improved linguistic theory. Our new phonological description of Proto-Indo-European alone should prompt new morphological studies.6

But new morphological data have also been provided by our new materials, and new insights into the data previously available. Brugmann and Hirt could hardly hope to reconstruct an Indo-European earlier than 1500 B.C. We now have data in two dialects from this time or earlier, Anatolian and Greek.7 The data in Anatolian include graphic evidence for phonological items which predecessors of Brugmann and Hirt had proposed, but which they themselves neglected, the laryngeals; the inclusion of laryngeals in the Indo-European phonological system, as we will note, clarifies some of the Indo-European forms that eluded their analysis. The very presence of these new, early materials makes reconstruction of the noun system more pertinent for present-day Indo-Europeanists than it seemed a few decades ago, when attempts at reconstruction

6 Subsequent studies have been made, but they have dealt chiefly with the origin of noun stems or inflectional categories, rather than with the pre-Indo-European system of inflection. The following are probably those most widely known. E. Benveniste, Origines de la formation des noms en indo-européen (Paris, 1935), deals primarily with stem formation, to a lesser extent with inflectional endings of nouns; in the sequel, Noms d'action en indo-européen (Paris, 1948), he contrasts in detail two types of stem formation. J. Kuryłowicz, Études indo-européennes, (Kraków, 1935), also concerns himself primarily with stem formation; but he also discusses case endings (160–8) and the origin of grammatical gender (244–51), assuming like Meillet an older contrast of animate : inanimate.

O. Szemerényi, Latin rēs and the Indo-European long-diphthong stem nouns, KZ 73.167–202 (1956), presents a detailed analysis, but adheres to the commonly accepted paradigm. My analysis of Indo-European phonological structure prevents me from accepting, for the time of ablaut changes, forms with two e's like Szemerényi's nominative plural reH-y-es; or forms with both y and i, like his dative singular reH-y-ei.

Franz Specht, Der Ursprung der indogermanischen Deklination (Göttingen, 1943), approaches the subject entirely from a semantic point of view. When he discusses the origin of case endings (333–86), he suggests that the various stems consist of noun plus demonstrative pronouns; the endings too he derives from demonstratives. Nonetheless, Specht’s analysis leads him to some telling insights into pre-Indo-European structure. He sees a final o in the ending of Skt. devā, Gk. tēkτaınα, etc. (287–8, 302, 310–1, 358–9). This o, which he says contracted in the etymon of Gk. phorō with o to a, he puts on the same plane with s. His morphological analysis has obviously forced him to recognize laryngeals, though his distaste for them requires him to mark them with an obsolete type of notation and to misunderstand the structure of pre-Indo-European. A glance at the pages cited will quickly confirm this statement. On page 288, for example, he insists that there were three ‘reduced’ vowels ə ə ə; from this conclusion he could readily move to any of the theories on laryngeals. But he refuses to admit any connection between ə ə ə and the long vowels of root syllables. Hence his analysis is seriously deficient.

7 For an analysis of the Hittite materials the following works are readily available: H. Pedersen, Hittitisch und die anderen indoeuropäischen Sprachen, (Copenhagen, 1938); Johannes Friedrich, Hethitisches Elementarbuch I and II (Heidelberg, 1940, 1946); E. H. Sturtevant, A comparative grammar of the Hittite language 1° (New Haven, 1951). Hans Kronasser’s Vergleichende Laut- und Formenlehre des Hethitischen (Heidelberg, 1956) was published after these, but its attempts to account for Hittite ḫ without the laryngeal theory reflect the highly personal and conservative views of the author.

Michael Ventris and John Chadwick, Documents in Mycenaean Greek (Cambridge, 1956), provide the readiest access to the newly available early Greek materials.
were often dismissed as glottogonic speculation. Just as Brugmann and his contemporaries tried to reconstruct from the Vedic of approximately 1000 B.C., from Greek, and from other materials later in time the Indo-European of a millennium earlier, so we should utilize the Anatolian of 1750 B.C. and the Mycenaean of 1500 B.C. to reconstruct earlier stages of Indo-European. For a revised analysis of the morphological system of Proto-Indo-European is necessary to an understanding of the materials in these dialects and of possible further materials that may be uncovered.

Probably the essential problem in proposing an earlier form of the Indo-European noun inflection is determining the origin of grammatical gender, or (differently) the development of three contrasting endings to distinguish the nominatives singular in the masculine, feminine, and neuter of some declensions. The cases expressing adverbial relationships (instrumental, dative, ablative, locative, and the genitive in some uses) are late: their endings differ from dialect to dialect; the plural endings for these cases are not attested in Hittite. Sandhi phenomena of Sanskrit support the assumption that these endings are late; that of the locative plural of the s-stems, for example, indicates that this construction belongs in the sphere of derivation rather than inflection. The development of the adverbal cases belongs then to the study of late Proto-Indo-Euro-

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8 Their terminology and system of notation is also often obsolete. Though linguists concerning themselves with Indo-European studies of the past will encounter a variety of notations, reference to the reconstructed language as Proto-Indo-European (PIE) and to older stages as pre-Indo-European (pre-IE) is now general. The affixes P (for Proto-) and pre-label any form as not attested, and therefore obviate the necessity for using the asterisk. Since current methods and linguistic theories differ considerably from those of Brugmann and Hirt, it is vain to attempt to identify their reconstructions more precisely than they did or to phonemicize them. One valiant effort has been made to preserve the Indo-European of Brugmann and Hirt, by E. H. Sturtevant, The Indo-Hittite laryngeals 90-1 (Baltimore, 1942), but it never found general support; see for example C. H. Gordon, Studies presented to Hetty Goldman 138 (Locust Valley, 1956).

N. D. Andreev has suggested various stages of pre-Indo-European in his article, Peridizacija istorii indoevropejskogo prajazyka, Voprosy jazykoznanija (Akademija Nauk SSSR), No. 2 (1957). The various stages which he reconstructs, primarily on the basis of morphological analysis, would precede those that I suggest, though possibly his younger SIE would correspond to stages B and C which I posit on the basis of phonological reconstruction.

9 The handbooks, e.g. KVG 380 ff., present ample material on the diversity of adverbial case endings in the various declensions and from dialect to dialect.

See Pedersen, Hitt. 30 ff., for the lack of separate plural forms for instrumental or ablative in Hittite.

The sandhi change of -s- to -h- in the locative plural of Sanskrit as-stems, e.g. manahsu from manas ‘mind’ is that expected in external sandhi, as is the change of -as- to -o- in the instrumental plural, e.g. manobhis.

The editors of the pada text of the Rigveda wrote separately the endings of the instrumental, dative, ablative, and locative plural, distinguishing these endings from roots as they did second from first elements of compounds.

On the basis of the position of accent in middle cases, Kuryłowicz (EI 167) characterizes their method of formation as that expected in derivation, e.g. Vedic mahaddhyam etc. vs. mahatā.

Some scholars have also found in the restriction of various stems to the nominative and accusative evidence that these were the earliest forms; cf. Specht 333.
pean and the individual dialects. Moreover, the gender contrast is limited essentially to the nominative and the accusative.\textsuperscript{10} Indo-Europeanists who have attempted to project prior systems have accordingly concentrated on attempts to explain the origin of the nonadverbial forms, primarily the nominative and accusative, but also the vocative and the genitive.

This paper will analyze the formation of these four case forms and their uses, with the aim of reconstructing the noun system of early Proto-Indo-European and pre-Indo-European. Such a study requires a review of previous analyses and previous theory. It also requires a brief statement of the phonological system that I assume for Proto-Indo-European and pre-Indo-European. Since morphological study of reconstructed languages is severely handicapped by the neglect of syntactic analysis, our phonological analysis will also concern itself with those data which made up the intonation patterns marking Indo-European clauses and sentences, for we may expect that the formal approach to syntactic analysis will increase our understanding of earlier languages as it has increased that of languages spoken today. Finally we will sketch the development of the Indo-European noun system from the earliest form we can reconstruct to the time when the essential categories of Indo-European noun inflection had been developed.

