

ΚΑΛΛΟΣ AND ΚΑΛΟΣ
MORPHOLOGY, ETYMOLOGY, AND CONCEPTUAL GENEALOGY

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This study investigates the etymological origin of the family of the Greek adjective *καλός* ‘beautiful’ from the parent language Proto-Indo-European (PIE). After examining its use in archaic hexameter poetry and reviewing previous proposals, the author situates the problem in the broader context of the morphological behavior of Greek and PIE roots of adjectival meaning, and pursues evidence for derivation from the root **kel-* ‘cover’ in light of the larger categories of nominal derivation in PIE. By means of etymological analysis of semantically comparable lexemes, the dissertation finally explores the conceptual relationships involved in the emergence of the lexical meanings of the forms ancestral to *καλός* and its relatives.

BIOGRAPHICAL SKETCH

Andrew Edmund Merritt was born in Alexandria, Virginia on May 1st, 1992 and grew up in Northern Virginia, graduating from Northern Virginia Community College with an Associate of Arts degree in Liberal Arts in May 2011 and with a Bachelor of Arts in Classics from the University of Virginia in May 2013. After earning a Master of Philosophy degree in Classics from Cambridge University in July 2015, he went on to complete his studies in Classics at Cornell University, becoming Doctor of Philosophy in May 2023.

Εἰς τὴν δόξαν
τοῦ Καλοῦ
ἐν ᾧ ἐδιδάχθην
ἐνδύσασθαι
τὸν καινὸν ἄνθρωπον

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INTRODUCTION

The purpose of this study is to investigate a particular kind of concept whose apparent peculiarity to human beings renders it apt to offer insight into patterns of cognition and experience. The principal path of that investigation is a family of Ancient Greek words susceptible to analysis in terms of historical and comparative grammar. The concept in question is the evaluative notion representable as BEAUTY. The most prominent member of the family in question is the adjective *καλός* ‘beautiful, fine, etc.’, whose semantic range, as the usual glosses suggest, generally corresponds to the notion of, for the most part, positive value inasmuch as such value is perceptible. With thought and word in sight, we can advance a specific historical question posed for the purpose of conceptual inquiry: why does *καλός* have this meaning?

The initial step in answering this question is to define a corpus in which the lexical family first appears and to observe patterns in the use of its members. Due to its size and antiquity, the most suitable corpus consists of Homer’s two poems (*Iliad* and *Odyssey*),¹ to which we add two of Hesiod’s (*Theogony* and *Works and Days*)² and two Homeric Hymns (*Hymn to Demeter*³ and *Hymn to Aphrodite*). As far as observing patterns is concerned, the most suitable procedure is to establish relatively specific conceptual categories across which patterns in the use of *καλός* and its relatives may present themselves more clearly.

We may begin in Homer with the use of *καλός* itself,⁴ including its comparative *καλλίων* and superlative *κάλλιστος*. In total, the term occurs 316 times, 27 of which involve parts of the

¹ Text of Martin L. West 2001, 2011, 2017.

² Text of R. Merkelbach and M.L. West. 1990.

³ Text of Richardson 1974 and 2010.

⁴ LfgrE: 1303–1313. For treatment of the semantically comparable *χάρις* in Homer, see Latacz 1966: 78ff. For discussion of Homeric terms in the domain of beauty, see Shakeshaft 2019. For discussion of the metrical behavior and descriptive use of *καλός* in Homer, see Bertrand 2019.

body. The most striking feature of its somatic use is that fact that, in almost half of those occurrences, it is *χρῶς* ‘skin’ that is qualified (13x). The use is clearly formulaic, given that *χρῶς* and *καλός* only appear together in the phrase *χρόα καλόν*, which occurs 3 times at line end, 4 times after the hephthemimeral caesura, and 6 times before the trochaic caesura. The next most common (5x) body part are the eyes (*ὄμματα*, *φάεα*), followed by *πρόσωπα* ‘face’ (4x). Surprisingly in contrast to the frequency of the compounds *κάλλιθριξ* ‘with beautiful mane’ and *καλλιπλόκαμος* ‘fair-tressed’ to be mentioned later on, a term for hair is the phrase’s head only 2 times, with 2 different terms, *πλόκαμος* ‘lock(s)’ and *ἔθειρα* ‘(horse)hair’, the latter of which is used to refer to the crest of Achilles’ helmet (X 315). Last and not least, *παρήϊον* ‘cheek’, *σφυρόν* ‘ankle’, and *μηρός* ‘thigh’ are each qualified 1 time (but cf. *καλλιπάρης* ‘fair-cheeked’ [16x] and *καλλίσφυρος* [5x]).

Another well represented category (16x) is what may be represented as SPACE, comprising defined land of any kind (e.g. cities, fields, etc.). 13 different terms are qualified: *ἔργα* ‘works’ in the sense of ‘cultivated land’, *τέμενος* n. ‘precinct’, TN *Αἴπεια* ‘Hightown’, *πόλις* ‘city’, *ἀλώη* ‘vineyard’, *βῆσσα* ‘glen’, *ἄλσος* n. ‘grove’, *λιμὴν* ‘harbor’, *ἀγών* ‘(place of) assembly’, *χορός* ‘dancing place’, Toponym (TN) *Κρήτη* ‘Crete’, *ἔρκεα* ‘enclosure’, and *ἀγρός* ‘field’. The comparable category WATER is represented 14 times with 4 different terms: *ὔδωρ* ‘water’, *ροή* ‘stream’, *ῥέεθρον* ‘id.’, and *ποταμός* ‘river’.

Human beings are qualified 24 times, WOMAN 13 times, MAN 11. Of the former class, 6 are proper names (*Καστιάνειρα*, *Κλεοπάτρη*, *Πολυδώρα*, *Πολυκάστη*, *Ἐπικάστη*, *Ἀριάδνη*), 6 are instances of *γυνή* ‘woman’, and 1 of *θυγάτηρ* ‘daughter’. Of the latter class, 9 are of specific figures (*Nireus*, *Paris*, *Agamemnon*, *Ganymede*, *Achilles*, *Telemachus* [2x], *Odysseus*, and *Eurypylus*). A generic *φῶς* is qualified 1 time with the positive (ι 513), while *Odysseus’ men* are

qualified with the comparative when restored to human form (κ 396). Both uses involve collocation with the lexeme μέγας ‘big’. This phrase, which appears most notably in Achilles’ rhetorical question posed to the pleading Lycaon (οὐχ ὀράαις, οἷος καὶ ἐγὼ καλός τε μέγας τε; Φ 108), clearly serves to express the notion of nobility of appearance and thus nobility itself.

The category VOICE (11x) comprises 4 instances with ὄψ* ‘voice’, and 7 as an adverbial accusative modifying forms of ἀείδω ‘sing’ and ἀοιδιάω ‘id.’. This adverbial use seems worthy of being classed with the adjectival one because it is vocal activity that is qualified. The conveniently named, generic category BELIEF (10x) comprises 7 instances of ἱερόν ‘sacrifice’, 2 of κλέος ‘glory, renown’, and 1 of γέρας ‘gift’.

The category ANIMAL is instantiated 10 times, most often with flocks of sheep (4x), twice for cows, and one time each for horses, rams, dogs, and generic sacrificial animals. GODDESS is instantiated 6 times, of which 5 are of specific individuals (Eos, Charis, Athena, a goddess whose epithet is Ἀλοσύδνη [Thetis or Amphitrite], and Aphrodite), and 1 of the nymphs to which Nausicaa’s maids are compared (η 108). SUPERTERRESTRIAL (5x) includes 2 instances of ἀστήρ ‘star’, 2 of ἄνεμος ‘wind’, and 1 of νεφέλη ‘cloud’. For the category GOD, forms of καλός appear 3 times, qualifying 3 superhuman males (Ares [2x], Otus, and Ephialtes). PLANT is instantiated but once (πλατάνιστος ‘plane tree’).

160 of the 316 instances of καλός belong to the macro-category Artificial, which comprises artificial objects ranging in size from buildings and vehicles to items smaller than the human body. The most frequently instantiated category is ARMOR (41x), with 7 different terms: the generic τεύχεα (22x) and ἔντεα (8x), κνημὶς ‘greave’ (5x), ἀσπίς ‘shield’ (2x), σάκος ‘id.’ (2x), κόρυς ‘helmet’ (1x), and τρυφάλεια ‘id.’ (1x). The frequent phrase τεύχεα καλά is formulaic; it is usually found at line end (10x), or before the trochaic caesura (7x). The

functionally equivalent phrase ἔντεα καλά is also found at the end of the line (3x). After ARMOR, the next most common category is CLOTHING (38x), represented by 9 different terms: πέδιλα ‘sandals, foot-covering’ (14x), εἴματα ‘clothes’ (9x), χιτῶν ‘tunic’ (2x), πέπλος ‘woven cloth, mantle, robe’ (2x), κρήδεμνον ‘headdress, veil’ (1x), φᾶρος ‘mantle, cloak’ (4x), χλαῖνα ‘cloak’ (3x), ζώνη ‘belt, girdle’ (2x), δίπλαξ ‘double-folded mantle’ (1x). The most frequent term occurs in the phrase καλὰ πέδιλα, which always appears at line end. The generic εἴματα in εἴματα καλά gravitates to the end (6x). As far as employment with καλός is concerned, CLOTHING clearly comprises formulaic material. Given its similarity to CLOTHING, we can note here that CLOTH is instantiated 7 times with 3 different terms: εἶρια (pl.) ‘wool’ : ῥῆγος ‘rug, blanket’ : acc. sg. λιτα ‘linen cloth’.

The next most frequently instantiated, but significantly smaller, coherent category is STRUCTURE (19x), which includes δῶμα ‘house’, τεῖχος ‘wall’, ἔπαλις ‘battlement’, Ποσιδήιον ‘Temple of Poseidon’, and αὐλή ‘courtyard’. In contrast, while the conveniently constituted category ARTEFACT is just as common, the 14 different terms belonging to it are of various types: ζυγόν ‘yoke’, λέπαδνον ‘yoke-strap’, φόρμιγξ ‘lyre’, ἀξίνη ‘axe-head’, φάσγανον ‘sword’, στεφάνη ‘garland’, πλυνός ‘trough, washing-tank’, ἐπίθημα ‘lid’, σφαῖρα ‘ball’, μέσοδμη ‘tie-beam’, κληρίς ‘bar, bolt’, θύρετρα ‘door’, κορώνη ‘door-handle’, ῥάβδος ‘rod, wand’.

VESSEL is instantiated 15 times with 6 different terms: κάνεον ‘reed-basket’, λέβης ‘kettle, cauldron’, δέπας ‘goblet’, ἄλεισον ‘id.’, πρόχοος ‘ewer’, and κρητήρ ‘mixing-bowl’. The conveniently generic category VALUABLE is instantiated 11 times with 4 different terms: ξενίον ‘gift of hospitality’, κειμήλιον ‘stored treasure’, δῶρον ‘gift’, and ἀέθλιον ‘prize’. 3 terms for FURNITURE (7x) occur: τράπεζα ‘table’, θρόνος ‘chair’, and χηλός ‘chest’. Finally, there are 5

instances of VEHICLE, each appearing once: δίφροισι ‘chariot’, ναῦς ‘ship’, ἄρματα ‘chariot’, ἄμαξα ‘wagon’, and ἀπήνη ‘four-wheeled wagon’.

The remaining 30 instances of καλός belong to the conveniently designated abstract category AFFAIR, which includes, on the one hand, predication of infinitives, neuter pronouns, and unexpressed neuter subjects (21x) and, on the other, the use of the neuter accusative singular or plural as an adverb (11x).⁵ The conspicuous feature of this category is the extent to which Present-day English (PDE) *beautiful* or *beautifully* is an inappropriate translation. When, for example, Euryalus insultingly dismisses Odysseus as a sea-merchant, the hero responds with “ξεῖν’, οὐ καλὸν ἔειπες· ἀτασθάλωι ἀνδρὶ ἔοικας (θ 166). If we were to translate οὐ καλὸν ἔειπες with “you did not speak beautifully”, the translation would imply that the (negative) value attributable to Euryalus’ speech was in some sense self-sufficient or self-contained as an object of perception to the one assigning value. Instead, what is expressed by the qualification of speech as καλόν is a value that is saliently relational and beyond itself, being of consequence to subjects as social beings, to a subject with some endpoint in view. As far as Odysseus is concerned, Euryalus’ speech woefully fails to meet such an endpoint conceived of as a standard of communicative behavior: not καλόν *for* this relationship.

This relational, end-oriented aspect may also be exemplified by Odysseus’ expression of appreciation of Demodocus’ singing: ἦτοι μὲν τόδε καλὸν ἀκουέμεν ἔστιν ἀοιδοῦ / τοιοῦδ’ οἶος ὄδ’ ἐστί, θεοῖς ἐναλίγκιος αὐδήν (ι 3). As evident from the comparison to the gods, it is the singing that is beautiful; yet what is qualified as καλόν is the hearing of it. While it is conceivable to translate τόδε καλὸν ἀκουέμεν ἔστιν as “this is (a) beautiful (thing), to hear...”, it

⁵ Though classed separately, there is one instance of the adverb in καλῶς (β 63), which would bring the instances of καλός to a total of 317.

is just as fitting or even preferable to use “a fine thing” or “(a) good (thing)” to translate the predicate of ἀκούμεν ἐστὶν ἀοιδοῦ (etc.). The reason for this preferability seems to be that the hearing, which is not itself perceived, is valued as a means to an experience of what is assigned self-contained, intrinsic value, namely the beautiful singing. Moreover, the hearing of what is beautiful is good *for* something, principally life itself and one’s experience of it.

Compared to most Homeric instances of καλός, a usage such as this one is an outlier in two respects. The first is that, unlike most entities qualified, which are visually or, far less frequently, auditorily perceptible, the notion of value is not so closely tied to perception of, for the most part, external stimuli; indeed, hearing is itself perception, rather than an external percept. The second is that, as just mentioned, the notion of value is related to something beyond that to which value is assigned. These two respects appear to underlie the practical or ethical sense ‘good’ in some instances of καλός. The fact that such instances are outliers corresponding to the meaning of the adjective in later Greek is of course in keeping with the assumption that, despite its larger semantic range relative to PDE *beautiful*, the Archaic Greek adjective καλός originally and principally denoted what *beautiful* does today.

The originality of an aesthetic meaning attributable to the root καλ- is especially evident in the fact that the meaning of the substantive κάλλος never corresponds to the ethical sense that eventually wins out in καλός itself.⁶ The 16 Homeric instances of this substantive are all used in reference to the positively valuable visually perceptible appearance of deities and human beings. Paris, for example, is described as glittering with beauty and garb (κάλλει τε στίλβων καὶ εἵμασιν· Γ 392). Insofar as κάλλος is used in connection with anthropoids, there is the question

⁶ On the lexical semantic distinction between the simple positive adjective and the *s*-stem substantive, see Konstan 2014: 37–39.

of sexual value, which is certainly relational beyond itself insofar as the complex of features expressible by κάλλος is a type of goodness *for* something, namely sensual and sexual activity, and is thus presentable as a cause of the particular desire underlying marriage and related actions (e.g. καὶ Χλωρίν εἶδον περικαλλέα, τὴν ποτε Νηλεὺς / γῆμεν ἐὸν μετὰ κάλλος, [λ 282]). Yet there are cases, such as the epiphany of Demeter discussed below, where the κάλλος of an anthropoid body does not clearly connote positive sexual value. In any case, we can be more than confident that the meaning of κάλλος corresponds to the originally dominant aesthetic sense of the adjective.

The aesthetic meaning of κάλλος is the cause of the meaning attributable to its adjectival derivative περικαλλής ‘exceedingly beautiful’, which occurs 55 times and is always used of visually perceptible entities. The most common class is VEHICLE (9x): δίφρος ‘chariot’ : ναῦς ‘ship’, followed by ARTEFACT (8x) comprising 6 different terms: φόρμιγξ ‘lyre’, βωμός ‘altar’, κίθαρις ‘lyre’, ἔργα ‘works’, στείλειον ‘axe-handle’, ἄγαλμα ‘ornament, necklace’. FURNITURE (7x) comprises 5 different terms: χηλός ‘chest’, εὐνή ‘bed’, τρίπους ‘tripod’, δίφρος ‘stool’, θρόνος ‘chair’. Two kinds of what is classed as VALUABLE (6x) occur: ἄεθλον ‘prize’ and δῶρον ‘gift’. STRUCTURE (4x) manifests itself with 3 different terms (δῶμα ‘house’, δόμος ‘id.’, and αὐλή ‘courtyard’). The same is the case for SPACE (4x): τέμενος ‘sacred precinct’, λίμνη ‘surface of water’, ἀγρός ‘field’, and for VESSEL (4x): δέπας ‘goblet’, ἄλεισον ‘id.’, κάνειον ‘basket’. BODY is instantiated 3 times with 2 different terms: δειρή ‘neck’ and ὄσσε ‘eyes’. WOMAN is also instantiated 3 times but with 3 different substantives: κόρη ‘girl, maid’ and the Personal Names (PNs) Ἡερίβοια and Χλωρίς. In contrast to their frequency with καλός, ARMOR and CLOTHING are only instantiated 2 times each with but 1 term: τεύχεα ‘arms’ and πέπλος ‘robe’

respectively. Finally, WATER, PLANT, and LIGHT are each instantiated 1 time with φηγός ‘oak’, ῥόος ‘stream’, and φάος ‘light’ respectively.

Mention should also be made of the adjective κάλλιμος,⁷ which occurs 6 times in Homer. It is used of gifts (δῶρα) 3 times, 1 time of skin (χρώς), 1 time of voice (ὄψ), and 1 time of wind (οὐρός). This last use stands out because, like voice, wind is not a visually perceptible object. Its effects, however, are visible. Since those effects are practically significant, it is conceivable that the sense of κάλλιμος, as in the use of καλός with ἄνεμος (e.g. Βορέηι ἀνέμωι ἀκραεῖ καλῶι [ξ 253]), is not aesthetic, but pertinent to the wind’s value as regards a particular end, namely navigation.

The remaining Homeric instances of the root καλ-/καλλ- are in *bahínvrīthi* (i.e. possessive) compounds whose first member (FCM) is καλλι- ‘with beautiful *x*’. There are 11 different second compound members (SCMs). Since these compounds are in effect compressed predications of καλός, more data on what is qualified can be adduced. The most frequent one is the mostly equine epithet κάλλιθριξ ‘with beautiful mane/hair’ (17x). The next most common is καλλιπάρηος ‘with fair cheeks’ (16x). The rest are somewhat or even considerably less frequent: καλλιπλόκαμος ‘with fair locks’ (6x), καλλιγύναιξ ‘with fine women’ (5x), καλλίρροος ‘with beautiful streams’ (5x), καλλίσφυρος ‘with fine ankles’ (5x), καλλίζωνος ‘with fine girdle’ (3x), καλλίκομος ‘with fair hair’ (2x), καλλιρέεθρος ‘with beautiful streams’ (2x), καλλικρήδεμος ‘with beautiful headdress’ (1x), and καλλίχορος ‘with beautiful dancing-space’ (1x). In all cases what καλλι- qualifies is visually perceptible and in most cases superficial with respect to the percept as a whole (e.g. mane : horse, hair : woman, girdle : woman).

⁷ For treatment of the class of adjectives formed with this suffix, see Arbenz 1933.

Now that we have considered all lexical occurrences of the root *καλ-* in Homer, we can turn to its appearance in Hesiod's two poems and in our two Homeric Hymns. In the *Theogony* and *Works and Days* are found 16 instances of *καλός*. GOD comprises 2 instances with 2 different terms, Ἔρος 'Love' and Ἴμερος 'Desire'. The same is the case for GODDESS (Διώνη and Ἀφροδίτη), VOICE (αοιδή 'song' and ὄψ* 'voice'), and WOMAN, both in reference to Pandora (παρθενικῆς καλὸν εἶδος [*Op*.63]; καλὸν κακὸν ἀντ' ἀγαθοῖο [*Th*.585]). MATTER includes 1 adverbial use in an aesthetic sense (καλὸν δέ θ' ὑπ' ὀφρύσι δερκίονται [*Th*.911]). The following categories are each instantiated 1 time: SPACE (χορός 'dancing-place'), STRUCTURE (δῶμα 'house'), ANIMAL (μῆλον 'sheep'), BELIEF (ιερόν 'sacrifice'), VALUABLE (ἄεθλον 'prize'), BODY (χρῶς 'skin'), and WATER (ῥέεθρον 'stream'). There are 6 different compounds with *καλλι-* as first member: *καλλιπάρηος* 'with fair cheeks' (6x), *καλλίσφυρος* 'with fine ankles' (4x), *καλλίκομος* 'with fair hair' (2x), *καλλιγύναιξ* 'with fine women' (1x), *καλλιρέεθρος* 'with beautiful streams' (1x), and *καλλίρροος* 'with beautiful streams' (1x). While *κάλλος* does not occur, its derivative *περικαλλής* 'exceedingly beautiful' does appear 1 time in qualification of ὄσσα 'voice'.

In the *Hymn to Demeter* and *Hymn to Aphrodite* are found 21 instances of *καλός*. BODY is instantiated 6 times with 3 different terms: ὄμμα 'eye' (4x), πρόσωπον 'face' (1x), and κεφαλή 'head' (1x). While CLOTHING is instantiated 3 times with 1 term in the formula εἵματα καλά 'beautiful clothes', PLANT (3x) is instantiated with 3 (ἴον 'violet', δένδρεον 'tree', and δρυῖς 'tree, oak'). SPACE is instantiated 2 times with 2 different terms (ὄρος 'mountain', ἄλσος 'grove'). The same is the case for VALUABLE (ἄθυρμα 'object of delight, adornment', γέρας 'honor'). BELIEF (2x) is instantiated with ἱερόν 'sacrifice'. ARTEFACT and ACTIVITY are each instantiated 1 time

with ὄρμοι ‘necklace’ and χορός ‘dance’ respectively. Finally, MATTER is instantiated 1 time with an adverbial use in the ethical domain (καλὰ τιθηνοίμην “I would nurse well” [h.Cer.142]).

There are 2 different compounds with καλλι- as first member, καλλιστέφανος ‘with beautiful garland’ (2x) and καλλίσφυρος ‘with fine ankles’ (1x), both used of Demeter. περικαλλής ‘exceedingly beautiful’ occurs 4 times: twice of Persephone, once of gifts (δῶρα), and once of the necklace (ὄρμοι) Aphrodite wears in Anchises’ presence (h.Ven.163). There are 4 occurrences of κάλλος in the set of these two hymns, 2 instances are of mortal males (Anchises and Ganymede), and 2 of immortal females (Demeter and Aphrodite). The former are in a sexual context, namely seduction and abduction, while the latter are in a context of divine epiphany where the goddesses’ sexuality seems less relevant. Demeter’s epiphany to Metaneira is a good example of value attributable to a percept intrinsically (h.Cer.275–280):

Ἦς εἰποῦσα θεὰ μέγεθος καὶ εἶδος ἄμειψε
γῆρας ἀπωσαμένη, περὶ τ’ ἀμφὶ τε κάλλος ἄητο·
ὄδμη δ’ ἰμερόεσσα θυγέντων ἀπὸ πέπλων
κίδνατο, τῆλε δὲ φέγγος ἀπὸ χροὸς ἀθάνατοιο
λάμπε θεᾶς, ξανθαὶ δὲ κόμαι κατενήνοθεν ὤμους,
αὐγῆς δ’ ἐπλήσθη πυκινὸς δόμος ἀτεροπῆς ὄς.

“So spake the goddess and changed her stature and form,
Casting off her old skin, and round about her beauty blew,
And the lovely fragrance from her incense-filled robes
Dispersed itself, and far off shone a luminance from the deathless skin
Of the goddess, whose golden tresses covered her shoulders,
And radiance filled the well-built house like lightning.”

In this transformation from apparent anility, we can observe several specific features of beauty arguably relevant to the concept corresponding to the general meaning of κάλλος. As implied by γῆρας ἀπωσαμένη, the appearance of κάλλος is dependent on the revelation of a surface through the removal of one that covered it, in this case, aged skin. Freed from occlusion, κάλλος is presented as some sort of physical substance surrounding and emanating from the goddess like

an expanding vapor. This image of visible vapor is paralleled by an aesthetically pleasing olfactory emanation from her clothing. Visual perception then reasserts itself in connection with the goddess's skin and hair. Even in this exceptional scene, it is as if beauty were being presented in terms of how the property prototypically manifests itself.

As far as *κάλλος* and *καλός* are concerned, the clear inference from the data presented and discussed above is that the core-meaning of the root appears to serve a concept identifiable prototypically as the property of being positively valued on the basis of visually perceiving a surface. While this abstract definition is without doubt applicable to all sorts of terms across languages translatable with *beauty* and *beautiful*, it is worth keeping in mind some of the concrete objects in connection with which Epic poets use derivatives of $\sqrt{\kappa\alpha\lambda-}$. In the biological domain, we may note the prominence of skin and hair, and, in the artificial, of armor and clothing. Even if we discount the frequency and formulaic profile of armor as an effect of genre, the combination of frequency and formulaicity observable in the other categories leaves us in little doubt that visually perceptible surfaces are central to the conditioning of the positive-value-assignment underlying most uses of the linguistic expression.

In investigating the historical cause of that expression's lexical semantics, we must consider two areas of inquiry: (1) the morphosemantic processes defining the spaces within which develop the senses of the lexemic forms involved in the ancestry of $\sqrt{\kappa\alpha\lambda-}$, and (2) the conceptual relations that disposed those forms to be used in senses ancestral to the attested meaning. By continual consideration of both form and meaning, we will not only get a handle on why *καλός* means 'beautiful', but even obtain some insight into where BEAUTY stands in the network of ideas and what function amongst them it performs.

CHAPTER 1

FORSCHUNGSGESCHICHTE

Why *καλός* means ‘beautiful’ is specifically an etymological question – an attempt to discover the true sense in which a word was first put to use. In this respect, even the first etymology of *καλός*, appearing in Plato’s *Cratylus* (416bd), merits mention as a stage in the project of trying to understand how the relationships that exist between concepts are realized as the “real” senses of words. Taking the articular substantival phrase τὸ καλόν as his explicandum, Socrates derives the form-meaning pair from τὸ καλοῦν ‘that which calls’, which is supposed to have been established in reference to the intellect (διάνοια), for the reason that the human or divine intellect is cause of the fact that things are called (κληθῆναι) by names. In applying this general truth, the question we might ask ourselves in the sketching out of the following history of research is how parallelable and thus realistic it is that a human intellect would conceive of and cause reference to what is beautiful in one way or another.

Before that question can be posed, one must of course impose certain constraints derived from historical phonology and morphology. In the time of Theodor Benfey’s *Griechisches Wurzellexikon* (1842 II: 173–174) and Georg Curtius’ *Grundzüge der griechischen Etymologie* (1879: 140), which freely associate *καλός* with various Indo-European data, these constraints had yet to be properly developed. Beyond the then relatively recent recognition that the answer to the etymological question is assuredly to be found through comparison with languages to which Greek is indubitably related, the free associations of form and meaning found in pre-Neo-Grammarians work are understandably incredible.

By the beginning of the 20th Century, the forms given prominence by etymologists such as Prellwitz (1905: 205) and Boisacq (1916: 399) are Epic and Classical Sanskrit *kalya-* ‘sound,

ready’ and Vedic *kalyāṅṅa-* ‘beautiful’ (RV +; *vrkī-* fem. *kalyāṅṅī-*).⁸ The reason for this prominence is the fact that the *kal-* of both forms is at face value phonologically corresponsive to the root of *καλός*. This apparent correspondence is the basis of the most influential account of the background of that root.

The account of Jacob Wackernagel (1934: 191–97) is based on the assumption that the correspondence between $\sqrt{\text{καλ-}}$ and the *kal-* of *kalyāṅṅa-* justifies the reconstruction of a root **kal-* that already bore the meaning ‘beautiful’ in the language ancestral to Greek and Vedic. What has to be explained, then, is the material after the root. For Wackernagel, the means of explanation is derived from a basic fact about the family of *καλός* that we shall discuss in much greater detail in the next chapter: suffixal substitution. Adducing the Boeotian *καλρός* bearing the suffix *-ρός-*, Wackernagel argues that beside the stem of the positive adjective ancestral to this form existed a compositional stem **kal-i-* comparable to *κῦδι-* (*κῦδιάνειρα* ‘giving men glory’) beside *κῦδρός* ‘glorious’. When, therefore, the root of **kal-μó-* was needed in an FCM, **-i-* was substituted for *-μó-* to produce a **kal-i-* for use in compounds, one of which was the preform of *kalyāṅṅa-*. Wackernagel’s contribution primarily concerns the SCM of this erstwhile *bahuvrīhi* (possessive compound); by comparison to Hesychius’ *ὠλλόν* (· *τὴν τοῦ βραχίονος καμπήν*) and to the less perspicuous *ἄηί-* m. ‘axle-pin; part above the knee’ (RV+), it is argued that the *-ἄηα-* of *kalyāṅṅa-* reflects via Fortunatov’s Law a Proto-Indo-Iranian **ǎ/ālna-* akin to *ὠλένη* ‘elbow, forearm’.⁹ The compound as a whole would thus have expressed the sense ‘with beautiful forearms’ comparable to that of the Homeric *λευκώλενος* ‘white-armed’. The remaining assumption pertaining to Indic is that the compound, which would have denoted the beauty of a

⁸ For extensive philological treatment of *kalyāṅṅa-*, see Beucker 2007.

⁹ For treatment of this law, see Collinge 1985: 41–46.

particular body-part, came to be used in reference to bodily beauty in general (ἀπὸ μέρους).

Concerning the Greek facts, the compositional **kal-i-* whose meaning was allegedly generalized in a single Vedic adjective is by his account the indirect ancestor of the widely attested compositional form καλλι-; while the *kaly-* of *kalyāṇa-* would reflect that preform directly, the geminate in καλλι- is supposed to have been analogically imported from the *s*-stem κάλλος, for which he reconstructs a phonologically feasible **kal-ne/os-* formed by suffixal substitution.

Despite its philological acumen and attentiveness to morphological patterns, Wackernagel's account has long been problematic on account of its indeterminacy in phonology and lexical semantics. On the phonological side, we may note that the Old Indic sequence *kal-* can reflect far more possible sequences of the proto-language than καλ- can. Given this greater possibility, anyone prepared to believe his account would have to rely heavily on the correspondence in meaning. When, however, one takes into account those same possibilities of form, it is easy to imagine that the correspondence, rather than resulting from inheritance of the same root with a suspiciously suitable meaning, is instead simply an accidental development from distinct PIE roots. In the case of *kalyāṇa-*, one might justly adduce a form that Wackernagel was perhaps too hasty in dissociating, namely the above-mentioned *kalya-* 'sound, ready' of later Sanskrit. Wackernagel asserts, reasonably enough, that *kalya-* belongs with Vedic *kālā-* '(right) time, season', but considers the meaning of *kalya-*, such as its use as a substantive in the sense 'daybreak', too distant from that of *kalyāṇa-* to render a root-connection plausible. Only a moment's reflection upon the TIME-VALUE relation and its lexical instantiations is sufficient for support of a connection between *kalya-* 'seasonable (time)' and *kalyāṇa-* (cf. PDE *tidy* < ME *tidy* ← *tide* 'time'; Mod. Gk. ὥραιος 'fair' : ὥρα 'hour, season').

The question we might pose concerns the identity of $-\bar{a}\eta a-$, under the reasonable assumption that *kalya-* was an FCM. According to Pinault (2003), who otherwise accepts Wackernagel’s account, the SCM is instead a loanword with the meaning ‘haunch’ borrowed as the above-mentioned $\bar{a}\eta i-$ m. ‘axle-pin; part above the knee’ (RV+) from a non-IE language supposed to have been spoken in Central Asia at the time when the ancestors of the Indo-Iranians and those of the Tocharians, who allegedly borrowed the term as well (TB hapax *oñi* ‘hip’, cf. Adams 2013: 119–120), arrived in the region. Given the unlikelihood of independent borrowings of a core vocabulary item from an unattested language, the account is hardly an improvement on Wackernagel’s. If we are to explain the $-\bar{a}\eta a-$ of *kalyāṅa-* beside the $\bar{a}\eta i-$ whose meaning seems to correspond to the more general notion of joint or fitting, it is conceivable that the SCM had been formed with the root reflected in Greek ἄρθρον ‘joint, limb’ and, as in Wackernagel’s account, would undergo Fortunatov’s Law ($*H\bar{a}r-na-$ > $-\bar{a}\eta a-$; cf. Ved. *kātu-ka-* ‘sharp, biting’ : Lith. *kartūs* ‘bitter’, IEW: 938–947). The compound would thus have meant ‘having seasonable/fit limbs’.

In any case, if the *kaly-* of *kalyāṅa-* is to be identified with *kalya-* ‘ready, sound, seasonable’, and if the latter in all likelihood shares a root with *kālā-* ‘(right) time, season’, then one might easily undermine the connection of *kalyāṅa-* with *καλός* by associating *kālā-* with PIE roots like $*k^w elh_1-$ ‘turn’ or $*ker-$ ‘cut’, for whose derivatives there is independent evidence of use with temporal semantics (e.g. *περιπλομένων ἐνιαυτῶν* α 16; *καιρός* ‘(decisive) time’ [Chantraine 2009: 461–462], cf. OE *tīd* ‘time’ < $*dih_2-tí-$ ‘division’). This hinting at etymological alternatives is meant to highlight what Wackernagel is asking us to believe, namely that there was indeed a root $*kal-$ with an already highly abstract meaning perfectly reflected in but two daughter-languages separated by at least a couple thousand years. In sum, as an answer

to an alleged correspondence it was invented to explain, the hypothesis of $*\sqrt{kal}$ - ‘beautiful’ lacks explanatory power and, as an etymological primitive, provides no insight into the lexicalization of the concept.

An attempt to offer such insight is the proposal of Andreas Willi (2017: 507–12), who connects $\kappa\alpha\lambda\acute{o}\varsigma$ with the widely reflected $*\sqrt{kley}$ - ‘hear’ ($\rightarrow *klu-t\acute{o}$ - $>$ $\kappa\lambda\upsilon\tau\acute{o}\varsigma$ ‘renowned’), under the assumption that the socially evaluative sense ‘renowned, noble, glorious’ based on the resultative sense ‘heard of’ would condition a shift to an aesthetic sense. In light of, for example, his adducing of PDE *glorious* in precisely this sense, such a shift is in principle conceivable, provided that one can make phonological and morphological sense of the root-etymology. This does not, however, appear to be the case.

Drawing inspiration from de Lamberterie’s (1990 I: 31) speculation that *u*-stem adjectives were in origin resultative like the allegedly related perfect participle in $*-\mu\acute{o}\varsigma$ -, Willi reconstructs an adjective $*k_{\text{u}}\acute{u}$ - ‘renowned’. In particular, this adjective is postulated in an attempt to account for the gemination, which is claimed to have originated in the comparative $\kappa\alpha\lambda\lambda\acute{\iota}\omega\nu$. Taking the necessarily uncertain Mycenaean *ka-wi-ja* (KN Uf 79) and *ka-wi-ta* (PY Cn 600.9) as hypocoristic derivatives of compounds with a supposed /kalwi-/ as first member, Willi disregards regular syllabification (i.e. $*klu-i\acute{o}\varsigma$ -) by reconstructing the comparative as $*k_{\text{u}}\acute{u}-i\acute{o}\varsigma$ -, which, after glide assimilation to $*k_{\text{u}}\acute{u}-i\acute{o}\varsigma$ -, developed to a $*kall-i\acute{o}\varsigma$ - whose supposed Sievers’ Law reflex was $*kall-i\acute{i}\acute{o}\varsigma$ -; on the basis of this $*kall$ - the superlative $*kalwisto$ - ($<$ $*k_{\text{u}}\acute{u}-isto$ -) was remodeled and all other geminated forms derived (e.g. $\kappa\acute{\alpha}\lambda\lambda\omicron\varsigma$, $\kappa\alpha\lambda\lambda\iota$ -, etc.). Since Willi operates under the assumption that the comparative in $*-i\acute{o}\varsigma$ - and superlative in $*-isto$ - are historically derived from the root and that $\kappa\alpha\lambda\acute{o}\varsigma$ (Boeot. $\kappa\alpha\lambda\phi\acute{o}\varsigma$) must reflect a secondary, eventually thematized *u*-stem adjective, he reconstructs a presumably Pre-Proto-Greek $*k_{\text{u}}\acute{u}$ -,

whose neuter nom./acc. plural is assumed to have been **k_lu-uá* rather than the phonologically regular **klu-uá* or, as one might mention, the **k_lw-éwa* expected of an actual *u*-stem adjective reflected in Greek (cf. ἡδύς : ἡδέα < **hwādéwa*). Willi further assumes that this **k_lu-uá*, after developing to **kaluuá* and then to **kaluá* by degemination, served as the model for a thematic paradigm “in the usual manner” (i.e. **kaluá* : **kaluón*). While such paradigm derailments are not unheard of (cf. δάκρυ : δάκρυα : δάκρυον ‘tear’), the phenomenon is rare and, in this case, the starting point is itself highly dubitable.

Without morphological and even phonological constraints, the derivation from **kley-* is unacceptable. Yet even if the formal argumentation were unproblematic, what has to be assumed in terms of lexical semantics does not fit the facts of use in the earliest texts. As we observed, καλός in Homer is primarily used in an aesthetic sense and of entities which one can visually perceive. The senses of nobility or moral value, which by his account would arise from the sense of renown, appear in specific contexts of evaluating a man’s social standing or the suitability of certain actions and conditions. While these semantics would win out over the general aesthetic meaning, the path from the socially evaluative ‘renowned, noble, glorious’ through the aesthetic ‘splendid, beautiful, fine’ to the social or generally ethical ‘fair, noble, good’ seems implausibly tortuous.

In terms of lexical semantics, the proposal of Lucien van Beek (2013: 307; 2022: 473–475) is relatively straightforward, though in terms of form similarly problematic. It exists as a means to the end of explaining the geminate observed particularly in the *s*-stem adjective περικαλλής ‘very beautiful’, which is interpreted as a derivative not of κάλλος, but of the thematized nasal infix present seemingly reflected in Latin *ex-cellō, -ere* ‘rise above, excel’ (<< **k_l-n-h₁-e/o-* ‘rise’; cf. Lith. *kylù, kilti* ‘aufstehen, sich erheben’ : **kelH-* ‘aufragen, hochragen’

LIV²: 349). Beside this lost nasal present, Proto-Greek is supposed to have inherited and subsequently thematicized a deverbal *u*-stem adjective **kal-ú-* (cf. Lith. *kilùs* ‘protruding’) to produce the preform of *καλός* (< **kalw-ó-* << **k_lh₁-ú-* ‘prominent, excellent’).

The first problem with the proposal is its reliance on the rule of forming *s*-stem compounds from verbs. Though Greek did indeed develop such a rule (e.g. ἀμφιδρυφής ‘torn on both sides’ : δρύπτω ‘tear’, Meissner 2006: 192), there is little reason to invoke it when Greek itself shows no trace of the supposedly basic verb, but amply attests the *s*-stem *κάλλος* from which a denominal *περικαλλής* may be formed by the inherited pattern (e.g. μένος → εὐμενής; cf. Ved. *mánas-* ‘mind, spirit’ → *sumánas-* ‘benevolent’). Secondly, even under the unsupported assumption that *u*-stem adjectives could be formed in PIE from verbs, there is no reason to suppose that there was a deverbal **k_lh₁-ú-* reflected in Greek and Baltic; given the general productivity of *u*-stem adjectives in the latter branch (e.g. *kalbùs* ‘loquacious’ : *kalbėti* ‘talk’), the Lithuanian *kilùs* van Beek adduces is unlikely to be inherited. Moreover, even if we suppose that the proto-language possessed such a deverbal *u*-stem adjective, there is no path from **k_lh₁-ú-* to *καλός* that makes any phonological or morphological sense. Since a thematicized **k_lh₁-u-ó-* (> Proto-Greek †*klēwó-*) cannot produce *καλός*, van Beek must suppose that this thematicization took place only after **k_lh₁-ú-* developed to **kal-ú-* (>> **kalwó-*) – a claim that simply assumes that Proto-Greek retained the allophones of PIE **/w/*. There is also the matter of thematicization itself; while it is clear that thematic forms do indeed stand beside *u*-stems of some description (Ion. *στεινός* ‘narrow’ < **στενρός* : TN *Στενρόκληρος* ‘Narrow Lot’ [Hdt.9.64.2]) and that some *u*-stems are replaced by more recent thematic stems (e.g. *κρατύς* : *κρατερός* ‘mighty’), there is no evidence that the thematic vowel alone simply served as a means of meaninglessly recharacterizing athematic stems.

Finally, there is the matter of lexical semantics, which involves the connection between elevation or prominence in a physical environment and, in a visual array, the distinctiveness of an object underlying the worthiness of paying attention to it. While the recency of deverbally forming *s*-stem adjectives and the dubitability of PIE deverbally *u*-stems in general render the morphological foundations of the derivation from $\sqrt{kelh_}$ in particular unstable, the path from the spatial ‘risen, elevated’ through the evaluative ‘outstanding, excellent’ to the specifically aesthetic ‘beautiful’ is in principle conceivable, and offers some insight into the nature of the concept, namely that the anything to which the property is attached necessarily appears as an object worthy of attention and interest.

Such worthiness is generally true of the concept and of any lexical root realizing it. Yet for one wishing to identify the root ancestral to $\sqrt{\kappa\alpha\lambda}$ -, the object of attention and interest is necessarily the morphology. Despite the attention and interest understandably accorded to formal matters in the above-discussed proposals, each is beset by a larger methodological problem: the absence of a well-developed theory of the behavior of Proto-Indo-European morphs. In lieu of such a theory, etymologies are limited to the relation of phonologically resemblant roots whose semantic contributions cannot be evaluated in an independent, systematic, or constrained way. Accordingly, the purpose of the following Chapter is to lay the contextual and theoretical groundwork for understanding the morphology of $\sqrt{\kappa\alpha\lambda}$ - and how that morphology realizes derivational and lexical semantic information.

CHAPTER 2

SYNCHRONIC MORPHOLOGY

In all varieties of Ancient Greek, $\sqrt{\text{καλ-}}$ is characterized by allomorphy. In Attic, this allomorphy consists in the alternation between $\sqrt{\text{καλ-}}$ in the simple positive adjective *καλός* and $\sqrt{\text{καλλ-}}$ everywhere else (*καλός* : *καλλ-*).¹⁰ The latter, pandialectal allomorph is represented most prominently by the *s*-stem substantive *κάλλος*, the comparative *καλλίων*, superlative *κάλλιστος*, and by what may be termed the “compositive” *καλλι-* (e.g. *καλλι-γύναικα* ‘populated by beautiful women’ Hom.).¹¹ In light of this binary opposition, we may provisionally characterize the *καλός* : *καλλ-* alternation as the expression of a unit of meaning concerned with the presence or absence of the simple positive adjective.

In Attic, the root is realized as *καλ-* in the context of the semantic unit consisting of the simplex positive adjective. The dialectal variation is chiefly confined to the manner in which the simplex positive adjective is realized. Since Homer attests *κᾶλός*, it is appropriate to assert that, in the variety of Ionic contributory to the *Kunstsprache*, the realization of the root in the context

¹⁰ With the allomorph of the positive adjective are more recently formed *καλότης* ‘beautiffulness’ (Chrysipp.*Stoic*.3.60), *ἀκάλως* ‘unwell’ (*POxy*.1676.22), and the later compounds in *καλο-* (e.g. FCM *καλό-φυλλος* ‘with beautiful leaves’ Thphr.*HP*.5.3.2, SCM *ἀπειρόκαλος* ‘inexperienced with τὸ καλόν’ Pl., X., Plu.), of which the most prominent is *καλοκᾶγαθος* ‘gentleman(ly), admirable’ (Attic prose).

¹¹ To these forms, all of which are Homeric and continue to be widely attested, may be added *περικαλλής* ‘very beautiful’ (Hom. +), *ἀκαλλής* ‘charmless’ (Hp.*Ep*.15, Luc.*Hist.*), *κάλλιμος* ‘beautiful’ (*Od.*), *καλλύνω* ‘beautify, embellish, sweep clean’ (S., Pl., Arist.), *καλλυντής* ‘sweeper, cleaner’ (*UPZ*8.6 ii B.C.), *κάλλυντρον* ‘broom; shrub’ (Cleanth.*Stoic*.1.130, Plu. *Dio* 55; Arist.*HA*553a20), *κάλλυνθρον* (*LXX*, *BGU*1120.17), *καλλυντήρια* ‘festival of adornment’ (Phot., *EM*487.13), *καλλύσματα* ‘sweepings’ (*IG*12(5).593A22 Ceos), *καλλονή* ‘beauty’ (Hdt., E., Pl.), *καλλοσύνη* (-a lyric Doric E.), *καλλοποιός* ‘beautifying’ (Plot.6.7.32), *καλλωπίζω* ‘embellish’ (Attic prose), *καλλιώω* ‘render *καλλίων*’ (*LXX*), *καλλιστεύω* ‘be *κάλλιστος*’ (Hdt. E.), *καλλίστευμα* ‘offering of what is most beautiful; the fairest prize; prize for beauty’ (*E.Ph*.215, *Id.Or*.1639, Lyc.1011), *καλλιστεῖον* ‘offering of what is fairest, finest prize, contest of or prize for beauty’ (*E.IT*.23, *S.Aj*.435, etc.).

of the positive simplex meaning is $\kappa\bar{\alpha}\lambda-$. In contrast to this form of Ionic, the Boeotian realization is $\kappa\alpha\lambda-$ as in Attic, but, in contrast to both Attic and Epic, the meaning of the simplex positive adjective is realized with the morph $-w\acute{o}-$, as evident from the 6th century attestation of < $\kappa\alpha\lambda\phi\omicron\nu$ > at the Temple of Apollo Ptoios (SEG 29: 449). In sum, there are amongst the dialects three variants of the simple positive adjective: $\kappa\alpha\lambda\acute{o}\varsigma$, $\kappa\bar{\alpha}\lambda\acute{o}\varsigma$, and $\kappa\alpha\lambda\phi\acute{o}\varsigma$.

In contrast to this variation, all dialects realize the root as $\kappa\alpha\lambda\lambda-$ in the context of any semantic unit that does not bear the meaning simplex positive adjective, such as the one responsible for the substantive realized by $\kappa\acute{\alpha}\lambda\lambda\omicron\varsigma$. This s -stem realizes three units of meaning: that of the root, the substantival, and the inflectional. The root is realized with the addition of a mora to the /l/ of the root; the unit of substantival meaning is realized in turn by the neuter sigmatic stem class, which requires that the realization of the inflectional unit, i.e. markers of case, belong to that class.

As discussed in Chapter 1, the usual method of dealing with $\kappa\acute{\alpha}\lambda\lambda\omicron\varsigma$ is to view the s -stem as just another carrier of an allomorph whose diachronic source is to be sought elsewhere, for example, in the comparative $\kappa\alpha\lambda\lambda\acute{\iota}\omicron\nu$. Instead, we can economically derive the allomorph from a single source. This formulation stems from observation of the derivational behavior of s -stems that participate in systems of suffixal alternation similar to that of $\sqrt{\kappa\alpha\lambda}$ -. This inherited phenomenon, known since Nussbaum 1976 as the Caland System after the morphological process of compositional substitution first observed in Avestan by the Indo-Iranist Willem Caland (1892: 266–268; 1893: 593; e.g. Av. *tiy-ra-* ‘sharp’ : *tiž-i-sruua-* ‘sharp-horned’, *xrū-ra-* ‘bloody’ : *xruu-i-dru-* ‘with bloody club’, etc.; Wackernagel 1897: 8f.),¹² is characterized by the patent fact that the simplest adjectival, substantival, and verbal members of such systems look

¹² For a history of research into the Caland System, see Dell’Oro 2015.

like primary derivatives employing a certain subset of suffixes that produce stems formed in *parallel* from roots. To illustrate, glossary representations of certain roots are listed below alongside some predominantly and descriptively primary members of their derivational families. Though not all items are attested in a given family, the members most helpfully but not exhaustively displayed are the adjectives (positive, comparative, superlative), the substantive, the compositive, and the verbs (stative, [anti-]causative¹³):¹⁴

√αισχ- ‘ugly, shameful’ : αισχρός ‘ugly’ : αισχίων : αἴσχιστος : αἴσχος ‘shame’ : αισχύνω ‘disgrace’

√άλγ- ‘painful, careful’ : ἀλγεινός (tragedy, etc.), Hom. ἀλεγεινός (cf. ἀλέγω ‘care for’), ἀργαλέος ‘painful’ : ἀλγίων : ἄλγιστος : ἄλγος ‘pain’ : ἀλγέω ‘feel pain’ : ἀλεγύνω ‘heed, care for’ (ἀλγύνω ‘distress’ tragedy, later prose, etc.)

√ἀργ- ‘flashy’ : ἀργός ‘bright, swift’, Aeol. ἀργεννός ‘white’ : Ἄργος ‘Argos’¹⁵ : ἀργικέρανος ‘with bright lightning’ : ἀργαίνω ‘brighten’ (E.Fr.73)

√βαθ- ‘deep’ : βαθύς ‘deep’ : βάσσων (Epich.188) : βαθίων (Theoc.5.43) : βάθιστος : βένθος ‘sea-depth’ (n.b. post-Hom. βάθος ‘depth’) : βαθύζωνος ‘deep-girded’ : βαθύνω ‘deepen’

√βαρ- ‘heavy’ : βαρύς ‘heavy’ : βάρος (tragedy, prose, etc.) : βαρύθυμος ‘sullen’ (E.Med.176) : βαρέω ‘be weighty on’ (pf. part. βεβαρηώς ‘weighed down’) : βαρύθω ‘be weighed down’:

βαρύνω ‘weigh down’

¹³ While the term *causative* does have a usual value in IE studies, I choose to use the term in this work not in reference to the morphological class characterized by radical *o*-grade and a suffix *-έξε/o- (e.g. *sod-έξε/o- ‘make sit’ > Goth. *satjan* ‘to set’), but primarily to a kind of verb expressive of the bringing about of a state. Correspondingly, the term *anti-causative* denotes a verb expressive of the coming about of a state without an agent to bring it about.

¹⁴ All items occur in Homer unless stated otherwise.

¹⁵ This particular item, here adduced solely for formal purposes, is not to be considered the synchronic substantive of √ἀργ-.

√έλεγχ- ‘disgraceful’ : ἐλέγγιστος ‘most disgraceful’ : ἔλεγχος ‘disgrace, reproach’ : ἐλέγω
‘reproach’

√εὐρ- ‘broad, wide’ : εὐρύς ‘broad, wide’ : εὐρος ‘breadth’ : εὐρύγυια ‘with wide streets’ :
εὐρύνω ‘broaden’

√έχθ- ‘hateful’ : ἐχθρός ‘hateful’ : ἐχθίων (drama, prose) : ἔχθιστος : ἔχθος ‘hate’ : ἔχθομαι ‘be
hated’

√θαμβ- ‘astounding, astonished’ : θάμβος ‘wonder’ : θαμβέω ‘wonder at’

√θαρσ- ‘bold, daring’ : θρασύς, θαρσαλέος ‘bold’ : θάρσος/θράσος ‘boldness, courage’ (cf.
Aeol. θέρσος Alc.206.2, etc.) : θρασυκάρδιος ‘bold of heart’ (cf. θερσιεπής ‘bold of speech’
B.12.199) : θαρσέω ‘dare’ (cf. Aeol. part. θέρσεισ’ Theoc.28.3) : θαρσύνω ‘embolden’

√κερδ- ‘crafty’ : κερδαλέος ‘crafty, cunning’ : κερδίων ‘more advantageous’ : κέρδιστος
‘craftiest’ : κέρδος ‘craft, gain’ : κερδαίνω ‘gain’ (Hes.+)

√κήδ- ‘caring, cared about’ : κήδειος ‘cared for’ : κήδιστος ‘most worthy of care’ : κήδος ‘care’ :
PN Κηδικράτης (IG II²: 1699) : κήδω, -ομαι ‘cause care; care about’

√κρατ- ‘powerful, strong’ : κρατύς, κραταιός, καρτερός/κρατερός : κρέσσων (Ionic, etc.) (cf.
κάρτων *Leg.Gort.*1.15) : κάρτιστος/κράτιστος (Attic, Ionic, etc.) : κάρτος/κράτος (cf. κρέτος
Alc.25) : καρταίπεδος ‘with hard ground’/κραταιγύαλος ‘with strong breast-piece’, PN
Καρτιδάμας, -ντος (IG II²: 3318, etc.) : κρατέω ‘have power’ (cf. κρέτησαι *Sapph.Supp.*9.5) :
καρτύνω ‘strengthen’ (κρατύνω post-Hom.)

√κῦδ- ‘glorious’ : κυδρός ‘glorious’ : κυδίων : κύδιστος : κῦδος ‘glory, honor’ : κυδιάνειρα
‘giving men glory’ : κυδαίνω ‘glorify, exalt’

√μακ- ‘big, long’ : μακρός ‘long’ : μάσσων : μήκιστος : μήκος ‘length, size’ : μηκύνω ‘lengthen,
prolong’ (post-Hom.)

√μεγ- ‘big, great’ : μέγας ‘great’ : μέζων (Ion., etc.) : μέγιστος : μέγεθος ‘magnitude’ (Ion. μέγαθος Hdt., etc.) : μεγάθυμος ‘great-hearted’

√μῑσ- ‘hateful, contemptuous’ : μῑσος ‘hatred’ (post-Hom.) : μισέω ‘hate’

√παχ- ‘thick’ : παχύς ‘thick’ : πάσσων : πάχιστος : πάχος ‘thickness’ : παχυ- (post-Hom.) : παχύνω ‘thicken’ (post-Hom.)

√πλατ- ‘broad, flat’ : πλατύς ‘wide, broad’ : πλάτος ‘breadth’ : πλατύνω ‘widen’ (post-Hom.)

√πλ- ‘much, many’ : πολύς ‘much’ : πλέων ‘more’ : πλεῖστος ‘most’ : πληθος ‘multitude’

√ρίτγ- ‘chilling, chilled’ : ριγεδανός ‘chilling’ (cf. ριγηλός ‘id.’ Hes.+) : ριγίων : ριγιστος : ρίγος ‘cold, chill’ : ριγέω ‘shudder’

√ταρβ- ‘fearful’ : тарβαλέος ‘fearful’ (h.Merc.165) : τάρβος ‘fright’ : тарβέω ‘fear’

√ταχ- ‘swift’ : ταχύς ‘swift’ : θάσσων (ταχίων post-Hom.) : τάχιστος : τάχος ‘speed’ : ταχύπωλος ‘with swift colts’ : ταχύνω ‘hasten’

√ψευδ- ‘false’ : ψυδρός ‘false’ (Thgn.122 v.l. ψυδνός, Lyc.) : ψευδος ‘lie’ : ψεύδομαι ‘speak falsely’

√ψῡχ- ‘cool’ : ψυχρός ‘cool’ : ψῡχος ‘coolness’ : ψύχω ‘cool’

Many of these derivatives may be described as primary, in the sense that the suffixes are added directly to the root. For example, though for *historical* reasons primary adjectives in -ύς may be considered basic to factitives/causatives in -ύνω (e.g. βαθύς → βαθύνω, βαρύς → βαρύνω, etc.), one cannot soundly claim that αἰσχύνω – as well as the post-Homeric ἀλγύνω, μηκύνω, and καλλύνω for that matter – are formed from adjectives in -ύς; no such adjectives exist nor is it necessary to suppose that they had existed (e.g. *αἰσχύς, de Lamberterie 1990: 195).¹⁶ The

¹⁶ The personal name Αἰσχύλος proves Calandish behavior but does not constitute evidence of *αἰσχύς itself.

unnecessariness of reconstructing such adjectives is apparent when one considers the claim that αἰσχύνω, etc. may instead exist simply by virtue of the fact that families with adjectives in -ύς and causatives in -ύνω include types of derivatives that the √αἰσχ- and other families also possess. Accordingly, the suffixal overlap within, between, and amongst these families produces a network of derivationally productive implications. As in many conceivable networks, there are nodes where lines of association crisscross to larger, more central or smaller, more peripheral nodes.¹⁷ When we speak of sequences of morphs, the larger nodes are those sequences produced and perceived more frequently.

The non-accidental feature of any Caland System, Greek or otherwise, is the fact that the most frequent tokens, and thus the largest nodes, are adjectives rather than verbs. As elaborated by Rau (2009: 78–9), the centrality of this category is an expression of an underlying semantic property; the roots whose derivatives form Caland systems may be almost entirely characterized as expressive of “Property Concepts”, which, according to Dixon (1982, 2004), comprise dimensions (e.g. BIG/SMALL, LONG/SHORT, etc.), physical properties (e.g. BEAUTIFUL/UGLY, LIGHT/DARK, etc.), colors (e.g. RED, WHITE, etc.), speed (SWIFT/SLOW), age (NEW/YOUNG/OLD), value (e.g. GOOD/BAD), and human propensity (e.g. BOLD, FEARFUL, etc.). As one might quickly intuit, the common theme of this conceptual class, which mostly corresponds to Aristotle’s category of quality (ποιόν ‘of a certain nature’ Arist. *Cat.* 10a27), is a relative durability and aptitude to essentiality as regards the entities possessing these properties. Though potentially evocative of concepts involving posture and change, property concepts are not themselves concerned with actual motion, spatial orientation, or temporality as in the case of what may be

¹⁷ In this image, the size and centrality of the node represent the quantity of its connections with other nodes.

termed “Activity Concepts”, which languages tend to express with verbs as a syntactic category. Moreover, as functions that assign objects to sets, Property Concepts are often associated with only one argument,¹⁸ and with arguments characterized by the potential for rather than the actualization of some state or activity. When all of these features are considered, Property Concepts stand in faint but perceptible contrast to other categories of conception, most notably those realized by roots whose families have agentive verbs at their center.

For our purposes, the syntactic and morphological consequences of Property Conceptuality are clear: the roots that denote Property Concepts germinate derivationally central, morphologically nominal adjectives around which items of other lexical categories grow; in the early stages of Greek and her sisters, the realizations of these items *may* display alternations of a particular group of suffixes associated with the Caland System. When such suffixes and their alternations are involved, the syntactic category of adjective is most commonly realized in Greek by the suffixes -ρός- (e.g. αἰσχρός, κυδρός, etc.) and -ύ- (e.g. εὐρύς, κρατύς, etc.). Given that the adjective in most systems is conceptually predisposed to be of common occurrence and that the suffixes -ρός- and -ύ- are its most common exponents, it follows that their formal properties tend to provide the pattern for building a family and reshaping its members.

In the case of building, we may cite as a famous example the emergence of $\sqrt{\acute{\epsilon}\chi\theta}$ - ‘hateful’ and its family solely within Greek. Like other roots, $\sqrt{\acute{\epsilon}\chi\theta}$ - provides the base for an especially frequent and thus derivationally central adjective in -ρός-: $\acute{\epsilon}\chi\theta\rho\acute{\omicron}\varsigma$ ‘hateful’ (Hom.+). Like certain other adjectives in -ρός- (e.g. κυδρός ‘glorious’), the status of $\acute{\epsilon}\chi\theta\rho\acute{\omicron}\varsigma$ as a superficial

¹⁸ “Argument” is here used in the logical and linguistic sense in reference to an object assigned to a set by means of a predicate/function. For example, the predicate *old* (= *is old*), which realizes a Property Concept, can only take one argument (now in the set of what is old), which happens to be the grammatical subject interpretable with the semantic role of theme. For introductory discussion of semantic roles, see Blake 2001: 66–70.

base arises from a synchronic rule of replacing -ρό- to form the other members of the family (→ ἐχθίων : ἔχθιστος : ἔχθος : ἔχθομαι). In other words, ἐχθρός provides the sole gateway by which these other members are formally derived in parallel from the root; on the one hand, since the underlying structures of meaning realized by ἔχθος, ἔχθομαι, etc. have at their immediate structural core the root realized by √ἐχθ-, these structures may be considered underlyingly primary; on the other hand, since ἔχθος, ἔχθομαι, etc., as sequences of morphs, depend on ἐχθρός through replacement of the suffix -ρό- (cf. κῦδ-ρός : κῦδ-ος ‘glory’), the resulting sequences may be considered superficially secondary. The value of this distinction becomes clear when we consider the origin of the root’s Property Conceptuality and the role that -ρό- played in generating a Caland system within Greek.

As the doctrine goes (Frisk 1960–1973: 600–601, Chantraine 2009: 373–374, and Beekes 2010: 488–489), ἐχθρός reflects an *eǵ^h-s-t-r-ó- ancestral to the stem from which was formed Latin *extrā* ‘outside’. All that need be said at this juncture is that, whatever the formal analysis of the entire sequence, the material following that which is reflected by ἐξ, Lat. *ex*, etc. stands in the same class of pronominal, locational, or contrastive derivatives characterized by conglomerates in *-(t)(e)r-o- (cf. Lith. *katràs* ‘which of two’ : πότερος ‘id.’; Lat. *inter* ‘between, among’ : ἔντερα ‘innards’; Lat. *dexter* : δεξιτερός ‘right’, etc.). Accordingly, the etymon of ἐχθρός appears to have expressed the spatial meaning ‘on the outside (adj.)’ (cf. Lat. *exter*, -a, -um ‘id.’), on the basis of which the Greek meaning has been derived by metonymy; a path is paved from the more concrete domain of space to the more abstract domain of social relation (i.e. OUTSIDE → STRANGE → HOSTILE; cf. Lat. *hostis* ‘foreigner, enemy’ : Goth. *gasts* ‘stranger, guest’). What is significant here is the fact that this inferential sequence happens to have conditioned the expression of a Property Concept (HOSTILE). As long as this association was recoverable, the

derived nature of this Property Concept as expressed by the preform of ἐχθρός continued to be apparent. At some point, however, we must assume that the Property Concept came to be underlyingly realized with such frequency that Pre-Proto-Greek language users were unable to recover the original domain. Since the capacity of the meaningful unit was consumed with servicing the Property Conceptual sense, that sense became the sole meaning.

Initially, this unit of meaning was realized by all the material preceding the thematic vowel in the preform of ἐχθρός (i.e. Pre-Proto-Greek **ekstr-* ‘hostile’); a window into this earlier situation may be afforded by ἐχθαίρω ‘hate, consider *x* an ἐχθρός’ (Hom.+), which displays the replacement of the thematic vowel (cf. καθαρός ‘pure’ : καθαίρω ‘purify’) and the retention of all that precedes it (i.e. **r-ó-* : **r-je/o-*). Such retention would continue for as long as the **-r-* was recognized as part of the root. The crucial development, however, was the reanalysis of the segmental sequence **-ró-* as the same morphological **-ró-* reflected by adjectives in *-ρό-* (e.g. ψυχρός ‘cold’) historically distinct from the class of **(t)(e)r-o-* derivatives to which ἐχθρός originally belonged. Among Property Concept adjectives, those in *-ρό-* were above all conspicuous for their frequency and frequent Calandish behavior (κῦδρός : κυδίων : κυδιστος : κῦδος : κυδι- : κυδαίνω). Accordingly, there must have been considerable pressure on the ancestor of ἐχθρός to participate in an analogy of the following kind: ψυχρός (vel sim.) : ψῦχος (etc.) :: ἐχθρός : *x* = ἔχθ-ος, ἔχθ-ομαι, etc. This analogy had the effect of generating a new root $\sqrt{\text{ἐχθ}}$ along with its own Caland system, which includes, for example, the underlyingly primary, but superficially secondary comparative ἐχθίων, superlative ἔχθιστος, and *s*-stem substantive ἔχθος. For our purposes, the generation of this system demonstrates several important points. Though certain Caland systems are inherited occupants of some of the most ancient layers of the lexicon (e.g. ἐρυθρός ‘red’, ἐρυθραίνω ‘redden’ [Hom.+], etc.), the archaic behavior itself

maintains enough productivity to generate systems that cannot be plausibly explained as being composed of members individually inherited from (some stage of) the proto-language. Instead, an entire system can be shown to have germinated even from but one inherited item whose identification as such is the task of comparison and reconstruction.

Having provided a clear example of a system's relatively recent formation on the model of the positive adjective, let us turn to some instances where the members of such systems are re-formed on that model. Since our focus is on the *s*-stem substantive, it is profitable to observe that, while ἐχθρός has conditioned the creation of ἔχθος out of whole cloth, the *s*-stems βάθος 'depth', θάρσος/θράσος 'boldness', and κάρτος/κράτος 'power' are best characterized as renewals of inherited *s*-stems. As discussed by Meissner (2006: 71), each of these substantives appears to have been created on the model of its adjective in -ύς and to have displaced an *s*-stem whose formal archaism is betrayed by root vocalism that can only be explained as a retention from the language ancestral to Greek. In the case of βαθύς 'deep' : βάθος 'depth', the poetic register attests βένθος 'depth (usually) of the sea' (Hom.+). With its synchronically divergent radical *e*-grade and specialized semantics, it is unsurprising that βένθος was replaced by the post-Homeric βάθος, whose root vocalism indubitably facilitated association with the derivationally central βαθύς and its general meaning. In the case of θρασύς 'bold' : θάρσος/θράσος 'boldness', it is also clear that the mechanism by which Attic, Ionic, etc. expunged the allomorph θερσ- was the generalization of the positive adjective's root vocalism to the *s*-stem that happens to be reflected by Aeolic θέρσος (Alc.206.2, etc.). Finally, in the case of κρατύς 'mighty' : κάρτος/κράτος 'power', though the κρε(ι)τ- allomorph is preserved in the comparative (e.g. Ionic κρέσσων), the same remodeling appears to have taken place in Attic-Ionic, but not in Aeolic κρέτος (Alc.25).

In each of these cases (i.e. βένθος : βάθος, κρέτος : κράτος, θέρσος : θάρσος), Meissner is keen to maintain the entirely defensible position that these pairs of *s*-stems do not display apophonic variants inherited from the fracture of a single paradigm. Like the genesis of the $\sqrt{\acute{\epsilon}\chi\theta}$ -system, the agreement of root vocalism between the adjective in -ύς, a morphological category effectively characterized by an inherited radical zero-grade, and the substantive in -ος [-εος], a category customarily and traditionally characterized by radical *e*-grade (e.g. μένος ‘might, spirit’ : μέμαμεν ‘we are eager’, πένθος ‘grief’ : ἔπαθον ‘I suffered’, etc.), is most economically explained as an innovation within Greek. Despite the particular innovatory character of this development, it must also be recognized that the innovation takes place within highly archaic confines on the semantic/syntactic and morphological levels. In semantic/syntactic terms, it should be noted that, next to the syntactic category of adjective, the next most derivationally central category in the Caland System is the substantive, which performs the essential task of presenting the Property Concept as an object assignable to sets. In morphological terms, the archaism consists in the fact that, though the root is now realized with the same allomorph as the adjectival stem (e.g. κρετ- in κρέτ-ος cedes to κρατ-), the structure that makes up the substantive continues to be realized as an *s*-stem, the most productive exponent of the substantival category among Caland systems both in Greek and its earliest attested relatives (e.g. Ved. *ámhas*- ‘distress’, *práthas*- ‘width’, etc., Rau 2014: 336).

Recognition of this retained productivity goes hand in hand with the undeniable and, for our purposes, crucial observation that, in some cases, the *s*-stem substantive is as derivationally central and subject to being formally imitated as the adjectival stem. One does not have to look far before realizing that an enormous variety of stems have been derived directly from the family’s *s*-stem or by analogies involving the *s*-stem. To begin our series of examples, let us

consider *s*-stems' property of adopting the derivational behavior of thematic stems. For instance, though the suffix *-ερό-* is historically composed of the *e*-grade of the thematic vowel and the suffix **-ro-* (Nussbaum p.c.) – an analysis supported by the multitude of *-ερό-* adjectives beside thematic nouns (e.g. δόλος 'trick' : δολερός 'tricky' (post-Hom.), φόβος 'fight' : φοβερός 'frightful (post-Hom.), fearful', etc., v. Chantraine 1933: 228–230), it is quite clear from the attestation of κράτος : κρατερός, κρύος 'icy cold, frost' (Hes.+) : κρυερός 'icy, chilling', and στύγος 'hatred' (tragedy, etc.) : στυγερός 'hateful' that *-ερό-* simply replaces the sigmatic suffix according to the trivial analogy: *-ος [-ου] : -ερό- :: -ος [-εος] : x* (Nussbaum p.c.).

This analogy is immediately paralleled by the one that produces the enormous class of denominals in *-έω* (e.g. πένθέω 'grieve' : πένθος 'grief'). Though the suffixal conglomerate *-έω* was originally composed of the thematic vowel's *e*-grade and the verbal stem formant **-je/o-* (cf. Ved. *mántra-* m. 'prayer' : *mantráya-* 'utter prayers', etc.), as reflected by undeniable derivatives of thematic stems (e.g. αἶνος 'tale, praise' : αἰνέω 'praise, approve' : κόσμος 'order, etc.' : κοσμέω 'provide with order, etc.', νόσος 'sickness' : νοσέω 'suffer illness' [post-Hom.]), the Greek-internal derivation of denominals in *-έω* from *s*-stem substantives (Nussbaum p.c.), which historically formed denominals in *-εῖω* [*< *-es-je/o-*] (e.g. τέλος 'end' → τελείω 'complete' vs. τελέω [Hom. +]), has become wildly productive, as is plain from a plethora of forms placed in parallel (e.g. ἄλγος 'pain' : ἀλγέω 'feel pain', βάρος 'weight' : βαρέω 'weigh down', θάμβος 'wonder' : θαμβέω 'wonder at', θάρσος 'courage' : θαρσέω 'have courage', κράτος 'power' : κρατέω 'have power', μῖσος 'hate' : μισέω 'feel hatred', ῥῖγος 'cold' : ῥιγέω 'feel cold, shudder', στύγος 'abhorrence' : στυγέω 'abhor', τάρβος 'fright' : ταρβέω 'be afraid', etc.). In most of these pairs, the *s*-stem is so derivationally central to its own system that it is inappropriate to claim that the base is anything other than the *s*-stem itself. This is particularly

the case, for instance, with the pairs ῥίγος : ῥιγέω and τάρβος : ταρβέω; in both pairs the positive adjectives associated with these systems, ῥιγεδανός ‘chilling’ (cf. ῥιγηλός ‘id.’ Hes.+) and ταρβαλέος ‘fearful’ (h.*Merc.*165), are so marginal in stem-formation and attestation that one is forced to admit that the *s*-stem alone provides the model for the denominals.

As if this basic status were insufficiently clear, an additional, especially interesting indication of de-sigmatic derivation is the fact that, regardless of the *s*-stem’s remodeling after the radical zero-grade *ύ*-stem adjective, as in θρασύς : θάρσος/θράσος and κρατύς : κάρτος/κράτος, the root vocalism of the denominal agrees with that of the *s*-stem (θάρσος : θαρσέω, κράτος : κρατέω), as is clearly the case in Aeolic θέρσημι* (f. nom. sg. part. θέρσεισ’ Theoc.28.3) beside θέρσος (Alc.206.2, etc.) and κρέτημι* (aor. inf. κρέτησαι Sapph.*Supp.*9.5) beside κρέτος (Alc.25).

The centrality of *s*-stems is furthermore evident from forms whose existence in certain systems requires an implicational overlap of stem-types. When we re-examine the aforementioned αισχύνω, ἄλγύνω, and μηκύνω, verbs belonging to systems lacking adjectives in -ύς, it is not difficult to imagine what that overlap would be; to each of the *ύ*-adjectives listed above (βαθύς, βαρύς, εὐρύς, κρατύς, παχύς, πλατύς, πολύς, ταχύς), from nearly all of which are formed causatives in -ύνω (n.b. πολύς : πλῆθος : πληθύνω [post-Hom.]), corresponds an *s*-stem substantive (βάθος, βάρος, εὖρος, κράτος, πάχος, πλῆθος, τάχος). Under the overwhelming weight of this pattern, it is no surprise that αισχύνω, ἄλγύνω, and μηκύνω should be formed from αἴσχος, ἄλγος, and μήκος simply by suffixal substitution. This kind of derivation by implicational overlap is also on display among more marginal adjectival stems, such as those in -αλέος, a suffix of unclear origin but in unmistakable synchronic rapport with *s*-stems. For example, while many Caland systems have adjectives at their center (e.g. βαρύς, μέγας, etc.), no

one would claim that the system of $\sqrt{\text{κερδ-}}$, for example, is of such a kind; given the frequency of its *s*-stem κέρδος ‘craft’, it is highly probable that κερδαλέος ‘crafty’ was formed from it in a manner parallel to ἄλγος : ἀργαλέος [*< *algaléos*], θάρσος : θαρσαλέος, τάρβος : ταρβαλέος.

In a case similar to $\sqrt{\text{κερδ-}}$, a both historically and synchronically clear-cut instance of derivation from a systemically central *s*-stem is the formation of κήδειος ‘cared for’ from κῆδος ‘care’. As evident from the post-radical material, κήδειος reflects a derivative in **-ijo-* to the *e*-grade of the *s*-stem (i.e. **-es-ijo-* > **-eh-ijo-* > **-eh-io-* > -ειο-). Such non-substitutive derivation is also manifest in $\sqrt{\text{ἀργ-}}$ and $\sqrt{\text{ἀλγ-}}$, from which are formed the adjectives ἀργεννός ‘white’ and ἀλγεινός ‘painful’ (Hom. ἀλεγεινός) respectively, both derived by the addition of **-nó-* to the *e*-grade of an *s*-stem (i.e. **-es-nó-* > **-eh-nó-* > Ion. -εινό- vs. Aeol. -εννό-, cf. ἐρεβεννός : ἔρεβος ‘nether darkness’ [Hom.+]). While, in the former case, $\sqrt{\text{ἀργ-}}$ still possesses a derivationally central adjective ἀργός whose corresponding substantive has been marginalized as a toponym (i.e. Ἄργος ‘Argos’), ἀργεννός likely points back to the *s*-stem’s genuinely appellative age and, in the latter case of $\sqrt{\text{ἀλγ-}}$, that age never ended for the derivationally central *s*-stem ἄλγος ‘pain’.

Having discussed some sundry respects in which the derivational centrality of *s*-stems manifests itself in Caland systems, let us examine some cases in which that centrality is of supreme importance for understanding the distribution of the allomorph καλλ-: the formation of the comparative, superlative, and compositive. In the preceding discussion, I have taken care to show that, because $\sqrt{\text{κερδ-}}$ and $\sqrt{\text{κηδ-}}$ form families whose central members are *s*-stem substantives rather than adjectives, the marginal members of those families can only be analyzed as derivatives of the *s*-stems by suffixal substitution. Among these more marginal members are the stems formed with -ιον-, -ιστο-, and -ι-. In the case of $\sqrt{\text{κερδ-}}$, Homer attests both κερδίων ‘more advantageous’ and κέρδιστος ‘craftiest’. In the case of $\sqrt{\text{κηδ-}}$, the superlative κήδιστος

‘most worthy of care’ as well as the inscriptionally attested compositive κηδι- are also found (PN Κηδικράτης IG II²: 1699; cf. θέρσος : θερσι-επής ‘bold of speech’ B.12.199). We might extend the list to include √έλεγχ- ‘disgraceful’ and √ρίγ- ‘cold’. In the former case, there is simply no nominal base from which one could form ἐλέγγιστος ‘most disgraceful’ other than by suffixal substitution from ἔλεγχος ‘disgrace, reproach’. Though in the latter case of √ρίγ- one finds ῥιγεδανός ‘chilling’ and ῥιγηλός ‘id.’ (Hes.+), these adjectives are too marginal in form and attestation to be plausible models for ῥιγίων and ῥιγιστος ‘most horrible’; instead, ῥῆγος ‘cold, frost, chill’ is almost certainly the base. Finally, in the case of √άλγ-, since the directly de-sigmatic ἀλγεινός and the suffixally substitutive ἀργαλέος are themselves derived from ἄλγος, there is good reason to believe that ἀλγίων and ἄλγιστος are no exception.

In several other cases, such juxtapositions even bring up the question of whether the replacement of an adjectival suffix such as -ρό- or -ύ- to form the comparative, superlative, etc. is the actual process synchronically and historically. In some such cases, the pattern seems to be the replacement of the positive adjective’s suffix by the suffix of the *s*-stem substantive, which acts as a suffixally substitutive gateway for the formation of the comparative, superlative, etc. This mediative role is on full display in a handful of families. As is arguably the case, √αῖσχ- first forms the pair αἰσχρός : αἴσχος ‘shame’, from the latter of which, according to the de-sigmatic pattern (κέρδος : κερδίων : κέρδιστος), are formed αἰσχίων and αἴσχιστος ‘most characterized by αἴσχος’. In principle, this pattern also appears in βαθύς : βάθος (: βάσσων [Epich.188] : βαθίων [Theoc.5.43] : βάθιστος ‘having the most βάθος’) as well as in ἐχθρός : ἔχθος (: ἐχθίων [drama, prose] : ἔχθιστος ‘most worthy of ἔχθος’) and κυδρός : κῦδος (: κυδίων : κύδιστος : κυδι-). At some point, however, using this pattern to explain yet more formal correspondences runs into the difficulty of accounting for root allomorphy. For example, when

presented with κρέσσων and κάρτιστος/κράτιστος, one would have to claim that the ancestor of κρέσσων was modeled on κρέτος and that κράτιστος, if not modeled on κρατύς, was modeled on κράτος at a later date. Similarly, in the case of √μακ- ‘big, long’, while μῆκος ‘length, size’ and μήκιστος match in the allomorph μηκ-, the comparative’s root vocalism corresponds to that of the positive (μακρός : μάσσων). Clearly and crucially, not all allomorphy can be explained in Greek-internal terms. Yet the matches that did exist must have been exploited for the Greek-internal institution of suffixally substitutive de-sigmatic derivation from a formally invariant root; there is simply no better explanation for pairs like ἔλεγχος : ἐλέγκιστος, ῥίγος : (ρίγιων : ῥίγιστος), etc.

At long last and with all these synchronic relations in mind, we can presently propose what by now should be beyond doubt: the distribution of καλλ- is the direct result of de-sigmatic derivation. In contrast to attempts to account for the gemination as an export from more marginal members of the family (i.e. comparative, superlative, compositive), the derivationally central *s*-stem κάλλος is simply the best source from which καλλ- as the elsewhere allomorph issued; the *s*-stem acts as a derivational base insofar as the replacement of its suffix by -ιον-, -ιστο-, and -ι- produces the corresponding stems. Since whatever root allomorph the *s*-stem bore is borne in turn by those stems, the gemination seen in καλλίων, κάλλιστος, and καλλι- (καλλονή, καλλύνω, etc.) can all be seamlessly attributed to κάλλος by Greek-internal analogy.

In terms of the economy essential to a fruitful hypothesis, substitutive derivation from the *s*-stem substantive is optimal for its accordance with observable de-sigmatic behavior and requirement of no additional assumptions. Yet it must be stressed that the proposal as such is a synchronic formulation designed to account for the distribution of the allomorph καλλ-. The principal advantage of the hypothesis is that it opens up a fruitful avenue of historical enquiry – a

course along which the origin of the root allomorphy and suffixal substitution may be investigated. Accordingly, given the general centrality of the adjective-substantive pair and the *s*-stem's role as the gatekeeper bearing the elsewhere allomorph found in almost all items of the system, it is reasonable to set forth the hypothesis that the substantive κάλλος and the positive adjective καλός constitute the inherited material around which the entire system was built, either within Greek or its immediate ancestor. It is therefore probable not only that the root allomorphy was original in the preforms of κάλλος and καλός, but also that the variation originated in reconstructible morphological processes whose identification may finally allow us to ascertain the historical cause of the fact that the meaning 'beautiful' is represented by $\sqrt{\text{καλ-}}$.

CHAPTER 3

RECONSTRUCTION TO PROTO-GREEK

In the previous chapter, we made mention of the family of $\sqrt{\acute{\epsilon}\chi\theta-}$, the relevant point being that in Greek terms the whole system was generated on the basis of a single inherited item: $\acute{\epsilon}\chi\theta\rho\acute{o}\varsigma$ ‘hateful’. In other words, there is from the Greek standpoint but one historical primitive responsible for the invariant $\sqrt{\acute{\epsilon}\chi\theta-}$. While the family of $\acute{\epsilon}\chi\theta\rho\acute{o}\varsigma$ resembles that of $\kappa\alpha\lambda\acute{o}\varsigma$ in the relatively recent emergence of its peripheral members (e.g. comparative, superlative, etc.), it should be noted that the latter family resembles certain others, such as those of $\sqrt{\kappa\rho\alpha\tau-}$ and $\sqrt{\mu\alpha\kappa-}$, characterized by root allomorphy dependent on the morphosemantic identity of the stem formed. For example, when the comparative suffix is added, $\sqrt{\kappa\rho\alpha\tau-}$ ‘powerful, strong’ is realized in Ionic as $\kappa\rho\epsilon\tau-$ (: $\kappa\rho\acute{\epsilon}\sigma\sigma\omega\nu$ ‘stronger’). In the case of $\sqrt{\mu\alpha\kappa-}$ ‘big, long’, the corresponding allomorph is $\mu\eta\kappa-$ when the sigmatic suffix is added to form the substantive $\mu\eta\kappa\acute{o}\varsigma$ ‘length, size’.

As mentioned in the discussion of the descriptive limits of substitutive de-sigmatic derivation, the root allomorphy itself can only be understood as a primitive from the Greek standpoint. Simply stated, pairs like $\kappa\rho\alpha\tau- : \kappa\rho\epsilon\tau-$, $\mu\alpha\kappa- : \mu\eta\kappa-$, etc. are inherited. Though the same of course can and must be said in the case of $\kappa\alpha\lambda- : \kappa\alpha\lambda\lambda-$, the allomorphy of $\sqrt{\kappa\alpha\lambda-}$ is of an unusual kind. To the extent that morphosemantically conditioned root allomorphy still exists or recently existed (e.g. $\psi\upsilon\delta\rho\acute{o}\varsigma : \psi\epsilon\upsilon\delta\omicron\varsigma$, $\beta\alpha\theta\acute{\upsilon}\varsigma : \beta\acute{\epsilon}\nu\theta\omicron\varsigma$, etc.), it is usually an alternation of zero-grade and *e*-grade (e.g. $\kappa\rho\alpha\tau\epsilon\rho\acute{o}\varsigma : \kappa\rho\acute{\epsilon}\sigma\sigma\omega\nu$). Our foot in the door for identifying the origin of this vestigial *e* : zero allomorphy is simply the generalization that the two core members of Caland systems, namely the positive adjective and the substantive, are realized by certain frequent stem-types characterized by or predisposed to have a particular grade of the root. In the

case of the former, the frequent stems in -ρός and -ύς ensure that the zero-grade is well represented in a given family (κρατός : κράτος : κρατερός). In the case of the latter, the *s*-stem, whose root is for independent reasons originally and frequently in *e*-grade (e.g. κρέτος : γένος, μένος, etc.), is obviously responsible for the existence and possibly the slight spread of the *e*-grade allomorph in a given family (e.g. κρέτος : κρέτημι*). However, given the unusual nature of the *καλ-* : *καλλ-* allomorphy, we must deal with the forms of the positive adjective and substantive on their own terms. Determination of the origin of this root's allomorphy thus involves the reconstruction of the most probable preforms for both items in Proto-Greek.

Since, for instance, the positive adjective is formally most conspicuous for its dialectal variation, it is best to begin with its reconstruction. Moreover, this reconstruction should begin with a description of the forms in each of the relevant dialects. To start with Attic, the Property Concept that we may conveniently and provisionally represent as BEAUTIFUL is frequently realized as a root whose meaning may with similar convenience and provisionality be represented as 'beautiful'. Beyond being a lexically meaningful package containing the linguistic representation of conceptual information, this root bears morphological information. In effect, this information is an instruction that, when the positive adjective is to be derived, the means of doing so should be an accented suffix -ό- added to the allomorph *καλ-* for the formation of a stem *καλ-ό-* inflected according to the 1st-2nd declension.

Let us now consider the process for Central and East Ionic, which for convenience can be called "Ionic".¹⁹ Naturally, the underlying structure of the positive adjective is identical to that of Attic. When, however, that structure is provided with form, $\sqrt{\text{καλ}}$ - itself is realized as $\text{κ}\bar{\alpha}\lambda$ - with an additional mora. The result of the stem's derivation is thus $\text{κ}\bar{\alpha}\lambda$ -ό-.

¹⁹ Presumably the form of the positive adjective in West Ionic was identical to that of Attic.

The reconstruction of the form in Proto-Attic-Ionic is more than facilitated by the evidence of Boeotian <καλφον> (SEG 29: 449). In this dialect, the structure is also the same. The most conspicuous difference is the fact that –f–, the first segment of the positive adjective’s suffix, does not exist in the inventories of Attic and Ionic. The instruction associated with the Boeotian root is that the suffix –fó- be added to the allomorph καλ-. The structure is thus represented as καλ-fó-.

The loss of –f– in Attic and Ionic, the former simply, the latter with Third Compensatory Lengthening (Lejeune 1972: 158–159), is the only event that need be taken into account for the reconstruction of a Proto-Attic-Ionic **kal-wó-* effectively identical to the Boeotian form and, at first glance, attributable as such to Proto-Greek. In other words, it is in principle possible to reconstruct **kalwós* as the Proto-Greek form. The plausibility of this reconstruction depends on the assumption that **kal-* was the root. Under such an assumption, the **-a-* would be inherited from Pre-Proto-Greek and ultimately PIE. However, as discussed in Chapter 1, there is no comparative evidence on the basis of which we can securely attribute **√kal-* or **√kál-* to (some stage of) the proto-language.

The alternative is Proto-Greek **kəlwós*. This reconstruction is based on the recognition that, in various attested Greek dialects, Pre-Proto-Greek **ǰ* appears to have four reflexes: αλ, λα, ολ, and λο. While evidence for the former two is of course abundant, evidence for the latter is rare. For example, to the stems of μαλθακός ‘soft’ (Hom.+) and χαλάω ‘slacken’ (h.Ap.6 +) correspond the μόλθακος (Alc., Sapph.) and χόλαισι (Alc.18.9) of Aeolic poetry; to Attic ἀβλαβές and ἀβλάβεια correspond Cretan ἀβλοπές and ἀβλοπία ‘freedom from harm’. In light of this correspondence, the Proto-Greek reflex of **ǰ* must be reconstructed with a schwa so as to

encompass the dialectal treatments. Since the appearance of this schwa is entirely predictable, it is epenthetic. Accordingly, the underlying representation of **kəlwós* would be **/kl-wó-s/*.