1. Previous analyses of Indo-European nominal inflection. The most detailed study dealing with the origin of Indo-European nominal case forms is Johannes Schmidt’s. Though well known, it is respected more for its material than for its conclusions. Using phonological and syntactic criteria, Schmidt related the nominative/accusative plural neuter endings with those of the feminine singular, for example, in the a-stems. The endings are identical; syntactic patterns may be the same, as in Greek, where a singular verb is used with neutral plural noun subjects. Schmidt concluded that the ending in both forms more properly should be designated a collective. This conclusion is supported by a-stems which in

\textsuperscript{10} See PBB 15.523–31 (1891). In Gdr.\textsuperscript{2} 2.1.593–4, Brugmann is quite explicit about the lack of an inflectional marker for gender distinction in the Indo-European masculine and neuter; the markers he posits for feminine gender can all be derived from the stem vowels found in masculine and neuter nouns plus a laryngeal. Brugmann’s statement reads: ‘Mit der nominalen Stammbildung hängt engstes die Genusunterscheidung zusammen ... Das m. und das n. Genus entbehren von urind. Zeit her des Ausdrucks an der Stammform selbst und sind nur durch die flexivische Gestaltung des Nom. und Akk. gekennzeichnet. Am f. Genus dagegen sind von den stammhaften Formantien direkt beteiligt -\( \eta \), -\((\text{i})\varepsilon\)-, -\( \alpha \), -\((\text{i})\varepsilon\)-, -\( \text{j} \)\( \text{i} \)-, -\( \text{i} \)-, -\( \text{u} \)-, -\( \text{u} \)-.’

T. Burrow, The Sanskrit language (London, 1955), presents a treatment of grammatical gender (200-7) which in great part agrees with that of Brugmann and Meillet. Stating (201) that ‘grammatical gender was, at the period of Indo-European which can be reached by comparison, a comparatively recent innovation’, he assumes two stages in the development of gender: in the earlier, nouns belonged to common or to neuter gender classes; in the later, the feminine had developed. Burrow cites evidence from the Indo-European dialects which supports the inference of the earlier system. He also makes use of the laryngeal theory, stating (204) ‘that at some period of later Indo-European the suffix \( a \) (-\( aH \)) together with the compound suffixes \( i \) (-\( iH \)) and \( u \) (-\( uH \)) came to be specialised as feminine suffixes.’ I assume that \( h \) was added to vowel- and \( i/\text{u} \)-stems at the same time and accordingly that -\( iH \) and -\( uH \) should not be distinguished from -\( aH \).
the singular are not feminine, such as Lat. aurīga 'charioteer < driving' and Gk. ἱππότης 'horseman < riding'; cf. KVG 357. On the basis of Schmidt's study, the distinctions between the three genders of the Indo-European nominal inflection did not seem absolute.

Brugmann's position is an advance over Schmidt's. Where Schmidt suggested that the nominative/accusative plural neuter was a collective singular, since it coincided in form with the nominative singular feminine, Brugmann drew the further inference that the feminine gender was secondary. The so-called feminine suffixes -ā and -iē (-ī), according to Brugmann, did not mark female animate beings originally or at any other time. Citing forms like Gk. auđē 'speech', phugē 'flight', alētheia 'truth', Brugmann saw in the -ā another Indo-European suffix which, like -bho- and -wo-, had been widely generalized. From nouns in -ā, particularly gunē 'woman', which indicated female beings, -ā came to be used as a suffix for new feminines, for ā-stem adjectives that agreed with them, and eventually for all nouns of the vocalic declension indicating females.

An even more accurate suggestion on the earlier system was presented by Jacobi on the basis of his analysis of compounds. He concluded that in early Indo-European nouns did not mark grammatical gender—that it had not yet been developed. But this conclusion, adopted in part by a few daring Indo-Europeanists, formed only a portion of his thesis. For he concluded further that number was not a category of early Indo-European nouns either, nor the case relationships indicated later by the nominative, accusative, and genitive. Unfortunately he did not draw up a system of early Indo-European noun inflection; probably as a result he merely helped to underline Brugmann's suggestion on the secondary development of feminine gender. Nor did he suggest how the early Indo-European system developed into that of the dialects. Brugmann and Wheeler attempted to account for this development, but their view of Indo-European phonology handicapped their attempt.

It was probably the primary objective of Brugmann to overcome through several publications the pretty notion, so appealing to the Romantics who long influenced historical linguistics, that the early Indo-European speaker personified inert objects as masculine or feminine, or as indeterminate when his imagination failed him. Brugmann's arguments are so persuasive that in spite of the conservatism of many handbooks they do not need restatement. Much of his effort was directed at attempts to account for the origin of the threefold Indo-European concord system which had been so fancifully labeled by his predecessors. His basic argument was semantic. Wheeler, following him in most of his views, found in syntax the determining element for the development of this concord system: the agreement of pronouns with nouns, then that of adjectives.

11 See the quotation from Brugmann in footnote 10.

A survey of Indo-European inflection, which essentially summarizes the views of Brugmann and Hirt, was provided by L. H. Gray, On Indo-European noun declension, Lg. 8.183–99 (1932). One example may illustrate how our revised Proto-Indo-European phonological system requires modifications of Gray's statement. On page 198 he says that the feminines in ā/ā were derived from neuter plurals, and that the feminines in ī and ā are of later origin. We derive the feminine endings ā ī ā from etyma having an ā ending in common; they developed contemporaneously, when ā was lost with compensatory lengthening of the preceding element.
Neither recognized the pre-Indo-European phonological change which made the concord mandatory and gave rise to the new system of nominal inflection—the loss of -h with consequent lengthening of the preceding vowel.

Before we examine the earlier forms of the nominatives and accusatives, we will survey the reasons for the neglect of Brugmann's views on gender and the persistence of the old assumption of three genders. One is the obsolete phonological system maintained by Brugmann and Hirt. Though Saussure and others had assumed laryngeals, thereby deriving many instances of -a from short vowel plus laryngeal, Indo-Europeanists did not posit them in their description of the noun system. When we do, we posit a consonantal ending in the etyma of the nominative feminine as well as of the masculine and neuter. Without an analysis assuming laryngeals, the etyma of the nominative endings lack parallelism; while the o-stem masculines and neutrals have short stem vowels plus consonant in the nominative and accusative, the feminine a-stems have a final long vowel in the nominative. Compare Sanskrit masculine himás 'frost' and neuter himam 'snow' with feminine himá 'winter'. But when, with the help of the laryngeal theory, we derive -a from short vowel plus -h, the masculine, neuter, and feminine nominatives of vowel stems are completely parallel in formation; the endings are -s, -m, -h. If then we restate these nominative endings in contemporary phonological terms, we find in them a symmetrical set. This symmetry adds conviction to a reconstruction proposed on the basis of phonological reconstruction.

Another reason for the persistency with which some Indo-Europeanists have clung to a pre-Brugmann analysis of the Indo-European noun system is their morphological theory. Several of their views on the development of language have hampered a proper understanding of the history of Indo-European. By one view, Indo-European evolved in accordance with a general scheme which

12 E. H. Sturtevant made such an analysis of the a in The prehistory of Indo-European a-stems, Lg. 14.248-74 (1938). Although he cites this article in CGHL, he oddly makes little use of it; his most forceful statement there reads (82): 'The lack of feminine gender in Hittite harmonizes with the incomplete development of that gender in Proto-IE.'

For Burrow’s analysis of a as < aH see footnote 10.

Specht, *UID*, takes every step but the final one to assume laryngeals, as indicated in footnote 6.

A. Martinet, *BSL* 52.92, tentatively posits -eh2.

12 On the other hand, several studies have perceptive suggestions on the early development of Indo-European, e.g. those of Jacobi, van Wijk, and Brugmann, and some of Hirt's, as parts of his article in *IF* 17.36-84 (1904-5). Another article of which parts can still be read with profit is H. Collitz, Die herkunft der a-deklination, *BB* 29.81-114 (1905). He refers (104 fn. 2) to an article in *KZ* 3 which suggested that the vocative of the a-declension corresponded to the stem.