The sole cause for pause in reconstructing **kəlwós* is the fact that, wherever there is evidence of the root, its vowel is *-α-* (e.g. Sappho's κάλλιστον 16.4). The dialectal ubiquity of *a*-vocalism may thus be construed to support the argument that, if *καλ-* were to reflect **kəl-*, one would expect to find *o*-vocalism in the dialects where there is some evidence that Proto-Greek's epenthetic schwa merged with *o* (i.e. Aeolic, Arcadian, Cypriot, and Mycenaean). To this claim one may pose several objections. First, in the above-mentioned dialects, *a*-vocalism is also found in the reflexes of the syllabic liquids (e.g. *tu-ka-ta-si* 'θυγατράσι' MY Oe 112). Second, in various and comparable environments, the evidence for *ολ* and *λο* in particular is too meager to establish precise conditions and exclude *αλ* as a regular reflex of **əl* in those dialects. Third, in light of the root's cultural importance and the cross-dialectal predominance of *a*-vocalism, a hypothetical *†κολ-*, even if it existed in Aeolic and Arcado-Cypriot, would be prone to replacement by borrowing and diffusion of *καλ-*. Accordingly, the invariance of the root's vocalism poses no substantial problem to the reconstruction of the form with an epenthetic schwa.

Having provisionally established Proto-Greek **kəl-* as the root and **kəlwós* as the form of its positive adjective, we are now in the position to consider the possible preforms of the *s*-stem κάλλος. In accordance with our hypothesis, the identification of the *s*-stem's most probable preform should enable us to determine the origin of the geminate-bearing allomorph *καλλ-*. As mentioned in Chapter 2, *καλλ-* is best described as the "elsewhere" allomorph, as it appears before all suffixes but that of the positive adjective. In this synchronic sense, the *s*-stem substantive is not particularly special.

Reconstruction of the Proto-Greek preform of the *s*-stem depends on successfully accounting for the geminate whose pandialectal status points to a much older development. There are but two (Pre-)Proto-Greek sequences from which pandialectal $-\lambda\lambda-$ can be derived: $*-ln-$ or $*-lj-$.

There is evidence for the reflection of $*-ln-$ with total assimilation (Lejeune 1972: 153–154).²⁰ For example, comparative evidence supports the reconstruction of various terms formed with reflexes of $*\sqrt{h_{1el}-}$ ‘brown, red’ as *n*-stems or their derivatives (e.g. Arm. *etn* ‘hind’, OCS *jelenb* ‘deer’, Lith. *ėlnis* ‘id.’, Pokorny 1959–1969: 302–304). A likely reflex of one of these derivatives is the isolated *ἐλλός* ‘fawn’ (τ 228), which points to a $*h_{1el-n-ó-}$ apparently derived from the *n*-stem $*h_{1el-n-}$ indirectly reflected by *ἔλαφος* ‘deer’ (< $*h_{1él-ŋ-b^ho-}$). Moreover, Hesychius’ *ἔνελος* *νεβρός* arguably reflects a transposition, merely graphic or otherwise, of the $-\lambda-$ and $-ν-$ in an item closely akin to *ἐλλός* in derivation. Accordingly, if *ἐλλός* can be taken back to $*elnós$, it is in principle possible to reconstruct a Proto-Greek $*kálnos$.

The other possibility is $*káljos$. The development $*-lj- > -\lambda\lambda-$ is proved, for example, by comparison of *ἄλλος* ‘other’ with Latin *alius* ‘id.’ (cf. Goth. *aljis*, Arm. *ayl*, OIr. *aile*, TB *alye-k* [$< *álijō-$]²¹). Yet unlike the assimilation of $*-ln-$, whose apparent ubiquity favors the attribution of $-\lambda\lambda-$ to at least a late stage of Proto-Greek, $*-lj- > -\lambda\lambda-$ appears to be more recent in light of the fact that Cypriot and Elean, dialects of no particular affinity, attest respectively $\langle \alpha\lambda\omicron\nu \rangle$ ‘of (the) other’ (gen. pl.) and $\langle \alpha\lambda\omicron\tau\rho\iota\alpha \rangle$ ‘alien’ (Buck: 1955: 146; 159). At first glance, this metathesis is problematic for the reconstruction of $*káljos$; if *κάλλος* reflects $*káljos$, one would

²⁰ As Nussbaum points out (p.c.), there is the possibility that the geminate treatment was only the outcome at a morphological boundary, whereas $*-ln-$ within the same morph underwent the First Compensatory Lengthening.

²¹ For the reconstruction of the root, see Rieken and Yakubovich 2022.

expect evidence of a dialectal allomorph †καιλ-. Instead, Elean attests only καλλ-. However, it should be noted that both dialects also display –λλ– in items whose preforms would be expected to undergo metathesis (e.g. Cypr. <αλα> ἄλλα ‘but’; Elean <αλλα> ‘other’ neut. pl. nom./acc.). Given the marginality of the metathetic outcome even within the dialects that display it as well as the cross-dialectal predominance of gemination in an allomorph of a culturally important root, it would not be inconceivable that a hypothetical †καιλ-, even if it existed in Elean, Cypriot, or another dialect, would be prone to replacement by borrowing and diffusion of καλλ-, especially on account of the latter’s resemblance to the allomorph καλ-, which differs from καλλ- solely in quantity, as opposed to the addition of quality in †καιλ-.

Since *kálnos and *káljōs are both phonologically permissible preforms, the question can only be resolved morphologically. This morphological resolution amounts to an assessment of the probability that, in light of certain residual patterns recurring in Greek’s Caland System generally, a given preform would be generated within a system whose central member is an adjective in *-wó-. In other words, how far does Greek-internal evidence enable us to determine the derivational distance and thus affinity between that substantival preform and the adjective *kálwós?

Determination depends on an analysis of *-wó- itself. Set beside other classes of Calandish adjectival stems that descriptively consist of a root and suffix (e.g. ρό-stems [e.g. ἐρυθρός], ύ-stems [e.g. πλατύς], etc.), the class of adjectives formed with a thematic suffix whose initial segment was demonstrably *w is marginal. Among such adjectives, not all of which have developed Caland systems, are for instance κενός ‘empty’, μανός ‘rare, sparse’ (Attic prose), and στενός ‘narrow’, for each of which the preexistence of *-wó- is *inter alia* guaranteed by variants with Third Compensatory Lengthening (e.g. κεινός, μᾶνός [Emp.75.1], στεινός).

Of these *wó*-stems, *στενός/στεινός* is of particular interest because, distantly after *καλός*, it comes the closest to participating in suffixal alternation of the Caland type. Though undeniably vestigial, the alternation itself is clearly evidenced by the compound *Στενύκληρος* ‘Narrow Lot(ted)’, a Messenian toponym mentioned by Herodotus (9.64.2; Mod. Gk. *Στενύκλαρος*). Since the *-(f)ó-* of the positive adjective is replaced by *-u-* in composition, we can infer that, given the phonemically distinct status of **/w/* and **/u/* in Proto-Greek, the root was simply **sten-* and that from this root were formed two stems: a simplex adjectival **sten-wó-* and a **sten-u-* apparently in use as an FCM. The generation of these sequences is profoundly reminiscent of and demonstrably akin to two kinds of phenomena.

The first and immediately comparable phenomenon is of course the descriptive replacement of the suffix of the positive adjective or *s*-stem substantive by the “compositive” in *-ι-*. Though largely vestigial and in some cases (all but) completely fossilized (e.g. *δήνος*: *βούλευμα* [Hsch.], *δήνεα* ‘plans’ [Hom.+]: *δαίφρων* ‘prudent’ [Hom.+]; *έρυθρός*: *έρυσίβη* ‘corn rust’ [Attic prose; “Rhodian” *έρυθίβη*²²]), the suffix *-ι-* still constitutes a synchronically intelligible class whose appearance is governed largely by the substitutive procedure mentioned above (e.g. *άργός* ‘shining, swift’: *άργικέρανος* ‘with bright thunderbolts’; *θήρσος* ‘boldness’: *θερσιεπής* ‘of bold speech’; *κάλλος*: *καλλίζωνος* ‘beautifully girdled’ [Hom.+]; *κῦδρός*: *κῦδος*: *κῦδιάνειρα* ‘bringing men glory’; *πυκνός* ‘compact, well put together’ [Hom.+]: *πυκιμηδής* ‘shrewd’ [Hom.+]; *τερπνός* ‘delightful, pleasant’ [v.l. at θ 45+]: *τερπικέρανος* ‘delighting in thunder’ [Hom.+]). Given that sequences ending in *-ι-* are variously formed on the model of adjectives or substantives (e.g. *άργ-ό-* → *άργ-ι-*; *κάλλ-οσ-* → *καλλ-ι-*), such derived sequences

²² Ῥόδιοι δὲ ἐρυθιβίου Ἀπόλλωνος ἔχουσιν ἐν τῇ χώρᾳ ἱερόν, τὴν ἐρυσίβην καλοῦντες ἐρυθίβην. (Strabo. *Geogr.* 13.1.64).

are in a sense secondary. Underlyingly, however, it is arguably the case that the structure realized by a root and a compositive suffix is generated by primary derivation. The primary evidence for this claim is the variability of base-selection in the surface derivation itself. Since some systems allow the adjective to be the base of the compositive, while others the substantive, it is less economical and thus less probable that the same kind of FCM structure is derived from two kinds of derivatives. Instead, the root itself appears to be base of the compositive in *-ι-*, which, it should be noted, is posited with particular provisionality to account for an idiosyncratic exponent as isomorphically as possible. That being said, if we were to characterize the compositive as the semantic object it is, it might be appropriate to assert that it serves at the very least to authorize the position of an additional root within the same unit of nominal structure. In other words, a *bahúvr̥thi* like *καλλίζωνος* is a form of data-compression characterized by the representation of another root as a modifier predicated of the possessum (i.e. ‘whose girdle is beautiful’).

For our immediate purposes, the notion of a compositive meaning allows us to appreciate that, depending on the root, the compositive is realized with the formally variant but necessarily semantically identical exponent *-υ-* (< **-υ-*). Despite its extreme vestigiality and isolation, the existence of this exponent is especially evident in the synchronic alternation of the adjective *ταναός* ‘outstretched’ (Hom.+) and the by no means infrequent FCM stem *ταν-υ-* (e.g. *τανύπεπλος* ‘with flowing robe’ [Hom.+], etc.). Like $\sqrt{\text{καλ-}}$, $\sqrt{\text{ταν-}}$ ‘outstretched’ has an allomorph appearing in the stem of the positive adjective. When the root becomes the base of that adjective in *-ός-*, the root’s allomorph is *τανα-*. In contrast, when the compositive is derived, the elsewhere allomorph *ταν-* is selected. Significantly, there is a special instruction associated with $\sqrt{\text{ταν-}}$ requiring that the compositive suffix be *-υ-*. The question of course is the historical source of this instruction.

While the appearance of *v*-stems as FCMs is entirely the norm when a given system has such an adjective at its center (e.g. βαθύς : βαθύζωνος ‘deep-girded’, etc.), the absence of such an adjective in the family of $\sqrt{\tau\alpha\nu}$ - is problematic for the view that the compositive $\tau\alpha\nu$ -*v*- is merely the compositional form of an actual adjective like βαθύς. Alternatively, one might claim, by appeal to comparative evidence (e.g. Ved. adj. *taní-* ‘thin, etc.’), that $\tau\alpha\nu$ -*v*- is all that remains of just such an adjective that happened to be lost on the way to attested Greek. Although it is highly probable that the proto-language possessed this *u*-stem adjective, the precipitancy of supposing that $\tau\alpha\nu$ -*v*- is proof its existence in Proto-Greek becomes clear when we consider the other phenomenon to which Στενύκληρος is comparable.

As has long been observed (Schulze 1892: 39), when the meaning of an adjective is represented in a stem serving as first member of a possessive compound, the compositional stem is that of the substantive. In synchronic terms, what we are observing is the compositional replacement of a derived adjective by its substantive. For example, when the meaning ‘having gold’ or ‘being golden’ is realized in the first member of a possessive compound, it is largely represented by the stem of the substantive χρῶσός rather than that of the adjective χρύσεος (e.g. χρῶσόθρονος ‘having a throne of gold’ or ‘whose throne is of gold’ [Hom.+]). In effect, a compound like χρῶσόθρονος is a representation of a syntagm like χρύσειον θρόνον ἔχουσα or any variant with the concordant adnominal χρύσεος.

Since the use of the substantival stem and the -*t*- : -*v*- compositive category are both compositionally conditioned substitutive procedures robustly attested in some of the earliest Greek, it is highly probable that they are historically one and the same process. In other words, the -*t*- : -*v*- compositive as a *type* must have originated in the use of substantival FCMs that happened to be *i*-stems and *u*-stems. The strength of this claim, which originates with Schindler’s

analysis (1986) of possessive compounds as representations of instrumental syntagms, lies mainly in synchronic observation. Given that compounds are data-compressing representations of other kinds of constructions, one cannot always know exactly what kind of construction is represented historically. Accordingly, the hypothesis that the *-ι- : -υ-* compositive category originated in the FCM use of substantivally employed *i*-stems and *u*-stems arises not from presupposing the nature of the original construction represented compositionally, but from taking the morphosyntactic phenomenon of compounds like *χρῦσόθρονος* at face value; *χρῦσός* is a substantive after all.

Based on the recognition that stems like *ἀργι-ι-* and *ταν-υ-* are interpretable as erstwhile substantives just as *χρῦσ-ό-* is synchronically, the synchronically patent relationship between the basic *χρῦσός* and the derived *χρῦσέος* constitutes strong evidence that the alternation between **sten-u-* and **sten-wó-* was regulated by the same principle. Given the Pre-Proto-Greek allophony of **[w]* and **[u]*, we have reason to suspect that between the Pre-Proto-Greek suffixes **-u-* and **-ó-* was a morphological boundary that distinguished the substantive, represented by **sten-u-*, and the derived adjective, represented by **sten-u-ó-*. By this reasoning, we may provisionally propose that the Proto-Greek **-wó-* of **kálwós* likewise contained an effaced morphological boundary that once distinguished the thematic adjective from its substantival *u*-stem base (i.e. **-u-ó-*).

Though the evidential discussion of this particular *u*-stem should be deferred for clarity of argument, let us at this juncture generally observe that, even for what is synchronically the same Greek root, there is evidence of an *i*-stem alongside one in **-u-*. As an initial example, let us examine some of the system of *ῥαργι-* ‘flashy’. In addition to the compositive *ἀργι-ι-*, Homer attests an adjective *ἀργινόεις* ‘white’, which presupposes an **ἀργινός* (cf. *ἀλγινόεις* ‘painful’

[Hes.+]; αἴθινος [Hsch.] [: Αἰθίον (Hom.+)], θαμινός ‘crowded’ [h.*Merc.*44], πυκινός ‘compact’ [: πυκμήδης], ταχινός ‘swift’ [Theoc.2.7+] [: Laconian ταχίνῶς ‘hare’ Ael.*NA.*7.47]). As one can observe from these examples, a suffix of the shape -ινός- is somewhat productive and associated with the Caland System. Though for this reason it is at least conceivable that -ινός- has been spread to other systems by implicational overlap, the creation of the preform of *ἀργινός within Greek by means of a suffix -ινός- is especially unlikely in light of additional evidence for ἀργ- followed by morphs whose first segment is /i/ (e.g. ἄργιλλος or ἄργιλος ‘white clay’ [Ar.+]; ἀργίτις, -ιδος ‘vine with white grapes’ [*argitisque minor* Virg.*G.*2.99; etc.]). In other words, the *segment* -ι- is somehow part of the √ἀργ- system inasmuch as it is constitutive of several morphs forming stems to that root. In this sense, the relationship between the -ι- of the compositive ἀργι-ι-, the -ι- of -ιτιδ- and -ιλο-, and the -ι- of -ινός- is a strictly morphological and historical question. However, in the synchronic analysis of *ἀργ-ινός-, we would have to assert that the suffix -ινός- happens to realize a particular packet of positive adjectival meaning whose interaction with the meaning of √ἀργ- produces the meaning ‘white’ expressed by *ἀργ-ινός-. Though the term “suffix” may imply that -ινός- belongs to a certain set of identical exponents (which is certainly the case; cf. πυκ-ινός, etc.), the crucial notion is that, from a synchronic point of view, a particular unit of positive adjectival meaning happens to be realized with this exponent.

By similar reasoning, we may adduce the adjective ἄργυρος ‘silver-shining, silver-white’ (Hom.) (→ ἀργύρεος ‘id.’ [Hom.+]). Though without doubt an old-fashioned and marginal item in the grammars of bards and laymen alike, this epithet, used only of sheep, can be safely assumed to have been analyzed as a synchronic member of the family of √ἀργ-. When the root became the base of a positive adjectival structure, the interaction of the root and the meaning of

the suffix generated an idiosyncratic semantic structure realized as ἄργ-υφο-. Though basically unparalleled as a suffix, this -υφο- is still an exponent of a particular unit of meaning. What is significant is not the exact identity of that unit, but the fact that the isolated morph -υφο-, viewed morphologically, happens to contain a segment whose appearance elsewhere in the √ἄργ- family cannot be coincidental.

The segment –υ– also appears in ἄργυρος ‘silver’. In accordance with the kind of analysis we have employed, the lexical semantic idiosyncrasy of this item is a function of the interaction of the root and the morphosemantic unit that makes the whole object a substantive. Though this idiosyncrasy no doubt conditioned the innovative positing of √ἄργυρ-, it is safe to assume that the stem-sequence consisted of ἄργ- + ´-υρο- at an earlier stage. Despite being the formant of a substantive, this ´-υρο- bears a certain resemblance to -υρό- – a suffix that forms adjectives in various systems. For example, from the roots λιγ- ‘clear, shrill’ and θαμ- ‘thick, close’ are formed λιγυρός ‘clear’ (Hom.+) and θαμυρός ‘frequented’ (Hsch.) respectively. Though both adjectives stand beside adjectives in -ύ- (i.e. λιγύς ‘clear, shrill’ [Hom. +]; θαμύς* [θαμέες ‘in crowds’ Hom.+]), and thus may appear to be formed from these ύ-stem adjectives, the most that can be said is that the ύ-stems implicationaly make available the option of forming adjectives in -υρό-. Yet even if one should accept the claim that a suffix -ρό- was added to the stem of an adjective in -ύ-, the -ρό- adjective implied by the substantive ἄργυρος would presuppose an ύ-stem adjective for which there is no Greek evidence. More to the point, if the relationship between the post-Homeric ισχυρός ‘strong’ and ισχύς ‘strength’ is any guide, we should correctly expect the sequence preceding the –ρ– in ἄργυρος – as well as the –φ– in ἄργυφος – to have been that of a substantive in the language ancestral to Greek.

Setting aside momentarily the matter of the grammatical category of the structures realized by descriptive *i*-stems and *u*-stems, let us continue to consider the systemic, root-conditioned nature of the appearance of the segments –ι– and –υ– as well as allophonic remnants in systems similar to that of √καλ-. Though not all of the following items must have been synchronically available to or associable by a given Greek speaker, each juxtaposition is justified historically:²³

√αιθ- ‘burn, flash’ : –ι– Αιθίοψ ‘Ethiopian’, αἴθινος ‘burning’ (Hsch.) : –υ– αἰθύσσω ‘stir, kindle’ (lyric, later epic)

–ι– : βρῖ-, βρι- ‘weighty, strong’ : βριαρός ‘mighty’, ὄβριμος ‘id.’, βρήπτος ‘loud-shouting’,

√βρῖθ- ‘weighty’ : βρῖθός ‘heavy’, βρήθω ‘be heavy, weighed down’ : –υ– √βαρ- ‘heavy’ : βαρύς ‘heavy’, βαρύθω ‘be weighed down’

√θαμ- ‘thick, close’ : –ι– θαμινός ‘crowded, close-set’ (h.Merc.44 +) : –υ– θαμύς* ‘id.’

θαρσ-, θρασ-, θερσ- ‘bold, dare’ : –ι– ΠΝ Θερσιτίης, θερσιεπής ‘bold of speech’ (B.12.199) : –υ– θρασύς ‘bold’

–ι– : √λει- ‘smooth, level’ : λειός ‘smooth, level’ : –υ– √λευρ- ‘smooth, level’ :

λευρός ‘id.’

√μῖκ- ‘little, small’ : –ι– ΠΝ Μῖκίνᾱς ‘Shorty’ (D.S.17.113.1, etc.) : –υ– μῖκύθινος ‘little, childlike’ (Hsch.), μῖκκός ‘μικρός’ (Dor., Boeot.) < Proto-Greek *mīkwós

√μορ- ‘dark, black’ : –ι– μοριφός ‘dark, black’ (Hsch.) : –υ– μορύσσω ‘soil, defile’

πελ-, πολ- ‘dark, grey’ : –ι– πολίός ‘grey’, πελιός ‘discolored, livid, dark, dull’ (post-Hom.),

πελιδνός/πελιτνός ‘livid’ (post-Hom.), πελλός ‘dark-colored, dusky’ (post-Hom.) : –υ– (: *–υ–)

πέλεια ‘dove, pigeon’ < Proto-Greek *péleuja

²³ All items are Homeric unless stated otherwise.

στερ-, στορ- ‘hard’ : –ι– στέρηφος ‘firm, solid, barren’ (post-Hom.) : –υ– στερεός ‘firm, solid’ < Proto-Greek **sterewós*, στορῦνη ‘lancet’ (Aret.*CD*.1.2.)

τρεφ-, τροφ-, τραφ-, ταρφ- ‘thick’ : –ι– τρόφις ‘well-fed’ : –υ– ταρφύς ‘thick, close’

√ταχ- ‘swift’ : –ι– ταχίνᾱς ‘hare’ (Ael.*NA*.7.47) : –υ– ταχύς ‘swift’

φαλ-, φολ- ‘white’ : –ι– φαλίός ‘white-(spotted)’ (Call.*Fr*.176), φαλίσσομαι ‘become white, foam’ (Hsch.) : –υ– φόλυς ‘πυρρός’ (Antim.98), φαλύνω ‘whiten’ (Hsch.)

Some comments on these systems are in order. As is clearly the case from observing but cross-sections of the systems of βρῖ- ‘strong’ and √βρῖθ- ‘weighty’ compared to √βαρ- ‘heavy’, the *i*-vocalism is of the root itself. In other words, it is difficult to imagine that √βρῖθ- and √βαρ-, despite the considerable conceptual affinity of their meanings, were actual synchronic allomorphs, given the radically divergent sequence –ῖθ- in the former root. Though a synchronic √βρ- seems unwarranted, the semantic correspondence and segmental overlap between √βρῖθ- and √βαρ- certainly justify the hypothesis of a historical relationship (v. IEW: 476–477). In terms of the sequence of segments, the historical relationship between √βρῖ- and √βρῖθ- is clearer. Beyond the apparent addition of –θ- in √βρῖθ- – a segment interestingly also apparent in βαρύθω ‘be weighed down’ (cf. βρήθω ‘id.’), all that need be said is that the meaning corresponding to √βρῖ- realizes a more abstract Property Concept STRONG derived from the more concrete domain of WEIGHT. This ramification and details aside, each root can be related to the others historically, in part through acknowledgement that the segments we are investigating must have appeared in morphological alternations of such antiquity that they and their historical allophones have even embedded themselves in roots whose fundamentally necessary synchronic analysis necessarily involves decisions all the more subjective due to the philological nature of the evidence.

Similar issues of synchronic interpretation are involved in the analysis of λειός ‘smooth, level’ and λευρός ‘id.’. Given their synonymy, an analysis alternative to the one listed above – and no doubt depending on the grammars of individual speakers – would involve a single √λε-. In the case of λειός, the stem would be formed with -ιο-, which, when affixed to λε-, would form the diphthong -ει-. In the case of λευρός, the stem would be formed with -υρό-, which would form the diphthong -ευ-. If this analysis ever synchronically corresponded to the grammars of real people, those grammars would have conserved the originally suffixal status of the alternating segments.

Morphology of the root is on a more consistent footing when we consider the system of √μικ- ‘little, small’. Though the most notable member of this family is the -ρό- stem adjective μικρός ‘small, little’ (Hom.+), the PN Μικίνᾱς ‘Shorty’, to be discussed later on in this Chapter, does provide evidence of an adjective *μικινός ‘little, small’ derived from an *i*-stem whose suffix descriptively replaces the one reflected in -ρό- (: μικ-ι- : μικ-ρό-). The appearance of -ι- immediately after the root is paralleled by that of -υ- in the inscriptionally attested μικυθος ‘little’ (AP6.335[Leon.]), PN Μικύθιος (: Μικύθειος [Inscr.Délos 443 B b 69]), and the Hesychian gloss μικύθινον· τὸ μικρὸν καὶ νήπιον. If we operate with an adjective *μικυθός as is reasonable enough, it is similarly necessary to argue that an adjectival suffix -υθό- historically contained a boundary between the -υ- and -θ- (cf. √βρι- : √βριθ-). Further evidence of this boundary can be adduced by comparison to the semantically equivalent μικκός (post-Hom.), characterized by the appearance of the allomorph μικκ- with geminate -κκ- when the root becomes the base of a stem in -ό-. By comparison, for instance, to the phonologically and morphologically similar γλωκκός (: γλωκός ‘sweet’ [Hsch.]), it is highly probable that this gemination resulted from the sequence *-kw- in a *mikwós produced by the addition of *-ό- to a

u-stem in the language ancestral to Greek. To continue with morphophonemic parallels, the relationship between the above-mentioned *μανός* ‘rare, sparse’ (Ion. *μᾶνός* [Emp.75.1]) and Hesychius’ *μάνυ· μικρόν* is explicable in the same terms.

These items highlight the importance of observing morphological patterns to uncover more evidence of the erstwhile allophones. This principle is no less on display in the family of $\sqrt{\sigma\tau\epsilon\rho}$ - ‘hard’. Like each of the systems we have been comparing, $\sqrt{\sigma\tau\epsilon\rho}$ - shows evidence of the allophones of Pre-Proto-Greek **j* and **u*. Evidence of **j* is most clearly observed in the adjective *στέριφος* ‘firm, solid, barren’ (post-Hom.). By comparison to its synonym *στερεός*, we can of course isolate the root *στερ-* and a suffix *’-ιφο-*. Viewed morphologically, this latter exponent bears a striking resemblance to the above-listed *μοριφός* ‘dark, black’ (: *μορύσσω* ‘soil, defile’, cf. *αιθύσσω* ‘stir, kindle’ : *Αιθίοψ* ‘Ethiopian’), which would appear to require the same analysis but for the position of the accent (i.e. *-ιφό-*). When we compare the *’-ιφο-* of *στέριφος* to the *’-υφο-* of *ἄργυφος*, our expectation of evidence of **u* reflected in the $\sqrt{\sigma\tau\epsilon\rho}$ - system is justified. Turning to *στερεός*, we need only consider how the appearance of this item both in Homer and Attic prose supports the reconstruction of post-radical **-ewó-*, inasmuch as the sequences **-eho-* (< **-eso-*) or **-eo-* (< **-ejo-*) would not be expected to be reflected without Attic contraction (cf. Ionic n. gen. sg. *γένεος* ‘of a race’; m. nom. sg. *χρύσεος* ‘golden’; vs. Attic *γένους* and *χρυσοῦς*). The preexistence of **u* is additionally supported by *στορύνη* ‘lancet’ (Aret.*CD*.1.2.), whose post-radical sequence *-ύνη-* resembles that of *αἰσχύνη* ‘shame’ (post-Hom.) and *τερύνης* *τετριμμένος ὄνος* (cf. *τέρυ· ἀσθενές, λεπτόν* [Hsch.]). As a surgical instrument, the object denoted by *στορύνη* would necessarily be hard. To return to *στερεός*, the likelihood of **sterewós* as its preform is even more apparent when we consider the form *κενέος* ‘empty’ (Hom.; cf. Cyp. <*ke ne u wo ne*>), whose relation to *κενός* (: *κεινός*) further supports the preexistence of **u* in the

√στερ- family, inasmuch as *ken-ewó- beside *ken-wó- would resemble a *sterewó- beside a *ster-wó- derived from a *u*-stem.

The family of πελ-, πολ- ‘dark, grey’ also provides evidence of *ǰ and *ǰ̣. At first glance, the most striking feature of the family, to the extent that it can be analyzed as such synchronically, is its root ablaut – a condition closely paralleled by φαλ-, φολ- ‘white’. Beside the well-represented πολίος ‘grey’, there is a marginally attested πελίος ‘discolored, livid, dark, dull’ whose suffix -ίος appears identical to that of πολίος. By comparison to Mycenaean <po-ri-wa> (KN Ld 587 + 589 + 596 + 8262), it is certain that the latter item is to be reconstructed as a Proto-Greek *poliwós, which, given the identity of suffix between πολίος and πελίος, was likely paralleled by a Proto-Greek *peliwós. In light of πελιδνός/πελιτνός ‘livid’ and the ornithonym πέλεια ‘dove, pigeon’ to be discussed below, it is also certain that the root was *pol- (: *pel-) and that the suffix *-iwó- is historically segmentable (i.e. *-i-ǰ̣-).

The question concerns the relationship of this *-iwó- to the *-wó- of *kálwós. As a working hypothesis, we have proposed that *kálwós is historically analyzable in the same manner as *stenwós, whose compositive *sten-u- has been argued to reflect the stem of a substantive. Accordingly, we are operating with an original morphological boundary (i.e. *-ǰ̣-ó-) that distinguished the derived adjective from its substantival *u*-stem base. In the case of *poliwós and *peliwós, such an analysis appears improbable principally because the assumption of *-i-ǰ̣-ó- would require a *u*-stem *pol-ǰ̣-u- or *pel-ǰ̣-u- for which there is no evidence within or outside of Greek. Instead, it seems necessary to operate with a Pre-Proto-Greek *-ǰ̣-ó- for *poliwós and *peliwós. The question, of course, is its origin.

Given that the appearance of *w and *o in suffixal material is associable with roots associated with stems in *-u-, it is reasonable to suggest, even solely on the basis of Greek

evidence, that the unitary suffix **-uó-* was added to the *i*-stem indirectly reflected by **poliwós* and **peliwós* because the system also included a *u*-stem from which an adjective in **-ó-* (i.e. **-u-ó-*) had been formed. In other words, in light of the correlation between the appearance of **u-* reflexes and that of **i-* reflexes immediately after the same roots, it would come as no surprise that a sequence generated through derivation from a *u*-stem should be metanalytically applied to an *i*-stem of the same system. For example, it is possible, as an initial hypothesis, to derive the above-mentioned λειός from a Proto-Greek **léiwos* (: **le-* + *-íwo-*) when we consider the fact that the basically synonymous λευρός presupposes a *u*-stem. Similarly, the evidence for **u* in the family of φαλ-, φολ- ‘white’ (i.e. φόλυς ‘πυρρός’ [Antim.98] and φαλύνω ‘whiten’ [Hsch.]) supports the derivation of φαλίός ‘white-(spotted)’ (Call.Fr.176; cf. φαλίσομαι ‘become white, foam’ [Hsch.]) from a stem in **-uó-* (i.e. **-i-uó-*) immediately comparable to **poliwós*, **peliwós*, and, with accent retracted, to **léiwos*.

By harnessing such mutual implications, stem-types can be predicted and investigated. Within Greek, the best evidence for the *u*-stem in the πελ- family appears to be πέλεια ‘dove, pigeon’ (Nussbaum 1997: 191). Viewed morphologically, the exponent *-εια-* appears most closely akin to the feminine stem of certain adjectives in *-υ-*. For example, the suffix of θάλεια ‘rich, plentiful’ (Hom.+), whose presupposition of θαλυς* (cf. θαμός* [: θαμειάι : θαμέεζ]) is supported by θαλύσια ‘offerings of first fruits’ (Hom.+) and θαλύνει· θάλλειν ποιεί (Hsch.), would accordingly reflect **ewja*, pointing to an *e*-grade allomorph of a Proto-Greek **-u-*. The only difference, of course, is the fact that, in contrast to the post-radical material of θάλεια, which may be analyzed as *-ε-* (< **-eu-*), an allomorph of *-υ-*, + *-ια-*, an exponent of inflection and agreement (e.g., fem. nom. sg.), the synchronically indivisible suffix *-εια-* of πέλεια forms a substantive with a fixed (natural) gender and special lexical semantics (i.e. ‘the grey one’ :

‘dove’). Even on Greek-internal grounds, this semantic divergence corresponding to what must have been the same morphological sequence (i.e. **-ew-ja-*) supports the argument that the preform of *-ια-* was originally derivational. For example, the form *τανεῖαι* ‘beams’ (Thphr.*HP*4.1.2), in light of our earlier analysis of the isolated compositive in *-υ-* as an erstwhile substantival stem (*Στενύκληρος* : *στενός*), may therefore be analyzed as a derivative of the substantival *u*-stem probably reflected by the FCM of *τανύπεπλος*, etc. In addition, this analysis would resolve the stem-type discrepancy between the *ταν-υ-* compositive and the adjective *ταναός*. If we compare *ταναός* to *στερεός*, *στερεός* to *κενεός*, and *κενός* to *στενός*, whose etymon must have been derived from a substantive, it is highly probable that *ταναός* is ultimately derived from the same substantive from which the etymon of *τανεῖαι* was formed. Accordingly, just as *ταναός* and *τανεῖαι* (etc.) point to derivation from the substantival preform of *ταν-υ-*, so, too, does *πέλεια* point to a *u*-stem and a substantive in particular.

Given the evidence for the basic status of substantival *u*-stems in families that also present evidence of *i*-stems, it is in principle predictable that the *i*-stem, whose erstwhile substantival status is evidenced *inter alia* by the compositive in *-ι-*, should also serve as the base of other nominals. In particular, in light of the large amount of evidence for post-radical **ḷ* in the *πελ-* family, it is highly attractive to analyze *πελλός* ‘dark-colored, dusky’ (post-Hom.) in this manner. Like $\sqrt{\text{καλ-}}$, the gemination of *πελ-*’s allomorph is distributionally restricted, the main difference being its appearance in the positive adjective. Viewed historically, this adjective, like the *s*-stem *κάλλος* in particular, has two possible preforms, one with **-ln-* and the other **-lj-*. As implied by the solid representation of forms reflecting **ḷ* in the *πελ-* family, the reconstruction of **pelḷós* rather than **pelnós* is absolutely justified. In addition, the relationship between *πολιός* and *πελλός* would be paralleled by *σκολιός* ‘curved, bent’ (post-Hom.) and

σκελλός ‘crook-legged’ (Hsch.). The question now, therefore, is what morphological analysis we can provisionally assign to πελλός (< **peljós*) from a Pre-Proto-Greek standpoint. By comparison to **stenwós*, whose suffix’s erstwhile divisibility and derivation from a *u*-stem are undeniable, our **peljós*, whose synchronic segmentation would be **pel-jó-*, is plausibly analyzed as a **pel-j-ó-* exactly parallel to **sten-u-ó-*.

At this point, our presentation of Greek evidence for reflexes of **j* and **u* right after the root in (historically) the same systems should have made clear the deep-seated nature of the coappearance of these two segments and, in particular, the systematicity of the alternation of the morphs in which they figure. We are now therefore in a position to decide which reconstruction of κάλλος, **kálnos* or **káljos*, better conforms with the evidence surveyed. In particular, we must now examine what would be morphologically involved in the derivational history of each reconstruction.

Let us begin with **kálnos*. The stem of this item, if it existed, would be underlyingly represented as **kl-* + **’-nos-*. As a neuter substantive in **’-nos-*, **kálnos* would be immediately comparable to the class of neuter *s*-stem substantives for which a morph **’-nos-* is synchronically isolable (e.g. τέμενος ‘precinct’ [Hom. +] [: τέμνω/τάμνω ‘cut’]; κτήνος ‘cattle’ [post-Hom.] [: κτάομαι ‘acquire’]). Once we have isolated **’-nos-*, there then arises the question of its relationship with **’-os-*. Greek itself provides a handful of examples of neuter *s*-stem substantives that have been derived from thematic adjectives (Nussbaum 1998a: 525). Among these substantives we may note πᾶρος ‘loss of strength’ (Alc.98) beside πηρός ‘maimed’ (Hom.+), μάκρος ‘size, length’ (Ar.Av.1131) beside μακρός, and στεῖνος ‘narrow space; distress’ (Hom.+), beside στενός (Attic στενός). In each case, while the thematic vowel of the base is replaced by that of **’-os-*, any material between the root and sigmatic suffix is preserved. It is of

course this fact that makes clear that these substantives are both morphically and underlyingly secondary to the adjectives. As is also quite clear, these thematic adjectives are heterogeneous. Depending on, for example, an Aeolic individual's grammar, *πᾶρος* 'weakness' (Alc.98) would be derived from a *πᾶρος* (< **πᾶρός*) 'maimed' conceivably analyzed as *πᾶρ-ο-* with a simple thematic suffix. The substantive *μάκρος* would transparently consist of *-οσ-* and a *ρό-* stem. Finally, based on our experience with the system of *στεν-*, we know that the Proto-Greek preform of *στεῖνος* was **sténwos-* and that its base was **sten-wó-*. In light of these examples, it is uncontroversial to hypothesize that **kálnos*, if it existed, was derived from a thematic adjective in **-nó-*.

If such an adjective existed, it would be necessary to situate it in the context of other *vó-* stem adjectives whose families exhibit Calandish alternations, some with more typical suffixes than others.

√*θαλπ-* 'warm' : *θαλπνός* 'warming, fostering' (Pi.O.1.6) : *θάλλος* 'warmth' (post-Hom.) :

θαλπιάω 'become warm' (Hom.+)

√*ίσχ-* 'dry' : *ισχνός* 'dry, withered' (post-Hom.) : *ισχαλέος* 'dried' (τ 233) : *ισχαίνω* 'reduce swelling' (post-Hom. v.l. of *ισχναίνω* 'dry out')

√*κῶδ-* 'glorious' : *κῶδνός* 'glorious' (v.l. Hes.) : *κῶδρός* 'id.' : *κῶδιάνειρα* 'bringing men glory'

κῶδιάω 'act proudly' : *κῶδαίνω* 'glorify'

√*περκ-* 'dark, dappled' : *περκνός* 'dusky, dark; eagle [Ω 316]' : *πέρκος* 'hawk' (Arist.HA620a20)

: *περκαίνω* 'darken, dapple' (E.Cret.15; Hsch.)

√*πυκ-* 'thick, close' : *πυκνός* 'close-set, compact, intelligent, etc.' : *πυκιμηδής* 'sagacious'

√*σμερδ-* 'terrible' : *σμερδνός* 'terrible' : *σμερδαλέος* 'id.'

√στυλβ- ‘shimmery’ : στυλπνός ‘glittering’ : στυλβηδών ‘brilliance’ (Thphr.*HP5.4.2*, etc.; cf. ἄλγηδών ‘pain, suffering’ [post-Hom.])

√τερπ- ‘delight’ : τερπνός ‘delightful, pleasant’ : τερπικέραυνος ‘delighting in thunder’

Even with this slight selection of νό-stem adjectives, it is clear that Proto-Greek *-νό- was a less vestigial – or even marginally productive – suffix than the Proto-Greek *-ῖό- reflected in πελλός. The νό-stem adjectives alternate with other stems whose suffixes have clear Calandish affiliations. Most importantly, these νό-stems can appear alongside other stems whose suffixes bear reflexes of Pre-Proto-Greek *i (e.g. κῦδιάνειρα : πυκιμηδής : τερπικέραυνος) but do not seem to occur alongside reflexes of Pre-Proto-Greek *u. While this fact may be attributed to a greater productivity of i-stems in Pre-Proto-Greek, it is worth noting that one has to go outside of Greek to find evidence of *-νό- in historically the same system as a stem whose suffix is formed with *u. For example, √ισχ- ‘dry’, the reflex of a reduplicated derivative of *√sek- ‘dry’ (cf. Ved. *ásakra-* ‘not running dry’, Pokorny 1959–1969: 894–895; LIV²: 523–524), is normally connected, despite tolerable discrepancy (i.e. Gk. χ : Ved. k, etc.),²⁴ with the Avestan u-stem adjective *hišku-* ‘dry’ and Proto-Celtic **siskwo-* ‘dry’ (> OIr. *sesc* ‘dry, barren’, MW *hysp* ‘id.’, MBret. *hesp* ‘id.’, Matasović 2009: 337). Similarly, √περκ- ‘dark, dappled’ is the descendent of the root reflected by OHG *faro* ‘colorful’ (< **porḱuó-* ‘id.’, Kroonen 2013: 130). If anything is clear about these data, it is that the relationship between *-νό- and morphs with *u/u is characterized by considerable derivational distance in space and time.

In contrast, certain nominals that reflect Proto-Greek *-ῖό- belong to systems that do indeed contain items whose suffixes reflect Pre-Proto-Greek *u. As discussed above, πελλός

²⁴ This discrepancy may be resolved by supposing a rightward Hauchumsprung from **hisk-* to **isk^h-* (Weiss p.c.).

‘dark-colored’, derived from a **peljós*, stands beside a πέλεια ‘dove’ whose suffix points to a *u*-stem. Comparative evidence for this *u*-stem is solid (v. Nussbaum 1997: 191). In light of Proto-Indo-Iranian **palušá-* (Ved. *paruṣá-* ‘speckled’, Av. *pourušá-* ‘grey’), which points to a **pelusó-* as a derivative of a *u*-stem, the evidence of post-radical **μó* in this family (Lat. *pullus* ‘dark-colored, grey’ < **p[o/e/Ø]lμo-*) is interpretable with a boundary (i.e. **pol-μ-ό-*), though it is clear from the likely case of cross-contamination with the *i*-stem that this sequence was eventually monomorphic (i.e. **pol-i-μó-* > πολίος [: Myc. *po-ri-wa*]). The *i*-stem’s derivative that πελλός reflects is thus both morphically and underlyingly paralleled by **pol-μ-ό-* ‘dark, grey, etc.’ (: **pel-ι-ό-* ‘id.’).

Though this extraordinary parallelism is difficult to match, there is additional evidence of the derivational propinquity of *i*-stems, *u*-stems, and their derivatives. As is also mentioned above, the adjective σκελλός ‘bandy-legged’ (Sch. Π 234, Hsch., EM701.10), in its connection to σκολιός ‘curved, bent, crooked’ (Hom.+) (cf. σέλος ‘leg’ < **skel-o/es-* ‘a bending’, [Pokorny 1959–1969: 928]), is comparable to πελλός beside πολίος. While a preform **skelnó-* for σκελλός cannot of course be ruled out phonologically, there is certainly morphological justification for the supposition that σκελλός reflects **skeljó-*. This derivation, which depends on the identification of an *i*-stem, is based principally on the analysis of σκολιός and associated forms. For σκολιός itself, there are two possible preforms: **skolijó-* and **skoliμó-*. Unless one operates with a unitary suffix **-ιό-* ultimately traceable in theory to thematic derivation from *i*-stems (cf. **-μó-* : **-μ-ό-*), in which case **skolijó-* would indeed point to an *i*-stem (i.e. **skol-i-ιό-*), **skolijó-* would have to be analyzed in the most basic descriptive terms as an **-ijó-* derivative of some stem whose indeterminacy likely constitutes a dead end for the derivation. We do not encounter such a dead end in the case of **skoliμó-* because this preform offers us an *i*-stem whose status as

the base to derivation with unitary *- $\mu\acute{o}$ - is multiply paralleled. If the above-discussed $\lambda\epsilon\acute{\iota}\omicron\varsigma$ ‘smooth, etc.’ and $\lambda\epsilon\upsilon\rho\acute{o}\varsigma$ ‘id.’ share the same root, it is possible to derive the former from * $\acute{\lambda}e\eta_1-i-\mu\omicron-$ and the latter from * $\acute{\lambda}e\eta_1-u-r\acute{o}-$ (Nussbaum p.c.). In terms of morphic sequence, this * $\acute{\lambda}e\eta_1-i-\mu\omicron-$ is comparable to a group of stems characterized by post-radical *- $i-$ preceding *- $\mu\acute{o}$ -. In addition to * $\acute{p}ol-i-\mu\acute{o}-$ (> $\acute{\rho}o\lambda\acute{\iota}\omicron\varsigma$) and * $\acute{p}el-i-\mu\acute{o}-$ (> $\acute{\rho}e\lambda\acute{\iota}\omicron\varsigma$), we may mention the preform of Latin *helvus* ‘light bay’ (Varro +), which must reflect a * $\acute{g}^h\acute{e}lh_3\mu\omicron-$ (Nussbaum 1999a: 386–387; de Vaan 2008: 282) necessarily derived from a * $\acute{g}^h\acute{e}lh_3-i-$ extensively reflected in Indo-Iranian (Ved. *hári-* ‘yellow, green’ : *hírísmaśru-* ‘whose beard is gold-colored’ : Av. *zairi-* ‘golden, green, tawny’, etc.).