Virtually all of the conclusions that one may propose about early Indo-European inflection have been drawn before, so that Brugmann's *Grundriss* often seems radical when we compare contemporary handbooks. Yet in spite of the advanced state of even Brugmann's views, the early stages of Indo-European noun inflection must be subjected to renewed scrutiny for various reasons. One is that Brugmann and the other scholars referred to in the preceding lines never presented the system of the early Proto-Indo-European or the pre-Indo-European nominal inflection. A second is the change in reconstructions occasioned by information which has since become available. A third is the presentation in most handbooks of historical grammar still in use, which have often failed to incorporate the findings of even Brugmann.
held that words were used for new endings and then shortened. Moreover, it is envisaged as a kind of Sanskrit, modified since the Indo-Europeanized Sanskrit of Bopp, but still essentially Sanskrit; from time immemorial the speakers of Indo-European made distinctions of gender, number, and case similar to those in Sanskrit, Greek, or contemporary German. I shall cite from Hirt illustrations of theory which hampered Indo-European historical study. His grammar maintains great influence as the last comprehensive treatment of Indo-European and also for the clarity of his presentation. Although his works have contributed greatly to Indo-European linguistics, they have also been damaging where his theory was inadequate. For an understanding of many general views on Indo-European and their persistence, inadequacies of theory must be pointed out and contrasted with views which subsequent linguistic study has shown to be more in keeping with the history of language development.

In dealing with the accusative singular ending -m, Hirt discusses its contrast with the nominative -s and its age in this function. At the conclusion of his page on the subject he says: 'It's hard to say what this -m is. By some it has been identified with the pronoun me "me" or "my". The -m could also have had its origin in the pronoun ...' Identification of the source of the -m is at best of secondary concern to us. To us the point of importance is how -m came to be used as a marker of the accusative and what it contrasted with. If we could find the forms in which this contrast was established, we should consider such a finding of great interest, though without extensive written materials it is highly unlikely that we shall find them. To propose then that the accusative ending -m is to be related to a pronoun with the meaning 'me' seems quite groundless, without pertinence to the essential problem, and scarcely possible of demonstration on the basis of the data we have.

The importance of dealing with earlier categories in systems and subsystems is clear from the works of our predecessors. Although they may eliminate from earlier stages of their reconstructions forms found in dialects like Indo-Iranian, they return to the original groups of forms, if only in part. In this way the Indo-

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14 See his IG 3.44-5, esp. 45, where he says: 'Was dieses m ist, lässt sich schwer sagen. Man hat darin das Pronomen me "mich" oder "mein" gesehen. Das m könnte aber auch vom Pronomen ausgegangen sein, vgl. ahd. fateran, d. Vatern nach dem Pronomen.' A brief sketch of Hirt's views may be found in his Geschichte der deutschen Sprache 260-6 (Munich, 1925).

15 A notable exception is Jacob, CuN. He adduces other structures than the Indo-European, drawing them from a wide array of languages; see especially his last chapter. Yet his assumption of -d rather than -dk conceals from him the structure of the pre-Indo-European nominal inflection. Burrow too was aware of the inadequate basis for assuming an
Europeanists who explained away the feminine gender retained a gender system contrasting between animate and inanimate. And upon the elimination of syntactic cases, a nonsyntactic case, the indefinitus, was proposed. This strange conserving may be illustrated with remarks like the following of Hirt in his chapter on the origin of noun inflection: ‘But in historical times the cases were present, even if perhaps not as much as one assumes. People had a feeling for them. But what is the situation in Indo-European? How could case suffixes be adapted, when there were not yet any cases? Everything that we see presupposes that the feeling for cases was present, and then they must also have been indicated.’ This passage seems to mean that our evidence indicates among the speakers of pre-Indo-European and Proto-Indo-European a disposition for cases, and that therefore they must have had cases. We can account for Hirt’s statement by the assumption that to him a case was a notional category, whether or not it was exemplified in a form. To us a particular case is nonexistent unless it is represented by forms which contrast in a system with others. Understanding of Hirt’s point of view will enable us to make use of his works, and of those of later scholars like Specht who maintained his methods.

In setting up Proto-Indo-European or pre-Indo-European we reconstruct, as far as our data permit, a language which is comparable to languages of today in its structure and the modifications of that structure. Our methods for arriving at a description of Proto-Indo-European differ from those used in arriving at a description of a language still spoken, e.g. of English, only in the methods employed in obtaining data. For a description of modern English we get our data by observation, and our corpus is enormous in extent; for a description of Proto-Indo-European we get our data by reconstruction, and our corpus is highly limited. But for Proto-Indo-European as for English or any other language we aim to determine the system, together with subsystems such as that of nominal inflection.

In addition to a system, we demand suitable phonological, morphological, and semantic explanations for the changes which the system undergoes. With such demands in mind we review the data which have been compiled by our predecessors and those made available subsequently; we also review the interpretations of these data, which like those of Brugmann, Jacobi, and van Wijk often demonstrate remarkable insights. And we then posit as far as our data permit that portion of the system that we are interested in—here the nominal subsystem of early Proto-Indo-European.

In positing our subsystem we must reconstruct it according to a phonological analysis which views Indo-European as an actual language, changing in phonology and other portions of its structure. I follow the reconstructed phonological earlier animate : inanimate gender contrast, though his most explicit statement is Sanskrit language 201: ‘The next stage sees the development of the feminine, and it is only at this period that it is proper to speak of gender in the true sense.’

18 IG 3.180. ‘Aber in den geschichtlichen Zeiten waren die Kasus da, wenn auch vielleicht nicht so viel als man annimmt. Man hatte ein Gefühl dafür. Wie steht es aber im Indogermanischen? Wie konnten Kasussuffixe adaptiert werden, wenn es noch keine Kasus gab?—Alles das, was wir sehen, setzt voraus, dass das Gefühl für die Kasus da war, und dann müssen sie auch bezeichnet gewesen sein.’
system presented in my Proto-Indo-European phonology, Chapter 15, but with more attention to suprasegmental features. Five stages are there assumed for pre-Indo-European. To illustrate these I resort in spite of its hazards to the reconstruction of a possible pre-Indo-European utterance, ‘The cow is coming’. I posit successively:

Stage A /gwAyws gwAm₄y/ [gweyws gwti]
Stage B /gWlI Ayws gwAm₄y/ [Igweyws gwti]
Stage C /g*eγys gw*m-ty#/ [lgweywz gw-ti]
Stage D (No change in this utterance)
Stage E /Ilgwo.ws gwm-ty#/ [' gwo.wz gwrp-ti]

To the roster of phonemes listed in PIEP, Chapter 15, I add # for final pause, which, though not explicitly marked, was assumed to account for some of the phenomena that are explained by Sievers’ Law; I also add a hyphen for the juncture separating syllables. With this revised system we attempt to determine the early form of the Indo-European nominal inflection.

2. The system of noun inflection in early Proto-Indo-European and pre-Indo-European. If we accept the identification of the late Indo-European nominative/accusative plural neuter with the nominative singular feminine, we cannot maintain the categories assumed for early Proto-Indo-European, or for pre-Indo-European. The assumption that -h (of the a-, ṛ-, and u-stems) was a collective ending removes the feminine from the categories assumed for pre-Indo-European and suggests that gender as a category of the Indo-European noun needs re-examination. For outside these declensions there is no distinctive mark of the feminine.

Further, the change in our reconstruction eliminates the specific mark for the Proto-Indo-European nominative/accusative plural neuter and suggests that the number distinction too needs restudy.

In reconstructing early Proto-Indo-European we assume on the basis of their inflection three nominal declensions: (1) consonant stems, (2) vocalic resonant stems, and (3) vowel stems. In the group of consonant stems no formal distinction indicating gender is found in the nominative singular of the early dialects, e.g. Skt. pāṭ ‘foot’ masculine, dyūṭ ‘splendor’ feminine, śṛḍā ‘trust’ neuter. In the group of resonant stems, the nominative singular neuter is distinguished from the nominative singular masculine and feminine, but these are not formally distinguished from each other, e.g. Skt. dvas ‘sheep’ masculine, matts ‘thought’ feminine, but ḍṛṣṭi ‘eye’ neuter. In the vowel stems, different forms mark the nominative singular of all three genders, e.g. Skt. devds ‘god’ masculine, jāyā ‘spouse’ feminine, cakrām ‘wheel’ neuter. Phonological criteria enable us to determine that the consonant stems are oldest, the vocalic stems latest; for example, deevds with two ‘full-grade’ vowels must be subsequent to the period at which the ablaut changes took place, while the equivalent Indo-European form of dvis may be anterior to it.

Confining ourselves to the Proto-Indo-European singular case forms, we have
in early Proto-Indo-European, for paradigms like the o-stems and the a-stems:\(^{17}\) a form marked with -s [the later nominative singular masculine], a form marked with -m [the later accusative singular masculine and subsequently the nominative/accusative singular neuter], a form marked with -h [the later nominative singular feminine and nominative/accusative plural neuter], a form with zero ending [the later vocative singular for some nouns], and a second form marked with -s, which at a prior stage was identical with the first [the later genitive singular masculine/neuter]. For the etymon of Skt. \(\text{hima}\) these forms were:

\[
\begin{align*}
\text{s-form} & /\text{ghymōs}/ & [\text{g}^{\text{b}}\text{imōs}] \\
\text{m-form} & /\text{ghymōm}/ & [\text{g}^{\text{b}}\text{imōm}] \\
\text{h-form} & /\text{ghymāh}/ & [\text{g}^{\text{b}}\text{imāh}] \\
\text{Ø-form (cons. infl.)} & /\text{ghēym}/ \text{ or } /\text{ghym}/ & [\text{g}^{\text{b}}\text{ēym}] \text{ or } [\text{g}^{\text{b}}\text{im}]
\end{align*}
\]

For early Proto-Indo-European nouns we disregard the traditional declensions such as the o-stems, the a-stems, the i-stems, the u-stems, and the consonant stems, and assume a paradigm of these four forms.

Our inferences about the uses of these forms in the pre-Indo-European system of inflection are drawn chiefly from divergent developments of one form in various dialects. A similar procedure has been used for the Indo-European verb inflection. As example we may choose Gk. oίδα ‘I know’ and Goth. wǣt ‘I know’, both presents in meaning, and on the other hand Lat. vēdī ‘I have seen’, a pret erit in meaning though from the same etymon. The incongruity in meaning is accounted for by the role of their etymon in the previous system, neither a present nor a preterit but a perfective. A similar divergence in the noun may be illustrated by Gk. ἕντα ‘reins’, which occurs as a nominative plural neuter and a nominative singular feminine. The twofold usage is a reflection of the time when the form ending in -h was neither feminine nor neuter. The form ἕντα maintained into Greek a collective meaning of ‘grips whereby draft animals are guided, reins’; and it functioned either as a nominative/accusative plural neuter or as a nominative singular feminine because in form and meaning it fitted into both categories of the Greek system of nominal inflection.

But if we assume that -h was a nominal ending in early Proto-Indo-European, parallel to -s, we may expect to find reflexes in which the earlier functions of -h and -s are still apparent. Such forms occur. An example cited above is Skt. \(\text{hima}\) ‘winter’ as opposed to \(\text{himās}\) ‘cold, frost’. In this pair we note that the collective meaning—the season of cold—is preserved in \(\text{hima}\), a reflex of the form with -h, and the specific limited meaning is preserved in \(\text{himās}\), a reflex of the form with -s. A similar relationship of form and meaning is found in OCS \(\text{noga}\) ‘foot’, Lith. nagā ‘hoof’, as opposed to Gk. όμος ‘claw’; in Lith. pedā

\(^{17}\) It would be more accurate to use a consonant stem to illustrate the pre-Indo-European paradigm; but reflexes cannot readily be cited from the dialects, since consonant stems were greatly modified by subsequent changes. As for the word ‘heart’, suffixed forms were those most widely used in later times. Although a neuter consonant stem is attested in the Rigveda, neither the nominative nor the accusative occurs in the Rigvedic hymns; the genitive singular is hrīdās. The nominative/accusative singular neuter attested is hrīdayam, an extended form of hrīd; compare also Gk. κέρ, kardia, and so on.
'footprint' as opposed to Lat. pēs 'foot', and in other examples. The function of -h to mark a collective and -s to mark a specific, limited meaning is still apparent even in the nomina actionis and the nomina agentis, e.g. Gk. phorā 'produce, fruit', but phorōs 'a tribute, a payment', phorōs 'a bearing, i.e. favorable (wind)'. Moreover, the individualizing force of -s is apparent in the two types of ṭ-stems in Sanskrit; those in -s, e.g. vrkās, primarily indicate individuals.¹⁸

This same procedure helps us to determine the relationship of -m with -s and -h. Skt. padām means 'the placing down of the foot, footprint, stride', in contrast with forms ending in -s, which like Lat. pēs 'foot' mean the performer of an action. The -m is found in nouns indicating a nonactive object, or the result of action; the -s, in nouns indicating an active or specific object, or an individual involved in the action. Compare also Skt. yugām 'yoke' and Lat. conjux 'spouse', Skt. mitrām 'friendship' and mitrās 'friend', citram 'splendor' and citras, name of a king. A slightly different contrast is found between Skt. pārśvām 'region of the ribs' and pārśus 'rib', which may be masculine or feminine, but with final -s indicates a single, specific object. Other pairs, such as Lat. aevum 'life' vs. Skt. āyus 'living being, man', may be used to illustrate that nouns in -m, even without reference to the -s : -m contrast in the nominative : accusative masculine, indicate the result of an action, not (like those in -s) the performer or individual specified in an action.¹⁹

The original meanings of -m and -h may also be illustrated from pairs, one with final -m, the other with final -h. An example is Gk. phrētrē, which in keeping with the force of -h means 'a collection of brothers, a tribe, clan', as opposed to Skt. bhratṛām 'the relationship of brothers, brotherhood'. If such pairs survived in one dialect, e.g. Skt. tānām and tānā, it is difficult to determine whether the form ending in -ā is a neuter plural with, for tānā, the meaning 'descendants' as in RV 774.2, or a feminine singular with the meaning 'offspring', as in RV 259.1.

Such survivals support our assumption that pre-IE forms in final -s, final -m, and final -h, with the meanings suggested, could be made from any noun base. If in pre-Indo-European a noun was to be marked as representing an individual, -s was added to it; most such forms corresponded to the later nominative, e.g. gʷitXuōs 'he who is alive'. If a noun was to be marked as represent-

¹⁸ The view that -s marks an individual would account for its use in the Skt. vrkās as opposed to the devī type. As various Indo-Europeanists have pointed out (Lanman, JAOS 10.368; H. Lommel, Studien über ādg. Femininbildungen 38; Specht, UdD 357), the vrkās nouns primarily indicate individuals. Unlike Specht, I assume -h in both ē declensions, and subsequent spread of -s to the vrkās type.

¹⁹ André Vaillant published an attractive article, L'ergatif indo-européen, BSL 37.93–108 (1936), in which he proposed that the nominative singular -s originally marked an ergative, and that the pre-Indo-European noun system was similar in some respects to that of Caucasian. Unfortunately the suggestion meets with various difficulties. The feminines in -ā have no -s ending; this lack Vaillant tries to explain by deriving them like the neutrals from the 'inanimate gender'. The plural has no ergative. Like Vaillant, we would be glad to find structural similarities between the noun inflection, suppletion in the pronoun, and the -mi vs. -hi class of verbs; but the difficulties cited do not speak well for Vaillant's thesis. Nevertheless, the article still merits the attention of linguists investigating Indo-European noun inflection.
ing the result of an action, -m was added to it, e.g. *gʷiXwóm; many such forms corresponded to the later accusative singular. If a noun was to be marked as a collective, -h was added to it, e.g. *gʷiXwdh ‘that which is alive’; many such forms corresponded to the later nominative singular feminine, others to nominative/accusative plural neuters.20

In late Proto-Indo-European the nominal declension developed with its categories of gender, number, and case; and nouns inherited from pre-Indo-European were fitted into the new system. While in Sanskrit himás ‘cold, frost’, himam ‘snow’, himā ‘winter’, and even him* ‘cold, frost’ are nominatives for four different paradigms, in pre-Indo-European their etyma were four forms of the same paradigm, with characteristically different meanings. Between these periods there had been a complete shift in the basis of the noun system of inflection.