Returning to $\sigma\kappa\omicron\lambda\acute{o}\varsigma$ as reflex of * $\acute{s}k\omicron\lambda\acute{i}\mu\acute{o}-$, we may also mention the related hapax $\sigma\kappa\lambda\omicron\acute{\iota}\omicron\varsigma$ ‘ὁ σκολιός’ (Hdn.Gr.1.109), which in principle could reflect * $\acute{s}k\lambda\omicron\mu\acute{i}\acute{i}\acute{o}-$ or * $\acute{s}k\lambda\omicron\mu\acute{i}\acute{o}-$, but more plausibly reflects * $\acute{s}k\lambda\omicron\acute{i}\mu\acute{o}-$. Insofar as this item is hypothesized to have meant ‘curved, bent, crooked’, we can compare certain formally and semantically similar terms. In the most basic descriptive terms, we can begin with Latin *curvus* ‘curved, bent’ (Pl. +), whose assignment to * $\sqrt{(s)ker-}$ ‘drehen, biegen’ (Pokorny 1959–1969: 935–938) would imply a * $\acute{k}r-\mu\acute{o}-$ (or * $\acute{k}or-\mu\omicron-$). In turn, this * $\acute{k}r-\mu\acute{o}-$ can be compared to the * $\acute{k}r-e\acute{i}-\mu\acute{o}-$ reflected by Lithuanian *kreĩvas* ‘crooked, curved, misshapen’ and to a * $\acute{k}r-o\acute{i}-\mu\acute{o}-$ possibly reflected by the dialectal variant *kraĩvas* ‘id.’ (Smoczyński 2018: 598). Different in root but similar in structure is Lithuanian *šleĩvas* ‘crooked, bandy-legged’ (< * $\acute{k}l\acute{e}\acute{i}-\mu\acute{o}-$; variant *šlĩvas* ‘id.’ < * $\acute{k}l\acute{i}-\mu\acute{o}-$), which is derived from * $\sqrt{k\acute{e}l-}$ ‘bend, curve’ (e.g. Goth. *hulps* ‘gracious’ < * $\acute{k}l\acute{e}-t\acute{o}-$ ‘inclined, disposed’) or * $\sqrt{k\acute{l}e\acute{i}-}$ ‘lean’ (e.g. $\kappa\lambda\acute{\iota}\nu\omega$ ‘id.’, Ved. *śráya-* ‘id.’, etc.), if * $\sqrt{k\acute{l}e\acute{i}-}$ ‘lean’ is considered an extension of * $\sqrt{k\acute{e}l-}$ ‘bend, curve’ as is traditionally but corrigibly supposed (Pokorny 1959–1969: 552, 600–602). In light of the base-selection observed in * $\acute{p}ol-i-\mu\acute{o}-$ (: * $\acute{p}el-i-\mu\acute{o}-$), * $\acute{\lambda}e\eta_1-i-\mu\omicron-$, and * $\acute{g}^h\acute{e}lh_3-$

i-uo-, it is highly probable that the **klei-uó-* reflected by *šleĩvas*, like the **kr-ei-uó-* and (possibly) the **kr-oi-uó-* reflected by *kreĩvas* and *kraĩvas* respectively, is ultimately analyzable as bearing a full-grade of an *i*-suffix of nominal origin (**kl-ei-uó-*). In consequence for σκολιός beside σκολιός, we can justifiably affirm that, though the origin of this full-grade is unclear, the reconstruction of a **skloi-uó-* is fundamentally economical, seeing as its relation to **skoli-uó-* can be described simply with reference to the morphophonemic slot of the *o*-grade.

Given the likelihood that σκολιός and σκολιός reflect derivatives in **-uó-* to an *i*-stem, we are thus in a position to derive σκελλός from a preform segmentable as a **skel-i-ó-* morphologically parallel to **pel-i-ó-* (> πελλός). Just as **pel-i-ó-* stands in a system comprising stems formed with post-radical **-u-*, there is evidence that the *i*-stem from which **skel-i-ó-* was derived also stood beside a stem in **-u-*. The clearest Greek evidence of this *u*-stem is σκολύπτωμα ‘wave to and fro’ (Nic.Th.229), which refers to the writhing of a serpent’s tail. Despite the semantic match with σκολιός, which is used in the Nicander scholia to explain this hapax, it must be admitted that the apparently lengthened grade is somewhat problematic. The best way of approaching it would involve considering reflexes of **√skel-* in light of its likely *s*-mobility.

In addition to σκελλός ‘crook-legged’ (σκελλόν· διεστραμμένον), Hesychius also mentions a κελλός ‘twisted, slanted’ (κελλόν· στρεβλόν, πλάγιον; κελλῶσαι· πλαγιάσαι). In view especially of how Hesychius glosses these items (διεστραμμένον : στρεβλόν), it would be inappropriate to separate the two over something as trivial as *s*-mobile (e.g. σκεδάννουμι : κεδάννουμι ‘scatter’). Furthermore, the sense of physical deformity attested for σκελλός, which the *Etymologicum Magnum* (701.10) claims as a popular term for ραιβός ‘crooked, bent, bandy-legged’ (Arist.+), is paralleled by κυλλός ‘club-footed, bandy-legged’ (Ar. +; FCM κυλλοποδίων

‘club-footed’ [Hom.], epithet of Hephaestus). In light of the close semantic correspondence to σκελλός and its formal variant κελλός, it is likely that κυλλός is related as generally supposed (Frisk 1960–1973: 47; Chantraine 2009: 576; Beekes 2010: 800–801). While its –υ– gives at first some cause for pause, the segment can be explained as the reflex of an *o that has been raised before an *l palatalized by *i in accordance with the rule proposed by Vine (1999: 566) to account, e.g., for the traditional and still unproblematic correspondence of Latin *folium* ‘leaf’ (Pl. +) to φύλλον ‘id.’ (Hom. +) (< *b^hól̥iō-, Pokorny 1959–1969: 122). The only way to maintain the compelling connection of κυλλός with σκελλός and κελλός would be to suppose that the preform of κυλλός differs minimally from that of κελλός in having radical o-grade (i.e. *kol-ǰ-ó-), which, in light of *pol-i-μó- (> πολίος), *pel-i-μó- (> πελιός), and *pel-ǰ-ó- (> πελλός), is trivial. Given the association of these terms with deformative curvature of the legs and feet, it is apposite to compare κῶλον ‘limb, member’ (post-Hom.). Though the derivational history underlying its apparently lengthened grade is yet unclear, it is worth noting that its use particularly in reference to the legs invites comparison with σκέλος ‘leg’, one of the most prominent and antique members of the family (cf. Lat. *scelus* ‘crime’ [Pl.+] < *skél-o/es- ‘bentness, crookedness; wrong’).²⁵ Considering the slight semantic distance between κῶλον and σκέλος, we may suppose that the two are distantly related morphologically, as is generally maintained (Pokorny 1959–1969: 928; Frisk 1960–1973: 61; Chantraine 2009: 582). Despite the distance, there does seem to be some formal overlap. In this respect, we may consider Hesychius’ σκολοῖς δρεπάνοις, whose interpretation is clarified by another entry: σκώλοισι δρεπάνοις διὰ τὴν σκολιότητα. The ablaut

²⁵ Alternatively (Nussbaum p.c.; v. WH: 492), Latin *scelus* ‘crime’ may be connected with the root of Gothic *skulan* ‘be obliged’ (cf. Proto-Germanic *skul-ði- ‘debt, guilt’, v. Kroonen 2013: 450).

relationship of these items makes clear the probability that at some stage of Greek the **(s)kel-* system contained several items with the \bar{o} -grade allomorph.

In all likelihood, this allomorph was available in the derivational history of *σκολύπτομαι* ‘writhe’. Though Chantraine (2009: 990) considers the post-radical material of this item to be analogical to *καλύπτω* ‘cover’ (Hom.+) and to the solely lexicographically attested *σκολύπτω* ‘cut short’ (Hsch., etc.), it is arguably the case that such verbal stems containing *-v-* followed by a labial were too marginal and disparate to have had this effect. If, instead, we compare *κορύπτω* ‘butt with the head’ (Theoc.3.5, etc.), whose relatives present abundant evidence for a *u*-stem (cf. *κορυφή* ‘head, top, peak’ : *κόρυς*, *-υθος* ‘helmet’ : *κάρη* ‘head’ [Hom.+]), it is conceivable that *σκολύπτομαι* reflects a verbal stem denominal to a derivative of an actual *u*-stem. In sum, we may conclude for the family of *σκολιός*, etc. that *σκελλός*, *κελλός*, and particularly *κυλλός* constitute additional evidence (1) for a morphic sequence **-j-ó-* and (2) for the existence of that sequence in families with derivatives that bear suffixal **u* of nominal origin.

At this point, we should mention one last group of direct Greek evidence for **-j-ó-* beside derivatives of *u*-stems. In this group, evidence for **-j-ó-* may be found in *θαλλός* ‘young shoot, branch’ (Hom. +), which belongs to the same family as *θάλλω* ‘sprout, bloom, thrive’ (Hom.+). As is clear, for example, from the above-mentioned *θάλεια* ‘rich, plentiful’, *θαλύσια* ‘offerings of first fruits’, *θαλύνει* (*θάλλειν ποιεῖ* [Hsch.]), all of which, as it happens, overwhelmingly point to a *u*-stem, the root is a *θαλ-* whose allomorph *θαλλ-* appears in *θαλλός* and *θάλλω*. Since these two items share this allomorph, it is in principle possible that *θάλλω* provided the allomorphic model by which *θαλλός* was formed. If one assumes such influence from the verbal stem, it is furthermore possible to derive the geminate of the allomorph from an **-ln-* sequence attributable to a nasal-infix present. Depending on extra-Greek evidence, such a present stem is

reconstructible as a possibility (Alb. *del* ‘emerges’ [$*d^h\grave{l}-né/n-h_1-$], $*\sqrt{d^h}alh_1-$ ‘herausquellen, hervorsprießen’ LIV²: 122 with refs.). As for the root itself, the best evidence is from Armenian. Beside the traditionally adduced *dalar* ‘green, fresh’ (Pokorny 1959–1969: 234), we find a *det* ‘herb’ (gen. *deloy*; cf. *delin* ‘yellow’), whose stem Martirosyan (2010: 231–232) reconstructs as a $*d^hél(h_x)-n-$ eventually thematized as a $*d^hél(h_x)-n-o-$ comparable to a $\theta\alpha\lambda\lambda\acute{o}\varsigma$ accordingly derivable from a $*d^h\grave{l}n\acute{o}-$. Despite this semantically justifiable root association, it is not necessary or preferable that $\theta\alpha\lambda\lambda\acute{o}\varsigma$ reflect such a preform. If we do accept the connection, we would have to suppose that the root allomorphs could consist of the phonemes $*e$ and $*o$, which of course has the advantage of being unexceptional in contrast to the $*\sqrt{d^h}alh_1-$ of LIV². In this connection, it may be fitting to adduce the Hesychian entry $\theta\acute{\upsilon}\lambda\lambda\alpha$: κλάδους ἢ φύλλα, ἢ ἑορτὴ Ἀφροδίτης discussed by Vine (1999: 567) as possible evidence of the above-mentioned raising of $*-o-$ to $*-u-$ before an $*-l-$ palatalized by $*-j-$. As I would argue, the applicability of this rule would imply that $\theta\acute{\upsilon}\lambda\lambda\alpha$, which need only point to an accusative neuter plural of the second declension (n.b. $\theta\acute{\upsilon}\lambda\lambda\alpha$: κλάδους), reflects a $*d^h\acute{o}l(h_x)\grave{i}o-$ of some semantic description. In morphological terms at least, the relationship of $\theta\acute{\upsilon}\lambda\lambda\alpha$ with $\theta\alpha\lambda\lambda\acute{o}\varsigma$ can be illuminated by supposing that their preforms differed solely in the grade of the root and position of the accent (i.e. $*d^h\acute{o}l(h_x)\grave{i}o-$: $*d^h\grave{l}(h_x)\grave{i}\acute{o}-$).

Even if one does not accept that $\theta\acute{\upsilon}\lambda\lambda\alpha$ reflects a thematic derivative of an *i*-stem, the fact that such an *i*-stem existed in the $\sqrt{\theta\alpha\lambda}$ - family may be ascertained by the evidence of $\theta\acute{\alpha}\lambda\iota\kappa\tau\rho\nu$ ‘Thalictrum minus, meadow-rue’ (Dsc.4.97). Though LSJ notes variants (sed fort. $\theta\alpha\lambda\acute{\iota}\eta\tau\rho\nu$: $\theta\alpha\lambda\acute{\iota}\eta\kappa\tau\rho\nu$ [Gal.11.884]), the item occurs in Latin (Plin.Nat.27.138) with the spelling *thalictrum*. Given the security of this spelling and the probability that the name of an herb would be derived ultimately from a root whose derivatives would be used to refer to thriving, blooming,

sprouting, and freshness, it is likely that θάλικτρον is related to θαλλός and that its post-radical –ι– reflects a morph whose allomorph conditioned the gemination in θαλλός (< *d^hl(h_x)-i-ó-). This assessment of likelihood depends on the analysis of the morph -ικτρο-. On first inspection, the sequence –τρο– resembles the instrument suffix -τρο- (e.g. ἄροτρον ‘plough’ : ἄρόω ‘plough’, λέκτρον ‘bed’ : λέχομαι ‘lie’, etc.). This is not to say, however, that θάλικτρον denotes an entity whose semantic role is instrument. What does seem to be at play is the possibility that this -ικτρο- stem was derived from a verb whose subject could be characterized semantically as that which undergoes the action of sprouting or blooming. To have access to this role, it is conceivable that the *-tro- stem was formed from a verb whose meaning was ‘sprout’ and whose stem ended in a velar. If we compare ἐλίσσω ‘turn, wind, whirl’ (Hom.+) beside ἔλιξ (gen. ἔλικος) ‘twisted, curved (thing), etc.’ (Hom.+), it is also conceivable that the base of θάλικτρον was an often anti-causatively employed verb *t^halik- ‘sprout’ (pres. *t^halik- iē/o-), whose base in turn was a descriptive *k*-stem nominal derivative of the *i*-stem indirectly reflected by θαλλός. Accordingly, augmented with the evidence of θάλικτρον, we may conclude that this θαλλός as well as θύλλα, if accepted, both of which point to thematic derivation from an *i*-stem, patently appear alongside derivatives of √θαλ- that display evidence of a *u*-stem (θάλεια ‘rich, plentiful’, θαλυΐα ‘offerings of first fruits’, θαλύνει (θάλλειν ποιεῖ [Hsch.])).

At this point, we have finished our discussion of evidence of stems that (1) *directly* reflect *-i-ó- and (2) exist in systems that also have evidence for a *u*-stem. The following evidence, though indirect, is nevertheless overwhelmingly supportive of the argument that the *s*-stem κάλλος reflects a Proto-Greek *kál-jos- analyzable as a sigmatic substantivization of a thematic adjective whose Pre-Proto-Greek ancestor was derived from an *i*-stem.

The first piece of indirect evidence for an adjective in **-i-ó-* may be sought on the basis of the hypothesis that the family of the (Pre-)Proto-Greek ancestor of $\sqrt{\mu\bar{i}k}$ - ‘little, small’, whose evidence both of *i*-stem and *u*-stem derivatives has been discussed above, included an adjective in **-i-ó-*. Once we look past the conspicuous *-ró-* adjective that has come to dominate this system, we can observe a rich, ancient, and supplanted undergrowth characterized by post-radical *-t-*, *-v-*, and evidence for **-u-*. While evidence for the *u*-stem is most clearly supplied by the derivatives of $\mu\bar{i}k\upsilon\theta\omicron\varsigma$ ‘little’ (*AP*6.335[Leon.]; PN $\text{Μῖκυθος} : \text{Μῖκύθειος}$ [Inscr.Délos 443 B b 69]; $\mu\bar{i}k\upsilon\theta\nu\omicron\varsigma$ ‘little, childlike’ [Hsch.]), the evidence of the adjective $\mu\bar{i}k\kappa\acute{o}\varsigma$ ‘μικρός’ (Dor., Boeot. *Ar.Ach.*909, etc.) requires some comment. In the first place, we should note what is in effect a variant of this adjective: $\mu\bar{i}k\acute{o}\varsigma$ ‘μικρός’ (*Hp.Nat.Mul.*47, *IG*22.47.12, etc.). The simplest explanation of the singleton is of course to analyze the form as the reflex of a simple thematic adjective **mīk-ó-* ‘little’. The real question is the origin of the geminate in $\mu\bar{i}k\kappa\acute{o}\varsigma$. Though it is very much conceivable, given the semantic category of the root, that the *-κκ-* is the result of “expressive gemination”²⁶ (i.e. **mīk-ó-* ‘little’ → **mīkk-ó-* ‘tiny’; cf. $\gamma\lambda\alpha\kappa\kappa\acute{o}\nu$ · $\gamma\lambda\alpha\theta\eta\nu\acute{o}\nu$ [Hsch.]²⁷), one ought not to opt for this uncontrollable kind of explanation if an answer can be sought more evaluably in the larger formal system. As applied to this case, it is advisable to exploit the fact that $\mu\bar{i}k\kappa\acute{o}\varsigma$ occurs in a system in which there is evidence that a *u*-stem existed.

An apt comparison would be the above-mentioned relation between the $\gamma\lambda\upsilon\kappa\kappa\acute{o}\varsigma$ ‘γλυκός’ listed by Hesychius and $\gamma\lambda\upsilon\kappa\acute{o}\varsigma$ itself. In light of our extensive treatment of the relation between the adjectival $\sigma\tau\epsilon\nu\acute{o}\varsigma$ and the originally substantival compositive in $\Sigma\tau\epsilon\nu\acute{o}\kappa\lambda\eta\rho\omicron\varsigma$, it is probable

²⁶ Buck (1955: 76)

²⁷ “Wohl ein Kinderwort mit hypokoristischer Geminata wie $\mu\bar{i}k\kappa\acute{o}\varsigma$ ” (Pokorny 1959–1969: 400–401).

that γλυκκός was derived from a *u*-stem substantive, when we consider, at the very least, the dispensability of assuming that the ancestor of γλυκκός was a merely formal thematization of the *u*-stem adjective reflected by γλυκός – a kind of adjective that in Greek constitutes a perfectly stable class. In any case, Pre-Proto-Greek derivation from a *u*-stem would have produced a sequence reflected ultimately as the **glukwó-* ancestral to γλυκκός. If comparison with ἵππος ‘horse’ is any guide (cf. Ved. *ásna-* ‘id.’, OE *eoh* ‘war-horse’, etc. < **h₁éǵuo-*), the cluster **-kw-* is normally reflected as *-ππ-* and dialectally as *-κκ-* (i.e. ἵκκος [EM474.12]). In the case of γλυκκός, however, because of the dissimilatory effect of the root’s **-u-*, the labiality of the **-w-* was not enough to cause the **-k-* to be reinterpreted as **-p-*. The point we should make clear here is the *ad hoc* nature of assuming expressive gemination for μῆκκός when, as in the similar case of geminated γλυκκός, a derivationally sound explanation is available.

The problem, of course, for a derivationally similar **mīkwó-* is that it should have given something like †μῆππος. A way out of this eventuality is not difficult to imagine. Unlike the presumably isolated preform of ἵππος in Proto-Greek, it is conceivable that the derivatives of **√mīk-* exerted sustained analogical influence on **mīkwó-* to keep its **-k-*’s in line. There are at least two parallels for this phenomenon. The first is πέλεκκον ‘axe-handle’ (Hom.+) beside πέλεκυς ‘axe’ (Hom.+; cf. Ved. *paraśú-* ‘axe’). Regarding πέλεκκον, no one, for semantic reasons, would claim that its *-κκ-* is due to expressive gemination, nor rightly claim that the item is merely a thematization of πέλεκυς ‘axe’. Whatever underlying semantic packet is responsible for making an ‘axe-handle’ out of an ‘axe’, its realization by the thematic suffix and accent retraction is truly the soundest assessment. Given the patent synchronic relationship between the preforms of πέλεκυς and πέλεκκον, it is highly probable that the preform of the latter was given the **-kk-* treatment by analogy to its base. On the subject of analogy, the second, less

manageable parallel is λάκκος ‘pond, cistern, tank’ (Hdt., Ar., etc.). In light of Latin *lacus* ‘lake’ (Pl. +) and its cognates (e.g. OIr. *loch* < **loku-* ‘id.’, OCS *loky* ‘puddle, pool, reservoir’ < **lokuh₂-*, etc.), the Greek form undoubtedly reflects a derivative of the widely reflected *u*-stem – an assessment supported by semantics (λάκκος ‘pond’ : ‘lake’ elsewhere). On account of this *u*-stem, **-kw-* would underlie the geminate, which is explicable in two ways. On the one hand, –κκ– as opposed to –ππ– is conceivably analogical to the basic *u*-stem, though this seems less certain given that this particular *u*-stem is not reflected in Greek. On the other hand, if the dialectal ἴκκος is any guide, λάκκος may indeed display such a dialectal treatment. In either case, it is difficult to deny that –κκ– comes from **-kw-*.

In the case of πέλεκκον and λάκκος, resorting to expressive gemination is methodologically unsound, principally because invoking it explains nothing. Yet even if it were somehow appealing to do so, the geminate patently admits of another far more cogent explanation: thematic derivation from an actual *u*-stem. Since in the √*μῑκ-* system we have substantial, though indirect, evidence of a *u*-stem (i.e. *μῑκυθος*, *μῑκόθινος*, etc.), it would be ill-advised, despite the allure of iconicity, to ignore the evidential implication and very real possibility that *μῑκκός*, bearing a dialectally or analogically explicable geminate, goes back to a **mῑkwó-* interpretable as a thematic derivative of that *u*-stem (i.e. **-u-ó-*). Accordingly, just as evidence of the *u*-stem justifies the reconstruction of an adjective in **-u-ó-*, any evidence of an *i*-stem opens at least the possibility of an adjective in **-i-ó-*.

For the family of √*μῑκ-*, the main evidence of that *i*-stem is the PN Μῑκῑνᾱς (D.S.17.113.1, etc.), which immediately resembles the above-listed ταχῑνᾱς ‘hare’ interpretable provisionally as a definite substantivization of ταχῑνός ‘swift’ (i.e. ‘the swift one’). Given the cooccurrence of adjectives in -ινό- with forms bearing post-radical –ι– of arguably *i*-stem origin

(e.g. πυκινός : πυκιμηδής, ἀργινόεις : ἀργικέραυνος, αἶθινος : Αἰθίοψ), it is entirely possible that Μῆκινᾶς was derived from an adjective whose preform **m̄kinó-* ‘little, short’ contained a sequence **m̄ki-* identifiable as the reflex of an *i*-stem. In this **m̄ki-* consists the theoretical possibility that its preform was the base of an adjective in **-i-ó-* (cf. **m̄ku-* : **m̄kwó-*). Whether this adjective existed in Proto-Greek or not, it is worthwhile, as we shall see, to consider how the **-k̄i-* of a **m̄k̄i-ó-* would develop.

The general doctrine about the treatment of intervocalic **-k̄i-*, **-k^hi-*, and **-k^wi-* is that they develop to *-ττ-* in some dialects (e.g. Attic, Boeotian, etc., φυλακ- ‘guard’ : φυλαττε/ο-) and *-σσ-* in others (e.g. East Ionic, Lesbian, etc., φυλασσε/ο- < **p^hulak-je/o-*; Lejeune 1972: 104–105). Yet in light of more recent research (Nussbaum 2013: 12–17), there is some evidence that, whereas *-ττ-* and *-σσ-*, as regular treatments, originally reflected heterosyllabic sequences (i.e. **-k.j-*, **-k^h.j-*, and **-k^w.j-*), tautosyllabic sequences were reflected ultimately as *-σ-* possibly in all dialects.

As argued by Nussbaum (op. cit.), whose findings are reproduced here, the most salient evidence of this treatment may be found in singleton spellings and in otherwise unaccountable variation between *<-σσ->* and *<-σ->*. The primary evidence for singleton spelling in an item that should reflect **-k̄j-* is the Hesychian lemma γλαυσόν· λαμπρόν, θρασύ, ἰταμόν. Given the relation of this item to γλαυκός ‘shining, grey’ (Hom. +) and the fact that there is no Proto-Greek phoneme other than **-i-* that could have given rise to *-σ-*, the only viable interpretation of this lemma is that it reflects a **glau.k̄i-ó-* thus syllabified to avoid **glauk.*, a superheavy syllable. This syllabification may be contrasted with that of **p^hu.lak.je/o-* (> φυλασσε/ο-), where the default **-lak.-* formed nothing superheavy. An apparent problem immediately arises from the discrepancy between γλαυσός (< **glau.k̄i-ó-*) and the denominal γλαύσσω ‘shine, glitter’ ([Hsch.];

ὕπογλαύσσω ‘glance furtively’ [Call.*Dian.*54, Mosch.2.86], διαγλαύσσω ‘shine brightly’ [A.R.1.1281]), which transparently reflects a present stem in **-je/o-* derived from γλαυκός (cf. μαλάσσω ‘soften’ [Ar., E.] ← μαλακός [Hom. +]). Considering the phonotactically identical status of nominal **glau.kjō-* and verbal **glaukjē/o-*, we would expect the latter to be reflected as a γλαυσε/o- for which, in fact, we have some evidence in γλαύσουσιν· ἀντὶ τοῦ λάμπουσι (EM.233.19). Accordingly, the obvious explanation for the geminate spelling in γλαύσσω consists in the probability that γλαυσε/o-, as one of legion of denominals reflecting a stem in **-je/o-*, was written with a geminate by analogy to verbal stems where the geminate is phonologically regular (e.g. φυλάσσω, μαλάσσω, etc.). This spelling may be interpreted as a merely orthographic geminate representation of a real singleton in alignment to verbs in –σσω or as representing a real, albeit analogical, geminate. In either case, the singleton spelling of nominal γλαυσόν is easily explicable. As a likely reflex of a thematic derivative of an *i*-stem (**-jō-*), Proto-Greek **glaukjō-*, synchronically analyzable as **√glauk-* + an idiosyncratic suffix **-jō-*, would have belonged, as we have seen, to an entirely unproductive class, such that the resulting **glau.s2-ō-* would not have been under systematic pressure for its root to be modified in any way; there was after all no conspicuous category on the model of which gemination, real or merely orthographic, could be imposed.

Since, by contrast, denominals reflecting **-je/o-* were a conspicuous and coherent category, it is no surprise that there is variation in the spelling of Homeric λεύσσω ‘look, gaze’ (λεύσετε A 120, λεύσω Π 127, etc.), historically associated with λευκός ‘white’ (Hom. +). A slight problem, however, is posed by another item historically associated with λευκός. Listed by Pokorny (1959–1969: 687–690) under **√leuk-* ‘bright, shine’ and analyzed ultimately as an *i*-stem derivative by Nussbaum (1999a: 403; cf. OE *līeg* ‘fire, flame, lightning’ < **louk-ī-*

‘luminance’), the hapax λουῖσσον ‘pith of the fir-tree’ (Thphr.*HP*3.9.7; → Lat. *lusson* Plin.*Nat.*16.187) is orthographically unexpected. Again, following Nussbaum (2013: 15–16), one can address this problem by highlighting the fact that, while the Indo-European etymology is clear enough, the form is nevertheless a hapax embedded in a semantically botanical sphere comprising several terms whose forms bear the potentially imitable sequence –σσ– (e.g. κισσός ‘ivy’ [Thphr.*HP*3.18.6, etc.], νάρκισσος [Thphr.*HP*6.8.1, etc.] ‘narcissus’, κυπάρισσος ‘cypress’ [Hom. +], βύσσος ‘flax’ [Emp.93]). This would imply that there was a Proto-Greek **lóukjio-* ‘white (part)’ whose reflex was at least orthographically aligned with such botanical terms. As for **lóukjio-* and its presumed adjectival base **loukǰó-*, it is entirely possible, as Nussbaum adds (loc. cit.), that this *i*-stem derivative, insofar as it meant ‘white’, underlies the family of the Arcadian toponym Λουσοί ‘Lusi’ (Arist.+; Λουῖσοι ‘id.’ [Call.+], τὰ Λουῖσα ‘region of Lusi’ [Hdn.]; cf. Lat. TN *Alba Longa*).²⁸

The general point is that there is room for morphologically and semantically motivated analogies responsible for geminate representation or even pronunciation of what should have been and possibly still was a singleton by sound law. This fact is especially evident in the case of the derivatives of √*áγχ-* ‘close, near’. As observed by Peters (1980: 288), the Arcadian and Elean superlative <ασιστα> ‘nearest’ (cf. ἄγγιστα [Hom.+]), attested in inscriptions where geminates are regularly written, must have been formed by appropriating the root allomorph of the comparative.²⁹ As this allomorph *ǎs-* (i.e. /a:s-/) was clearly generated by the assibilation and 2nd Compensatory Lengthening conditioned by the addition to *√*ank^h-* of the comparative suffix *-

²⁸ Λουῖσος (B.), Λούσιος (Polyb.+), Λουσεύς (Paus.), Λουσιάτης (Xen.+), Λουσιεύς (Is.+)

²⁹ Interestingly, the reformation of the superlative after the comparative is paralleled by the historical relationship between PDE *next*, the old superlative, and the more recent *nearest*, formed from *near*, the erstwhile comparative of the positive *nigh*.

iōs- (or **-iōn-*), what deserves explanation is not so much <ασιστα> itself, but the fact that the comparative is spelled with <σσ> (ἄσσον ‘nearer’ [Hom. +]). For (more eastern) Ionic, where of course **-k^(h).i-* > -σσ- is regular, the spelling ἄσσον is trivially explicable as the graphic or real adoption of gemination after other comparatives in -σσων (e.g. θάσσων [: ταχύς], ἐλάσσων [: ἐλαχύς], etc.).

When Proto-Greek **√ank^h-* formed its comparative in **-iōs-* (or **-iōn-*), the sequence was syllabified as an **an.k^h-iōs-* that developed to **an.s₂-os-*. According to Nussbaum (2013: 13–14), whose arguments are again reproduced, evidence for the allomorph **an.s₂-* (> ἄσ-) may be found in two Hesychian items whose preforms display divergent treatments of the 2nd Compensatory Lengthening. The first item is ἐπαίσιοι καθήκοντες, ἐπιβάλλοντες ‘present, proper, coming in due course’. At first glance, this lemma may be analyzed as a compound consisting of the prefix ἐπί, the suffix -ιο-, and the stem of αἴσα ‘lot, destiny’. While this analysis would at first be favored in light of verifiable compounds of αἴσα (e.g. ἐξαισίος ‘outside αἴσα, lawless’ [Hom. +], ἐναίσιος ‘seasonable, righteous, favorable’ [S.OC.1482, A.Fr.179], ἐναίσιμος ‘id.’ [Hom. +]), the other Hesychian lemma ἐπάσιοι, being glossed almost identically (καθήκοντες ‘becoming’), cannot be reconciled with this association. Given the semantic identity of ἐπαίσιοι and ἐπάσιοι, the best approach would therefore be to view the notion of proximity as the basis of the sense ‘present, proper’ and to reconstruct an **ep-áns₂-iō-* whose 2nd CL treatment would be ἐπάσιος in most dialects and ἐπαίσιος in dialects with a diphthongal reflex (e.g. Lesbian). Accordingly, since both items, due to their derivational background, were not predisposed to be analogically disturbed, there was nothing to prevent their etymologically appropriate singleton spelling.

Though the sequence that generated the allomorph **an.s2-* (> $\acute{\alpha}\sigma-$) did not of course contain the intervocalic **-k^(h)i-* of interest to us, the fact that the reflex of **an.k^h-ios-*, which must have had a single $-\sigma-$, came to be spelled with $\langle-\sigma\sigma-\rangle$ opens up the possibility that behind geminate spellings elsewhere in the lexicon lay real singletons. Yet for our immediate purposes one thing should be clear: when we do find a single intervocalic $\langle-\sigma-\rangle$, it is conceivable that **-k_i-* was its origin.

In light of **-k^(h)i-* > $-\sigma-$, we may now propose a morphosemantic scenario for our hypothetical **mīkijó-*. The basis of this scenario is of course the real evidence for **mīkjó-*, which we have predicted on the basis of the formal parallel of **mīkwó-*. It is now time to consider that parallel semantically. Whatever historical and derivational semantic relationship that this adjective had with **√mīk-* ‘small’ as concerns thematic derivation from a *u*-stem ultimately to this root, the **mīkwó-* derived from a *u*-stem is an adjective with the meaning ‘little, small’ (: $\mu\acute{\iota}\kappa\kappa\acute{\omicron}\varsigma$ ‘id.’). Correspondingly, the formally parallel *i*-stem derivative **mīkijó-* can be predicted to have had the same meaning. Once we acknowledge the soundness of this semantic prediction, we may further observe the typologically prevailing tendency for factitive verbs derived from adjectives with the meaning ‘little, small’ (*vel sim.*) to be used pejoratively. To begin with the Paradebeispiel, we may note the Hittite adjective *tēpu-* ‘little’ beside the factitive *tepnuzzi* ‘humiliates’. Famously, this factitive has an exact cognate in Vedic *dabhnóti* ‘deceives’ (cf. Av. *dabānu-* ‘id.’), beside which stands *dabhrá-* ‘slight’ (: **√d^heb^h-*; Pokorny 1959–1969: 240; Koch 1980; LIV²: 132–133; NIL: 85–86). For Greek itself, we may note $\mu\acute{\iota}\kappa\rho\acute{\omicron}\varsigma$ beside $\mu\acute{\iota}\kappa\rho\acute{\upsilon}\nu\omega$ ‘belittle’ (Demetr.*Eloc.*236) and $\sigma\mu\acute{\iota}\kappa\rho\acute{\upsilon}\nu\omega$ ‘think meanly of’ (App.*Mac.*9.3). Furthermore, $\mu\epsilon\acute{\iota}\omega\nu$, the comparative of $\mu\acute{\iota}\kappa\rho\acute{\omicron}\varsigma$, has beside it $\mu\epsilon\acute{\iota}\omega$ ‘lessen, diminish’, which may be used in the sense ‘lessen in honor, degrade, lessen by word, disparage’ (X.*HG*3.4.9, etc.). Though it is

sparsely attested, Latin forms from *parvus* ‘little, small’ a quasi *calēfaciō*-type factitive *parvi faciō* ‘make light of, despise, treat as of no importance’ (Paul. *ex Fest.*, etc.). Finally, despite the sufficiency of this catalogue, it would not be complete without mentioning NHG *klein* ‘little, small’ beside *verkleinern* ‘lessen, belittle’ and, of course, PDE *little* beside *belittle*.

There is an important current of figurative meaning in this already figurative factitive pattern. While the pejoration often manifests itself in meanings such as ‘humiliate, slight, deceive’, which, we should note, concern the causal agent’s external effect on the patient, we should also note how the figurative factitive sense drifts into the domain of the causal agent’s mental activity. This sense, for which we may use the term “estimative” in connection, for example, with ἐχθαίρω ‘hate, consider *x* an ἐχθρός’, may be exemplified by several verbs, varying in suffix, and expressing figurative factitive meaning. From ἄξιος ‘worth(y)’ (Hom.+), one would in principle expect an ἀξιόω (post-Hom.) with the meaning ‘make worthy, dignify’; instead, we find that it means ‘deem worthy’ almost exclusively. Similarly, μακαρίζω (Hom.+), does not mean ‘to make someone μακάριος or μάκαρ (‘blessed, happy’ [Hom.+])’, but ‘to pronounce or consider someone μάκαρ’ (cf. εὐδαίμων ‘blessed’ [Hes.+]: εὐδαιμονίζω ‘call or account happy’ [post-Hom.]). Finally, φιλέω (Hom.+) means not only ‘treat as (a) φίλος (Hom.+),’ which eventually manifests itself as osculation (Mod. Gk. φιλῶ ‘kiss’), but also ‘regard as (a) φίλος’, which constitutes the familiar meaning.

Though in synchronic terms φίλος and φιλέω may be considered parallel derivatives of √φιλ- ‘love, dear, etc.’, it is undeniable that φίλος is the historical base of φιλέω. Whatever the etymology of the former, the Proto-Greek preform of the latter may be unproblematically analyzed as a stem in **-je/o-* of the usual type that follows the *e*-grade of the thematic base’s suffix (i.e. **p^hilo-* : **p^hilé-je/o-*; cf. Ved. *kāma-* ‘love, desire’ : *kāmáyate* ‘loves’). Taking **p^hilo-*

beside **p^hilé-je/o-* as our formal and semantic guide, we may hypothesize that **mīkḗ-* ‘little, small (person/thing)’ was the base of a factitive **mīkḗ-je/o-* whose literal meaning was eventually overshadowed by the pejorative semantics noted above. Insofar as this **mīkḗ-je/o-* ‘belittle’ (cf. ‘treat as (a) φίλος’) meant ‘think little of’ (cf. ‘regard as (a) φίλος’), it no doubt could be used in the sense ‘disdain’, from which the path to ‘despise’ and even ‘detest’ or ‘abhor’ is trivial. This last stage, more or less captured by ‘hate’, would thus be expressed by μῖσέω (Hom.+), the precise reflex of **mīkḗ-je/o-*.

As the reflex of a denominal to a thematic derivative of an *i*-stem to a root from which, historically, a *u*-stem is also formed, μῖσέω provides yet more evidence of the intimacy and parallelism of *i*-stems, *u*-stems, and, in particular, their simple thematic derivatives. Whatever the Pre-Proto-Greek origin of **√mīk-*, μῖκός, on the one hand, provides evidence of a simple thematic **mīkwó-* to a *u*-stem derived from this root, and, on the other, μῖσέω provides evidence, albeit indirect, of a structurally identical **mīkḗ-* derived from an *i*-stem. The particular parallelism of **mīkwó-* and **mīkḗ-* to καλός and κάλλος respectively should put into focus not only our immediate and by now straightforward task of choosing between **kálnos-* and **kálḗios-* as the substantival counterpart to **kálwó-*, but should also enable us to nail down once and for all the derivational history of the *s*-stem.

That history can be determined in light of the analysis assignable to the above-mentioned στεῖνος ‘narrowness’, πᾶρος ‘weakness’, and μάκρος ‘length’, which are derived respectively from στεινός, **πᾶρός* (i.e. πηρός), and μακρός. As these *s*-stems are all patent derivatives of thematic adjectives, it is extremely probable that **kálḗios-* reflects an *s*-stem derived from a thematic adjectival derivative of an *i*-stem. Since *i*-stems and their derivatives appear time and

again in the very same systems that form *u*-stems and their derivatives, it would be perverse to deny that κάλλος reflects a **kállios*- of this de-thematic origin.

As a matter of fact, the derivational history here hypothesized for κάλλος would have at least one parallel in Greek: the *s*-stem ἄλλος '(sacred) grove, precinct'. Though, at first glance, the medial –σ– may be traced back to a variety of sources (e.g. **-t^(h)(j, w)-*, **-k^(h)j-*, etc.), the likelihood of **-tj-* being the ancestral sequence becomes apparent when one considers the formal, semantic, and contextual affinity of Ἄλτις 'sacred precinct of Zeus at Olympia'. The toponym notably occurs in Pindar (*O.*10.45–6), who, using both terms synonymously, recounts Hercules' founding of the Olympic site: σταθμᾶτο ζάθεον ἄλλος πατρὶ μεγίστω, περὶ δὲ πάξαις Ἄλτιν μὲν ὄγ' ἐν καθαρῷ διέκρινε "he measured out the sacred precinct for his father most mighty; having fenced round the Altis he separated it in clear space". Since the referential identity of ζάθεον ἄλλος and Ἄλτιν is supported by Pausanias' assertion (5.10.1) that Ἄλτις is the local term for τὸ ἄλλος τὸ ἱερόν, all that need be done is to relate the two formally. In this respect, Pokorny (1959–1969: 26–27), Frisk (1960–1973: 79), and Chantraine (2009: 63) agree that ἄλλος goes back to an **áltios*- which the last of these etymologists calls "combinaison d' ailleurs bizarre" (i.e. **ált-yos*). The bizarrerie appreciably subsides when we consider the possibility that the *i*-stem substantive **álti*- 'grove' provided the base for a thematic adjective from which was formed an *s*-stem substantive **áltios*- of basically the same meaning as its base's base (cf., e.g., PDE *hope* : *hopefulness*). Though this chain involves a missing link, that is, we must postulate an adjective **áltiós*- 'grove-related', it is safe to say that the advantage of systemically paralleled derivation from a single stem generally outweighs the embarrassment imposed by the absence of specific evidence.

Fortunately, when we turn to the question of the base from which **kǎlios-* was formed, our investigation is on firmer ground both in terms of the systemic patterns we have observed and the specific evidence that can be brought to bear. Specifically, close and constant observation of those patterns has enabled us to predict the reflex of a basic adjective **kǎlió-* derivationally parallel and semantically identical to **kǎlwó-* (cf. again **mīkwó-* ‘little, small’ and **mīkǎiό-* ‘id.’). Accordingly, our target would be any evidence for a simple thematic adjective bearing the allomorph *καλλ-*.

That evidence may arise from an adverbial form derived from the thematic adjective in question. As is well known, the usual Homeric adverbial formation corresponding to *kǎlός* is not *kǎlōς*, which occurs but once (β 63), but the neuter accusative singular or plural (i.e. *kǎlόν* : *kǎlά*; cf. *ἴσον/ἴσα* ‘equally’ [: *ἴσος* ‘equal’], *πυκνόν/πυκνά* [: *πυκνός*], etc.). Even as adverbial forms in *-ως* proliferated in everyday language, this archaic adverbial use of what is apparently the neuter accusative remained of course the norm or at least an option for certain high frequency adjectives (e.g. *μέγα* ‘greatly’, *πολύ/πολλά* ‘a lot’, etc.). Given the cultural importance and frequent occurrence of *καλ-* ‘beautiful’, the continued use of *καλόν* and *καλά* is unsurprising (cf. Mod. Gk. *καλά* ‘well’). It is in light of and together with this widespread and enduring archaism that we should interpret the apparent adverb *καλλά* (Alcm.98), which LSJ identifies as Doric for *καλά*. The accentuation given by this lexicon, which follows the edition of Theodor Bergk (1882: 66), is contradicted by the edition of Denys Page (1962), who reads *κάλλα* *μελισδομέναι* ‘being beautifully put to melody’ (Fragment 35). This accentual indeterminacy is a consequence of and of consequence to historical morphology insofar as the accent determines the formal adverbial class to which *<καλλα>* would belong. As Schulze (1892: 82) and Wackernagel (1916: 87–88) argue, a barytone *κάλλα* is justifiable because it may be classified with adverbs

like *τάχα, πύκα*, etc., which notably participate in Caland systems. However, the fact that $\sqrt{\text{καλ-}}$ has such a system does not decisively favor what is in effect a reconstruction which would eventually appear in Page's edition, but is implicitly contradicted by Apollonius Dyscolus (*Adv.*155.10):

ὀξύνεται καὶ τὰ ἐν ὁμοφωνίᾳ οὐδετέρων πληθυντικῶν. παρὰ τὸ πυκνός πληθυντικῆ προφορὰ γίνεται οὐδετέρα πυκνά, ᾧ σύνεστι πάλιν ὁμόφωνον ἐπίρρημα τὸ πυκνά. οὕτως ἔχει καὶ τὸ δεξιά καὶ ἀριστερά, σημαίνοντα τὸ δεξιῶς καὶ ἀριστερῶς. τοιοῦτόν ἐστι καὶ τὸ καλά (ὃ δι' ἑνὸς μὲν λ γράφεται κατὰ τὸ κοινὸν ἔθος, **παρὰ Δωριεῦσι δὲ δι' ἑτέρου λ**, καὶ οὐχ, ὡς ἔνιοι ὑπέλαβον, κατ' Αἰολίδα διάλεκτον· **ἐβαρύνετο γὰρ ἄν**, πρὸς οἷς οὐδὲ τὸ καλός Αἰολεῖς ἐν διπλασιασμῷ τοῦ λ προφέρονται).³⁰

“Also oxytone are the adverbs homophonous with neuter plurals. From *πυκνός* the neuter plural expression is *πυκνά*, with which again the adverb *πυκνά* is homophonous. So it holds in the case of *δεξιά* and *ἀριστερά*, which signify *δεξιῶς* and *ἀριστερῶς*. Such is also the case for *καλά*, which is written with one *λ* by common custom, **but among the Dorians with another *λ***, and not, as some have supposed, in the Aeolic dialect; **for it would be barytone**, in addition to which the Aeolians do not pronounce *καλός* with a doubling of the *λ*.”