The knowledge that the etymon of the nominative singular feminine ending was -h after vowels or vocalic resonants, that it was parallel to the endings in the etyma of the nominative masculine and the accusative masculine (and the nominative/accusative neuter) provides us with decisive evidence in favor of the assumption of a pre-Indo-European noun system lacking both gender and many of the case categories that we find in Sanskrit. Structural similarity between various paradigms which this finding discloses is an added argument from morphology in favor of a genderless pre-Indo-European system. The most apparent structural similarity is that in the etyma of the nominative singular; the vocatives furnish additional evidence.

In o-stems the vocative singular consists of the stem, without the characteristic final -s of the nominative. Our analysis of the pre-Indo-European noun system discloses the same formation for all vocatives singular, including those of Proto-Indo-European feminines. Until now there has been no successful explanation of the vocative in a short final vowel of ā-, ī-, and ū-stems, e.g. Gk. dēspota beside dēspōtē(s) ‘master’, Skt. devi beside devī ‘goddess’, vādhu beside vadhā(s) ‘young woman’.21 For us, however, the relationship is the same as it is in the o-stems; the etymon of the vocative consists of the stem, without the final consonant of the nominative. Such a disclosure of parallelism in structure between the etyma of other forms through the assumption of a final consonant -h in the etymon of the nominative singular feminine, provides further assurance for the assumption of our pre-Indo-European paradigm.


21 In IG 3.42–3, Hirt suggested that the vocative endings were shortened endings of the original long vowels of the nominative, even though this hypothesis conflicted with his theories on accent and ablaut.—I do not suggest that all Indo-European vocatives are reflexes of the pre-Indo-European θ-form, or that the θ-form gave rise only to vocatives; in subsequent studies I plan to discuss more fully the designation ‘extrasyntactic’ for the θ-form.—Werner Winter has pointed out to me that on the basis of the vocative -a of Gk. nāmphia and OCS ženo we must assume a chronological sequence -e-h > -a-h, then loss of -h in the θ-form. This assumption provides a means for relative dating of the θ-form in relation to the h-form. It does not require us to assume that there were no θ-forms earlier, e.g. /gʰéym/ (This is one of several suggestions that I owe to Winter and to Jaan Puhvel.)
Examples of the pre-Indo-European paradigm, with the basic meaning of each form:

- **s-form**, individual: /gʷyws/ 'cow' /gʷyXwós/ 'living one' /gʰymós/ 'frost'
- **m-form**, resultative: /gʷywm/ /gʷyXwón/ /gʰymóm/
- **h-form**, collective: /gʷywh/ /gʷyXwáh/ /gʰymáh/
- **Ø-form**, extrasyntactic: /gʷyw/ /gʷyXwé/ /gʰymé/

### 3. The s-form in pre-Indo-European syntactic patterns

Though phonological analysis of the Proto-Indo-European nominative and vocative forms leads to the pre-Indo-European system that we propose, we must account for the extensive shift to the late Proto-Indo-European noun system, and relate the changes between the two systems to other pre-Indo-European phonological changes; the problems raised in this way involve consideration of Proto-Indo-European and pre-Indo-European syntax. For as we reconstruct other possible members of the pre-Indo-European noun system, we find that apart from its accent the etymon of the Proto-Indo-European genitive coincides in form with the s-form of pre-Indo-European, e.g. Skt. nom. dydus and gen. divds < early pre-Indo-European /dyl Ahws / and /dyhwl As/. In 1902 van Wijk demonstrated that the etyma of the two forms were the same, showing that -s was the characteristic genitive ending for nouns, -so and -syo being carried over from pronouns. Since accent alone differentiated the etymon of the genitive from that of the nominative, there would be no segmental basis for distinguishing between the two forms. And because in pre-Indo-European the occurrence of the main accent was syntactically conditioned, morphologically there was no distinction between the etyma of the nominative and the genitive. Vedic materials, supported by less direct data, such as metrical practices in Germanic, give evidence of these syntactic features—the suprasegmental features by which the etyma of the pre-Indo-European nominative and genitive were distinguished. Only certain forms, in Vedic Sanskrit as well, had the main accent in all syntactic constructions (even though our handbooks list all forms with accent marks). We must therefore note the intonation patterns of Proto-Indo-European clauses and the resultant accent patterns of morphological units before we can describe the morphological development of Indo-European.

Proto-Indo-European clauses consisting of subject and verb had a main accent only on the noun, provided this preceded the verb, as reflected in Skt. śvāstānam abhavat 'the next day came'. The first line of the Rig-Veda, agnim śle 'I call upon Agni' has the same intonation pattern, though here the noun is object. Germanic alliterative verse, through the practice of favoring finite verbs for positions of slight metrical prominence unless they stand first in their clause, confirms the assumption of such a pattern of occurrence of the Proto-Indo-European main accent. Cf. Beowulf 513 ff., where the verbs when weakly...
stressed and not alliterating (\textit{jehton, brugdon}) stand last in their clause, but first when they are stressed and alliterate (\textit{måeton, glidon}): 

\begin{quote}
\textit{je\textacute{r} git \textacute{e}azorstr\textacute{ē}am earmum \textacute{je}hton,} 'There you the ocean with your arms overcame,
\textit{måeton merestr\textacute{ē}ta, Mundum brugdon,} hurdled the seapaths, with your hands you swam,
\textit{glidon ofer g\textacute{a}r\textacute{e}cseg.} glided over the water.'
\end{quote}

In dependent clauses, however, it was the finite verb that received the main accent, e.g. RV 1.4 \textit{ágne yām ya\textacute{j}nām adhvāram viśvētāḥ pariśhār āsi ...} 'Agni, the worship and sacrifice which you everywhere encompass ...' Since the incidence of the main accent was determined by the function or position of a word in its clause, the Proto-Indo-European main accent for some morphological elements must be described as a component of clause intonation.

Elements with optional main accent were finite verbs and vocatives; for others, such as nouns, main accent was mandatory in Proto-Indo-European. In pre-Indo-European, however, as we know from the variations in vocalism (ablaut changes), nouns like verbs might or might not have a main accent, and their vocalism varied accordingly; reflexes like the following of \textit{/ped-/} in Vedic Sanskrit with and without main accent are abundantly attested in the various dialects: \textit{apād} 'without feet', \textit{upabdēs} 'of noise'. Main accent may also have fallen on noun bases or endings, with varying vocalism, as reflected in Vedic Sanskrit nominative \textit{vytrahā} 'Vritra slayer' but genitive \textit{vytraghnds}. As nouns of pre-Indo-European occupied different positions in clauses, their accentuation differed and accordingly also their vocalism. Such variation of vowels may be assumed for any pre-Indo-European form. Again we can only reconstruct it by observing the uses of Indo-European intonation patterns.

In one prominent intonation pattern of Proto-Indo-European and pre-Indo-European, a main accent on a prior element binds it to following elements; this pattern is characteristic of Indo-European exocentric constructions. The two chief constructions of this kind are independent clauses and bahuvrihi compounds. Main accent on a later element, on the other hand, marks an endocentric construction, a modifying relationship. In keeping with the observation that exocentric constructions have the main accent on an early syllable, we find a main accent on nouns of independent clauses, or on other elements preceding the finite verb, which itself then has no main accent; the finite verbs of independent clauses have main accent only when they stand first in their clause, for in this position a finite verb is in itself an exocentric construction, as in RV 1.9 \textit{śdcasvā nah [svastāye]} 'Accompany us [for our fortune]' (The placing of a main accent on finite verbs in subordinate clauses, on the other hand, results from their function as modifiers, as elements related to accompanying independent clauses.) Similarly, a main accent on initial vocatives marks them as independent, as not included in a following construction; and the absence of a main accent on vocatives not initial in their clause marks them as modifying elements of larger constructions. Contrast RV 1.4 \textit{ágne, yām ...} (above) with RV 1.7 \textit{úpa tvāgme divēdive dōṣāvastar dhīyā vayām nāmo bhāramā ēmasi} 'To
you, Agni, lighter of the dark, we come daily in thought, bringing adoration'.

These examples illustrate how the position of main accent in Vedic still reflects some syntactic usages of pre-Indo-European, though other syntactic markers, such as conjunctions and adverbs, have for the most part replaced accent in indicating syntactic functions.