Since the oxytony of Doric *καλλά* is guaranteed by the comment that the form would be barytone if it were Aeolic (*ἐβαρύνετο γὰρ ἄν*), Wackernagel (*loc. cit.*) is forced to claim that Apollonius is reporting a form whose accent has been analogically inserted after *καλός* or *πολλά*, principally because “wir haben keine Sicherheit” that the form was not the barytone he alleges. Rather, we do have certainty that the form was indeed oxytone, at least in the mind of an individual alive in the 2nd century A.D. for whom Ancient Greek was both a native language and an area of research.

If we take the ancient grammarian's observation seriously, the *καλλά* he actually describes and attributes to Doric would be difficult to derive by analogy to the *s*-stem substantive. While, as we have seen, *κάλλος* is systemically central beside *καλός* and formally

³⁰ Text of Schneider (1878: 119–210).

imitable, it is not entirely credible that speakers would appeal to that Calandish *s*-stem to access the allomorph *καλλ-* only to accent the alleged Calandish adverb in *-α* as an oxytone; one would indeed expect a barytone (cf. *τάχα* ‘swiftly, soon’ [Hom.+] : *τάχος* ‘speed’ [Hom. +], *κάρτα* ‘very much’ [Hippon.16+] : *κάρτος* [Hom.+], etc.). Alternatively, this manifestly oxytone *καλλά* could in principle be considered a secondary creation arising from the generalization of the allomorph *καλλ-* and the retention or spread of the oxytony of *καλά*. It is plausibly the case that, like *καλά* itself, there was an entire thematic adjectival declension of which the adverb *καλλά* was a specialized inflected form. Though there is no direct evidence of such an adjective (i.e. **καλλός*), even on Greek-internal grounds one would expect its existence. The question is how credible it is that it would be generated in this manner within Greek. As we have extensively discussed, the whole system, at least in Attic, revolves around the *καλ-* : *καλλ-* allomorphy. While the former allomorph frequently appears in but one formation, that of the simple positive adjective, that formation is so common and its root allomorph so systemically entrenched that it would be implausible that speakers of, e.g., (the language ancestral to) Laconian would simply replace it. Indeed, to the extent that non-Doric evidence is justly adducible, the general tendency is for the allomorph *καλ-* to expand its domain, as its vehicle, the stem of the simple positive adjective, encroaches on the territory of the old compositive (e.g. *καλλίφυλλος* ‘with beautiful petals’ [Anacreont.42.3] : *καλόφυλλος* ‘with beautiful leaves’ [Thphr.HP.5.3.2]).

The synchronic and systemic peculiarity of a simple positive thematic adjective bearing the allomorph *καλλ-* leaves us with an effectively inescapable course of explanation for the **καλλός* that the evidence demands: inheritance. In other words, *καλλά* would be the reflex of the accusative neuter plural of the **καλιό-* we have predicted as the base of the **καλιος-* ancestral to *κάλλος*. The scenario would be simple. At the foundation of the adjective : substantive pair

**kəlwó-* : **kəl̥ios-* would be an inherited pair of homosemous adjectives, **kəlwó-* : **kəl̥iό-*, both of which had currency in the Proto-Greek speech community. While the entire community, as far as we know, happened to employ a substantival *s*-stem uniformly derived from **kəl̥iό-*, it is apparent that the basic adjective itself was retained in the more marginal Laconian (*vel sim.*), but lost in Attic-Ionic (etc.), where it was supplanted by its coeval twin **kəlwó-*. If, as seems necessary, this scenario is basically correct, it would necessitate a reconsideration of our “synchronic formulation” originally designed to account for the allomorphic distribution. Though it is indeed conceivable that speakers synchronically accessed the *καλλ-* allomorph used in the comparative, superlative, etc. by means of the systemically central, high frequency *s*-stem substantive, it is not impossible that, in Proto-Greek and its immediate descendants, **kəl̥iό-* or its reflex was identifiable as the base not only of what would become *κάλλος*, but also of any derivative whose formation required the replacement of the thematic vowel.

For our present purposes, one thing seems undeniable: Proto-Greek inherited two semantically identical adjectives **kəlwó-* and **kəl̥iό-*, from the latter of which happened to be formed the system’s substantive **kəl̥ios-*. As **kəlwó-* and **kəl̥iό-* are systemic primitives from the Greek standpoint, any account of the causes for which the preform of **√kəl-* came to express ‘beautiful’ must address the origin of the Proto-Greek suffixes **-wó-* and **-iό-* by means of comparative evidence and the theoretical methods developed on the basis of that evidence. Based on the largely Greek-internal argumentation thus far employed, we have reason to suppose that **-wó-* and **-iό-* reflect simple thematic derivatives of a *u*-stem and an *i*-stem substantive respectively (i.e. **-u-ό-* : **-i-ό-*). To determine the source of these Pre-Proto-Greek substantives, we must investigate not only the derivational history of *u*-stems and *i*-stems, but also how that history follows from our understanding of Proto-Indo-European nominal formations and the

derivational semantic categories that give rise to them. Accordingly, we shall in the following Chapters attempt to lay out a formal and semantic framework within which we can interpret the comparative evidence as well as the reconstructions required for the articulation and evaluation of the root etymology.

CHAPTER 4

PROTO-INDO-EUROPEAN STARTING POINTS

Discovery of the Proto-Indo-European root underlying $*\sqrt{k\acute{a}l-}$ involves a matching of what is original from the Greek standpoint to what is original from that of PIE. Just as we arrive at the original $*\sqrt{k\acute{a}l-}$ via its primary nominal derivatives, we must tie our search for the PIE root to an examination of certain kinds of primary nominal derivatives in PIE itself. That examination is guided by a certain implication arising from the hypothesis that the primary derivatives of $*\sqrt{k\acute{a}l-}$, $*k\acute{a}lw\acute{o}-$ and $*k\acute{a}lj\acute{o}-$, reflect thematic adnominal derivatives of substantives in $*-u-$ and $*-i-$ respectively. As will be fully discussed in Chapter 6, we have good reason to suppose that these suffixes form stems derived from thematic adnominals by replacement of the thematic vowel. Since, as is arguably the case for $*k\acute{a}lw\acute{o}-$ and $*k\acute{a}lj\acute{o}-$ themselves, the suffixation of the thematic vowel to the stem of a substantive appears to result in an adjective, the adjectival thematic base of the u -stem and i -stem substantives from which the preforms of $*k\acute{a}lw\acute{o}-$ and $*k\acute{a}lj\acute{o}-$ are predicted to be derived would seem to be derived from a nominal formation so uncharacterized as to be almost coextensive with the PIE root. There are basically two kinds of primary PIE nominals that match this description: root nouns and root-accented radical o -grade thematics (i.e. $\tau\acute{o}\mu\omicron\varsigma$ -type nominals). Since a PIE root is necessarily an abstract product of analysis, the identification and evaluation of evidence for these primary formations will provide us with the concrete basis for assessing the ultimate input to a derivational semantic history resulting in a Greek root of Property Conceptual meaning.

In discussing roots that form Caland systems in Greek, we have had occasion to distinguish Property Conceptual roots with correspondingly dominant adjectives from roots that

form families with verbs at their center.³¹ In other words, the centrality of a derivative belonging to a particular lexical category is a syntactic and morphological expression of the semantic representation of a particular concept. Accordingly, we can speak of “adjectival” or “verbal” roots provided that we recognize that the roots themselves, which are neither adjectives nor verbs in any structural sense, bear these labels solely in reference to semantics (Nussbaum 2022: 205); an adjectival root denotes a property, and a verbal root denotes an action or state. While this conceptual distinction is essential for evaluating the semantic contribution and interaction of derivational morphemes with the roots in question, we should not lose sight of the larger point that the concepts and their representations as roots are functions that assign objects as arguments to sets. In principle, therefore, a given nominal derivative of a root may denote the function itself or one of its arguments.

One of Jochem Schindler’s many contributions to PIE nominal morphology was the formal classification of root nouns partly according to this semantic distinction (Schindler 1972). At the most archaic and ideal level reachable by internal reconstruction, there were two types. Root nouns that denoted the arguments of verbal roots were characterized by radical *o*-grade in the strong stem and radical *e*-grade in the weak. Since of course roots can have more than one argument, the same morphology may create an agent for one root (e.g. $\sqrt{b^h er}$ - ‘bear’ → $\sqrt{b^h or}$ - / $\sqrt{b^h er}$ - ‘bearer’ [: φώρ ‘thief’]), but a non-agent for another (e.g. \sqrt{dem} - ‘build’ → \sqrt{dom} - / \sqrt{dem} - ‘building, house’ : Arm. *tun* ‘house’ < $\sqrt{dóm}$ nom. sg. : δεσ-πότης ‘master of the house’ < gen. sg. $\sqrt{dém}$ -s ‘of the house’). In contrast, the other type of root noun, characterized by radical *e*-

³¹ There are of course roots that have substantives at their center (e.g. $\sqrt{ánθρωπ}$ - ‘man, human’ → $\sqrt{ánθρωπ}$ ‘a human being’).

grade in the strong stem and zero in the weak, could denote the function itself (i.e. a state or activity).

In Schindler’s formulation, when this ablaut pattern was applied to a verbal root, it produced a verbal abstract or *nomen actionis* (e.g. $*\sqrt{deh_3}$ - ‘give’ \rightarrow $*déh_3$ -/ dh_3 - ‘action of giving’ [: Ved. *dé* ‘to give’ < $*dh_3$ -*éj* ‘to/for giving’]). When, however, it was applied to what would now, according to Nussbaum (2022), be analyzed as a Property Conceptual or “adjectival” root, the product denoted a concrete entity characterized by the Property Concept. For example, from $*\sqrt{h_2ner}$ -, which Schindler considers a “verbe d’état” and accordingly glosses as ‘être fort’, was derived $*h_2nér$ -/ h_2nr - ‘man’ (> ἀνερ-/άνδρ-, etc.), whose basic meaning, according to Schindler, was ‘celui qui est fort par nature’. In other words, the same formal process that creates *nomina actionis* (i.e. verbal abstracts) for verbal roots apparently in the case of adjectival roots nominalizes the argument (i.e. ‘strong one/one who is strong/one who has strength’), rather than, apparently, the function (i.e. adjectival abstract ‘strength’).

The question why the application of this ablaut pattern to adjectival roots in particular produces a noun that may be used to refer to an argument is just as important as what has become of the adjectival abstract we expect. In light of Alan Nussbaum’s more recent research (op. cit.), there is in fact evidence that the *e*/zero root noun to $*\sqrt{h_2ner}$ -, for example, was interpretable as an abstract. Though as a simplex $*h_2nér$ -/ h_2nr - ‘ is universally reflected with the meaning ‘man’, which derives from its reference to the argument (‘strong one’), the *bahuvrīhi* ἀγῆνωρ ‘manly, arrogant’ (Hom.+), whose FCM is ἀγα- ‘great’ (: μέγα ‘id.’, cf. ἄγᾱν ‘too much’ [Attic]) and whose SCM at least appears related to ἀνερ-/άνδρ- ‘man’, clearly does not mean ‘having (a) great man/men’ or ‘making men great’ (cf. κῦδιάνειρα ‘making men glorious, whose men are glorious, in which men get glory’), but ‘having great *strength*’. Accordingly, if $*h_2nér$ -

/h₂ŋr- could mean ‘strength, vigor, etc.’ as an adjectival abstract just as we expect, the question is, as posed above, why it meant ‘strong, vigorous one’ as well.

As observed by Nussbaum (*op. cit.*), we are dealing with an asymmetry. While verbal roots are nominalized with two separate formations corresponding to arguments (: *o/e*) and functions (: *e/zero*), the *e/zero* formation to adjectival roots apparently results in a meaning with two, especially distinct senses: (1) adjectival abstract (function) and (2) concrete entity characterized by abstract property (argument). The most reasonable inference would be that this latter sense, which Nussbaum (*p.c.*) identifies as that of an “exemplar”, is somehow an expression of a derivational semantic property of adjectival roots.

Though this semantic property will be properly considered in Chapter 6, we should observe here that the unit of nominalizing meaning realized by the *e/zero* ablaut creates a stem that can be used substantivally or as an adjective. For example, while ἀνὴρ and its relatives point to the substantival use of **h₂nér-/h₂ŋr-* ‘strong one’, Avestan *bərəz-*, the reflex of the same formation to **√b^herg^h-* ‘high’, appears to be used as an adjective ‘high’ (Nussbaum 2022: 217), in addition to its use as a feminine substantive *bərəz-* ‘height’ (cf. OIr. f. *brí* ‘hill’). What might be inferred is that it is usage that assigns one nominal to the syntactic category substantive and another to the category adjective. Moreover, as Avestan *bərəz-* shows, assignment to one category does not preclude its use in the other. Such variability would accord with the supposition that the substantival and adjectival syntactic subcategories could not be completely distinguished by the morphology of the proto-language.

The semantic properties of the roots themselves appear to shape the usage that determines membership in one syntactic category or the other. While *e/zero* root nouns to “verbal” roots appear to be entirely substantival, it is evident that, when the same formation was made from

“adjectival” roots, the resulting root noun could be used as an adjective. In other words, Property Conceptuality directly enables the adjectival use of a primary derivative that could otherwise be used as a substantive of concrete, argument-designating or abstract, function-designating sense.

The basic semantic mechanics realized by the *e*/zero morph are also at work in the other primary formation of relevance to us: τόμος nouns. Despite the familiarity of this type, we would do well to begin with what all τόμος nominals formally have in common: barytony, radical *o*-grade, and a simple thematic suffix. Beyond this formal description, τόμος nominals in functional terms are generally recognized as substantives, either verbal abstracts or concrete verbal nouns, which belonged to the common and eventually masculine gender. Though this is an adequate description of τόμος nominals derived from “verbal” roots (e.g. **b^hór-o-* ‘(act of) bearing’ [φόρος ‘tribute’ : φέρω ‘bear’]), those derived from “adjectival” roots are evidently characterized by the same syntactic bifurcation as de-“adjectival” *e*/zero root nouns (Nussbaum 2022; p.c.). For example, from **√g^helh₃-* ‘green, yellow’ (: χλωρός ‘greenish-yellow, pale green’ [Hom.+]), **√leuk-* ‘bright, clear’ (: λευκός ‘light, bright, clear, white’ [Hom.+]), and **√h₁reud^h-* ‘red’ (: ἐρυθρός ‘id.’ [Hom.+]), all of which indubitably denoted Property Concepts and formed Caland systems in the proto-language, were derived the τόμος nominals **g^hólh₃-o-*, **lóuk-o-*, and **h₁róud^h-o-*. While the first two are clearly reflected by substantives (χόλος ‘gall, bile; anger, wrath’ [Hom.+] < *‘that which is greenish-yellow’; Ved. *róka-* ‘light’, OE *lēah* ‘meadow’, Lith. *laũkas* ‘field’ < *‘that which is clear, clearing’), the last was likely used as an adjective in light of Proto-Germanic **rauda-* and its relatives (Goth. *raups* ‘red’, OE *rēad* ‘id.’, etc., cf. OIr. *rúad* ‘id.’, Lith. *raũdas* ‘reddish-brown’, SCr. *rûd* ‘reddish’, etc., Kroonen 2013: 406).

Though none of these data assures a barytone **h₁róud^h-o-*, there is an internal reason for supposing that it was indeed barytone. As will be properly discussed in Chapter 5, τόμος

nominals occasionally stand beside not only radical *o*-grade oxytones (e.g. θεός ‘swift’ [Hom.+], δορός ‘leather bag’ [Hom.], etc.), the so-called τομός-type (τομός ‘cutting, sharp’ [Pl.+]), but also radical *e*-grade thematic adjectives (Nussbaum 2017). In the case of $*\sqrt{g^h}elh_3-$ and $*\sqrt{leuk}-$ themselves, there is evidence for $*g^helh_3-ó-$ (> OIr. *gel* ‘shining’) and, of course, $*leuk-ó-$ (> λευκός). Similarly, there is evidence of a $*h_1reud^h-ó-$ in Proto-Germanic $*reuda-$ (OE *rēod* ‘red’, ON *rjóðr* ‘ruddy’, Kroonen 2013: 409). Given the parallelism particularly of the accentually verifiable $*leuk-ó-$ ‘clear’ beside $*lóuk-o-$ ‘clearing’ (> OE *lēah*), the pair composed of $*reuda-$ and $*rauda-$ strongly points to an earlier $*h_1reud^h-ó-$: $*h_1róud^h-o-$, both of which, for reasons to be discussed later on, were used as adjectives with the meaning ‘red’.

If, as seems likely, Proto-Germanic $*rauda-$ and its relatives require the reconstruction of an adjectivally employed $*h_1róud^h-o-$ of the τόμος-type, this kind of adjective was not alone. In light of its famous Caland system in PIE itself (Av. *xrū-ra-* ‘bloody’ : *xruu-i-dru-* ‘with bloody club’), $*\sqrt{kreuh_2}-$ ‘bloody’ appears to have been the base of a $*króuh_2-o-$ ‘id.’ (> PGmc. $*\chi rawa-$ ‘raw’ > OE *hrēaw* ‘id.’, OHG *hrō* ‘id.’, etc.) whose barytony would be supported by the reasoning above. Despite the apparent absence of direct evidence for $*kreuh_2-ó-$,³² there does seem to be evidence of what may be its derivative. In light of ON *hrár* ‘raw’, Dutch *rauw* ‘id.’, and MHG *rā* ‘id.’ < OHG *rao* (cf. MHG *rō* ‘id.’ < OHG *hrō* < PGmc. $*\chi rawa-$), which point to a Proto-Germanic $*\chi rēwa-$ (NIL: 444), it may be possible to reconstruct a $*krēuh_2-ó-$ provisionally interpretable as a lengthened grade derivative of the $*kreuh_2-ó-$ that was generally supplanted as the by-form of $*króuh_2-o-$.³³

³² It is not impossible that OE *hrēow* ‘raw’ (*Ex* 12⁹), an apparent variant of *hrēaw* ‘id.’, partly reflects this preform.

³³ For discussion of lengthened-grade derivatives of adjectives, see Nussbaum 2009 as well as Chapter 7 of this thesis.

While the evidence for **h₁ródh^h-o-* and **kródh₂-o-* is system-internal, the following evidence of adjectivally employed τόμος-nominals is direct. Again, the Germanic languages provide evidence of two homophonous adjectives: **faiχa-* ‘hostile’ and **faiχa-* ‘colorful’ (Kroonen 2013: 123). Despite semantic indeterminacies regarding the history of both items and the possibility of their relation to each other, it is probable that **faiχa-* ‘hostile’ (> OE *fāh* ‘hostile, criminal’, Old Frisian *fāch* ‘guilty, outlawed’, etc.), the complete formal match of Old Irish *oech* m. ‘enemy’, shares its root with Vedic *písuna-* adj./m. ‘back-biting, slanderous, traitor, etc.’ (Pokorny 1959–1969: 795). Given the *-una-* of this latter item (cf. Ved. *árjuna-* ‘white, bright’ : θάρσυνος ‘bold’ [Hom.]), it is conceivable that the proto-language already had a Caland system developed around a **√peǵk-* from which was formed a possibly primary adjectivally employable **pódik-o-* whose reflexes roughly mean ‘inimical’.

In light of the meaning of *písuna-* ‘back-biting, malevolent’, it is also conceivable that there is some connection to πικρός ‘pointed, sharp, bitter’ (Hom.+), when we consider the latter’s use in the metonymy BITTER FOR HOSTILE (cf. PDE *bitter enemy*). There is general agreement (Frisk 1960–1973: 535–536, Chantraine 2009: 868, Beekes 2010: 1190) that πικρός is a derivative ultimately of **√peǵk-* ‘cut in/out, hew, carve’ (LIV²: 465–466).³⁴ Since that which cuts is often pointed or sharp, the form and meaning of a πικρός derivable from an adjective **pík-ró-* ‘cutting, sharp’ are unproblematic (cf. OE *biter* ‘sharp, cutting’ < **b^hid-ró-* : **b^heǵd-* ‘split’ [: Goth. *beitan* ‘bite’, etc.]). Since cutting is a potentially harmful act occasionally arising from enmity or malevolence, it is possible that the conceptual association generated a separate root **√peǵk-* from which was derived **pódik-o-* ‘inimical’ (*vel sim.*). Yet admittedly, even if

³⁴ For discussion of a radical *e*-grade oxytone derivative ultimately of **√peǵk-* ‘cut’, see Ginevra 2019.

**poǵk-o-* ‘inimical’ is related, however distantly, but traceably in conceptual terms, to the well-represented **√peǵk-* ‘cut in/out, hew, carve’, there is no guarantee that it really is a τόμος-nominal in light of clearly secondary derivatives with radical *o*-grade (e.g. Goth. *baitrs* ‘bitter’ < **b^hoid-ro-* ‘cutting’ : **b^hid-ró-* ‘id.’).³⁵

While the relation of **poǵk-o-* ‘inimical’ to **√peǵk-* ‘cut in/out, etc.’ is uncertain both generally and in derivational specifics, what is certain is the relation of **faiχa-* ‘colorful, variegated’ to this root (Pokorny 1959–1969: 794–795). Still, it is worth considering, or rather deconstructing, why this connection makes sense. When the surface of an object is cut, the way in which light waves interact with that surface is changed. Since grooves created by incision tend to trap light and generally reflect it differently from the unaffected parts of the surface, the incised areas, often appearing darker or generally different, will almost necessarily cause variegation. This reasoning is implicitly at the basis of the incontrovertible assignment of ποικίλος ‘varicolored, etc.’ (Hom.+), for instance, to **√peǵk-* ‘cut in/out, etc.’. The apparently problematic difference between ποικίλος and **faiχa-* ‘colorful’ is that, while the former would conceivably have a secondary derivational history to motivate the aesthetic meaning, the primary appearance of the latter suggests that this meaning was already a feature of the root in PIE. Again, the only conceivable alternative to this last supposition would be that the **poǵk-o-* reflected by **faiχa-* ‘colorful’ is itself a secondary derivative with radical *o*-grade.³⁶

³⁵ In particular, **poǵk-o-* ‘inimical’ may be an adjectival derivative of an adjective **poǵk-ó-* ‘cutting, biting’ produced via accent-retraction (v. Chapter 6), or, more likely, back-formed on the basis of a **peǵk-ó-* (πεικόν· πικρόν) and on the model of pairs like **h₁reud^h-ó-* ‘red’ : **h₁róud^h-o-* ‘red’ (Nussbaum p.c.). As for Gothic *baitrs*, it may, as suggested by Nussbaum (p.c.), reflect a **b^hoid-ro-* produced via conflation of the adjective in **-ró-* with a simple oxytone one with *o*-grade of the root.

³⁶ Given that the adjective **poǵk-o-* ‘colorful’ appears to be a τόμος-nominal to a verbal root, it is possible that it was back-formed on the basis of an adjectival derivative and on the model of pairs like **h₁reud^h-ó-* : **h₁róud^h-o-* as above (Nussbaum p.c.). Alternatively (also Nussbaum

Certain derivatives of $*\sqrt{peik}$ - ‘cut, carve’ did indeed have some Property Conceptual value in the proto-language. An interesting example of this fact may be found through comparison of two historically homomorphous primary derivatives. As mentioned above, $\pi\kappa\rho\acute{o}\varsigma$ means ‘bitter’ because its basic meaning is ‘sharp’ – a Property Conceptual sense presumably derived from an agent-oriented interpretation of $*pik\acute{-}r\acute{o}$ - ‘cutting’. The peculiarity is that this very preform would underlie OCS $p\grave{b}str\grave{b}$ ‘motley’. If, as is highly probable, $\pi\kappa\rho\acute{o}\varsigma$ and $p\grave{b}str\grave{b}$ are both from $*\sqrt{peik}$ - ‘cut, carve’, one would have to assume that the latter reflects a patient/theme-oriented interpretation. If, accordingly, $*pik\acute{-}r\acute{o}$ - could also mean ‘cut, carved’, the realization of the Property Concept VARIEGATED accessed by the above-mentioned reasoning would be completely straightforward.

As has been recognized basically since the days of Caland’s “Law”, the syntactic slot “primary adjective” is most conspicuously filled by adjectives in $*-r\acute{o}$ - (e.g. YAv. *tiyra-* ‘sharp’, $\kappa\bar{\upsilon}\delta\rho\acute{o}\varsigma$, etc.). Though these Calandish adjectives undoubtedly have a further possibly inscrutable history that makes them secondary at some level, no one would deny their primary status at some stage of the proto-language itself. Accordingly, if, on the one hand, we consider, for example, the famous $*h_1rud^h-r\acute{o}$ - ‘red’ (> $\acute{\epsilon}\rho\upsilon\theta\rho\acute{o}\varsigma$, Lat. *ruber*, etc.) alongside the adnominal, arguably $\tau\acute{o}\mu\omicron\varsigma$ -type $*h_1r\acute{o}ud^h-o-$ ‘id.’ (> Goth. *raups*, OE *rēad*, etc.), it would be quite appealing to interpret $*pik\acute{-}r\acute{o}$ - ‘varicolored’ and $*p\acute{o}ik\acute{-}o-$ ‘id.’ as primary derivatives generated by the same principle. In other words, the status of $*p\acute{o}ik\acute{-}o-$ as an adnominal $\tau\acute{o}\mu\omicron\varsigma$ -noun follows from the supposition

p.c.), $*p\acute{o}ik\acute{-}o-$ ‘colorful’ may be an adjectival derivative of an adjective $*p\acute{o}ik\acute{-}\acute{o}$ - ‘variegated’ (Av. *paēsa-* ‘aussätzig’) produced via accent-retraction (v. Chapter 6).

that the $*\sqrt{peik}$ - that forms verbs with the meaning ‘cut, carve, etc.’³⁷ came to have some Property Conceptual sense already in PIE.

If there is a moral to this story, it is that the emergence of lexical semantic avenues of access to Property Concepts can be traced to particular derivatives of what are generally recognized as “verbal” roots in the proto-language. The key is to identify the diathetic and generally semantic/pragmatic paths along which the minds of language-users are guided to new means of access to Property Concepts. Since there is no guarantee that our Proto-Greek $*\sqrt{k\acute{a}l}$ - ultimately reflects a PIE root already endowed with Property Conceptual meaning, we need to be open to the possibility that a primordially non-PC or “verbal” root produced a PC-interpretable derivative, such as $*pik-ró$ - ‘variegated’ (< ‘carved’), on the basis of which developed a new “adjectival” root with its own system of derivatives whose archaic morphological behavior guarantees the inheritance of the root from PIE.

At the same time, we must keep in mind what is possible phonologically, morphologically, and semantically in restrictive terms. Based on our reconstruction of the morph $*\sqrt{k\acute{a}l}$ - and the sequence of segments that constitutes it, we would require either a $*k_l-$ or a $*k_l-$, which are conceivably the zero-grades of a $*\sqrt{kel}$ - and $*\sqrt{k\acute{e}l}$ - respectively. Based on an examination of the entries in Pokorny 1959–1969, where many roots later identified as laryngeal-final can be excluded with reference to LIV² and NIL, we may list $*\sqrt{kel}$ - ‘stechen’ (p. 545), $*\sqrt{kel}$ - ‘treiben’ (p. 548), $*\sqrt{kel}$ - ‘Becher’ (p. 550–551), $*\sqrt{k\acute{e}l}$ - ‘warm’ (p. 551–552), $*\sqrt{k\acute{e}l}$ -

³⁷ The meaning ‘paint’ evident in Tocharian B *piñkem* (TA *pikiñc*) ‘they paint’ may be considered an outgrowth of the general meaning ‘variegate’ ((anti-)causative), which itself originates from ‘carve, hew’. Since the focus is on how an object’s surface is changed aesthetically, ‘painting’, which is of course additive, is an accessible target of a metonymy whose original source was the subtractive ‘carve, hew’.

‘neigen’ (p. 552), *√*kel*- ‘dünner Schaft, Pfeil, steifer Halm’ (p. 552–553), 890 *√*kel*- ‘bergen, verhüllen’ (p. 553–554), *√*(s)kel*- ‘krumm’ (p. 928), and, most eye-catchingly, *√*kel*- ‘in den Worten für helle und dunkle Flecken, graue und schwärzliche Farbentöne’ (p. 547–548).

Since *√*kal*- ‘hart’ (p. 523–524) is semantically, morphologically, and possibly phonologically unworkable and since, as we have discussed in Chapter 1, the *√*kal*- ‘schön, gesund’ (p. 524) has been created to explain, rather than explains, *καλός*, it would be reasonable to suppose that the root is somewhere among those listed above. *√*kel*- ‘stechen’, *√*kel*- ‘treiben’, *√*kel*- ‘Becher’, *√*kel*- ‘warm’, *√*kel*- ‘neigen’, *√*kel*- ‘dünner Schaft, Pfeil, steifer Halm’, and *√*(s)kel*- ‘krumm’ can be excluded straightaway on semantic grounds. For all of these roots, some of which are Property Conceptual and others not, it is difficult to imagine a scenario in which any derivative would have a PC interpretation at all or a PC interpretation on the basis of which would develop a new “adjectival” root with the positive aesthetic and evaluative meaning reflected in Greek. We are thus left with *√*kel*- ‘bergen, verhüllen’ and *√*kel*- ‘in den Worten...’.

This color-related *√*kel*- ‘a kind of dark/light spot’ (Pokorny 1959–1969: 547–548) merits serious attention because it would be, after all, not only Property Conceptual but of a perceptual or phenomenal meaning adjacent to potentially positive evaluative aesthetics. There are, however, serious problems with the forms and meanings of the data adduced to reconstruct this root. The overarching problem with the entry is the root allomorphy that Pokorny assumes or rather has to assume to encompass all of the data. The Sanskrit material, beyond the usual phonological indeterminacies (i.e. *k* < **k/kʷ*, *l* < **l/r*, *r* < **l/r*), is semantically various and of questionable affinity (*kalañka*- m. ‘stain, spot’, *kalana*- n. ‘id.’ *kaluṣa*- ‘turbid, foul, muddy, dirty’, *kalmaṣa*- ‘spot’, *kalmāṣa*- ‘variegated’, *karka*- ‘white’, m. ‘mould’, *karkī vaśā* ‘white

cow’, *karkā* ‘white mare’, *kalkā-* m. ‘excrement, filth’, *cāṣa-* m. ‘blue jay’). Assuming that these Sanskrit forms all belong to $*\sqrt{kel}$ - ‘a kind of dark/light spot’, we would then have to assume that all but *cāṣa-* m. ‘blue jay’ reflect an allomorph of $*\sqrt{kel}$ - other than $*kel$ - itself. One would then have to say that the root allomorph was $*kol$ - in some cases or $*kal$ -. The theoretical suitability of $*kol$ - is of course the basis for selecting it, and yet the only certain evidence of *o*-grade, on the assumption that the following datum is relevant at all, is *κόλυμβος* ‘grebe’ (Ar.Ach.876) and its derivatives. Pokorny’s association of *κόλυμβος* ‘grebe’ with Latin *columba* ‘dove’ and of both with *κελαινός* ‘black, dark’ (Hom.+) is attractive semantically, given the tendency to name birds after their dark hue (cf. *πέλεια* ‘dove’ : Lat. *palumbēs* ‘wood-pigeon’ [de Vaan 2008: 442]).

The trouble arises when one tries to reconcile $*kel$ -/ $*kol$ - with evidence for phonemic **a*. Under a second form of the putative root, namely $kāl$ - : $kəl$ - “mit unklarem Verhältnis zu *kel*-”, we find in Greek the items *κηλίς*, *κηλῖδος* (Dor. *κᾱλίς*) ‘stain, spot, defilement’ (A.Eu.787+), *κηλήνη*· *μέλαινα* (Hsch.), and *κηλάς*· *νεφέλη* ἄνυδρος καὶ χειμερινή ἡμέρα· καὶ αἴζ, ἥτις κατὰ τὸ μέτωπον σημεῖον ἔχει τυλοειδές (Hsch.). If these are related to each other and, on semantic grounds, to *κελαινός* in particular, one might suggest that the $*kāl$ - that these allegedly reflect is the lengthened grade of the $*kal$ - that may be reflected in the above-mentioned Sanskrit items, in Old Irish *caile* ‘spot’, and in Lithuanian *kalýbas* ‘white-necked’. Most importantly, one would be forced to posit a root with an admittedly highly unusual allomorphy (i.e. $*kel$ - : $*kol$ - : $*kal$ - : $*kāl$ -, etc.). This awkwardness can be exemplified in no better fashion than to juxtapose Latin *cālīgō* ‘darkness’ and *κελαινός* itself. While the semantic match is impeccable, the morphological discrepancy is profoundly problematic.

At this point, it is unclear whether the data of the entry can be plausibly redistributed under roots whose forms and meanings are more than the products of mere guesswork. If at least

some of the data in the entry are related to Proto-Greek $*\sqrt{k\alpha l}$ - ‘beautiful’, the only conceivable semantic pathway, and that unmoored from morphological considerations, is to view the “root” or a group of its derivatives as bearers of the meaning ‘variegated’. The basic notion, like the conceivably ameliorative semantic range of ποικίλος ‘many-colored’, would be that the putative $*kal\mu\acute{o}$ - or $*k\mu\acute{o}$ - ancestral to καλός expressed the sense ‘visually stimulating’. Beyond its vagueness, this claim is objectionable both semantically and morphologically, again under the highly questionable assumption that the data of the entry belong to the same root. In light of our hypothesis that the preform of καλός goes back to $*k\alpha l-w\acute{o}$ - whose ancestor reflects a thematic adjective derived from a *u*-stem substantive, one could interpret the forms with post-radical *-u-* or *-w-* as evidence of the *u*-stem base of the $*-u\acute{o}$ - stem adjective ancestral to $*k\alpha l-w\acute{o}$ -. When, however, we actually look at such material, nothing in semantic terms is encouraging (e.g. MHG *hilwe* ‘feiner Nebel’), and much is discouraging (e.g. *kaluša*- ‘black, dirty’). Though Greek has arguably inherited an originally color-related ornithonym κόλυμβος ‘grebe’ (< $*kolumb^ho$ - ‘darkling’), the discouragement arises from the implausibility that the meaning of καλός can be explained from the meaning ‘dark’. As mentioned above, ‘variegated’ is in principle conceivable, but the forms that actually bear reflexes of $*-u-$ or $*-\mu-$ do not display that meaning. In sum, since we are profoundly and variously in the dark phonologically, morphologically, and semantically with respect to $*\sqrt{kel}$ - ‘in den Worten...’, this “root”, such as it is, should definitely not be pursued in a hypothesis for the etymology of καλός.

Having eliminated other possibilities, we are thus left solely with $*\sqrt{kel}$ - ‘bergen, verhüllen’. This root is obviously “verbal”, as evident from a selection of its verbal and nominal derivatives. To begin with the verbal material, we may note that at some stage of the proto-language existed a radical *e*-grade simple thematic present of the same general profile as $*b^h\acute{e}r$ -

e/o- ‘bring, carry’. As displayed in LIV²: 322–323, this **kél-e/o-* is reconstructed on the basis of Latin *oc-culō, -ere* ‘cover up’, Old Irish *-ceil* ‘hides, conceals’ (absolute *ceilid*), Middle Welsh *kel* ‘id.’, and OE *helan* ‘conceal, hide, cover’ (cf. [Kroonen 2013: 218] Old Frisian *hela* ‘id.’, OS *helan* ‘id.’ Middle Dutch *helen* ‘to hide, fence’, OHG *helan* ‘hide, conceal’, NHG *hehlen* ‘conceal’ [cf. NHG *Hehler* ‘fence’]). Despite the seemingly European distribution of this present, it is probably attributable to Proto-Inner-Indo-European and may be described as the central or dominant primary verbal formation. While the LIV² (loc. cit.) reconstructs a root aorist **kél-/kǵ-*, the evidence adduced, the Old Irish *t*-preterite *-celt* and Gothic *hulundi* ‘cave’ as the allegedly erstwhile participle, is insufficient to establish such a reconstruction. What is on firmer ground, for Germanic at least, is a **-ǵe/o-* present built to the zero-grade (Goth. *huljan* ‘veil, cover’, NHG *hüllen* ‘wrap, cover’). The LIV²’s note that this present, which may be back-projected as **kǵ-ǵe/o-*, could be denominal is intriguing but difficult to investigate. While there is in principle a chance that the stem **kǵ-ǵe/o-* is ultimately derived from a root noun, nothing hinges on this speculation. What is overarchingly clear is the fact that the simple thematic present is relatively ancient and central to the system. What this in turn reveals about the lexical aspect of the “verbal” root is unclear, but, given the absence of clear evidence for a primary aorist formation, we may assume that the root was atelic.

Regarding the lexical semantics accessible through the truly verbal evidence for the meaning of the “verbal” root, a word should probably be said about the sense ‘conceal’ or ‘hide’ with which this root is often associated. When one performs the action denoted by these glosses, it is in general reasonable to assume that the agent desires to prevent a possible experiencer from perceiving something. Though it is of course difficult to investigate what may be termed “conceptual derivationality”, it is undeniable that the possibility of an experiencer makes the

concept denoted by ‘conceal’ more complex than that denoted by ‘cover’. Accordingly, it may be appealing to suggest that the basic spatial operation denoted by COVER, which involves *potentially* obscurative superimposition or circumposition, is in fact basic to the concept denoted by ‘conceal’. In other words, CONCEAL would be the hyponym of COVER and as such should be peeled away to investigate $*\sqrt{k}el-$ ‘cover’ and its derivatives on the basis of a more primitive spatial concept.

An equally predisposed outgrowth of COVER is of course PROTECT. The derivation is characterized by the conception that the patient/theme of the basic function is the beneficiary of the derived function. In the case of CONCEAL, there is the implication of an experiencer, but in the case of PROTECT exists the implication that the beneficiary is potentially the patient of another function whose operation cannot reach its endpoint because of the interposition inherent in COVER. The most notable nominal derivative of $*\sqrt{k}el-$ to exemplify this metonymy is the proterokinetic *men*-stem $*kél-m\eta$ ‘covering, protection’ reflected by Vedic *sárman-* ‘protection’. Beside this stem there is evidence of a descriptive *mo*-stem in Germanic (Goth. *hilms* [m.] ‘helmet’, ON *hjalmr* [m.] ‘id.’, OE *helm* [m.] ‘id.’, etc.), Baltic (Lith. *šálmas* [m.] ‘id.’ < $*kol-mo-$), and Anatolian (CLuv. *zalma-* ‘shield, protection’, Melchert 1988: 243). What is beyond doubt is that this $*kél-mo-$ and its apparent relative $*kél-m\eta$ belonged to PIE itself, where the respective senses of ‘protective object’ and ‘protection’ were already available.

At the same time, we should emphasize that a given derivative’s instantiation of a particular kind of metonymic outgrowth from COVER does not mean that this outgrowth was anything more than a sense, however dominant, of the etymological derivative’s full meaning. When we encounter a $*\sqrt{k}el$ -related term that exists either in the domain of CONCEAL or

PROTECT and is attributable to the proto-language, we should assume that at some point the derived nature of one or the other domain was still perceptible.

A case can be made that a particular Vedic substantive of protective meaning reflects a primary derivative of * $\sqrt{k}el-$ ‘cover’. The item of interest is *āśāraiṣin-* ‘seeking shelter’, which appears in the *Atharvaveda* (P 5.7.3; AVŚ 4.15.6):

*abhi kranda stanayaārdyodadhim
bhūmiṃ parjanya payasā sam aṅdhi
tvayā varṣaṃ bahulam etu sṛṣṭam
āśāraiṣī kṛśagur etuv astam*

“Roar on, thunder, shake the water-reservoir. Anoint the earth, O Parjanya, with milk. Let abundant rain go, released by you. Let him of lean cattle go home, **seeking refuge**.”³⁸

This item is clearly a possessive compound consisting of *-eṣ-in-* ‘seeking’ (cf. RV *eṣá-* m. ‘wish’) and what appears to be a thematic *āśāra-* m. ‘shelter’, beside which Mayrhofer (1986–2001 II: 620) lists an additional compound *upāśāra-* m. of the same sense in the *Kāṭhaka-Gṛhyasūtra*. In her collection and discussion of Indo-Iranian reflexes of τόμος/τομός-nominals potentially subject to Brugmann’s Law, Tucker (2012: 249) lists *āśāra-* as a member of the productive category of radical *-ā-* oxytone verbal nouns based on compound verbs (e.g. *sambhārá-* m. ‘bringing together, preparation’). While Tucker’s assignment of *āśāra-* to this productive class, involving as it does the assumption of an oxytone *āśārā-*, is plausible, it should be noted that the productivity of the category does not necessarily imply that the individual item *āśārā-* was formed recently. Though Pāṇini’s listing of a present stem *śala-* ‘cover’ in the *Dhātupāṭha* supports the Indo-Iranian inheritance of * $\sqrt{k}él-e/o-$, the marginality of its reflex

³⁸ Text and translation of Lubotsky (2002).

suggests that *āsārā-*, like other nominal derivatives of $*\sqrt{k}el-$ in this branch (Ved. *saraṇá-* ‘protective’, n. ‘protection’, *śárman-* n. ‘id.’), is a relic.

To be sure, it is unclear when the compound reflected by *āsārā-* was itself formed. Descriptively, the compound bears the same preverb *ā-* as found in *āhavá-* m. ‘challenge’ (: *ā hū-* ‘call upon’; cf. *āsādā-* m. ‘seat’, *āsrāvá-* m. ‘flux’, etc.). It is unclear when and how exactly this oxytone compound type that corresponds to finite verbs with preverbs or particles developed. There are two facts that need to be considered before dealing with matters of reconstruction. First, while the reflexes of *τόμος/τομός-* nominals, including compounds, are as a type productive in Indo-Iranian, finite verbal derivatives of the root reflecting $*\sqrt{k}el-$ are marginal in Indic, though in Modern Iranian they have survived (v. Cheung 2007: 335). Under the assumption that *āsārā-* is simply a creation of Indo-Aryan, one would then have to assume that Indo-Aryan inherited the reflex of $*\acute{k}él-e/o-$, formed the ancestor of *āsārā-*, and then all but lost the finite verb. Accordingly, the evidential potency of this first fact, the productivity of the *τόμος/τομός-* type in this branch, is, in support of recent formation, somewhat neutralized.

The second fact that needs to be considered is that the root syllable does of course display what may be aligned with the outcome of Brugmann’s Law. While this does not necessarily mean that *āsārā-* absolutely reflects a radical *o*-grade thematic nominal that existed in Pre-Proto-Indo-Iranian, the near loss of the simple thematic verb from the Indic root $\sqrt{s}al-$ (or $\sqrt{s}ar-$) again argues against the assumption that *āsārā-* is a relatively recent formation of Indic.

Since the genesis of *āsārā-* cannot be easily explained in solely Indic terms, one might reasonably entertain the possibility that the ancestor of *āsārā-* was a creation of Proto-Indo-Iranian, since Iranian also has a class of non-agentive verbal nouns or *nomina actionis* corresponding to finite verbs used with particles (v. Tucker op. cit.: 242–247: with *R(-a-)*, YAv.

aipiiaia- m. ‘undertaking’ [: √*i-* ‘go’], *avakana-* m. ‘grave’ [: √*kan-* ‘dig’], *pairi.kara-* m. ‘furrow’ : [: √*karⁱ-* ‘plough’], OP *patikara-* m. ‘representation, image’ [: √*kar-* ‘make’], YAv. *paiti.vaṅha-* m. ‘item of clothing’ [: √*vah-* ‘wear’]; with *R(-ā-)*, *paitiāra-* m. ‘adversity’ [: √*ar-* ‘move’], *aiβigāma-* m. ‘year, winter’ [: √*gam-* ‘come’], *apayžāra-* m. ‘outlet’ [: √*γžār-* ‘flow’], *vītāra-* m. ‘crossing’ [: √*tarⁱ-* ‘overcome, go over’] *pairi.frāsa-* m. ‘questioning around’ [: √*fras-* ‘ask’], *fravāka-* n. ‘speech, proclamation’ [: √*vac-* ‘speak’], *vīvāpa-* m. ‘destruction’ [: √*vap-* ‘lay waste’], *pairi.vāra-* m. ‘protection around’, *fravāra-* m. ‘protection in front’, *vī.vāra-* n. ‘covering on all sides (with rain)’ [: *var-* ‘cover’], *frauuāza-* m. ‘conveyance forward’ [: *vaz-* ‘convey’]).

One aspect one might notice is a feature also present in the corresponding Indic class, namely, the occasional appearance of short *-a-* of the root in forms that “should” reflect Brugmann’s Law (e.g. Ved. *samsravá-* m. ‘confluence’ vs. *āsrāvá-* m. ‘flux’). The fact that, for example, the root allomorph in Old Persian *patikara-* m. ‘representation, image’ bears a short *-a-* preceded by *-k-* suggests that this particular compound is no older than Proto-Indo-Iranian. In contrast, the *-ā-* of *āśārá-* not only displays the Brugmann’s Law outcome in typical terms but may also be justifiably attributed to the actual application of the Law.

What is morphologically necessary for such an attribution is recognition of the possibility that compound verbal nouns consisting of preverbs and simple thematic nominals with *o*-grade of the root already existed in the language ancestral not only to Indo-Iranian but to Greek, etc. as well (e.g. εἴσοδος f. ‘entrance’ : OCS *вѣходъ* ‘id’). Though it is no doubt recently formed, περίπλοος m. ‘circumnavigation’ (Hdt. etc.), for example, points to the representation of compound verbs (e.g. περιπλέω ‘sail around’ [Hdt. etc.]) with radical *o*-grade simple thematic SCMs. The point is where the pattern had its start. In the case of περίπλοος, we can easily

assume that speakers simply employed the τόμος-noun πλόος (Hom.+) as an SCM to represent πλέω (Hom.+). In the case of *āśārā-*, we have no way of knowing whether the SCM was a τόμος-type noun or a τομός-type. What can probably be doubted is the possibility that the ancestor of *āśārā-* was created without even the prior existence of a noun belonging to one of those types. Nothing other than its appearance in the *Atharvaveda* suggests that *āśārā-* is recently formed. The question, then, is what we are entitled to reconstruct on the basis of *āśārā-*. As it happens, since there is no solid or direct evidence in Indic or Iranian for a simplex, there is no guarantee that such a simplex existed in Proto-Indo-Iranian. However, what *āśārā-* does enable us to do is to make a prediction. Given that this compound verbal noun *type* must of course have originated with the use of radical *o*-grade simple thematic SCMs and given that there are but two widely recognized nominal types that meet that description, it is a distinct possibility that there was a radical *o*-grade simple thematic nominal made from **√kel-* ‘cover’ in the proto-language. Accordingly, we may propose as predictive reconstructions a τόμος-type **kól-o-* and a τομός-type **kól-ó-*. The initial purpose of the following chapter will be not only to assess the evidence for these two reconstructions, but to investigate the morphosemantic nature and derivational consequences of the relationship between the two reconstructed *types* instantiated by the pair that we have hypothesized.

CHAPTER 5

POSSESSIVE DERIVATION

We partly began the last chapter by operating under the assumption that root-accented radical *o*-grade thematics or τόμος-type nominals were as a type primary in the proto-language. We would do well to examine the evidence justifying this approach. In his treatment of the relationship between the τόμος-type and the τομός-type, Nussbaum (2017: 237) observes that the latter type is absent from some branches, that the type is rarer than the τόμος-type in branches where both occur, and that the type never outnumbered the τόμος-type in any branch. Taken together, these facts, while they point to the PIE status of the τομός-type, suggest that the PIE τόμος-type is derivationally more ancient. According to Nussbaum, this status may be taken to mean that the τόμος-formation was actually root-based at least at some stage of the proto-language. Under this analysis, as well as that of Nussbaum 2022, the τόμος-type is derivationally and semantically equivalent to, and possibly coeval with, the *e*/zero root-nouns, which, as discussed in the last Chapter, serve to nominalize the radical functions, resulting in verbal abstracts or concretized verbal nouns if the root is “verbal”, and in adjectival abstracts, exemplars, or even adjectives if the root is “adjectival”. The parallel semantic behavior of τόμος-nominals becomes clearer through a selection based on Nussbaum 2017 (: 234–236):

Anatolian (Hittite):

ḫarga- ‘destruction’ : $\sqrt{ḫark}$ ‘perish’, *parša-* ‘crumb’ : $\sqrt{parš-}$ ‘crumble, break’, *šarra-* ‘portion’ : $\sqrt{šarr-}$ ‘split, separate’, *warša-* ‘mist, steam’ < **h₂uórs-o-* (cf. Ved. *várṣati* ‘rains’), etc.

Indo-Aryan (Vedic):

Ved. *áma-* ‘violence’, *kálpa-* ‘ordinance’, *kṣáya-* ‘dwelling’, *jána-* ‘creature, person’, *bhága-* ‘portion’, *róka-* ‘light’, *vája-* ‘contest, prize’, *śáka-* ‘power’, *stáva-* ‘praise’, etc.

Iranian (Avestan):

aēša- ‘quest’ (: √*iš-* ‘seek’), *gaiia-* ‘life’ (: √*jī-* ‘live’), *jaiia-* ‘victory’ (: √*ji-* ‘win’), *mada-* ‘inebriate exhilaration’ (: √*mad-* ‘drunken’), *marəka-/ mahrka-* ‘destruction’ (: √*marc-* ‘destroy’), *rəna-* n. ‘battle’, *raoda-* ‘corporeality’ (: √*urud-* ‘grow’), *sauua-* ‘benefit’ (: √*sū-* ‘swell’), *zauua-* ‘invocation’ (: √*zū-* ‘call’), *zaoša-* ‘pleasure’ (: √*zuš-* ‘take pleasure’), etc.

Hellenic:

βόλος ‘throw with a casting-net’ (Hdt. +) (: βάλλω ‘throw’), βρόμος ‘rumbling’ (Hom. +) (: βρέμω ‘roar’), γόμος ‘cargo’ (Hdt.) (: γέμω ‘be laden’), γόμφος ‘bolt’ (Hom. +), γόνος ‘offspring’ (Hom. +) (: γίγνομαι ‘be born’), γόος ‘weeping’ (Hom. +), δόλος ‘trick’ (Hom. +), δόμος ‘house’ (Hom. +) (: δέμω ‘build’), δρόμος ‘course’ (Hom. +) (: ἔδραμον ‘ran’), θρόος ‘noise’ (Hom. +) (: θρέομαι ‘cry, shriek’), κόρος ‘satiety, insolence’ (Hom. +) (: κορέννυμι ‘sate’), λόγος ‘account, speech’ (Hom. +) (: λέγω ‘gather, account’), λόχος ‘lying in wait, ambush’ (Hom. +) (: λέχομαι ‘lie’), μόγος ‘toil’ (Hom. +), μόμφος ‘blame, reproof’ (E.Fr.633, IG5(2).262.34) (: μέφομαι ‘blame, reprove’), μόθος ‘battle-din’ (Hom. +), μόρος ‘lot, share’ (Hom. +) (: μείρομαι ‘receive portion’), νόμος ‘usage, custom’ (Hes. +) (: νέμω ‘distribute’), ὄγκος ‘barb of an arrow’ (Hom. +) (cf. ἀγκυλῖς ‘hook, barb’ [Opp.C.1.155] : Ved. *āñcati* ‘bends’), ὄγκος ‘bulk, size, mass’ (Hom. +) (: ἦνεγκον ‘carried’), οἶκος ‘house, home’ (Hom. +) (: Ved. *visāti* ‘goes into, settles upon’), ὄρκος ‘oath’ (Hom. +), ὄροφος ‘thatching, roof’ (Hom. +) (: ἐρέφω ‘cover with roof’), ὄχος ‘carriage, wheel’ (Hom. +) (: φέχω ‘carry’), ὄχος ‘holding’ (i.e. ὄχοι ‘roadsteads for ships, harbors’ ε 404) (: ἔχω ‘hold’), πλόος ‘sailing’ (Hdt. +) (: πλέω ‘sail’), πόθος ‘longing’ (Hom. +) (: θέσασθαι ‘pray for’), πόκος ‘fleece’ (Hom. +) (: πέκω ‘comb, shear’), πόλος ‘axis’ (post-Hom.) (: πέλομαι ‘werden’), πόνος ‘toil, trouble’ (Hom. +) (: πένομαι ‘toil’), πόρος ‘ford, passage’ (Hom. +), ρόθος ‘rushing’ (Hom. +) (: ἐρέθω ‘incite’), ρόος

‘stream’ (Hom. +) (: ῥέω ‘flow’), σπόρος ‘sowing’ (post-Hom.) (: σπείρω ‘sow’), στοῖχος ‘row, course’ (post-Hom.) (: στείχω ‘walk, march’), στόλος ‘equipment’ (post-Hom.) (: στέλλω ‘equip’), στόνος ‘groaning’ (Hom. +) (: στένω ‘sigh, groan’), στρόφος ‘twisted band, cord’ (Hom. +) (: στρέφω ‘turn, twist’), τοῖχος ‘wall of a house’ (cf. Ved. *dehī-* ‘embankment, dam, wall’ : *dégdhi* ‘smears’), τόκος ‘childbirth, offspring’ (Hom. +) (: τίκτω ‘beget’), τόμος ‘slice, section’ (post-Hom.) (: τέμνω ‘cut’), τόνος ‘tension’ (post-Hom.) (: τείνω ‘stretch’), τρόμος ‘trembling’ (Hom. +) (: τρέμω ‘tremble’), τρόπος ‘turn, way’ (post-Hom.) (: τρέπω ‘turn’), τρόχος ‘course’ (post-Hom.) (: τρέχω ‘run’), φθόγγος ‘clear noise, voice’ (Hom. +) (: φθέγγομαι ‘utter’), φθόνος ‘ill-will, envy’ (post-Hom.), φθόρος ‘destruction, ruin’ (post-Hom.) (: φθείρω ‘destroy’), φόβος ‘flight, fear’ (Hom. +) (: φέβομαι ‘flee’), φόρος ‘tribute’ (post-Hom.) (: φέρω ‘bear, bring’), χόλος ‘gall, bile; anger, wrath’ (Hom. +) (: χλωρός ‘greenish-yellow’), χρώμος · ψόφος ποιός (Hsch.), ψόγος ‘blame, fault’ (post-Hom.) (: ψέγω ‘blame, censure’)

Italic (Latin):

domus ‘house, home’ (: **√dem-* ‘build’), *iocus* ‘joke’ (: OHG *jehan* ‘say, speak’), *lūcus* ‘grove’, *lūdus* ‘game, sport, play’ (< **lóǵd-o-* : λίζει · παίζει ‘plays’ [Hsch.]), *modus* ‘a measure’ (: Goth. *mitan* ‘measure’), *pondus, ponderis* n. (cf. specifying abl. *pondō* ‘by weight’) ‘weight’ (: *pendere* ‘hang, weigh’), *sonus* ‘sound’ (: *sonere* ‘make noise’), etc.

Germanic:

**bauga-* ‘ring’ (ON *baugr*, OE *bēag*, etc.) (: Goth. *biugan* ‘bend’ etc.), **dranka-* ‘a drink’ (OHG *trank*, etc.) (: Goth. *drigkan* ‘drink’, etc.), **lauχα-* ‘open country’ (OE *lēah* ‘lea, meadow’, etc.), **raḡa-* (n.) ‘wheel’ (OHG *rad*, etc.), **snaiwa-* ‘snow’ (Goth. *snaiws*, ON *snær*, OE *snāw*, etc.) : **snéǵ^{wh}e/o-* (OHG *sniwit*, Gk. *νείφει* ‘snows’). Adjectives: **faiχα-* ‘variegated’ (OE *fāh* ‘colored’, OS *fēh* ‘colorful’, OHG *fēh* ‘id.’), **faiχα-* ‘hostile’ (OE *fāh* ‘hostile, criminal’ [: *fāg*

‘id.’], OFri. *fāch* ‘guilty, outlawed’, OHG *gifēh* ‘id.’), **rauda-* ‘red’ (Goth. *rauþs*, OE *rēad*, etc.), **χrawa-* ‘raw’ (OE *hrēaw* ‘id.’, OHG *hrō* ‘id.’), possibly *stara-* ‘stiff’ (MDu. *star* ‘id.’, MHG *star* ‘id.’), **wanχa-* ‘bent, crooked’ < **uónk-o-* (OE *wōh* ‘bent, bad’, Goth. *unwahs* ‘blameless’; cf. Ved. *vāñcati* ‘wavers, staggers’)

Armenian:

gorc ‘work, deed’ (< **uórg-o-* [: *gorcem* ‘work, make’ < **uórg-éje/o-*]), *loys*, *lusoy* ‘light’ (subst.) < **lóuko-* (cf. Lith. *laũkas* ‘open land’, OE *léah* ‘id.’, etc.)

Celtic (Irish):

MIr. *gor* ‘heat, inflammation’ (< **g^wóro-*), *folc* ‘flood’ (< **uólko-*; cf. OHG *welh* ‘wet’ < **welha-* < **uélko-*)

Tocharian:

B *kene* / A *kaṃ* ‘melody’ < **kón-o-* (cf. L. *canere* ‘sing’, etc.), B *kele* ‘navel’ (via ‘hub’) < **k^wólh₁-o-* (: *πόλος* ‘axis’), B *werke* / A *wark* ‘the hunt’ possibly < **uórgō-* (: Arm. *gorc* ‘work, deed’; Myc. *to-ko-so-wo-ko* [*tokso-uorgos*] ‘weaponsmith’), B *skeye* / A *ske* ‘effort’, etc.

Slavic:

SCr. *gòj*, *gòja* ‘peace’ < **g^wóih₃-o-* (cf. Ved. *gáya-* ‘abode’), OCS *gromъ* ‘thunder’ : SCr. (dial.) *grôm*, gen. sg. *gròma*, etc. < **g^hrómo-* (cf. *χρόμος* · *ψόφος ποιός* [Hsch.]), OCS *kronъ* ‘covering, roof’ : SCr. *kròv*, *kròva*, etc. (: *kryjò*, *kryti* ‘cover’) < **króuh_x-o-* ‘heap(ing)’, OCS *vozъ* ‘cart’ : SCr. *vòz*, *vòza*, etc. (: *vezò*, *vesti* ‘convey’) < **uógh^h-o-* (cf. Gk. *ὄχος* ‘id.’)

Baltic (Lithuanian):

bādas (accent class 2 [beside 4]) ‘hunger’ (: *bedù*, *bèsti* ‘jab’) < **b^hód^hh₁-o-* (cf. Lat. *fodiō*, *-ere* ‘dig’), *brādas* (2 [beside 4]) ‘fishing, fishery’ (: *brendù*, *brìsti* ‘wade’) < **b^hród^h-o-* (cf. RuCS *brodъ*, SCr. *bròd*, *bròda* ‘ford’), *laũkas* (4, earlier 2 [Žem.]) ‘field’ < **lóuko-* (cf. Gmc. **lauχa-*

‘meadow’ > OE *lēah*, OHG *lōh*), *raūdas* ‘reddish-brown’ (cf. Goth. *rauþs* ‘red’, OE *rēad* ‘id.’, etc., cf. OIr. *rúad* ‘id.’, SCr. *rūd* ‘reddish’), *tānas* (2 [beside 4]) ‘swelling, tumor’ (: *tīnstu*, *tīnti* ‘swell’ < *‘stretch’) < **tóno-* (cf. Gk. *τόνος* ‘tension’), *vāšas* (2 [beside 4]) ‘hook’ < **uónk-o-* (cf. Av. *-uuašta-* ‘bent’ [< **-uṅk-to-*] in Av. *ni-uuaštakō.sruua-* ‘with bent horns’)

As discussed in the last Chapter and just above, if there is anything semantically predominant, rather than universal, in this morphological class, it is that it names the function of the root rather than one of its arguments. For “verbal” roots, this functional orientation results in verbal abstracts/*nomina actionis* (e.g. Hitt. *ḫarga-* ‘destruction’) and in what Nussbaum (2014c: 247; p.c.) has termed “instantials” or concrete instances of the abstract action (e.g. *sonus* ‘sound’). As Nussbaum (2017) observes, conspicuously absent or underrepresented are items that may be considered to bear the agentive meaning so frequent in the *τομός*-type. What we do find are items that designate something instrumental to or characteristic of the action (e.g. OCS *кронъ* ‘covering, roof’ : *kryti* ‘cover’). Where there is also overlap with the *τομός*-type, we can observe how the concrete use of the *τόμος*-nominal to “verbal” roots may in effect constitute a *nomen rei actae* (e.g. PGmc. **bauga-* ‘ring’ < *‘bent thing’ < *‘act(ion) of bending’, cf. *δορός* ‘leathern bag’ < *‘product of cutting’).

As also discussed in the last chapter, the usual semantic definition of the *τόμος*-nominals as either abstract or concrete substantives only secondarily expressive of participants (i.e. arguments) in the verbal notion does not capture the semantics of a variety of forms characterized by what appears to be the same radical *ó*-grade and suffixal *-o-*. As an initial example, **lóuk-o-* ‘clearing’ can only be tenuously understood as a verbal abstract or concrete verbal noun. Given that the root was adjectival in the proto-language, it is perhaps more suitable to assign to it an interpretation as an argument, i.e. ‘that which is clear’ (e.g., in a forested area).

Similarly, the **ǵ^hólh₃-o-* reflected by *χόλος* ‘anger’, formally identical to the *τόμος*-type and arguably identifiable as such, is obviously derived from a loud and clear adjectival **ǵ^helh₃-* ‘greenish-yellow’ (Nussbaum 2022: 221). In Greek, the sense ‘anger’ is derived from ‘bile’. Given the color of this substance, it is trivial to assume that **ǵ^hólh₃-o-* designated an argument: ‘that which is greenish-yellow’. On the other hand, there is also evidence that *τόμος*-nominals derived from adjectival roots could also name the function itself. For example, with its Property Conceptual meaning and resultant Calandish family, no one would deny that the function of Vedic **ǵ^hsak-* ‘able’ (: *śakrá-* ‘strong’ : *śaciṣṭha-* ‘strongest’ : *śácī-* f. ‘strength’) is nominalized as an adjectival abstract in *śáka-* m. ‘power’ (cf. Mlr. *gor* ‘heat’ < **g^{wh}ór-o-* ‘id.’). Despite this more familiar abstract value normally associated with the *τόμος*-type as a whole, we may observe a certain asymmetry between *τόμος*-type nominals to verbal roots and those made from adjectival roots. While theoretically the former are expected to express primarily functions (abstracts) rather than arguments (participants), the latter appear to have a much more pronounced dual capacity, namely as exemplars (*nomina argumenti*) and adjectival abstracts (*nomina functionis*).

Before returning to discuss the *τόμος*-type as a whole, we should again note that this dual capacity is nowhere more pronounced than in the use of *τόμος*-morphology to create what are syntactically adjectives rather than the substantives traditionally recognized as the type’s only syntactic expression (Nussbaum 2014b: 304). To be sure, the forms are mostly Germanic, where the barytony of the preform cannot always be ascertained. Nevertheless, the probable existence of actual adjectives of the same formal type *R(ó)S(-o-)* is striking:

**h₁róud^h-o-* ‘red’ (Goth. *raups* ‘red’, OE *rēad* ‘id.’, OIr. *rúad* ‘id.’, Lith. *raūdas* ‘reddish-brown’, SCr. *rūd* ‘reddish’)

**króuh₂-o-* ‘bloody’ (PGmc. **χrawa-* ‘raw’ > OE *hrēaw* ‘id.’, OHG *hrō* ‘id.’, etc.)

**pójk-o-* (PGmc. **faiχa-* ‘variegated’ (OE *fāh* ‘colored’, OS *fēh* ‘colorful’, OHG *fēh* ‘id.’)

**stór-o-* ‘stiff, rigid’ (MDu. *star* ‘id.’, MHG *star* ‘id.’; cf. TA *štare* ‘effort’)

uónk-o-* (wanχa-* ‘bent, crooked’ > OE *wōh* ‘bent, bad’, Goth. *unwahs* ‘blameless’; cf. Lith. *vãšas* ‘hook’ < **uónk-o-* ‘bent thing’, Skt. *vañka-* ‘bend of a river, crookedness’)

We have already discussed **h₁ród^h-o-* and **króuh₂-o-* as well as the system-internal reasons arguing for their barytony, namely their cooccurrence with radical *e*-grade oxytones (cf. **lóyk-o-* : **le₁uk-ó-*, Nussbaum 2017: 251). The accent is of course known for **faiχa-* ‘variegated’ and **wanχa-* ‘bent, crooked’, but there is something more profound semantically of which the accent is a mere formal expression. As discussed in the last Chapter, **faiχa-* is without doubt the reflex of a derivative of **√pe₁jk-* ‘cut, carve’. Despite the obviously “verbal” meaning of the root (e.g. OCS *pъsati* ‘write’ < *‘scratch, incise’), a notable feature of certain finite verbs associated with this root is their sense of adornment and aesthetic modification (Ved. *piṁśati* ‘haut aus, schneidet, bildet, schmückt’ : TB *pinkem* ‘sie malen, schreiben’). This sense stems from a refocusing on the resultant state of the object and the aesthetic implications of that newly imposed state. Viewed in these terms, the nasal infix present is interpretable as the means by which a Property Concept state is imposed. Accordingly, a language-user may easily infer that the root is itself Property Conceptual and thus potentially productive of primary adjectives like **pi₁k-ró-* and **pójk-o-* ‘variegated’ (< ‘hewn’).

Basically the same principle is at work in the case of **uónk-o-* ‘bent’. Insofar as the root **uenk-* meant ‘bend’ (Ved. *vāñcati* ‘wavers, staggers’), and given that the interpretation of the root involves an underlying state ‘bent’ and related PC notions like ‘crooked’, a primary adjective automatically becomes possible. While, on the one hand, we have reflexes of such an

adjective **uónk-o-* (OE *wōh* ‘bent, bad’, Goth. *unwahs* ‘blameless’; cf. Ved. *vakrá-* ‘crooked, curved, bent, tortuous, twisted, wry’), there is, on the other hand, evidence that the same formation could be used substantivally. Lithuanian *vãšas* ‘hook (for hanging things)’ in effect exemplifies, i.e., is an exemplar of, the property of being bent (i.e. **uónk-o-* ‘bent thing’). Though its accent is unknown, the same can be said for Sanskrit *van̄ka-* m. ‘bend of a river’, which may also bear the abstract meaning ‘crookedness’. The cooccurrence of adjective and abstract substantive in particular for the same root is also to be noted in **stór-o-* ‘stiff, rigid’. Again, the accent cannot be known from the Germanic reflexes (ON *starr* ‘stiff, rigid, hard’, etc.), but the existence of an abstract in Tocharian A *štare* ‘effort’ (cf. Russ. *starátʹsja* ‘exert oneself, strive’, Adams 2013: 700–701) supports the inference of a status parallel to the adjectival and substantival reflexes of **uónk-o-* ‘bent (entity)’, namely that, in the case of adjectival or effectively adjectival roots (e.g. **√peik-* *qua* ‘variegated’), the same morphology produces both adjectives and substantives that either exemplify the adjectival function or name the function itself. The derivational semantic reasons for this behavior will be discussed in the next Chapter.

At this point, before moving on to τoμός-nominals, we can recapitulate the theoretically established semantic territory of the class characterized by radical *o*-grade, barytony, and a simple thematic suffix. When the formation is applied to a verbal root, the nominalization of the root manifests itself as a verbal abstract or as a concrete verbal noun (e.g. instantial βόλος ‘a throw [with a casting-net]’). In the latter general value, one may observe the potential to denote arguments. With adjectival roots, we find some semantic parallelism but also conspicuous asymmetry. As with verbal roots, the application of *R(ó)S(-o-)* to adjectival roots results in abstracts, in this case, adjectival abstracts (e.g. Ved. *śáka-* ‘power’, Mlr. *gor* ‘heat’, etc.). Again

like the τόμος-derivatives of verbal roots, the de-“adjectival” type can of course be used concretely. The main difference from “verbal” τόμος-derivatives with respect to the concrete use is, however, the fact that the argument-denoting sense appears to be fundamental. To expand on a previous example, the fact that χόλος means ‘bile’ is directly attributable to the concrete use of its preform *ǵ^hólh₃-o- in reference to the argument *x* in the Property Concept function *√ǵ^hel_h-(*x*): ‘that which is ‘greenish-yellow’. What is fundamentally different from anything encountered in de-“verbal” τόμος-nominals is the ability of adjectival roots to form actual adjectives.

This feature finally brings us to τομός-nominals, whose tendency to serve as adjectives is by contrast entirely familiar (e.g. τομός ‘cutting, sharp’ [post-Hom.]). As is well known, the type is characterized by radical *o*-grade and an accented simple thematic suffix (*R(o)S(-ó-)*). Just as τόμος-nominals are traditionally described as *nomina actionis*, so are τομός-nominals described as *nomina agentis*. However, as one can gather from instances like δорός, this description does not of course tell the whole story. The type is notable for the variety of meanings both in terms of diathesis and syntactic category. This variety is on full display in the following selection based on Nussbaum 2017: 237–239:

Anatolian (Hittite):

maya- ‘young man’ < *‘grown up’ (: *māi* ‘grows, thrives’), *marša-* ‘false’ < *‘incorrect, confused’ (cf. Ved. *mṛśyate* ‘forgets’, Goth. *marzjan* ‘disturb’, etc.)

Indic:

ajā- ‘driver’ (: √*aj-* ‘drive’), *eṣá-* ‘hastening’ (: √*iṣ-* ‘impel’), *kartá-* ‘hole’ < *‘(what is) cut’ (: √*krt-* ‘cut’), *gāhā-* ‘depth’ (: √*gāh-* ‘plunge’), *grābhā-* ‘handful’ < *‘(what is) grasped’ (: √*grabhⁱ-* ‘seize’), *ghaná-* ‘killer, cudgel’ : ‘a slaying’ (: √*han-* ‘strike, kill’), *javá-* ‘quick motion’ (: √*javⁱ-* ‘hasten’), *tośá-* adj. ‘hastening’ (: √*tuś-* ‘drip, stream’), *tyāgá-* (n.) ‘renunciation’ (: √*tyaj-*

‘leave, abandon’), *nāyá-* ‘leader’ (: $\sqrt{nh̄}$ - ‘lead’), *nāv́á-* ‘a roaring’ (: $\sqrt{nav}^{(i)}$ - ‘cry, roar’), *bhāgá-* ‘portion’ < *‘(what is) distributed’ (: \sqrt{bhaj} - ‘share, divide’), *bādhá-* ‘oppression’ (: $\sqrt{bādh}$ - ‘oppress’), *bhāŕá-* ‘burden’ < *‘(what is) carried’ (: $\sqrt{bhṛ}$ - ‘bear’), *bhedá-* ‘sunderer’ vs. *bhedá-* ‘a split, fissure’ (: \sqrt{bhid} - ‘split’), *vāká-* ‘speech’ < *‘(what is) spoken’ (: \sqrt{vac} - ‘speak’), *vāh́á-* ‘draft animal’ (: \sqrt{vah} - ‘convey’), *yodh́á-* ‘warrior’ (: \sqrt{yudh} - ‘fight’), *sāká-* ‘able, powerful’ (: \sqrt{sak} -), *sarpá-* ‘snake’ (: \sqrt{syp} - ‘creep’), *sāh́á-* ‘superior’ (: \sqrt{sah} - ‘prevail’), *sād́á-* ‘seat, sitting’ (: \sqrt{sad} - ‘sit’), *spārh́á-* ‘desired, desirable’ (: \sqrt{sprh} - ‘be eager for’), *svāná-* ‘noisy’ : *svāná-* ‘noise’ (: \sqrt{svan}^i - ‘make noise, resound’), *svāŕá-* ‘a sound’ (: \sqrt{svar} - ‘make noise, resound’), *hvāŕá-* ‘snake’ (: \sqrt{hvar} - ‘go crooked’), etc.

Iranian (Avestan):

rāda- / *rāḍa-* ‘caretaker’ (: $\sqrt{rād}$ - ‘make ready’), *vaēda-* ‘accomplisher’ (: \sqrt{vid} - ‘find, know’), *vāza-* ‘draft animal’ (: \sqrt{vaz} - ‘convey’), *aēša-* ‘powerful’ (cf. Ved. *iṣiŕá-* ‘id.’), *snaθa-* ‘striking’ ($\sqrt{snaθ}$ - ‘strike’), *hāra-* ‘watching over’ (: \sqrt{har} - ‘attend to’), etc.

Greek:

ᾠοιδός ‘singer’ (Hom. +) (: ἀείδω ‘sing’), ἀρωγός ‘aiding (in battle), helper’ (Hom. +) (: ἀρήγω ‘aid, defend’), ἀμολγός ‘dead of night’ < *‘milking-time’ (: ἀμέλω ‘milk’), δοκός (f.) ‘bearing beam’ (Hom. +) (: δέκτο ‘received’), δορός ‘leather bag’ (Hom. +) (: δέρω ‘flay’), δροπά· δρεπτά ‘sliced off’ (Hsch.) (: δρέπω ‘pluck, cut’), θοός ‘swift, nimble’ (Hom. +) (: θέω ‘run’), θορός ‘semen’ (Hdt., etc.) (: θρώσκω ‘leap’), κοντός ‘pole’ (Hom. +) (: κεντέω ‘goad, strike’), λοιπός ‘left, remaining’ (post-Hom.) (: λείπω ‘leave’), λοπός ‘peel, outer layer’ (Hom. +) (cf. λόπος ‘a peeling’ : λέπω ‘strip off’), μοιχός ‘adulterer’ < *‘pisser’ (post-Hom.) (: ὀμείχω ‘piss’), νομός ‘grazing range, habitation, district’ (: νέμω ‘distribute’), ὀλκός ‘attractive; hauling engine; furrow’ (: ἔλκω ‘draw, drag’), ὀδός (cf. Ved. *sād́á-* ‘seat, sitting’, OCS *xodъ* ‘motion’), ῥοικός

‘bent’ (post-Hom.) (< **uroik-ó-*; cf. Av. *uruaēsa-* ‘a whirl’ [< **uróikō-*], *uruuisiieiti* ‘turns’ < **urik-je/o-*), σκοπός ‘spy, watcher; mark, target’ (Hom. +) (: σκέπτομαι ‘look at’), τομός ‘cutting, sharp’ (post-Hom.) (: τέμνω ‘cut’), τροπός ‘twisted thong (for an oar)’ (: τρέπω ‘turn, twist’), τροφός ‘feeder, rearer, nurse’ (Hom. +) (cf. τροφοί ἀντὶ τοῦ θρέμματα [Hsch.]) (: τρέφω ‘nourish’), τροχός ‘wheel’ (Hom. +) (: τρέχω ‘run’)

Italic (Latin):

coquus ‘cook’ (< **k^wok^w-ó-* [< **pok^w-ó-*] : *coquere* < **k^wek^we/o-* [< **pek^we/o-*]), *procus* ‘suitor’ (< **prok-ó-* : *poscere* ‘ask for’ < [**prk-ske/o-*]), *sulcus* ‘furrow’ (cf. ὄλκος ‘id.’), *rogus* ‘pyre’ < **h₃rog-ó-* ‘erected, heaped up’ (cf. *rogum* [n.] ‘pyre’ < **h₃rog-ó-* employed as neuter substantive; cf. ON *rakr* ‘upright’ < [**h₃rog-ó-*]), *uncus*, -a, -um ‘bent’ (< **h₂onk-ó-*; cf. *uncus* ‘hook, barb’ : ὄγκος ‘id.’ < **h₂ónk-o-* ‘a bend’).

Germanic:

**rada-* adj. ‘fast, easy’ (Goth. *raps* ‘easy’, OE *ræd* ‘fast’) < **h_xrot-ó-* ‘running’, **swana-* ‘swan’ (ON *svanr*, OE *swan*) < **suonh_x-ó-* ‘noisy’³⁹, **wraka-* ‘pursuer’ (Goth. *wraks* ‘persecutor’) : Goth. *wrikan* ‘pursue’, **blaka-* (OE *blæc*, OHG *blah-faro* ‘dark blue’) ‘black’ (< *‘burnt’) < **b^hlog-ó-* (cf. φλέγω ‘burn’, etc.), **raka-* (ON *rakr* ‘upright’) < **h₃rog-ó-* (: Goth. *rikan*, MHG *rechen* ‘pile up’), **baza-* (> OHG *bar* etc.) (cf. Lith. *bāsas* [4] ‘barefoot, bare’ [< **b^hosó-*]), **tama-* (Oic. *tamr*, OE *tam*, OHG *zam*) ‘tame’ < **domh₂-ó-* (or **damh₂-ó-* : Gk. δάμνημι ‘subdue’)

Armenian:

got ‘thief’ (: *gotem* ‘hide’)

³⁹ As Kroonen (2013: 496) astutely remarks, the Whooper Swan (*cygnus cygnus*) does have a distinctive honk. In particular, the distinction relates to the morphologically similar Mute Swan (*cygnus olor*).

Celtic (Old Irish):

mol (m.) ‘mill-wheel shaft’ (< **molh₂-ó-* ‘grinder’), *roth* (m.) ‘wheel’ (< **h_xrot-ó-* ‘runner’ [: OIr. *rethid* ‘runs’])

Slavic:

OCS *drugъ*, SCr. *drûg*, *drûga*, Russ. *drug*, *drûga* ‘companion’ (< **d^hroug^hó-*; cf. OE *drēogan* ‘perform [service], etc.’, Go. *driugan* ‘perform [military] service’), OCS *tokъ* ‘stream’ (: *tekъ*, *tešti* ‘run, flow’)

Baltic (Lithuanian):

Lith. *draũgas* (arch. and dial. 4) ‘friend’ (: OCS *drugъ*), *gãnas* (4) ‘herdsman’ < **g^{wh}on-ó-* ‘beater’ (>> Ved. *ghaná-* ‘cudgel’), *vãdas* (4) ‘leader’ (: *vedù*, *vèsti* ‘lead’), *vaĩkas* (4) ‘support for drying skins’ < *(*h₂*)*uolk-ó-* ‘stretcher’ (: *velkù*, *vilkti* ‘pull’, Av. *aipi-uuarəcaĩti* ‘pull on [clothes]’), *laĩkas* (4) ‘term, limit; end’ (< **loik^w-ó-* ‘[time] left’ : *λοιπός* ‘remaining’), Lith. *tãkas* ‘path’ (: *tekù*, *tekėti* ‘run, flow’), Lith. *bãsas* (4) ‘barefoot, bare’.

As evident from this selection, members of the formal *τομός*-class may be semantically characterized as agent, etc.-oriented (e.g. *θοός* ‘swift, nimble’ : *θέω* ‘run’) or as patient, etc.-oriented (e.g. *λοιπός* ‘remaining’ : *λείπω* ‘leave’). Both syntactic categories are represented (e.g. substantival *τροφός* ‘nurse’ : adjectival *τομός* ‘sharp’). Among substantives, we may also note *τομός*-nominals that do not even denote participants (arguments) in verbal action. For example, it is generally recognized that *ὁδός* f. ‘way, road, journey’ reflects **sod-ó-*, a derivative of **√sed-* ‘sit’ (Nussbaum 2017: 242), presumably in reference to travel undertaken on horseback or by wagon. As such, **sod-ó-* would refer to a period during which one sits rather than to the one who does so. It is in effect an expression of an instance of the function rather than a designation for a

participant as in so many other τoμός-nominals. The question thus naturally poses itself: what is responsible for the semantic diversity displayed by τoμός-nominals?

With reference to Schaffner 2001, Widmer 2004 and Nussbaum 2014c, the basic argument of Nussbaum 2017 is that there is a definable derivational semantic relationship between τόμος-type nominals and τoμός-type nominals by means of which one can interpret the semantic variety of the latter category. Specifically, the hypothesis is that the former is the base of the latter and that the relationship between the two is “possessive”. In other words, whatever the derivative denotes is in some sense the possessor of what is denoted by the base. Since the purpose of the hypothesis is to capture the semantic variety within an interpretive structure that enables us to view that variety as a coherent expression of and as epiphenomenal to a more basic semantic category, we would do well with some brief discussion of this category in the most general conceptual terms.

It is axiomatic that the conceptual basis of the derivational semantic category termed “possessive”, or, more clearly, “instrumentalistic” (Nussbaum p.c.), is delineable by means of the representation WITH. Within the conceptual system, the basic function of WITH is to conjoin two objects in such a way as to identify the one by means of the other. The function WITH thus focalizes an object on the basis of its conjunction with the other. In semantic and syntactic terms, the consequence of this focalization is that the focalized object is the structurally principal member of the syntagm. This member is the head of the phrase. Since the nominal head (i.e., identified, focalized object) is an altogether different or different kind of being from the identifying argument of the WITH function, the derivational process that creates the phrase as well as the phrase itself may be termed “exocentric”. To state a clear and famous example, Latin *barbātus* ‘bearded’ is a syntagm derived from *barba* ‘beard’ as an expression of the WITH

relation. Accordingly, the head of the phrase realized by *barbātus* stands in reference to the object we wish to identify.

Understandably, the abstraction and generality of this operation condition a variety of semantic ramifications as a function of the specific semantic properties of the entities that serve as the identifying arguments. These entailments are so pragmatically various that they can only be dealt with superficially and on a case-by-case basis. For example, when we consider the generally recognized “possessive” relation between μέλι ‘honey’ and μέλισσα ‘bee’ (v. Widmer 2004: 36–37), we can observe that the meaning ‘*x* with honey’ ramifies into ‘making honey’, ‘providing honey’, from ‘which one can get honey’, etc. These ramifications obviously depend on what is salient at a particular moment to a given language-user in the relationship between said user and this organism. It is fairly feasible for us to get a handle on this relationship because it is relatively easy to think about the set of potential referents of ‘*x* with honey’. This is because the ‘honey’ of ‘with honey’ corresponds to an inert conceptual substance lacking the interactive property of entailing other objects performing particular semantic roles with their own webs of entailment.

Things are more complex when the “possessum” is associated with an operation comprising multiple participants (a complex argument-structure), as is often the case with verbal abstracts. Stated abstractly, if the identifying argument selected by the WITH function is itself a function associated with, for example, an agent and patient, the referent of the possessive derivative can in principle be either one or both depending on context. In other words, WITH is what gives a referent access to the argument-structure of the possessum. As a context-free thought experiment imperfectly designed to expose our presuppositions, let us consider and compare the semantic implications of applying the WITH operation to three different concepts:

WOOD, BEAUTY, and LOVE. In each case, the x in WITH y (x) is fundamentally a possessor but potentially something else. In the case of WITH WOOD (x), x is potentially a theme (wooden), source (where one can get wood), or location (where wood is). In the case of WITH BEAUTY (x), the possessor is a theme (is beautiful, i.e., having the property BEAUTY), stimulus, source, or location. In the case of WITH LOVE (x), the possessor is an experiencer (lover), in which case it may also be a source or location, or a stimulus, theme, etc. Depending on the internal complexity and interactivity of the concept, the possessor may potentially play more roles. In the case of a concept associated with two major roles, such as LOVE, it is conceivable that the possessor would be more frequently identified as the experiencer. Similarly, in the case of a concept associated with an agent and a patient, it is conceivable that, given the importance of identifying the agent in understanding causation, agency is more frequently assigned to the possessor of the action.

The preceding discussion has been designed solely to give us a sense of the territory within which we can observe the semantic ramifications resulting from possessive derivation. It is now time to consider some morphological exponents of WITH that have been reconstructed for PIE. This axiomatic consideration will enable us to contextualize the analyses to appear in the following Chapters.

Possessive derivation, i.e., the semantic realization of the WITH function, is morphologically realized in two ways which have been termed “internal” and, by implication, “external”.⁴⁰ As general morphological terms in recent Indo-Europeanist research, internal derivation refers to the use of rightward accent shift in stem-formation, while external derivation refers simply to affixation. Internal derivation exploits both accent and ablaut. Since this

⁴⁰ See Schindler 1975: 63; Watkins 1982: 261f.; Nussbaum 1986: 118–121, 187–191, 242–244; Widmer 1997: 124f.; Nussbaum 1998b: 147–152; Schaffner 2001: 77 (note 25); Widmer 2004: 28–33.

morphophonological exploitation was conceptualized as taking place solely *within* the boundaries of a preexisting nominal form (representable as Root + Suffix + Ending), the process was termed “internal”. In the 1970s, Schindler applied this process to develop the notion of a “derivational chain” progressively linking stems within the pre-established paradigmatic accent-ablaut classes acrostatic, proterokinetic, hysterokinetic, and amphikinetic. Though Schindler never explicitly discussed in print the identity of the specific semantic category realized by the internal derivational chain (Nussbaum p.c.), it is demonstrable from familiar examples such as adjective πῖον ‘fat’ (cf. Ved. *pívān-* ‘id.’ [amphikinetic **p(é)ih_x-uon-* : *pih_x-un-* ‘having fat’]) beside substantive πῖαρ n. ‘fat’ (proterokinetic **p(é)ih_x-u_r*, *pih_x-uén-*) that the category in question was generally exocentric and specifically “possessive” (Nussbaum 2014c: 239).