Here we are particularly concerned with the position of main accent on nominal forms, which is evident in the contrasting positions on tatpurusha as opposed to bahuvrihi compounds; compare with the tatpurusha jīva-lokā 'place of the living' the bahuvrihi jīvā-putra 'one who has living sons'. Tatpurushas with main accent on the final member (retracted) indicate a modifying relationship; bahuvrikshis with main accent on the initial member (nonretracted) indicate an exocentric relationship.

Applying these observations to pre-Indo-European s-forms, we infer that the position of main accent was used to indicate their role, to mark whether they were constituents of exocentric or of modifying constructions. If used in an exocentric construction, they had a nonretracted main accent, falling on the stem. If used in a modifying construction, the main accent was retracted and fell on the suffix. This difference in position of the main accent would have occasioned the differing vocalisms found in the nominative and genitive. Non-retracted main accent on a noun like /ped-/ 'foot' resulted in an s-form /péds/ > Lat. pēs, Skt. pāt; retracted main accent in a form /pəds/ > Lat. pedis, Skt. padās, etc.

In Proto-Indo-European the position of the main accent came to be morphologically fixed rather than syntactically determined, as it had been in pre-Indo-European. With the fixing of accent went the fixing of phonological structure. Thereupon the forms used for exocentric and endocentric constructions came to differ. The form characteristically used in the head of the independent clause construction (with main accent on the stem) developed into the Indo-European nominative, e.g. Skt. pāt 'foot', pānthās 'way', nāvās 'ship'. The characteristic modifying form (with retracted main accent) developed into the Indo-European genitive, e.g. Skt. padās 'of the foot', pathās 'of the way', nāvās 'of the ship'. The formal difference between the Indo-European nominative and genitive is then a result of their differing syntactic positions in pre-Indo-European, with differing resultant accentuations. Subsequent analogical changes have disturbed the original distribution of accent, vocalism, and endings; a discussion of analogical changes in the dialects, especially analogical transfer of endings, may be found in the handbooks. Though less thoroughly described, the leveling of accentuation and vocalism is evident from examples, especially in Vedic Sanskrit. In pāsūs, for example, the masculine for 'cattle', the accent stands on the ending, which with its u could not have had main accent during the period of ablaut changes; the nt. pāsū preserves the original accentuation, as does the gen. pāsūds. Few dialect forms exactly reflect pre-Indo-European accentuation and vocalism. But by assembling the evidence we have, we can reconstruct the pre-Indo-European of a time when the s-form filled the functions of both the later genitive and nominative.

The four forms that we posit for the pre-Indo-European noun, then, correspond
to four of the eight case forms found in the Sanskrit masculine singular inflection: nominative, accusative, genitive, and vocative. Some of the analogical changes in these forms and the expansion of the pre-Indo-European paradigm will be discussed below; but first we will note how gender congruence developed in the Indo-European noun paradigm.

5. The development of the Indo-European gender congruence system. The Indo-European gender congruence system arose in great part as a result of the fixing of forms induced by the shift of accent and by the rise of long vowels resulting from the loss of laryngeals. The phonological change of greatest significance for the development of the Indo-European system of noun inflection was the loss of laryngeals between stressed vowels and obstruents. Their loss in this position, which took place in the stage of pre-Indo-European labeled E, gave rise to the long vowels /eː aː oː iː uː/; see PIEP, Chapter 15. The development of final long vowels in the collective case disrupted the old noun paradigm. In the old paradigm, nominal endings could be added to the base with no masking of the noun stem itself by the endings. But after -eh, -ih, -uh had become -ā, -ī, -ū, stem and ending were merged and the collectives lost their parallelism with the s-form and the m-form. The fixing of the collective endings influenced especially the role of modifiers. Until now, a modifier like /gʷyXwāh/ was parallel to the s-form /gʷXwōs/. Now, remaining fixed, its reflex /gʷiwā/ patterned rather like the stem /gʷiwō-/ and like /gʷiwō-/ came to be a stem to which further endings, such as -m, could be added. After /gʷiwā/ had come to be treated as a stem, the new congruence alignment was set up.

Moreover, after the loss of laryngeals with compensatory lengthening, /eː aː oː iː uː/ remained fixed, even when occupying a clause position which did not have main accent. During the time of syntactically conditioned main accent, vowels were determined by accent and accordingly were nonphonemic (nondistinctive), as we can demonstrate from morphophonemic variations of the dialects, e.g.

Skt. krīṇātī ‘he buys’ (-nēX-) sunōtī ‘he presses out’ (-nēw-)
kṛṇānti ‘they buy’ (-nX-) sunvēnti ‘they press out’ (-nw-)

After the loss of laryngeals (pre-Indo-European stage E), the vowels, now phonemic and independent of main accent, no longer varied in forms that varied in accentuation from one syntactic position to another.

Two such fixed forms have been discussed above, the nominative and the genitive singular in -s. If before stage E a noun ending in -s was part of an exocentric construction—if it was used as subject—the s-form with main accent on the stem, e.g. /pēdēs/, was used consistently; if, on the other hand, the noun occupied a modifying relationship to a following noun, the form with retracted main accent, /pēdēs/, was used with equal consistency. After stage E these uses, like the forms, became fixed; /pēdēs/ was always used as subject, /pēdēs/ as modifier. The other noun forms came to be similarly invariable, independent of their syntactic use or accent; the accent of the etymon of Skt. himā, for example, was no longer capable of being reduced, and himā had collective meaning.

These forms, with forms previously extant, then came to be fashioned into
the Proto-Indo-European paradigms as we know them. The word for ‘foot’ would have had at least three forms: /pë·ds/, the etymon of the later nominative; /pëdm/, the etymon of the later accusative; /pëdës/, the etymon of the later genitive; and a possible endingless form /pëd/, corresponding to the later vocative.

While fixed forms were developing in the noun paradigm, the same phonological changes which led to the differentiation of -ä from -os, -om took place in adjectives of the vocalic declension, and in vocalic demonstratives such as /so-/. Similarity in function, leading to similarity in endings, of many nouns, adjectives, and demonstratives led to gender congruence between nouns and their modifiers: a noun used as subject with -ä would require pronouns or adjectives in -ä substituting for it; a noun used as subject with -os or -om would require pronouns or adjectives in -os or -om. Through the resulting agreement between forms of similar ending, the threefold congruence distinction developed as we know it from the dialects, though without any reference to sex or natural gender. The Indo-European gender congruence was then the result of phonological developments in late pre-Indo-European, and was not preceded by a distinction between animate and inanimate.

The assumption that the Indo-European threefold congruence distinction developed from a twofold distinction between animate and inanimate rests on a highly insecure basis. One is the assumption that primitive Indo-European man visualized the world in terms of living and nonliving; Brugmann adequately explored the fallacy of this assumption. More persuasive is the morphological situation in such categories as i- and u-stems, which have no distinctive form for feminine as opposed to masculine. But from their twofold distinction we can no more assume an older congruence system than from the threefold distinction of the vowel stems. Evidence for the absence in pre-Indo-European of any congruence system is much stronger. Such evidence is provided by the diversity of feminine formations, e.g. the feminine consonant stems with no ending distinctive from the masculine, as in the etyma of ‘mother’ and ‘voice’; and the vocalic resonant stems which again are not distinctive from the masculine; and finally the vowel stems with the only distinctive ending for the feminine. Further evidence is provided by feminine forms distinctive in their bases, such as those

24 Brugmann’s works have been referred to above. Unfortunately the old conception persists even in an excellent work like Meillet’s Introduction, so that he says (340): ‘En se reportant à une mentalité de demi-civilisé, on arrive presque toujours à s’expliquer le genre “animé” ou “inanimé” attribué à un nom donné. On conçoit par exemple pourquoi les noms qui indiquent l’action, l’acte sont de genre animé, ainsi gr. phōnos, phorά, phάτis, lat. gemitus, etc.’ Differing accounts of Algonquian gender distinction are also instructive. Jespersen, Language 394, says there is a ‘division found in Algonkin languages between a class of “living” and another of “lifeless” things’; and he uses this division to support a similar hypothetical division in pre-Indo-European. Bloomfield, who knew the Algonquian languages at first hand, says of their gender categories, Language 271-2: ‘In the Algonquian languages, all persons and animals belong to one category, an “animate” gender, but so do some other objects, such as “raspberry,” “kettle,” and “knee”; all other objects (including, for instance, “strawberry,” “bowl,” “elbow”) belong to the other, “inanimate” gender. A more complete knowledge of Algonquian thus dispels the simplistic dichotomy of gender sought in a ‘semi-civilized mentality’.
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cited by Meillet, *Introduction* 284;\(^{25}\) in the Gk. fem. *pollē* 'much', for example, there is no trace of the *w* of the masc. *polús*, and the Skt. fem. *pāliknī* 'grey' has a completely different stem formation from masc. *pālitās*. The wide variety of endings in the masculine and neuter also suggests that the gender system was superimposed on nouns lacking such congruence.