Recent growth in our understanding of the possessive semantics of the internal derivational chain has gone hand in hand with the identification of certain “external” exponents, namely some well-known suffixes, as bearers of possessive meaning as well. With a fair amount of confidence, it is possible to reconstruct possessive semantics for the following suffixes (selection based partially on Höfler 2017a: 41–44):

*-ih₂-/-ieh₂- : **mél-i-t-ih₂-* ‘that which has honey’ (Gk. μέλισσα ‘bee’) ← **mél-i-t-* ‘honey’ (Gk. μέλι, μέλιτος n. ‘honey’, Peters 1980: 200)

*-nt- : **b^hr̥g^h-nt-* ‘lofty, high’ (Ved. *brhát-* ‘high’) ← **b^her̥g^h-/b^hr̥g^h-* ‘height’ (Av. *bərəz-* f. ‘id.’),

*-uent- : **ped-uent-* ‘footed’ (Ved. *padvát-* ‘id.’, Myc. fem. <pe-de-we-sa>) ← **pód-/péd-* ‘foot’ (Ved. *pád-* m. ‘id.’, etc.),

*-uon- : **sok^w-e-h₂-uon-* ‘follower’ (Gk. ὀπάων ‘fellow, companion’ [Hom.+], Myc. PN <o-qa-wo-ni>) ← **sok^w-é-h₂-* ‘following, attendance’ (v. Beekes 2010: 1089),

*-tó- : *h₁aǵd^h-s-tó- ‘heated’ (PGmc. *aista-* ‘hot’, OE *āst* ‘kiln’) ← *h₁áǵd^h-o/es- ‘heat’ (Ved. *édhas-* n. ‘fuel’, cf. Nussbaum 1998a: 527)

*-nó- : *h₂erǵ-es-nó- ‘shiny, lustrous’ (Aeol. ἀργεννός ‘white’) ← *h₂érǵ-o/es- ‘luster’ (TN Ἄργος n.)

*-ró- : *h₁os-u-ró- ‘goodly’ (: οὐρός ‘fair wind’) ← *h₁ós-u- n. ‘good’ (Hitt. *āššu-* n. ‘good’, Nussbaum 1998b: 152)

*-ló- : *poǵk-i-ló- ‘variegated’ (Gk. ποικίλος ‘id.’) ← *poǵk-i-/péǵk-i- ‘variegation’ (cf. OE *fāh* < *póǵk-o- ‘multicolored’)

*-uó- : *mǵ-h₂-s-uó- ‘grand’ (Aeol. ἀγαυός ‘illustrious, noble’ [Hom.+], Rix 1981: 117) ← *méǵ-h₂-s- (Ved. *máhiṣ-vant-* ‘great’)

*-mó- : *dru-mó- ‘wooded’ (Ved. *drumá-* ‘tree’, δρυμός m. ‘copse, thicket’ [δρυμά Hom.]) ← descriptive *dóru- ‘wood’ (Ved. *dāru-* ‘id.’, δόρυ ‘tree, spear-shaft’ [Hom.+])

*-ó- : *k_uh₁-s-ó- ‘strong’ (Ved. *sūśá-* ‘strong, loud’, Mayrhofer 1986–2001 II: 652) ← *kéu_h₁-o/es- ‘swelling, strength’ (Ved. *śávas-* ‘strength’, Av. *sauuah-* ‘advantage’)

The scholar who has contributed most recently and substantially to the refinement of our understanding of possessive semantics, and, in particular, of the behavior of the suffix *-ó- is Stefan Höfler, who in his thesis, *Der Stier, der Stärke hat: Possessive Adjektive und ihre Substantivierung im Indogermanischen* (2017a), has identified numerous reflexes of possessive derivatives formed with this suffix, most notably to *s*-stems (e.g. *h₂ug-s-o-n- ‘that which has strength, ox’ ← *h₂ug-s-ó- ← *h₂éuǵ-o/es- ‘strength’ [Ved. *ójas-* ‘id.’]). As exemplified by *k_uh₁-s-ó- ‘strong’ beside *kéu_h₁-o/es- ‘swelling, strength’, the addition of *-ó- in the proto-language could condition the reduction or deletion of the basic stem’s full vowels, resulting in absolute zero-grade. In the case of other “*-ó-” possessives, such as those clearly created in the

individual daughter languages, one can observe the preservation of the syllable structure of the base or the reduction of only the suffix (e.g. Ved. *rabhasá-* ‘forceful’ ← *rábhas-* n. ‘force’; ἔρμυμός ‘fortified’ [Hes.+] ← ἔρμυμα n. ‘protection’ [Hom.+]).

For our immediate purposes regarding the relationship between the τόμος-type and τομός-type in PIE, the existence of a possessive *-ό- affixable to all kinds of athematic stems brings up the question of how it surfaces when the base is itself thematic. When in the daughter languages we encounter manifestly possessive thematic derivatives of thematic substantives (e.g. ἀσφοδελός ‘bearing asphodel’ [Hom. +] ← ἀσφόδελος m. ‘asphodel’ [Hes. +], Ved. *karná-* ‘big-eared’ ← *kárṇa-* m. ‘ear’, Nussbaum 2014c: 243), the process appears to be – and no doubt eventually was – the procession of the accent to the suffix of the base. In light of this processive behavior, the accentually mediated derivational relationship between, for example, ἀσφόδελος and ἀσφοδελός would resemble the internal derivation of athematic nominals in PIE itself (e.g. proterokinetic **téuḥ₂-s/tuh₂-és-* ‘power’ [Av. *təuuiš* ‘strength’] → hysterokinetic **tuh₂-és-/tuh₂-s-* ‘powerful’ [Ved. *tavás-* ‘strong’]). However, the main reason to view this procession as nothing more than resemblance is the hypothetical mechanism driving the internal derivational chain. Unlike the supposed procession attributable to the relationship between the τόμος-type and τομός-type in PIE, the internal derivational chain is driven by the promotion of the weak stem of the base to status as strong stem of the derivative (Nussbaum p.c.). Whatever the origins of this promotive feature, it is fundamentally an expression of a contrast that is of course absent from thematic nominals. As there is no weak stem to promote, the relationship between the τόμος-type and τομός-type should be understood as external derivation, in this case, the substitutive affixation of possessive *-ό-.

It is now time to return to the **kól-o-* and **kól-ó-* that we have predictively reconstructed on the basis of Vedic *āsāra-* m. ‘shelter’. First, let us consider again what each would mean. As a *nomen actionis*, **kól-o-* would refer to the action ‘covering’ viewed abstractly. If viewed in concrete terms, **kól-o-* could refer to an instance of the action or to an entity instrumental thereto. In this latter domain, there would be some overlap with **kól-ó-*. As a possessive derivative, **kól-ó-* ‘having covering’ would have access to the semantic roles associated with the abstractly employed **kól-o-*, which, by virtue of its derivation from **kel-* ‘cover’ would basically involve an agent and a patient, including any additional roles entailed by those roles. For instance, via an agentive interpretation ‘coverer’, **kól-ó-* could refer to the instrument with which the action is performed. This interpretation is clearly involved in another possessive derivative to a derivative of **kel-*, namely **kel-m-o-* (Goth. *hilms* m. ‘helmet’, etc.), which is generally derived from the *men-*stem reflected by Vedic *śárman-* n. ‘protection’. Alternatively, and conceivably, **kól-ó-* could refer to the entity that undergoes the action and thus bear the patientive meaning. In these interpretations, namely the agentive and patientive, **kól-ó-* could be used either adjectivally or substantivally (cf. Ved. adj./subst. *apás-* ‘active; artisan, etc.’ [: subst. *ápas-* n. ‘work, deed’]). Finally, as a substantive, it is conceivable that **kól-ó-* would not even denote a participant at all, but simply refer to a sample or instance of the action. In principle, if *āsāra-* m. ‘shelter’ does go back in some way to a **kól-ó-*, each of these readings is possible (i.e. ‘that which provides cover’, ‘that is covered’, and ‘cover’ subst.).

While these forms and meanings are theoretically sound, the problem of course is that we have yet to see direct evidence of a radical *o*-grade simple thematic nominal to **kel-* other than

āsāra- itself.⁴¹ Moreover, *āsāra-* could after all reflect an Indic or Indo-Iranian creation rather than the reflex of an actual **kól-o-* or **kol-ó-*. As ever, the question, therefore, is what we have a right to reconstruct based on the assumption that the τόμος-nominal as a type was primary in the proto-language.

It is in this connection that we should consider another simple thematic nominal class which, as Nussbaum argues (2017: 243–263), appears to be derived ultimately from the τόμος-type. This class, which we have already had occasion to mention in the previous chapter, may be called the λευκός-type, or, according to Weiss (2018), the **temh₁-ó-s*-type. As indicated by this informal designation, the type is prototypically characterized by *e*-grade of the root and an accented thematic suffix. Though the radical *e*-grade may lead some to suppose a parallel rather than derivative status in relation to the τόμος-type, the primary reason for the latter analysis is the fact that λευκός-nominals display precisely the kind of semantics one would expect of possessive derivatives of the τόμος-type (Nussbaum 2014b: 299; 2017: 243ff.):

**leuk-ó-* ‘having light, bright, clear’ (Gk. λευκός ‘white’, possibly OIr. *lóch* ‘bright’) ← **lóuk-o-* ‘light, clarity, brightness, clearing’ (Ved. *róka-* m. ‘light’, Lat. *lūcus* ‘grove’, OE *léah* ‘meadow’, Arm. *loys* ‘light’, Lith. *laũkas* ‘open land’),

**ueg^h-ó-* ‘(course) ridden’ (Goth. *wigs* ‘way’, etc., cf. semantically óδος ‘way’ [*< *sod-ó-* ‘journey seated’]) ← **uóg^h-o-* ‘(a) conveyance, ride’ (Gk. ὄχος ‘wagon, chariot’, OCS *vozь* ‘cart’),

⁴¹ As far as I am aware, some meager evidence for a **kól-o-* to **kel-* ‘cover’ seems to be a possible OE *hal*, *hales* ‘secret place’ (< **χala-*, cf. *helan* ‘conceal’), appearing in *swá hwelp leóna eardiende on halum* “sicut catulus leonis habitans in abditis” (Ps.16.12), but this may rather be the dative plural of *healh* ‘corner, angle’ (< Proto-Germanic **χalχa-*) in the sense ‘recess’.

*ǵ^hel^h3-ó- ‘yellow-green, golden-hued, shiny’ (OIr. *gel* ‘bright, white, shining’) ← *ǵ^hól^h3-o- ‘yellow-green (substance)’ (Gk. *χόλος* ‘gall, wrath, anger’)

*ǵ^her^h2-ó- ‘ripe, worn out, aged’ (Arm. *cer* ‘old’) ← *ǵ^hór^h2-o- ‘ripeness, exhaustion, old age’ (Ved. SCM *ajára-* ‘unflagging’)

*le^hub^h-ó- ‘pleasing, loved’ (Goth. *liufs* ‘dear’, OIc. *ljúfr* ‘beloved, dear’, OE *léof* ‘id.’, etc. OCS *ljubъ* ‘sweet, pleasant’) ← *ló^hub^h-o- ‘dearness, love’ (Skt. *lobha-* ‘desire’, Goth. *galaufs* ‘valuable’)

Though the position of the accent can only be sporadically verified, pairs like those above can continue to be listed, albeit with the occasional need to suppose an intermediate derivational stage. For example, by a process of “substantivizing” accent retraction, the radical *e*-grade barytone *ǵ^hérg-o- n. ‘work, deed’ (ἔργον ‘id.’, Av. *varəza-* ‘id.’, OHG *werc* ‘id.’, etc.) may be viewed as derived from a patientive *ǵ^hérg-ó- ‘done’ (Nussbaum 2017: 248), itself derived from the *ǵ^hórg-o- reflected by Armenian *gorc* ‘work, deed’. In other cases, however, it is conceivable that, in lieu of evidence for a given τόμος-nominal, a given λευκός-type nominal would be formed by analogy to a different morphological class. For example, as noted by Villanueva Svensson (2021: 19–21), many roots that form λευκός-nominals also form radical *e*-grade simple thematic presents (e.g. *√b^heǵ^hd^h- ‘trust’ : *b^heǵ^hd^h-ó- ‘trusting’ [Lat. *fidus* ‘faithful’] : *b^heǵ^hd^h-e/o- ‘to trust’ [Lat. *fidō* ‘id.’]). Accordingly, it is conceivable that at least some λευκός-nominals were formed by analogy to the stems of this common verbal class rather than derived from τόμος-nominals, which in some cases might not have existed for a given root.

Given that we have strong evidence for a *kél-e/o- ‘cover’, it is conceivable that this verbal stem was inserted into an analogy that directly generated an adjective *kél-ó- with the basic meaning ‘covering, covered’. In principle, this adjective could be substantivized by the

same process of accent retraction that produced **u̯érg-o-* ‘that which is wrought’. We may therefore propose **k̑él-o-* ‘that which covers, is covered, covering’ as an additional predictive reconstruction.

We are now of course confronted with the question of whether there is any actual evidence pointing to a radical *e*-grade simple thematic nominal plausibly related to **√kel-* ‘cover’. In a presentation concerning the derivational histories of certain Cuneiform Luwian lexemes, Elisabeth Rieken (2021) has identified *zalli-*^(ti) in the phrase *ar-ḫa za-al-li-it-ti* ‘uncovers’ (KUB 44.4+KBo 13.241 rev. 20: referring to Festival of the Grain Pile, CHD Š:363) as a denominal formed in Luwian from an unattested **zalla-* ‘hiding place’ that appears to reflect **k̑él-o-* via Čop’s Law (cf. *mallit-* < **mélit-* ‘honey’). As it happens, this **zalla-* would be in complete accord with another datum associated with **√kel-* ‘cover’, namely Middle Irish *cel*. According to *An Electronic Dictionary of the Irish Language* (eDIL s.v. 1 *cel*), which explicitly assumes an etymological relationship with *ceilid* ‘conceals’ (< **k̑él-e/o-*), this item means ‘dissolution, extinction, death’. Its most frequent occurrence is in the idiom *téit for cel* (cf. *luid ar cel*, IEW: 553–554), which may be illustratively glossed as ‘goes to death’. Given the conservative nature of idiomatic expressions, it is worth considering that *cel* is something one goes to (cf. PDE *go to hell!*), as opposed to something in relation to which some other kind of light verb is required. In light of this fact, it is entirely appropriate to compare *cel* ‘death’ to Proto-Germanic **χaljō-* f. (Goth. *halja* ‘hell’, ON *Hel* ‘goddess of death’, OE *helle* ‘hell’, etc.), which, despite uncertainties of derivational history, is normally connected with **√kel-* ‘cover’ (Kroonen 2013: 204). As implied by this comparison, a Proto-Celtic **kelo-* and Proto-Germanic **χaljō-* would both express the sense ‘place of death’ or ‘place of the dead’ (cf. local sense of Gk. ᾍδης ‘Hades’, Lat. *Orcus* ‘abode of the dead’, Hebr. לַאֲשֵׁר *šə’ōl* ‘underworld’), presumably in

reference originally to the physical place of inhumation or to the action of burial itself (cf. ἀλλά με τεθνηῶτα χυτὴ κατὰ γαῖα καλύπτοι, Z 464 “but may the heaped earth cover me up when I’m dead”). In principle, this Proto-Celtic **kelo-* would go back to the substantive **kél-o-* ‘covering’ presupposed by Luwian *zalli-*^(ti) ‘cover’. By semi-internal reconstruction, this substantive is identifiable as the derivative of the λευκός-type adjective **kél-ó-* ‘covering, covered’.

This adjective is important for the reason given at the beginning of Chapter 4: it is morphologically simple enough to be aligned with the root that we have reconstructed for Proto-Greek. At least provisionally, we have completed our first matching of what is in effect original from the standpoint of PIE to what is original from the standpoint of Greek. The next step in the pursuit of the PIE root-etymology is to consider the morphosemantic significance of the actual adjectival stems, **kəlwó-* and **kəlǰó-*, that we have reconstructed as parallel derivatives of Proto-Greek **√kəl-*. Specifically, we must investigate how the hypothesis of a PIE verbal adjective **kél-ó-* ‘covering, covered’ relates derivationally to the Proto-Greek Property Conceptual adjectives **kəlwó-* and **kəlǰó-* ‘beautiful’.

CHAPTER 6

DETERMINATIVE DERIVATION

At the end of Chapter 3, we hypothesized that **kəlwó-* and **kəlǰó-* reflect simple thematic derivatives of a *u*-stem substantive and an *i*-stem substantive respectively (i.e. **-u-ó-* : **-ǰ-ó-*). In light of the previous Chapter, we can now augment this hypothesis with the proposal that these adjectival derivatives were formed with a suffix **-ó-* that expressed the “possession” of whatever was denoted by those substantives. To understand their meaning and derivational history, it is necessary to consider what **kəl-wó-*, **kəl-ǰó-*, and **kél-ó-* all have in common in syntax and semantics, as well as the consequences of how the first two more deeply differ from the last.

At face value, the basic similarity between **kəl-wó-* and **kəl-ǰó-* on the one hand, and **kél-ó-* on the other, is that they are all adjectives predicable of or attributable to a substantive. Though in practice an essential feature of PIE and its daughters, the fact that such adjectives mark these syntactic relations by formal agreement is accidental. What is relevant here is that their predicative and attributive use assigns them to a larger syntactic class of modifiers that may be termed “adnominal” (Nussbaum p.c.). In addition to inflectable adjectival stems, this class includes uninflectable particles such as **en* ‘in, on’ as well as already inflected substantives such as the **-en* locative **d^hǵ^hm-én* ‘on the earth’ (Ved. *jmán* ‘on earth’, Nussbaum 1986: 188) or the instrumental reflected by Vedic *gúhā* ‘hidden, in hiding’ (Jasanoff 1978: 122–125; 2002–2003: 144–148). The feature uniting all of these adnominals is the fact that, like verbs, they all assign a given substantive to a set. Since attribution seems to compress the information produced by predication (e.g. *the horse is beautiful* → *the beautiful horse*), this basic set-assignment function is applicable whether the adnominal is predicated of or attributed to that substantive. In other words, the substantive to which an adnominal is attributed is still an argument by virtue of being

qualified by or having the property denoted by the adnominal function. In a sense, the head substantive serves to limit the application of the function by providing a substance to which the property can attach itself and in which the property as an attribute is instantiated. For example, the substantive *horse* in the phrase (*the/a/∅*) *beautiful horse* provides just such a substance.

It is worth considering that the provision of a substantival head is not the only way by which an adnominal function can be limited. Viewed semantically, the adnominal is the domain of an operation that imposes definiteness, however definiteness may be defined. As another thought-experiment, let us consider an adjectival function such as *beautiful* or *good* alongside the potential array of senses generated by the addition of the definite article. As a definite nominal phrase, *the beautiful* or *the good* is in principle neither adjectival nor substantival. The definite article itself determines the application of the function. While the question of how that application is determined can only be answered by context and experience, the operation of determination itself may be analyzed as having certain semantic ramifications. The basis of these ramifications seems to be the capacity of the determiner to facilitate reference to the argument of the adnominal function.

Though only marginally or vestigially encountered in contemporary English, adnominal phrases consisting of the definite article and an adnominal may be used to specify and refer to particular individuals, such as monarchs and other people of interest (Nussbaum 2022: 216; e.g. *Alexander the Great*, *Aristides the Just*, etc.), whose potential onomastic overlap with other individuals necessitates distinction by means of a determinative phrase. What is important here is the fact that the means of expressing definiteness manifests itself alongside an adnominal that in principle would be sufficient to distinguish the individuals in question (i.e. †*Great Alexander*, †*Just Aristides*, etc.). In other words, adnominal status may invite the means of expressing

definiteness in the sense that, though performed from different angles, their shared service to the same purpose of distinction binds them together and conditions their cooccurrence. While this cooccurrence may seem redundant if viewed in artificial terms, it should perhaps be considered a feature of natural language – an instance of firing and wiring together. Since speakers seek to distinguish referents and since determinative and qualificative (i.e. adnominal) functions both allow them to do so, it comes as no surprise that the lexical (i.e. qualificative) and the functional (i.e. determinative) should rise to the surface jointly.

Let us now consider a context. Imagine two children, one of which is offering either a blue marble or a red marble to the other wishing to receive one. The one offering asks the other child which one he would have. To this the child that would receive responds: *I'll take the red*. In this case, *marble* has been omitted because of course the context supplies this information. What we are left with is an elliptical definite substantival phrase in which the argument is clear from context. The expression of definiteness merely guides the qualificative function to the entity to which the offering child has referred.

By comparison, there are cases in which events of this sort have conditioned the regular omission of the original substantive, resulting in a new substantive that assumes the semantic features and gender of the old (e.g. Mod. Gk. το δημοτικό [σχολείο] ‘primary school’, η δημοτική [γλώσσα] ‘demotic’, etc.). If viewed as a derivational process, the regular or conventional omission of the original substantive from a phrase that includes an adnominal and an exponent of definiteness may be considered endocentric, because the output of the derivation remains an element of the set denoted by the omitted substantive. In other words, *the red* in the sentence above is still a marble or η δημοτική is still a language.

Sometimes the endocentricity of determination can be tautological. Let us consider the meaning of *the good* in the sentence *what's the good of that?*. In this case, the definite substantival phrase *the good* has an internal predicational structure, that is, the thing denoted by *the good* is the argument x in [*good* (x)]. As a designation of the argument, *the good* is a *thing* that *is* good. The substantival phrase denoting that which is good draws its substance from the function itself, as opposed to the earlier case of drawing substance from some other entity whose name has been contextually (or > conventionally) omitted. Though it may not be possible to distinguish the following usage in all cases, it is worth considering that the tautological determination of the adnominal may substantivize the function itself. When in a more philosophical moment a person says something like *I love the beautiful*, that person is not actually referring to an element in the set denoted by *beautiful*. Instead, that person is using a means of referring to an element of a set as a means of referring to the function that assigns this element. As a designation of the function, *the beautiful* is the equivalent to the adjectival abstract *beauty* (cf. *the red of the morning sun*, Nussbaum 2022: 216), which, insofar as it names the function, serves as a *nomen qualitatis*. Moreover, to say that one loves beauty or the beautiful is not the same as saying that one loves all the elements of the set denoted by *beautiful*. Instead, one must use an exponent definitive of a generic element as an instrument of abstracting the quality from the particular or concrete items characterized by that quality. That is to say, without definition there is no abstraction.

Understandably, it is difficult to keep arguments and functions apart. For example, when in Spanish one says *lo absurdo* in the sentence *lo absurdo no tiene por qué ser horrendo* “the absurd does not have to be horrendous”, the argument denoted by *lo absurdo* is meant by the force of the neuter article *lo* to be generic. This generic quality, comparable to *the wolf* in the

sentence *the wolf is a fearsome beast*, brings us close to the abstract, function-naming interpretation insofar as it is possible that a designation of an entire class, namely *the absurd*, resembles – and may be identifiable with – the universal force of the function itself.

It is important to recognize that functions are a general property of semantic and conceptual structure. The adnominal **kel-ó-* ‘covering, covered’ is a function, the adnominals **kəl-wó-* and **kəl-ǰó-* are apparently iso-functional functions, and the root that the latter two share corresponds to a concept that is indeed a function. The crucial difference between these items, whose etymological connection we have hypothesized, is traceable to the concepts involved. The primary bearer of conceptual information is the root. When we consider **kel-ó-*, we recognize that, in a sense, it does assign a property to something. By means of the unit of meaning realized by **-ó-*, **kel-ó-* qualifies a referent as something that performs or undergoes the action denoted by **√kel-* ‘cover’. However, this qualifying function is something that must be derived; it is not a basic feature of **√kel-* itself, which, as a “verbal” root, relates objects to their more accidental situations, rather than assigns the features or properties by which they are more essentially characterized. In contrast to **√kel-*, this latter function of assigning a property is characteristic of **√kel-*’s hypothetical descendant **√kəl-* ‘beautiful’. Accordingly, as adjectival stems, **√kəl-*’s primary derivatives, **kəl-wó-* and **kəl-ǰó-*, unlike the stem **kel-ó-*, can be said to be doubly adnominal. One type of adnominality, shared with **kel-ó-*, is on the more superficial level of syntax and semantics. As mentioned above, this type includes adjectival stems and adnominally employable particles and case-forms of substantives. The other type of adnominality is a function of **√kəl-*’s fundamentally Property Conceptual nature. Given the hypothesized relationship between **√kel-* and **√kəl-* historically, the question as ever concerns

the mechanism or historical process by which this PIE “verbal” root would be ancestral to an “adjectival” root in Proto-Greek.

A good place to begin to address this question is with the derivational behavior of PIE roots of adjectival meaning. As discussed in Chapter 4, adjectival roots have the peculiar feature of forming primary derivatives that can be used adjectivally or substantively (Nussbaum 2022). For example, while the *e/zero* root noun to the verbal $*\sqrt{deh_3}$ - ‘give’ is only a verbal abstract and thus solely a substantive, the *e/zero* root noun to the adjectival $*\sqrt{b^h erǵ^h}$ - ‘high’ appears to have been used as an adjective (Av. *bərəz-* ‘high’) and as a substantive (Av. *bərəz-* ‘height; mountain’ : OIr. f. *brí* ‘hill’). Similarly, the τόμος-formation to adjectival roots results both in substantives (e.g. OE *lēah* ‘meadow’, χόλος ‘biliosity’, etc.) and in adjectives (e.g. OE *fāh* ‘colored’, Goth. *raups* ‘red’, etc.). The best approach to these data is to suppose that they are all expressions of the same principle: determinative derivation (Nussbaum p.c.).

This boils down to the determination of the qualificative function expressed by the adjectival root. For example, when the root noun $*b^h érǵ^h-$ / $b^h rǵ^h-$ ‘is used as an adjective, this adjectival use may be understood to result from the root’s Property Conceptual nature. If we were to reconcile this use with its use as a substantive, the best hypothesis would be that the *e/zero* formation happens to be realizing a unit of meaning that limits the qualificative function ‘high’. As such, the adjectival use of $*b^h érǵ^h-$ / $b^h rǵ^h-$ would theoretically resemble an adnominal phrase consisting of the definite article and an adjective, and would thus express the sense ‘the high *x*’ or ‘*x* the high’, as in the definite adnominal phrases mentioned above (e.g. *Alexander the Great, Aristides the Just*, etc.). Similarly, in the case of $*h_1 ród^h-o-$ ‘red’, the realization of a unit of determinative meaning by *R (ó) S (-o-)* corresponds to a definite (determinate) nominal that may be used adjectivally (i.e. ‘[the] red’).

As discussed above, by context and even eventually by convention, a definite adnominal may be used substantivally, assuming the semantic features and gender of the original substantive. Though relatively generic, insofar as human males are often default referents and insofar as they are considered ‘strong’, this conventionalization of a definite adnominal phrase may have been at work in the emergence of **h₂ner-/h₂nr-* ‘the strong’ as a designation of a human(-like) male (Ved. *nṛ́-* ‘man’, ἀνδρ- ‘id.’, etc.).

A related question concerns the status of generic inanimate arguments. Used substantivally, **b^hérǵ^h-/b^hǵ^h-* ‘ could refer, like **h₂nér-/h₂nr-* ‘man *qua* the strong’, to an argument. Given the semantics of its root, this argument would be an instance or exemplar of the property (i.e. ‘high *x*’). If generic and inanimate, **b^hérǵ^h-/b^hǵ^h-* ‘the high’ would have the sense ‘that which is high’. As evident from Avestan *bərəz-* f. *qua* ‘mountain’ and Old Irish *brí* f. ‘hill’, the generic inanimate argument interpretation is the gateway for reference to specific entities characterized by the property. For example, as discussed above, the meaning of *χόλος* ‘wrath, biliosity’ is interpretable under the assumption that the context-free sense of its substantivally employed preform **ǵ^hólh₃-o-* ‘the yellow’ was ‘that which is yellow’. If we peel back the work of context and reference, we can discern what may be going on with **ǵ^hólh₃-o-*’s hypothetical possessive derivative **ǵ^hel₃-ó-* ‘yellow-green, golden-hued, shiny’ (OIr. *gel* ‘bright, white, shining’). The general PC meaning of this adjective only makes sense if its base **ǵ^hólh₃-o-* was used in reference not just to an argument (i.e. ‘that which is golden-hued’), but to the function as well. By the same reasoning, the cooccurrence of *τόμος*-type and *λευκός*-type *adjectives* to the same roots (e.g. **√h₁reud^h-* ‘red’, **√kreuh₂-* ‘bloody’) is explicable if the latter (i.e. **h₁reud^h-ó-* ‘red’ [*>* OE *rēod* ‘id.’], **kreuh₂-ó-* ‘bloody’ [*>* OE *hrēow* ‘raw’]) reflect possessive derivatives of the former in their use as abstract substantives (**h₁róud^h-o-* ‘the red, redness’, **króuh₂-o-* ‘the

bloody, bloodiness’), as opposed to the attenuated definite adjective interpretation that is directly reflected (e.g. Goth. *raups* ‘red’, OE *hrēaw* ‘raw’). In the case of **b^hérǵ^h-/b^hǵ^h-*, the abstract interpretation is directly reflected (Av. *bərəz-* f. ‘height’), in addition to being supported by the reflexes of **b^hǵ^h-nt-* ‘high’ or “height-y” (Ved. *bṛhát-* ‘high, lofty’, Av. *bərəzant-* ‘id.’).

The significance of the evidence discussed above is that the generic inanimate argument interpretation and the function interpretation are two sides of the same coin. We cannot imagine the function itself without having in view some defined generic thing that the function assigns to a set. Accordingly, just as the generic argument interpretation is the gateway to reference to the things characterized by the property, so, too, is it the means by which we name – and make a thing of – the quality itself.

The determinative meaning that conditions these semantic ramifications is realized by a certain set of primary derivational exponents, such as the above-discussed *R e/zero* and *R (ó) S (-o-)*, whose status as determinative is dependent on the adjectival semantics of the root. As Nussbaum has proposed, the following primary derivational suffixes are, in contrast, inherently associated with determinative meaning. The most notable of these suffixes is **-h₂-* ‘the’. As its most notable creation, this suffix forms from **√meg-* ‘big, great’ a proterokinetic **még-h₂* ‘the great’, whose status as a means of designating an argument is most prominently reflected in the adjective *μέγα* ‘great’ (cf. Vedic *máhi* ‘id.’). As for the abstract substantival interpretation, there is some evidence. For example, in light of the *χρῦσόθρονος*-phenomenon discussed in Chapter 3, the FCM *άγα-* (e.g. *άγακλής* ‘very glorious’ [Hom. +]) is interpretable as the reflex of an absolute zero-grade **mǵ-h₂-* in its substantival value (Nussbaum 2022: 218). Since, in the case of the preform of *άγακλής*, it is the **kléu-o/es-* that is qualified, the only substantival value that would make sense is that of the abstract function itself – a usage that we shall contextualize in

Chapter 8. Moreover, the ancestor of Vedic *mahá-* ‘great’, as a simple thematic possessive derivative of **még-h₂-* ‘size’ (→ **még-h₂-ó-* ‘sized’), would also constitute evidence of the abstract interpretation.

Alongside **-h₂-*, Nussbaum (2022: 219–220; p.c.) discusses the use of **-t-*, **-n-*, and **-k-* in primary determinative derivation. Though the evidence is meager at the primary level, it is appropriate to mention the acrostatic *t*-stem reflected by Hittite *nekuz* (gen. sg.) ‘evening’, Gk. *νύξ* ‘night’, etc. As there is evidence of an anti-causative (Hitt. *nekuzzi* ‘gets dark’), the root in question, **√neg^w-*, is best viewed as underlyingly adjectival and thus basic to a primary derivative bearing the determinative PC meaning ‘the dark’. On the inanimate exemplar interpretation, **nó/ég^w-t-* ‘the dark’ came to refer to evening or night at such an early date that the temporal meaning ‘night’ is completely dominant. In contrast, the *n*-stem formed from **√kas-* ‘grey’ (Lat. *cascus* ‘old’ [Enn.+] < Pit. **kas-ko-* ‘grey’), unless formed from an adnominally employed preform of Vedic *śasá-* ‘hare’ (< **kás-ó-* ‘grey’), provides evidence both of the argument interpretation (OHG *haso* m. ‘hare’, OE *hara* m. ‘id.’ < animate exemplar **kás-on-/kás-n-* m. ‘the grey [one]’) and the abstract, insofar as Latin *cānus* ‘white, hoary, grey’ is analyzable as the reflex of an **-ó-* possessive **kás-n-ó-* to an abstractly employed **kás-on-* ‘the grey, greyness’. Similarly, the suffix **-k-* appears to have been used in forming from **√mleh₂-* ‘soft’ (Skt. *mlāta-* ‘softened’, YAv. *amrāta-* ‘unsoftened’) a **m]éh₂-k-/m]h₂-k-* that realized a lexeme serving both as an argument-designation ‘the soft [one]’ (**mléh₂-k-* > **mlāk-* > βλάξ [Attic prose, etc.] ‘stupid’ < ‘soft in the head’) and as an abstract ‘softness’. This latter value is evidenced by the adjective μαλακός ‘soft’, whose analysis as a possessive derivative involves the supposition that its preform was created more recently on the basis of the strong stem eventually eliminated in the base (**m]h₂-k-* > **málak-* → **malak-ó-*; Nussbaum 2022: 220; p.c.).

While the above stems are reconstructed as primary, it should be noted that most of our evidence of the suffixes that form them comes from stems that are manifestly secondary. The secondary thematic adjective ancestral to Latin *vērus* ‘true’ (cf. OHG *wār* ‘id.’, OIr. *fīr* ‘id.’) was clearly the base of an **-h₂-* stem. According to Nussbaum, the interpretations corresponding to the definite adjective, inanimate adjectival exemplar, and adjectival abstract are reflected respectively in the feminine agreement function of Latin *vēra* f. ‘true’, and in the lexical meanings of OCS *věra* f. ‘belief’ and OHG *wāra* f. ‘loyalty’. By this account, **u₂reh₂-* f. (*vel sim.*) ‘the true’, insofar as it expressed ‘that which is true’, signified a specific thing that one observes as true (OCS *věra* f. ‘belief’), whereas the quality itself would correspond to a general characteristic ‘trueness (to *x*)’ (OHG *wāra* f. ‘loyalty’).

For our immediate purpose of illustrating secondary derivatives, it is interesting, and perhaps unsurprising, to note that the only adnominal bases that **-h₂-* does not evidently select are those ending in a laryngeal. In contrast, **-t-*, **-n-*, and **-k-* have no such restriction. For example, by comparison *inter alia* to Latin *salvus* ‘safe, sound’, whose preform **s₁h₂-u-o-* may be analyzed as an accent-retracting derivative of an absolute zero-grade **-ó-* possessive to a *u-* stem derived ultimately from **√selh₂-* ‘whole’ (Nussbaum 1997: 186–192), the base of the abstractly employed *t-* stem ancestral to *salūs, salūtis* f. ‘health’ is identifiable as an adnominally employed instrumental of this *u-* stem (i.e. inanimate exemplar = abstract **s₁h₂-u-h₁-t-* ‘that which is with health, health’, v. Pike 2007). Similarly, the descriptively possessive **-h_xon-* stem **h₂iú-h_xon-* reflected by Vedic *yúvan-*, *yún-* ‘young, youth’ (Lat. *iuvenis* ‘id.’; Hoffmann 1955) is more precisely analyzable as a determinative *n-* stem derived from an adnominally employed instrumental to **h₂ó/éju-* n. ‘lifetime, vitality’ (NIL: 277–287; Nussbaum 1998c: 9–11). While this **h₂iú-h₁-on-*, as an animate (masculine) exemplar, would have expressed the substantival

sense ‘the one with vitality, young man, etc.’, its adnominal use would condition its status as base for determinative derivation. In other words, insofar as **h₂iú-h₁-on-* ‘the vital, the young’ meant ‘young’ (adj.), the *n*-stem could itself be determined. The suffix that was employed to do so was **-k̑-*⁴² (e.g. **sén-e-k̑-* ‘the old’ [Lat. *senex*] ← **sén-o-*⁴³ ‘id.’ [Ved. *sána-* ‘id.’, Lith. *sėnas* ‘id.’]).

According to Nussbaum (p.c.), the resulting **h₂iú-h₁-ŋ-k̑-* ‘the young’, as an adjective and exemplar, would be strikingly comparable to the *k̑*-stem reflected by *véāξ, véāκος* ‘young, young man, νεανίας’ (Ion. *véηξ* [Call.]). This comparison is partly based on the fact that the Greek reflex of **néu-o-* ‘new, recent’ partially signifies what must have also been expressed by **h₂iú-h₁-on-* and its derivatives before their disappearance in the dialect ancestral to Proto-Greek. To the extent that **néu-o-* meant ‘young’, it was eligible for the determinative derivation of an item with the sense ‘the young’. The item in question was of course **néu-e-h₂-*, characterized by the same semantic ramifications discussed in connection with **uér-e-h₂-* ‘the true’. On the basis of this **néu-e-h₂-*, there appear to be two ramifications corresponding to the scenarios potentially responsible for the meaning of the *k̑*-stem reflected by *véāξ*. If, on the one hand, **néu-e-h₂-* was employed as an adnominal ‘(the) young’, it could be basic to an endocentric **néu-e-h₂-k̑-* ‘the young one’. If, on the other hand, **néu-e-h₂-* was used as an abstract substantive, the adnominal use of its instrumental **néu-e-h₂-h₁* ‘with youth’ would also render it eligible to form a *k̑*-stem. In this latter case, the resulting **néu-e-h₂-h₁-k̑-* ‘the one with youth’ would be structurally similar to the **h₂iú-h₁-on-* that Greek has replaced. Though the *k̑*-stem derived from this **h₂iú-h₁-on-* is nowhere attested, it can be inferred, for example, from Latin *iuventus* ‘young (bull)’ (cf. Goth.

⁴² Evidence for the palatal **-k̑-* may be derived from Vedic *yuvaśá-* ‘young, youth’ (vide infra).

⁴³ This traditional reconstruction is presented here merely to illustrate a derivation.

juggs ‘young’, OIr. *óac* ‘id.’, etc.) and, above all, from Vedic *yuvaśá-* ‘young, youth’, whose form certifies that the suffix in question was not the categorically different **-kó-* to be mentioned in Chapter 7 (e.g. Ved. *rājaká-* ‘petty king’ ← *rājan-* ‘king’). Accordingly, the preform of *yuvaśá-* suggests an analysis that by now should be entirely familiar – a possessive derivative of an abstractly employed determinate derivative (i.e. **h₂ju-h₁-ŋ-*k*-ó-* ‘youth-ful, young’).

The suffixes discussed above, namely **-h₂-*, **-t-*, **-n-*, and **-*k*-*, are noteworthy for their use, in theory, both in primary and secondary derivation. At this point, we shall more thoroughly direct our attention to the suffixes that participate in secondary determinative derivation, concluding with those that do so exclusively. Two suffixes should be noted before moving on to the exclusively secondary category: **-r/n-* and **-s-*. The main reason for viewing these suffixes as determinative is the fact that both appear to perform at least a part of what we have attributed to the determinative derivational category – the creation of substantives from adnominals. For example, from **√peih_x-* ‘fat, swollen’ (e.g. *πῆμελή* ‘soft fat’ [Hdt.+], Av. *paēman-* n. ‘milk’, Ved. *páyas-* n. ‘id.’) are ultimately derived both a **píh_x-uŕ/uén-* ‘fat’ (> *πῆαρ* ‘id.’) and a **píh_x-uo/es-* ‘id.’ (> Ved. *pívas-* [→ poss. *pīvasá-* ‘fat’ adj.], Av. *pīuuah-* ‘id.’). As Nussbaum (2014c: 235–236) argues, both of these stems appear to be derived from an adjectival **píh_x-uo-* of some description. The larger reason for supposing this derivation is the fact that these stem-types are found beside thematic adjectives (e.g. Lat. *arvus* ‘plowed’ [Pl.+] [< **h₂erh₃-uo-* ‘plowed’] : OIr. *arbar* ‘grain’ [< **h₂érh₃-uŕ/én-* ‘tillage’]; Ved. *dákṣa-* ‘able’ : *dákṣas-* ‘ability’, Nussbaum 2014c loc. cit.). In the case of these derivatives of **√peih_x-* in particular, it is also necessary to note *ποιή* ‘grass’ (Hom.+) and Lithuanian *píeva* ‘meadow’, which, in pointing to a **póĭ(h_x)-ue-h₂-* (to be discussed below), presuppose something like the **píh_x-uo-* ‘fat(ty), abundant, etc.’ basic **píh_x-uŕ/uén-* ‘fat’ and **píh_x-uo/es-* ‘id.’.

For our purposes in the longer term, it is worth considering a formal derivational feature of the **píh_x-u_o/es-* reflected by Vedic *pívas-* ‘fat’. Regarding its supposed base **píh_x-u_o-*, there are two interpretations. On the one hand, it could in theory reflect an apparently primary **-u_ó-* stem of the type reflected in Vedic *pak-vá-* ‘cooked’ (cf. *pácati* ‘cooks’). On the other hand, it could reflect a possessive derivative of a *u*-stem (i.e. **píh_x-u_ó-* ‘with **píh_x-u-*’). In both cases, **píh_x-u_o-* would be oxytone. As an accompanying feature of the formation of the *s*-stem, the accent seems to have been retracted (**píh_x-u_o/es-*).⁴⁴ In the formation of secondary *s*-stems generally, we also find an accented full grade. For example, given the relation between Vedic *várivas-* n. ‘open space’ and *urú-* ‘broad’ (cf. *várīyas-* ‘broader’, etc.), it is conceivable that the preform of *urú-* was internally derived from a *u*-stem substantive (theoretically **h₁u_ó/érh_x-u-* ‘width, breadth’), from which was derived a thematic possessive (v. NIL: 250–253). While the radical grade of this thematic adjective is unknown, it may have been a zero-grade **h₁ur_h-u_ó-* ‘wide’ (cf. Osc. f. nom. sg. **uruvú** < **h₁ur_hu_éh₂*), if the **kúh₁-s-ó-* ‘strong’ from **kéu_h1-o/es-* ‘swelling, strength’ is any guide. In any case, what we see in *várivas-* is possibly the reflex of an accented radical *e*-grade *s*-stem **h₁u_érh_x-u_o/es-* almost certainly derived from a lost thematic adnominal (cf. στενω- : στενός ‘narrow’ [Proto-Greek **sten-wó-*] → στεῖνος ‘narrowness’ [Proto-Greek **stén-wos-*]).

As evident from στεῖνος ‘narrowness’ (← στενός ‘narrow’), and, theoretically, from **píh_x-u_o/es-* ‘fat’ (← **píh_x-u₍₋₎ó-* ‘fat’ [adj.]), accent retraction is a common, though not universal (e.g. γυμνός → γυμνής, -ῆτος ‘light-armed foot-soldier’), feature of determinatives.

⁴⁴ Interestingly, if as seems likely, **píh_x-u_o/u_(E)n-* ‘fat’ is a derivative parallel to this *s*-stem, it would be proterokinetic only in the sense that the accent would alternate between the root and the suffix. That is, the descriptively proterokinetic **píh_x-u_o/u_(E)n-* would not necessarily have the strong radical *e*-grade characteristic of the proterokinetic type.

The phenomenon may be understood as determinative insofar as it produces substantives and conceivably definite adjectives. In the case of substantives, we have already had occasion to invoke the process to explain **kél-o-* ‘(the) covering’ (> Luwian **zalla-*, MIr. *cel*) as a derivative of a λευκός-type adnominal **kél-ó-* ‘covering, covered’, just as **uérǵ-o-* n. ‘work’ would be derived from a **uérǵ-ó-* ‘wrought’. In the case of the adjectival category, we have already observed that Latin *salvus* ‘safe, sound’ points to a **sǵh₂-u-o-* whose accent must be explained by retraction (v. Höfler 2017b). The necessity of this explication follows from the fact that the root is in zero-grade. Since we have strong evidence that this root formed a *u*-stem and since simple thematic possessive derivation is otherwise known to cause absolute zero-grade, the going hypothesis would be that the base of **sǵh₂-u-o-* was a **sǵh₂-u-ó-* of possessive meaning. Accordingly, **sǵh₂-u-o-* would in theory have originally served as a definite adjective. The attenuation of determinative meaning in PIE itself is conceivable.