The group of nouns which best preserves the older situation consists of those we may designate on the basis of their common semantic features as mass nouns, such as the etyma of Skt. *āpas* 'work', *āyas* 'metal', *ḥīḍ* 'heart', *kraitī* 'raw meat', *mādhu* 'mead', *pāsū* 'stock', *śākṛti* 'dung', and others. Because of their wide distribution in the dialects, we ascribe these mass nouns to pre-Indo-European. As the congruence system developed, they occupied a peculiar position, for they had only one form for subject and object. This formal characteristic aligned them with nouns having the *m*-form in the subject position; and the coincidence of mass nouns with *m*-nouns gave rise to the neuter congruence class.

But we can observe the difficulties encountered in the development of the congruence system, for example from the history of the word for 'stock'. The predominant form is a reflex of the mass noun, Skt. *pāśu*, Lat. *pecu*, OE *feoh*, etc. In both Avestan and Indic, however, a masculine in *-s* is found beside the endingless neuter. In Latin we find beside an endingless neuter, another neuter in *-s*, and a feminine *pecus* *pecudīs*. Such a variety of forms leads us to conclude that the neuter gender developed late in Indo-European, not before the time of the development of masculine and feminine gender.

To speak of pre-Indo-European gender, or to label mass nouns as neuters in pre-Indo-European before they were classed with some *m*-nouns, would be erroneous. Until *-h* was lost with compensatory lengthening of the preceding vowel, and until *-s* came to be the predominant marker of one class of nouns when they were used as subject, and until modifiers were inflected to agree with them, and until the mass nouns fell together with some *m*-forms, there were no concord classes in pre-Indo-European and accordingly no gender distinctions. When modifiers were selected for the *s*-class (masculines), for the *h*-class (feminines), and for the group of mass nouns and the *m*-class (neuters), all nouns were required to conform to one of these three congruence categories, and only then may we speak of gender distinctions.

Through phonological analysis we can also determine the relative chronology of the origin of the gender system. Gender was possible only after the development of the thematic nouns, for these alone of the three groups of Indo-European nouns—the consonant stems, the vocalic resonant stems, and the vocalic stems—have a thoroughgoing gender distinction. Since the gradual differentiation of genders in other stems than the vocalic, for instance in the *i*-stems, has been thoroughly documented in the handbooks, this statement needs no detailed

\(^{25}\) Meillet's entire passage (284) is worth quoting: 'Le féminin était d'abord dérivé du radical indépendamment du masculin correspondant; on n'a aucune raison de croire qu'il ait été perdu un *w* dans des formes telles que gr. *pollά* (pollē) en regard de *polús*, got. *kaurjo-* "lourde" en regard de kaurus "lourd", lit. *plačo-* (de *platjo-) en regard to *platās* "large", etc. Le féminin skr. *pāliknī* "grise" est indépendant de *pālitāk* "gris", et l'*n* du féminin skr. *pātīnī* gr. *pótnia*, v. lit. *-pānī* oppose le féminin au masculin skr. *pātīk*
If the gender distinctions were based on semantic differences, we might admit gender congruence for pre-Indo-European. But since they are largely based on formal distinctions, gender could not have existed until these formal distinctions were present in the language.

The necessity of belonging to one of the three congruence classes brought about close relationship of all types of nouns, and the similar formations which we find in the later dialects. Already in the Rigveda more than half of all attested nouns are a- or a-stems; see Lanman, *JAOS* 10, Table 1, opposite 582. The diversity of pre-Indo-European nouns is still evident in Proto-Indo-European nominatives, and accords with our assumption that pre-Indo-European nouns may have ended in any consonantal phoneme. The only type of nominative formation that needs special explanation is that marked by lengthening of the stem vowel, found especially in nominatives ending in -n and -r; see Gdr.2 2.2.1.125 ff. This formation may be explained through the syntactic patterns of pre-Indo-European. It developed in patterns when the subject directly preceded a finite verb. Conditions were then right for lengthened grade; for with the loss of accent on a following verb, its stem vowel dropped out and the preceding vowel was lengthened; for example, pre-Indo-European /petër/ + /ëty/ became /petér yty/. We can also account for the mutual exclusiveness of lengthening and -s, -h, -m. The phonological structure of Proto-Indo-European did not permit a sequence of long vowel, resonant, consonant, or consonantal resonant; see Gdr.5 1.346–7, 426. Sequences like -ers were impossible. Lengthened vowels and the other markers of the nominative were therefore mutually exclusive.

The Indo-European gender system, then, was occasioned by the morphological realignment following the loss of laryngeals with compensatory lengthening which occurred simultaneously in nouns, in adjectives, and in pronouns, e.g. in the etyma of Skt. pûrvâ 'former' and sâ 'this' as well as himâ; and in the s-nouns and m-nouns as well. This congruence system thereupon expanded to include all Indo-European nouns, adjectives, and pronouns; and, as Brugmann suggested, it was overlaid with a natural gender system. How the expansion and the shift towards congruence of natural gender were carried out in detail could only be described on the basis of a series of texts; since these will probably never be available, we may assume with Brugmann that nouns ending in -a, such as the etymology of Gk. gûnê 'woman', attracted to their congruence class other words referring to females, so that eventually designations for females became members of the congruence subsystem in which the a-stems belonged. At the same time nouns ending in -s, such as the etymology of Skt. vṛkṣas 'wolf', attracted other designations for males to their congruence class, and eventually the notion of masculinity came to be dominant in this congruence class, as femininity was in the other.

26 See for example Whitney’s discussion of the older and later inflection of i- and u-stems, *Sanskrit grammar* 110–22.
My suggestion on the development of congruence differs from that of Brugmann in the assumption that the three congruence classes arose simultaneously. Nominative singular -s did not come to be a mark of the masculine congruence class until the long final vowel resulting from the loss of -h caused the endings of certain nouns to become fixed; thus the masculine and feminine congruence classes arose at the same time, as did the neuter. And since the most characteristic marks of congruence, -s, -a, -m, were present also in nominal modifiers, even nouns without such endings were assigned to one of the congruence classes. By the time of late Proto-Indo-European all nouns were masculine, feminine, or neuter.

6. Reflexes of the old system in our materials. Although gender congruence was fully developed in late Proto-Indo-European, reflexes of the pre-Indo-European system are widely evident in our materials. Some have been so often treated that they need only passing mention. The nominal congruence system was never extended to the oldest members of the pronominal system, to etyma of Skt. aham, tvam, etc. These, unlike nouns, were never preceded by adjectives; unlike adjectives and demonstratives they never referred to grammatical elements, to ‘words’ rather than people; accordingly they were not laid open to the new alignment.

Congruence was only superficially extended to the oldest members of the nominal system, such as the consonant stems. And even in the thematic stems the new concord system was not established with the same consistency throughout the dialects; it was of course the lack of consistency in forms like Lat. poeta or Gk. ndulès ‘sailor’, both masculine in gender though feminine in form, which first alerted Indo-Europeans to the defects of the Romantic view of the origins of Indo-European gender.

Other reflexes of the old situation may be adduced from the dialects. One of the most striking is the apparent use in Hittite of some genitives to indicate subjects, as described by Friedrich, Hethitisches Elementarbuch 1.69. Among the examples given by Friedrich is yaštulaš ‘of sin’ (< yaštul ‘sin’), which may have the meaning ‘sinner’. In form yaštulaš is genitive; in meaning it corresponds to a nominative. Rather than regarding this use as a peculiar Hittite elliptical construction, I view forms like yaštulaš as reflexes of a pre-Indo-European s-form which was not distinctively genitive. This view may be supported by citing the similar Hittite use of genitives of infinitives, e.g. naḥḫuyaš ‘one who shows reverence’; for here the ‘genitive’ not only is used as a nominative, but indicates an individual involved in the action of the verb stem. In these derived forms, the old function of the -s is clearly evident. Furthermore, the ambivalent development of the s-forms is pointed up by the Hittite ‘genitives’ of infinitives, for like nominatives singular they may be further inflected.27 I conclude then that the

27 Schwyzer's suggestion, Griechische Grammatik 1.515, on the origin of neuters in -e/os in genitives of root nouns, might be more plausibly stated from this point of view. These nouns generally indicate individual objects, e.g. ὁ λόπος 'covering' (cf. lōps), ὁ στίγος 'pillar' (cf. στυγ- fem.), ὁ σάκος 'shield' (cf. Skt. tvāk fem.). Instead of assuming that these nominatives in -os developed from genitives, we suggest that -s in these nouns modified the meaning in the manner indicated above. The form that Schwyzer cites, as in A 648 oukh
Hittite treatment of such infinitives in -s, like the use of other genitives, is a reflex of the time when the ending in -s did not mark a genitive, but rather an individual case.

Further reflexes in Hittite and the other dialects point to a pre-Indo-European system in which there was no closed paradigm of noun inflection. In Hittite we encounter forms like me-mi-ya-na-aš, in which the 'final ending' is not added to the stem, but rather to a stem plus ending; me-mi-ya-na-aš, though morphologically the genitive of me-mi-ya-aš, consists of a genitive formed from an apparent accusative, me-mi-ya-an. Similar are the compounds of other dialects which have 'case forms' as their first component. These have been variously discussed. An example of the s-form is Skt. rāthas-pātīs 'lord of the chariot'; of the m-form, viśvam-invās 'all-pervading'; of the h-form, viśvā-sah* 'all-conquering'. From these and similar compounds I conclude that in pre-Indo-European there was no requirement for the first element of a compound to have the zero ending form; the appropriate ending was selected on the basis of its meaning. Again this situation supports the assumption that the forms with any of the four endings were independent of one another.

The view of the pre-Indo-European nominal system presented here may lead to an understanding of Proto-Indo-European forms which have never been satisfactorily explained. The Sanskrit demonstrative sa (without -s) has been a recurrent problem, if not a complex one. With our definition of -s as an individualizing ending we see that -s was redundant in a pronoun meaning 'this one'. Only after the function of -s had been modified to mark the nominative singular masculine was it added to the nominative singular masculine of sa.

Our analysis also puts in better perspective problems like those concerning the endings of Rigvedic roots in -ā, e.g. masc. trā 'protector', fem. gnā 'divine woman'. By the orthodox view these should have -s in the nominative. By our view we expect the 'individualizing' -s on masculines, a reflex of -h on feminines; without analogical influence the -h would have been absorbed in the feminines, as the -s was maintained in the masculines.

A group of nouns which has never been satisfactorily explained consists of the heteroclitic r/n stems, which have different stems in the nominative/accusative and in the adverbial cases. Similar are the feminines which are 'derived from hēdos (esti) 'there is no seat', as a possible genitive of *hed-, would then be a reflex of the IE s-form, which survived more widely as a neuter in -s, for instance Skt. sādas 'seat' and Gk. hēdos.

28 See for example Whitney, Sanskrit grammar 483-4. In that place examples will be found of other cases as prior members. Of special interest for this study are words which Whitney describes as receiving accusative forms 'to which they have no right', such as hrāmsāni; in this compound ḫrād has an -am ending as though it were a masculine instead of a neuter. If we view the -m ending as we have above, the compounding form ḫrāman poses no problems. Schwytzer, Griechische Grammatik 1.445, also discusses this subject.

29 In discussing these nouns, A. Macdonnell writes, A Vedic grammar for students 79 (Oxford, 1916), "The m. always takes s in the N.s., but the f. often drops it, doubtless owing to the influence of the derivative & stems."

30 See Meillet, Introduction 341, 266.
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roots independently of masculines. When we view the pre-Indo-European noun paradigm as a set of four autonomous forms in which gender was not marked and adverbial cases were absent, the difference in formation of these two groups of nouns can be interpreted as a result of the rearrangement which was occasioned when the Proto-Indo-European noun system developed.

The evidence assembled above leads us to suggest a system of nominal inflection for early Proto-Indo-European and pre-Indo-European which differs considerably from that of Sanskrit. In late Proto-Indo-European and in the dialects, such as Sanskrit, the noun paradigm was regularized, so that the same case forms are made for all numbers and genders. But Lanman's statistics on noun forms in the Rigveda, with only six ablative plural neuters, 44 ablative plural feminines, and 65 ablative plural masculines out of 93,277 noun forms, and with other irregularities in occurrence, point to a very gradual regularization of the noun system, even in the Indic dialect. This regularization followed a gradual expansion of the number of case forms in Proto-Indo-European and the early dialects. The essential steps of this expansion will be sketched here briefly.

7. Expansion of the Proto-Indo-European nominal system. To the time of the vowel changes which gave rise to ablaut variation (e : o, e : o, etc.) we ascribe noun forms characterized by -s, -m, -h, -θ. For consonant-stem forms and even vowel-stem forms can be reconstructed to agree with the forms that we expect for this time, such as pre-Indo-European /pē'ds/, 'foot', /γόwys/ 'sheep', /gʰymós/ 'cold'. The etyma of the Proto-Indo-European nominative singular are therefore very old forms. The fact that these endings were sometimes but not always preceded by a vowel, e.g. pre-Indo-European /gʰymós/ vs. /pē'ds/, reinforces our assumption of the antiquity of these forms.

On the other hand, from the unvarying form of the Proto-Indo-European nominative/accusative singular neuter -om and from nominative plural forms in -es which cannot be reconstructed to the time of the ablaut changes, such as PIE /pēdēs/, we conclude that the -om and -es endings were added to bases after the ablaut changes had become fixed. Other evidence for late endings was reviewed above. Reasoning from phonological data then leads to the conclusion that the Indo-European nominal inflection as we know it is made up of forms which developed over an extended period of time.

Phonological criteria enable us to distinguish the oldest forms of the nominal paradigm and the youngest. The oldest have been the subject of this paper; the youngest, as noted in footnote 9 (with arguments for relative dating), are the adverbial forms, with which we are not here concerned. Forms intermediate in age are the accusative singular feminine, the nominative and accusative plural masculine and feminine, and the nominative/accusative dual. Though I exclude discussion of these forms from this paper, we may note briefly how the paradigm described above was extended.

The accusative singular feminine developed by analogical contrast to the masculine. The contrast in the masculine between the s-form (nominative) and

the m-form (accusative) belongs to the oldest section of nominal inflection. Its extension to the feminine followed the usual pattern of analogical spread:

masc. /wlkwəs/, /γόwys/ fem. /gʰyμά/

/ylkwəm/, /γόwym /

Accusative singular feminine forms, e.g., /gʰyμά/, developed in this way soon after the nominative–accusative opposition became established in the masculine.

Before analogical forms could develop, the categories involved must have been established. We have noted above that these categories were the following: gender—masculine, feminine, and neuter; number—singular and plural; case—nominative, accusative, genitive, and vocative. The category of case was expanded variously in the Indo-European area. Accusative plurals and genitive plurals were developed, and adverbial forms were added to the paradigm. From the variation in adverbial case endings, e.g. Instr. Pl. -bhis : -mis, we may assume that the system of nominal inflection was expanding when contact between various sections of the Indo-European homeland was growing less. The expansion of the Indo-European paradigm involves no new category of inflection, but primarily a greater exploitation of the category of case. It is outside the defined scope of this discussion of the early development of the Indo-European nominal inflection.

See the various handbooks, e.g. Gdr.\textsuperscript{2} 2.2.109 and the bibliography there.