According to Nussbaum (p.c.), one reason for supposing this attenuation is a certain peculiarity of the internal derivational chain. According to the theory, the strong stem of the derivative is formed from the weak stem of the base (e.g. acro. **krót-u-/krét-u-* [Ved. *krātu-* m. ‘power’] → protero. **krét-u-/kṛt-éu-* [κρατύς ‘mighty’]). Accordingly, in the case of **píhₓ-uǵ/úén-* ‘fat’ (πῖαρ ‘id.’), for example, what we should expect would be a hysterokinetic **píhₓ-uén-/píhₓ-un-* ‘fat’ adj. (cf. proterokinetic **téuǵh₂-s/tuh₂-és-* ‘power’ [Av. *təuuiš* ‘strength’] → hysterokinetic **tuh₂-és-/tuh₂-s-* ‘powerful’ [Ved. *tavás-* ‘strong’]). What is found instead in an amphikinetic **píhₓ-uon-* ‘fat’ adj. (Ved. *pṛ́van* ‘id.’, πῖων ‘id.’). Given that a hysterokinetic **píhₓ-uén-/píhₓ-un-* ‘fat’ and an amphikinetic **píhₓ-uon-/píhₓ-un-* would be in effect semantically identical, it is conceivable that the latter points to a formation via determinative accent retraction from the theoretically predicted hysterokinetic adnominal. Some indication of the possibility that

amphikinesis is not actually an instance of internal derivation is provided by the observation that the process does not involve the characteristic promotion of the weak stem. Instead, the theoretical base of **píh_x-uon-* ‘fat’, namely **píh_x-uén-/píh_x-un-´*, has its strong stem “promoted” and its derivative has a retracted accent. Moreover, if a hysterokinetic adjective **píh_x-uén-/píh_x-un-´* existed, there would indeed be semantic parallelism with the eventually agreement-facilitating feminine **píh_x-uer-i(e)h₂-* reflected by *pívarī-* ‘fat’ and *πίειρα* ‘id.’ (Hom.+). That is to say, hysterokinetic **píh_x-uén-/píh_x-un-´* and **píh_x-uer-ih₂* would be parallel possessive derivatives of the proterokinetic **píh_x-u_g/uén-*. This is not to say that **píh_x-uon-* ‘fat’ is not possessive (its endocentricity would preserve the possessive meaning of **píh_x-uén-*), but that the creation of a definite adjective through accent retraction has led to a PIE formal asymmetry whose basis in derivational semantics has been effaced already in the proto-language.

It might be added that there is no guarantee that the comparatively reconstructed **píh_x-uon-* that could allow a priori **píh_x-uén-/píh_x-un-´* ever had the full grade characteristic of the traditionally reconstructed proterokinetic strong stem (Nussbaum p.c.). If Nussbaum’s hypothesis of the derivation of **píh_x-u_g/uén-* from **píh_x-uó-* is correct, the radical zero-grade would be in this case a trait passed down from one derivative to another until the line reached the amphikinetic **píh_x-uon-*, where again it seems to be simply a matter of accent retraction. In contrast, the amphikinetic type is normally reconstructed with *é*-grade of the root in the strong stem (e.g. **déh₃-tor-* ‘giver’ [*δῶτωρ* ‘id.’ Hom.+]). The best approach to the type characterized both by accent retraction and by radical *e*-grade is to assume some connection to the process whereby **géh₁-to-* ‘the begotten’ (OHG *kind* ‘child’) is derived from **géh₁-tó-* ‘born’ (Lat. *nātus* ‘id.’, etc.). By this comparison, an adnominally employable hysterokinetic **dh₃-tér-/dh₃-*

tr- ‘giving, giver’ (cf. analogous hysterokinetic reflected in ποιμένες ἄνδρες ‘shepherd[ing] men’ [Alcm.+]) would be the base of a definite **déh₃-tor-* ‘the giving (one), giver’.

The installation of the radical *é*-grade represented by **géh₁-to-* ‘the begotten’ is paralleled by the installation of radical *ó*-grade with the same determinative meaning. For example, **b^hḡ-tó-* ‘borne, carried’ (Ved. [-]b^hḡtá- ‘id.’, etc.) is interpretable as the base of the **b^hór-to-* ‘the borne’ reflected by φόρτος ‘burden’ (Hom.+). It is unclear how this type originated. One possibility is that the *R* (-*ó*-) was copied from τόμος-nominals that were reinterpreted as determinatively derived from radical zero-grade adnominals (Nussbaum p.c.). For the sake of provisional illustration, we might start out with an adjective **luk-ó-* ‘bright, light’ (Ved. *rucá-* ‘id.’). As a possessive to a root noun **leuk-/luk-* ‘light’ (Ved. *rúc-* f. ‘id.’), this **luk-ó-* would be semantically equivalent to the **leuk-ó-* ‘bright, clear’ derived from **lóuk-o-* ‘light, clarity’. If the latter was re-interpreted as a determinate derivative of **luk-ó-*, there might have emerged a rule of imposing a determinative radical *ó*-grade.

This determinative radical *ó*-grade is also found in a type characterized by **-h₂-* as well. For example, the above-discussed **pih_x-uó-* ‘fat(ty), abundant, etc.’ would appear to be the base of the **póġ(h_x)-ue-h₂-* ‘the abundant’ (> ποίη ‘grass’, Lith. *píeva* ‘meadow’) mentioned earlier. Since both radical *ó*-grade (in the right derivational circumstances) and **-h₂-* serve the same determinative purpose, it is at least understandable that they should cooccur. This cooccurrence is also encountered in derivatives formed with radical *é*-grade. Beside the **tmh_x-s-ró-* ‘dark’ (← **témh_x-o/es-* [Ved. *támas-* n. ‘darkness’]) reflected by Lithuanian *tĩmsras* (West-Aukšt. *tĩmsras* ‘dark (red)’), there is the **témh_x-s-re-h₂-* ‘the dark’ reflected by Latin *tenebrae* ‘darkness’ (cf. Ved. *támisrā-* ‘dark night’, Höfler 2020: 192–193). Finally, there are cases where the superaddition of **-h₂-* cooccurs simply with accent retraction. This can be illustrated by *παλάμη*

‘palm’ (Lat. *palma* ‘id.’, OIr. *lám* ‘hand’, v. Höfler 2017b), which would reflect a $*p_l^h h_2\text{-}me\text{-}h_2$ analyzable as the derivative of a possessive derivative ($*p_l^h h_2\text{-}m(n)\acute{o}$ - ‘broad’) of a *men*-stem to $*\sqrt{p}le h_2\text{-}$ ‘broad, flat’ (cf. Lat. *plānus* ‘id.’). This possessive would be comparable to $*g^{wh}er\text{-}m\text{-}\acute{o}$ - (> θερμός ‘warm’ : Arm. *ǰermn* ‘fever’ [$< *g^{wh}ér\text{-}m\eta$ ‘warmth’]), the standard example of a derivative of a *men*-stem displaying the outcome of the *ašnō* Rule (v. Nussbaum 2010; Byrd 2015: 20).

There are of course cases where the addition of the determinative suffix does not coincide with a retraction of accent. This type may be illustrated by the *τομή*-type, analyzable as a derivative of the possessive *τομός*-type. For example, it is in principle possible that, in addition to the *λευκός*-type derivative reflected by Old Irish *gel* ‘shining’ ($< *g^h el h_3\text{-}\acute{o}$ - ‘golden-bright’), the preform of $*g^h ol h_3\text{-}o$ - ‘the yellow, gall, etc.’ was the base of a radical *o*-grade possessive in $*\text{-}\acute{o}$ - (i.e. $*g^h ol h_3\text{-}\acute{o}$ - ‘yellow, bilious’). On the basis of this possessive was formed $*g^h ol h_3\text{-}\acute{e}\text{-}h_2$ - ‘the yellow, gall’ (cf. Lat. *toga* $< *tog\text{-}\acute{e}\text{-}h_2$ - ‘covering’, Nussbaum 2017: 233, 262), whose reflex *χολή* ‘gall, bile’ (Archil.+) displays the meaning that $*g^h ol h_3\text{-}o$ - must have had in order for its own reflex *χόλος* to signify ‘wrath’.

Of $*\text{-}h_2$ - derivatives that bear the same accent as the base, the class most relevant to us is the *φυγή*-type (e.g. Lat. *fuga* ‘flight’, Nussbaum 2017: 258). Given the $R(z) S_1(-\acute{e}-) S_2(-h_2-)$ structure, it is preferable to analyze the type as originating in determinative derivation from possessives in $*\text{-}\acute{o}$ - to root nouns (e.g. $*luk\text{-}\acute{o}$ - ‘light’ adj. [Ved. *ruc-á*- ‘light’] $\leftarrow *léuk\text{-}/luk\text{-}$ ‘light’ [*ruc*- f. ‘light’], Nussbaum op. cit.: 251; $*h_1rud^h\text{-}\acute{o}$ - [Lith. *rùdas* ‘reddish-brown’, cf. Lat. *rubus* m. ‘black-berry bush’⁴⁵] $\leftarrow *h_1reud^h\text{-}/h_1rud^h\text{-}$ ‘red’ [subst.] [OIr. *ró*, *rod* ‘reddening

⁴⁵ The use of the reflex of $*h_1rud^h\text{-}\acute{o}$ - to refer to the blackberry bush is interpretable if the redness of the unripe blackberries was salient.

(dye)']). Regarding the family of φύγη itself, the root noun is directly reflected in the erstwhile accusative of the adverb φύγαδε 'to flight' (Hom.) (< **b^húg-ŋ de*), and indirectly by φύζα 'headlong flight, rout' (Hom.), whose ancestor **b^hug-ih₂-*, as a possessive derivative of **b^hug-* 'fleeing', would have originally signified a sample of the action denoted by **b^hug-* and thus an instance thereof (i.e. 'flight'). The same ramification of possessive meaning is accessible in φύγή if we suppose a parallel derivative of the root noun, namely an adnominal **b^hug-ó-* 'fleeing', that was determined as **b^hug-é-h₂* 'the fleeing, flight'.

The φύγή-type is of particular relevance to us because it provides the most important piece of evidence for the assessment of a **√kel-* related item that we have yet to discuss, namely Latin *clam* 'hidden, secret(ly)' (Pl.+). The obvious approach to this adverb/indeclinable adnominal is to interpret it as a fossilized accusative singular of an *ā*-stem of some description. Given that a *fossilized ā*-stem should actually reflect an **-h₂-* derivative of a thematic adnominal, it is in principle possible that *clam* reflects the accusative of a **kl-é-h₂-* 'covering'. On the other hand, one could always claim that the preform of *clam* was reshaped by analogy to its antonym *palam* 'open(ly)' (Pl. +). This is unlikely because there is evidence of a radical zero-grade *ā*-stem elsewhere in the family. A Lindeman variant of the de-thematic *h₂*-stem (i.e. **k̑ll-e-h₂-*) appears to be reflected by Old English *hulu* f. 'husk, pod' (< Proto-Germanic **χulō-* '[seed-]covering').⁴⁶ Accordingly, by comparison of *clam* and *hulu*, we can not only set up an *ā*-stem in the dialect ancestral to Italic and Germanic, but also interpret its preform as the derivative of an adnominal **k̑(l)l-ó-* 'covering'⁴⁷ possessively derived from a root noun to **√kel-*.

⁴⁶ On Lindeman's Law, see Weiss 2020: 44.

⁴⁷ It is conceivable that this **k̑ll-ó-* is the preform of Lithuanian *šilas* 'coniferous forest', which Smoczyński (2018: 1379–1380) associates with **√kel-* 'cover'.

Given that the \bar{a} -stem ultimately derived from this root noun presupposes a thematic adnominal, there is now indirect evidence of two separate simple thematic adnominals to $*\sqrt{k}el-$. On the one hand, we have the $*\acute{k}el-ó-$ whose genealogy we have traced in some detail, and, on the other, the $*\acute{k}(l)l-ó-$ derived theoretically from a root noun $*\acute{k}el-/kl-$ ‘covering’. The remainder of this Chapter will be dedicated to exploring the derivational consequences of the adnominal status of these thematic items.

Having outlined the semantic ramifications of determinative derivation and discussed many of its exponents, we are now in a position to consider the last two suffixes of concern to us: $*-i-$ and $*-u-$. As determinative exponents, these suffixes form stems that display all of the syntactic and semantic behavior we have described; they serve as definite adjectives, exemplars, and abstracts. The sole respect in which $*-i-$ and $*-u-$ differ from all other exponents is morphological: only thematic stems are eligible bases.

As first observed by Schindler (1980) in his foundational treatment on the origin of the Old Indic *cvi*-construction (e.g. Ved. *krūŕá-* ‘bloody, wounded’ : *krūŕí kṛ-* ‘to bloody, wound’), the nature and ramifications of which we shall consider more closely in Chapter 8, the *o*-stem adjective is the base of the *i*-stem. The PIE status of the derivational rule is evident from the following examples derived from Schindler 1980: 390 and Nussbaum 1999a: 399:

Anatolian: Hitt. *antara-* ‘blue’ : ^{SIG}*antari-* c. ‘blue wool’, *dannatta-* ‘empty’ : *dannatti-* ‘desolation’ (Melchert apud Nussbaum 1999a: loc. cit.)

Indic: Ved. *jīŕá-* ‘lively’ : *jīŕí-* ‘flowing (i.e. “living”) water’, *rucá-* light : *rúci-* f. ‘light, splendor’, *usrá-* ‘matutinal’ : *úsri-* ‘id.’

Iranian: Av. *tiyra-* ‘sharp’ : *tiyri-* m. ‘arrow’

Hellenic: ἄκρος ‘top point of’ [Hom. +] : ὄκρις f. ‘jagged point’ [Hp.Art.14] : ἄκρις f. ‘hill-top’ [Hom.+]

Italic: OL *forctus* ‘strong, brave’ : *forctis* ‘id.’ (> CL *fortis*), *torrus* ‘brand, firebrand’ : *torris* m. ‘id.’

Germanic: OE *eald* ‘old’, OS *ald* ‘id.’, etc. (cf. Lat. *altus* ‘tall’ : *alere* ‘nourish’): Goth. *alds* f. ‘age, generation’ (< **aldiz* ‘state of being grown, aged’, cf. Ἄλτις ‘Olympian Grove’)

ON *strangr* ‘strong’ : *strengr* m. ‘string, cord, rope’ (< PGmc. **strangi-* [Kroonen 2013: 483]; cf. Lat. *stringere* ‘draw tight’)

Celtic: OIr. *gar* ‘short’ : *gair* n. ‘brevity’

Slavic: OCS *zъlbъ* ‘wicked’ : *zъlbъ* f. ‘wickedness’

Baltic: Lith. *rūdas* ‘reddish-brown’ : *rūdis*, *-iės* f. ‘rust’

The obvious and crucial formal fact about this largely vestigial process is that the suffix of the base is replaced. In addition, because of the root vocalism displayed by ὄκρις and ἄκρις, the type is reconstructed as an acrostatic with *o*-grade in the strong stem and *e*-grade in the weak (i.e. **h₂ók-r-i-/h₂ék-r-i-* ‘the pointed’). Given the limitations of evidence within each branch, it is best to align the following fragments (v. Nussbaum 1999a):

λευκός-type adjective **h₂erǵ-ó-* ‘flashy’ (Gk. ἀργός ‘shining, swift’) → **h₂ó/érǵ-i-* ‘the flashy’ (Hitt. *harki-* ‘white, clear’; Ved. FCM in PN *Rjísvan-* ‘Flash-Dog’; FCM in, e.g., ἀργίποδας [κύνας] ‘flashy-footed dogs’)

**ǵ^hel_{h₃-ó-}* ‘yellow, golden-bright’ (OIr. *gel* ‘bright’) → **ǵ^hó/él_{h₃-i-}* (Ved. *hári-* ‘tawny, golden-yellow [horse]’, FCM **ǵ^hlh₃-i-* in *hírísmaśru-* ‘whose beard is gold-colored’, Av. *zairi-* ‘gold-colored, tawny’)

descriptive *nó*-stem adjective **h₁uh₂-nó-* ‘abandoned, empty’ (Ved. *ūná-* ‘deficient’, Av. *ūna-* ‘empty’, cf. Lat. *vānus* ‘id.’ < **h₁ueh₂-nó-*) → **h₁uó/éh₂-n-i-* ‘the abandoned, bereft’ (εὔνις adj. ‘bereft’ [Hom.+]) < definite adj. **h₁úh₂-n-i-* ‘devoid’, Nussbaum 1998b: 80–81)

**leuk-ó-* ‘light’ (λευκός ‘white’, etc.) or **luk-ó-* ‘id.’ (Ved. *rucá-* ‘light’) → **ló/éuk-i-* ‘the light’ (Lat. *lūcī clārō* ‘in broad daylight’, Ved. *rúci-* f. ‘light’, OE *līeg* ‘flame’, OCS *lučb* m. ‘light’)

tó-verbal adjective **mḡ-tó-* ‘projecting’ (: **√men-* ‘emproragen’ [LIV: 437], Lat. *mentum* ‘chin’, Goth. *munþs* ‘mouth’) → **mó/én-t-i-* ‘prominence’ (Lat. *mōns, -tis* m. ‘mountain’ [< **món-t-i-*], Nussbaum p.c.)

**h₁róud^h-o-* (Goth. *rauþs* ‘red’, Lith. *raũdas* ‘reddish-brown’) or **h₁reud^h-ó-* (OE *rēod* ‘red’, ON *rjóðr* ‘ruddy’) or **h₁rud^h-ó-* (Lith. *rũdas* ‘reddish-brown’) → **h₁ró/éud^h-i-* ‘the red’ (Ved. PN *Rudhikrā-* ‘Blood-spiller’, FCM in ἐρυσίβη ‘corn-rust’ [Pl., etc.] [: ἐρυσίβη ‘id.’], ἐρυσίπελας ‘erysipelas’ [Hp., etc.]])

**p^hh₁-ró-* ‘full’ (→ *pleh₁-ró-* > Lat. *plērus[que]* ‘most’) → **pléh₁-r-i-* ‘the full, fullness’ (Arm. *lir* ‘plenitude’)

**d^hub^h-ró-* ‘deep’ (Mlr. *dobur* ‘dark; water’) → **d^hub^h-r-i-* ‘the deep, depth’ (OCS *dъbrъ* f. ‘abyss’)

In this set of evidence, we can observe that each of the semantic ramifications identified in Nussbaum 2022 is represented. For example, Hittite *harki-* ‘white, clear’, Greek εὔνις ‘bereft’, and Avestan *zairi-* ‘tawny’ point to definite adjectives, Vedic *hári-* m. *qua* ‘bay horse’ and Latin *mōns* ‘mountain’ to exemplars, and Armenian *lir* ‘plenitude’ to an abstract. It should also be noted that the FCMs reflected by *hiri-* ‘tawny’, ἀργι- ‘flashy’, etc. also provide evidence of abstract meaning. If, following Schindler (1986), we take the χρῶσόςθρονος-phenomenon, which reflects the use of the FCM as the representative of an adnominal instrumental, to be an archaism

inherited from the proto-language, the *i*-stem FCM must have been serving as a substantive, even though the force of the FCM is that of an adjective qualifying the SCM. Since an exemplar lacks the universal force needed to assign to something the property by which the exemplar is itself characterized, the substantive must have had an abstract value in these compounds.⁴⁸ On the formal side, it is also important to note that a given *i*-stem could have been formed from any one simple thematic formation. In theory, and at the earliest stage, the imposition of *R* (ó/é) would result in the same derivative to different thematic bases (e.g. **h₁ród^h-o-* or **h₁reud^h-ó-* or **h₁rud^h-ó-* → **h₁ró/éud^h-i-*), though eventually repetition of the base's vocalism must have become the norm (e.g. Av. *tíyra-* 'sharp' : *tíyri-* m. 'arrow', etc.).

The same formal and semantic features are characteristic of the other determinative suffix that replaces the thematic vowel: **-u-*. In comparison to **-i-*, this suffix appears to have been a less common means of deriving determinatives from thematic adnominals. Nevertheless, as first observed by Nussbaum (1998a: 527–528), the existence in the proto-language of a rule *-o-* (adnominal) → *R* (ó/é)⁴⁹ *S* (*-u-*) (definite) is beyond doubt (examples partially derived from Nussbaum 2014a: 235):

⁴⁸ The construction underlying such compounds will be discussed in Chapter 8.

⁴⁹ Though less perceptible than in the case of *i*-stems, the fact that these determinate *u*-stems were originally *R* (ó/é) acrostatics is inferable from certain paradigm fragments. For example, when we compare πολύς 'much' to Vedic *purú-* 'id.', and indeed to oxytone *u*-stem adjectives in general (e.g. βαρύς 'heavy' : Ved. *gurú-* 'id.'), the radical *o*-grade of πολύς is obviously out of place, but its accent is not. By appeal to the theory that oxytone *u*-stem adjectives reflect proterokinetic internal derivatives of acrostatic *u*-stem abstracts (e.g. weak stem **krét-u-* 'power' [> Ved. *krátu-* m.] → strong stem **krét-u-* 'powerful' [weak stem **k_ṛt-éu-* : κρατύς 'might']), πολύς may be analyzed as the product of conflation between a **p_lh₁-ú-* 'much', representing the internally derived proterokinetic adjective (**pélh₁-u-*/**p_lh₁-éu-* 'having a lot'), and a **pólh₁-u-* 'much', representing the basic acrostatic **pó/élh₁-u-* 'the full amount, a lot' (Nussbaum p.c.).

**b^heh₂-nó-* ‘shining’ (OIr. *bán* ‘white’) → **b^hó/éh₂-n-u-* ‘the shining’ (Ved. *bhānū-* m. ‘beam of light’, Av. *bānu-* ‘id.’)

**p^lh₁-nó-* ‘filled, full’ (Ved. *pūrṇá-*, OIr. *lán*) → **pléh₁-n-u-* ‘the full’ (OIr. *lín* m./n. ‘full complement, multitude’)

**d^heh₁-ló-* ‘suckling’ (→ **d^heh₁-lé-h₂* [> θηλή ‘teat, nipple’, OE *delu* f. ‘id.’]) → **d^héh₁-l-u-* ‘the suckling’ (attenuated definite adjective θήλυς ‘female’ adj. [Hom.+], cf. Ved. *dhārú-* adj. ‘sucking’)

Since both *i*-stems and *u*-stems are formed from thematic bases, an *i*-stem and a *u*-stem could have been formed from the same thematic adnominal. The most notable instance of this phenomenon is in the family of **√h₂erǵ-* ‘flashy’, from which is ultimately derived the plausibly λευκός-type adjective **h₂erǵ-ó-* ‘flashy’ reflected by ἀργός ‘shining, swift’. The *i*-stem **h₂ó/érǵ-* *i-* is directly reflected as an absolute zero-grade FCM (**h₂ǵ-i-* > ἀργι-, Ved. *ṛji-*) and indirectly, for example, as the base of the possessive **-nó-* stem reflected by the **ἀργινός* presupposed by the extended form ἀργινόεις ‘bright-shining’ (cf. *πυκι-* : *πυκινός* ‘put-together’). The *u*-stem **h₂ó/érǵ-u-* ‘the shiny, shininess’ appears to have formed two possessives, one in **-ró-* and the other in **-nó-*. From both of these possessives were derived determinatives via accent retraction. While from **h₂(e)rǵ-u-ró-* ‘shiny’ was derived the substantivally employed **h₂érǵ-u-ro-* ancestral to ἄργυρος ‘silver’, a **h₂(e)rǵ-u-nó-* ‘shiny’ would in theory have been the base of the attenuable definite adjective **h₂érǵ-u-no-* ‘the shiny’ reflected by Vedic *árjuna-* ‘white, clear’.

Another root that has evidence of both an *i*-stem and a *u*-stem is the familiar **√ǵ^helh₃-* ‘yellow-green’. As discussed in reference to Nussbaum 2022, this root was the base of a **ǵ^hólh₃-o-* ‘the yellow’ from which were derived **ǵ^helh₃-ó-* ‘yellow’ (OIr. *gel* ‘shining’) and possibly **ǵ^holh₃-ó-* ‘yellow’ (→ **ǵ^holh₃-é-h₂-* > *χολή* ‘gall’). As all of these were adnominally

employable, the last two assuredly so, any one of them might have been the base of the *ǵʰó/élh₃-i- reflected, for example, as the adjective/exemplar *hári-* and as the FCM of *híríśmaśru-* ‘whose beard is gold-colored’. Evidence of *ǵʰó/élh₃-u- is less direct. While the preform Proto-Germanic **gelwa-* ‘yellow’ (OE *geolu* ‘id’, OHG *gelo* ‘id.’, etc., cf. Lith. *žėlvas*, -à < **žėlvas* ‘greenish, yellowish’ < **ǵʰelh₃-u-* Smoczyński [2018: 1725]) may be analyzed as a primary -uó- stem, the existence of forms reflecting *-u- renders this analysis improbable. As Kroonen (2013: 174) points out, the lack of *a*-mutation in ON *gulr* ‘yellow’ suggests that its preform was **gulu-* (< **ǵʰl̥h₃-u-*). Given the radical zero-grade reminiscent of adjectives like κρατύς ‘powerful’, Ved. *urú-* ‘wide’, etc., this **gulu-*, I propose, may be interpreted as the reflex of a proterokinetic **ǵʰélh₃-u-/ǵʰl̥h₃-éu-* internally derived from **ǵʰó/élh₃-u-* ‘the yellow’. As an adnominal, this **ǵʰélh₃-u-/ǵʰl̥h₃-éu-* (or its base *qua* definite adjective) might have been the base of the *s*-stem substantive **ǵʰélh₃-u-s-* ‘the green’ reflected by Latin *holus*, *holeris* n. ‘vegetable’, plausibly so analyzed in light of *helus et helusa antiqui dicebant, quod nunc holus et holera* (Paul. ex Fest.).⁵⁰

To conclude our treatment of roots that have evidence of an *i*-stem and a *u*-stem, we may observe the vestiges of both types in the family of **√pel-* ‘grey, dark’. When we assemble the various forms, evidence for the *i*-stem is abundant. Within Greek, we have *πολιός* ‘grey’, *πελιός* ‘discolored, livid, dark, dull’, *πελιδνός/πελιτνός* ‘livid’, and *πελλός* ‘dark-colored, dusky’ (post-Hom.). As evident from Myc. *po-ri-wa*, *πολιός* reflects a **poliuó-* descriptively analyzable as a *-uó- derivative of an *i*-stem bearing the radical *o*-grade of the acrostatic strong stem. It is likely that *πελιός* reflects the same sequence but with the radical *e*-grade of the weak stem (i.e. **pelieó-*

⁵⁰ Nussbaum (1999a: 389–390). While de Vaan’s (2008: 287) **ǵʰélh₃-o/es-* cannot be phonologically excluded, his claim that *helusa* merely represents the transmission-related addition of <a> to *helus* is unconvincing.

). The sequence **pel-i-* is also reflected by *πελιδνός* and its variant *πελιτνός*. In accordance with Nussbaum's overall method of analysis, the theoretically adnominal value of **pel-i-* 'the grey' would render this *i*-stem eligible to form a *t*-stem **pel-i-t-* 'id.'. Insofar as this item was used as an abstract, it might be the base of the possessive **pel-i-t-ó-* 'grey' reflected by Vedic *palitá-* 'id.'. A variant of this **pel-i-t-ó-*, namely **pl-eĭ-t-o-*, appears to be reflected by Old Irish *líath* 'grey' (Nussbaum 1997: 191). Insofar as the basic *t*-stem **pel-i-t-* was used as an adnominal, it could be the base of an *n*-stem **pel-i-t-n-* whose abstract use would underlie the possessive **pel-i-t-n-ó-* reflected by *πελιτνός*.

As discussed in Chapter 3, the most plausible preform of *πελλός* 'dark-colored, dusky' appears to be **pel-ĭ-ó-*, which we can now analyze as a possessive derivative of the *i*-stem. While it is conceivable that **poliṽó-* and **peliṽó-* also reflect possessive derivatives of this *i*-stem, the fact that the sequence **-uó-* occurs elsewhere in the family suggests that **poliṽó-* and **peliṽó-* were produced on the model of an item in **-uó-* belonging to the same family (cf. *πυκνός* : *πυκτινός*). It is in this light that we should consider the evidence for the *u*-stem to **√pel-* 'grey, dark'. The reason for supposing that such a stem existed is the evidence of **-u-* and **-u-* in forms whose root is plausibly or certainly **√pel-* 'grey, dark'. In the plausible category, we may interpret *πέλεια* f. 'dove, pigeon' as the reflex of a *devī* possessive derivative (Schindler apud Peters 1980: 200) of a *u*-stem abstract whose suffix was in the *e*-grade: **pél-eu-ih₂-* 'grey (one)'. Certain evidence for this *u*-stem is provided by Vedic *paruṣá-* 'speckled' and Avestan *pouruša-* 'grey', which, as also discussed in Chapter 3, appear to go back to a **pelusó-* 'grey' that we are now prepared to analyze. Given an adnominally employable acrostatic *u*-stem **pó/él-u-* '(the) grey' or a proterokinetic internal derivative thereof (i.e. **pél-u-/pl-éu-* 'grey'), the *u*-stem could be the base of a determinative *s*-stem of the same type as **ǵ^hélh₃-u-s-* 'the green', the

preform of the presumably Very Old Latin *helus* (> *holus* ‘vegetable’). As an abstract substantive, this **pél-u-s-* ‘the grey(ness)’ would be the base of the possessive in **-ó-* reflected by the Indo-Iranian forms. In light of this evidence for a *u*-stem, it is conceivable that the preform of Latin *pullus* ‘blackish-grey’, namely **poluo-*, **peluo-*, or **pluo-*, contained a morphological boundary between the **-u-* and the **-o-*. The predictable analysis of this **p[o/e/∅]luo-* would thus be as a possessive derivative of the *u*-stem. As a member of a family that contained an *i*-stem and derivatives thereof, it is conceivable that this **p[o/e/∅]l-u-ó-* provided the model for the extraction of the sequence of **-uó-* and its application to the *i*-stem. If this was the case, it would be explicable as an interactive consequence of the parallel derivation of an *i*-stem and a *u*-stem in the same family. Though, unlike the cases of **√h₂erǵ-* ‘flashy’ and **√ǵ^helh₃-* ‘yellow-green’, there does not appear to be direct evidence of a simple thematic adnominal to **√pel-* ‘grey, dark’, existence of such an item is cogently implied by the strong and very ancient evidence of an *i*-stem and a *u*-stem to this root. For our immediate and long-term purposes, two derivatives of **√pel-* provide a striking parallel for the **kəlǵó-* and **kəlwó-* that we have reconstructed for Proto-Greek. That is to say, given that **pó/él-i-* and **pó/él-u-* are theoretically sister-derivatives of the same thematic adnominal (conceivably a **pól-o-*, **pel-ó-*, or **pol-ó-*), their own possessives **pel-i-ó-* and **p[o/e/∅]l-u-ó-* would be cousins. The family-lineage metaphor is apt here because it is worth emphasizing the non-accidental nature of the existence of descriptive **-ǵó-* stems and **-uó-* stems to the same root; their existence is ultimately a function of a derivational rule of replacing **-o-* with **-i-* and/or **-u-* in the proto-language.

What this means for us is that we have strong empirical and theoretical reasons for assuming that, as we hypothesized at the beginning of this Chapter, **kəlǵó-* and **kəlwó-* reflect

possessive derivatives of an *i*-stem and *u*-stem respectively, and that these stems were derived in parallel fashion from at least one of the two simple thematic adnominals we have reconstructed (i.e. **kél-ó-* ‘covering, covered’ and/or **kl-ó-* ‘id.’). At long last, we are now in a predictive position to reconstruct two stems, **kó/él-i-* and **kó/él-u-*, which, as theoretically homosemous substantives, expressed the meaning ‘covering’. However, it is one thing to reconstruct these items because it is theoretically justifiable; it is quite another to reconstruct them because we have evidence of **kó/él-i-* and **kó/él-u-* themselves. Given the fragmentary state of the data, it does not seem possible to recover very much direct evidence of these stems. Nevertheless, as the following two Chapters are designed to show, there is compelling indirect evidence for these stems that is accessible through analysis of particular types of derivatives. To assess the derivatives in question, these Chapters will approach their analysis in terms of the larger derivational semantic and syntactic categories of which they are specific expressions.

CHAPTER 7

GENITIVAL DERIVATION

The preceding two Chapters have dealt with possessive and determinative derivation. In this Chapter, we shall discuss one more category of derivational semantics by means of which we can assess evidence for **kó/él-u-* in particular. Following Nussbaum (2009), whose views this category as subsuming the meanings of the genitive, ablative, and locative cases of PIE, we may call this category “genitival”. As in our discussion of possessive derivation, it is best to approach the genitival category in terms of its conceptual basis. By means of this general and abstract approach, we will be able to observe how the specific and concrete data are situated in the larger derivational semantic territory that we are exploring for evidence of our *u*-stem.

The genitival category may be assigned the conceptual representation OF, the basic function of which is to relate two objects in such a way as to identify one by reference to the position or composition of the other. The notions of physical or conceptual position and composition are related in the sense that, when we recognize the location or source of the entity to be identified, we understand its makeup or nature in terms of its positional history in relation to the basic object or as a function of that object’s nature. In other words, where it is or has been is a means of understanding what kind of thing it is. For example, the meaning of *Rōmānus* in relation to *Rōma* can be understood in at least three interrelated ways. One can think of an entity located in Rome, such as the *Forum Rōmānum*. Since *Forum*, the head of the phrase, is understood in terms of its being located in that which is denoted by the base, we can translate the phrase as ‘the Forum *of* Rome’. This translation is a reflection of our understanding that the location of something in something else is not accidental, but essential to understanding what kind of *forum* it is. Furthermore, the notion of the source of something seems to presuppose its

erstwhile location in something else. We might imagine a scenario in the early history of Rome when all the soldiers of Rome actually lived in Rome (and its immediately adjacent territory). When they went on campaign against other Italian peoples, the value of *Rōmānī* in the phrase *mīlitēs Rōmānī* would conceivably be ‘from Rome’ as entailed by ‘in Rome’. Finally, both ‘from Rome’ and the presupposed notion ‘in Rome’ would overlap with the more complex notion ‘of Rome’, in the sense of belonging to or being affiliated with Rome. This latter sense is precisely that of *populus Rōmānus* ‘the people of Rome’. Accordingly, we can conjecture that the OF function involves three interconnected concepts: static location (‘in/at/on/under/by’), origination (‘from/of’), and appurtenance (‘of’), which were expressed in PIE by the locative, ablative, and genitive cases respectively.

The basic argument of Nussbaum (2009) is the idea that these inherently interconnected concepts underlie certain ramifications of meaning that continually manifest themselves in certain sets of derivatives formed with an identifiable set of morphs whose productivity and employment may vary from branch to branch. These ramifications include patronymics (e.g. Τελαμώνιος [Aĩās] ← Τελαμών, Lat. *Mārcius* ← *Mārcus*, etc.), what may be termed “appertinents” (e.g. φωνῆ δὲ βροτέῃ ‘with mortal speech’ [τ 545] : βροτός ‘mortal’), what may be termed “resemblants” or approximatives (e.g. κύνεος ‘shameless, i.e., doglike’ [I 373], expressions of contempt (e.g. ἀνδρίον ‘manikin, pitiful fellow’ [Ar.] ← ἀνὴρ ‘man’), ὄρθιος ‘upright, somewhat ὀρθός’ ← ὀρθός ‘upright, straight, etc.’), locativals (e.g. σκότιος ‘in the dark, secret’ : σκότος ‘darkness’), expressions of material (e.g. Lat. *aureus* ‘golden’ ← *aurum* ‘gold’), expressions of source (e.g. Ved. *avyāya-* ‘from sheep’ ← *ávi-* f. ‘sheep’), and diminutives (e.g. Lat. *oppidulum* ‘little town’ ← *oppidum* ‘town’).

The general point is that these ramifications are liable to appear in derivatives formed with a variety of suffixes. While there are tendencies for certain suffixes to be associated with certain ramifications, for example, (reflexes of) *-eǵo- with material adjectives (e.g. λίθεις ‘lapideus’ [Hom.]), these tendencies are not rules (e.g. θυρεός m. ‘door-stone’ [Hom. +] ← θύρη ‘door’). To get a sense of the derivative nature of these tendencies and to prepare for the forthcoming analyses, we should first list some reconstructible exponents associated with the genitival category (examples from Nussbaum 2009):

*-kó- : Ved. *rājaká-* ‘petty king’ ← *rājan-* ‘king’, Lat. *cīvicus* ‘of citizens’ ← *cīvis* ‘citizen’

*-ló- : Ved. *bahulá-* ‘thick’ (cf. *παχυλός* ‘thickish’) ← *bahú-* ‘thick’ (cf. *παχύς* ‘thick’), *servulus* ‘young slave; worthless slave’ ← *servus* ‘slave’

*-ijō- : **ph₂tr-ijō-* ‘paternal, fatherly’ (Ved. *pítṛiya-*, Gk. *πάτριος*, Lat. *patrius*) ← **ph₂tér-* ‘father’ (Ved. *pitár-* ‘id.’, etc.)

*-eǵo- : *hiranyáya-* ‘golden’ ← *híranya-* ‘gold’

To these exponents may be added the morphophonemic process known as *vṛddhi* or “increase”.

In general terms, this exponent is characterized by the addition of a suffix to a base that has been modified through the insertion or prolongation of a vowel in a syllable corresponding to the root and/or suffix of the original base. To begin with the standard example, **deǵu-ó-* ‘god’ is derived from **dǵéu-* ‘sky(-god)’ by the insertion of *-e- into the base and by the addition of an accented thematic vowel. The zero-grade **dǵu-* is thus increased. Since this increase coincides with the addition, in this case, of an accented thematic suffix, it is evident that the unit of meaning realized by the process was genitival rather than possessive,⁵¹ which, as we have seen time and

⁵¹ Interestingly, **deǵu-ó-* ‘god’ and **dǵu-ih₂-* (> *δῖα* f. ‘divine’ [Hom. +]) would not be entirely parallel in terms of derivational semantics (Nussbaum p.c.). While **deǵu-ó-* ‘god’, i.e., ‘of the sky’, points to genitival derivation from **dǵéu-* ‘sky’, **dǵu-ih₂-* ‘goddess’, pointing to possessive

again, may also be expressed by *-ó-*. As in the possessive *λευκός*-type, when the accented thematic suffix is added to a thematic base, the suffix *-ó-* appears to replace the thematic vowel of that base. For example, the famous relation between OHG *swehur* ‘father-in-law’ (cf. Ved. *śváśura-* ‘id.’, etc.) and *suager* ‘brother-in-law’ (v. Darms 1978) may be understood not as a rightward shift of accent that accompanies the increase to lengthened grade, but as the replacement of the base’s thematic vowel by *-ó-* (i.e. **sǔékuro-* ‘father-in-law’ → **sǔēkúr-ó-* ‘of the father-in-law, on his side, brother-in-law’ or ablatival ‘descended from’).

As a process known mainly from Indic, *vṛddhi* is traditionally understood as an increase to the lengthened grade (e.g. Ved. *áyas-* n. ‘metal’ → *āyasá-* ‘of metal, metallic’). Within the proto-language itself, this increase to the lengthened grade presupposes a full grade that was lengthened. For example, as mentioned in Chapter 4, while Germanic has evidence of a **χrawa-* ‘bloody, raw’ (> PGmc. **χrawa-* ‘raw’ > OE *hrēaw* ‘id.’, OHG *hrō* ‘id.’, etc.), it also has evidence of a **χrēwa-* (ON *hrár* ‘raw’, Dutch *rauw* ‘id.’, and MHG *rā* ‘id.’). Given that the former would reflect **króuh₂-o-* and the latter, if it existed prior to Germanic, **krēuh₂-ó-*, the best way to make sense of **χrēwa-* would be to suppose that its base had an *e*-grade that was lengthened. In light of what we have learned from Nussbaum 2017 concerning the relationship between the *τόμος*-type and *λευκός*-type, it is conceivable that the ancestor of **χrēwa-* was formed from a **kreuh₂-ó-* possibly reflected in Old English *hrēow* ‘raw’, a marginal variant of the more common *hrēaw* ‘id.’. As a *vṛddhi* derivative of **kreuh₂-ó-* ‘raw’, the adjective **krēuh₂-ó-* would have borne the resemblant or approximative sense ‘somewhat raw’ (cf. PDE *-ish*), but eventually became equivalent in meaning to the reflex of **króuh₂-o-*.

derivation from **djéu-*, might thus have signified ‘inhabiting the sky’ or ‘with Sky’, if the feminine possessor was understood to be the wife the skygod.

Another case of a *vṛddhi* adjective derived from a thematic nominal would be the **uēr-ó-* ancestral to Latin *vērus* ‘true’ (OHG *wār* ‘loyal’, OIr. *fír* ‘true’, W. *gwir* ‘id.’). Though reconstructions and morphological analyses vary (cf. **uēro-* : **uēr-* ‘Freundlichkeit (erweisen)’, Pokorny 1959–1969: 1165–1166; **ueh₁-ro-* ‘true’, de Vaan 2008: 668; García Ramón 2006), it is preferable to suppose that the meaning of this ancient and widespread adjective is a predictable consequence of the kind of derivative it is. This assumption would involve assigning the preform of *vērus* to an otherwise familiar root. According to Nussbaum (p.c.), a good candidate would be the **uēr-* of Latin *vereor* ‘fear’, TB *warššām* ‘smells’ (intr.), etc. (‘beobachten, wahrnehmen’, LIV²: 685–686). This root has evidence of a radical *o*-grade adjective in Germanic (Goth. *wars* ‘careful’, OE *wær* ‘wary, cautious’) that may be interpreted as a τóμος-type **uor-ó-* ‘perceptive’. The basis of this interpretation is the theoretical expectation that **uēr-*, as a verbal root, would not be able to form an adjectivally employable τóμος-type derivative. Nevertheless, a substantival **uór-o-* ‘perception, observation’ is perfectly conceivable and possibly reflected in TB *were* m. ‘smell’.

Another theoretical expectation is the eligibility of **uór-o-* ‘observation’ as base to a possessive **uēr-ó-* with the meaning ‘observant’ or ‘observed’. Indirect evidence for this **uēr-ó-* may be drawn from Latin *vereor* ‘fear’. Belonging as it does to the 2nd conjugation, *vereor* would reflect a Proto-Italic stem **werē(j)e/o-* ‘be wary’ analyzable as an **-eh₁je/o-* stative. This analysis invites two competing interpretations. On the one hand, this stative may be assigned to the class of **-eh₁je/o-* presents derived from verbal roots (e.g. *clueo(r)* ‘be heard, esteemed’, *iaceō* ‘lie’, etc.), in which case *vereor* ‘fear’ would resemble *teneō* ‘hold’ in having *e*-grade of the root. On the other hand, there is the possibility that, in light of the fact that certain thematic adnominals have themselves manifestly formed statives in **-eh₁je/o-* (e.g. **sen-eh₁je/o-* [Lat.

seneō ‘am old’, Lith. *senėti* ‘grow old’] ← **sén-o-*⁵² [Ved. *sána-* ‘id.’, Lith. *sėnas* ‘id.’], Latin *albeō* ‘am white’ ← *albus* ‘white’), our **uer-ó-* in the sense ‘wary’ formed a **uer-eh₁-je/o-* ‘be wary’. As a possessive to **uór-o-* ‘observation’, this **uer-ó-* would be diathetically variable; while *vereor* presupposes an experiencer-oriented sense, it is conceivable that **uer-ó-* could also be said of themes, patients, or stimuli and thus mean ‘observed’. The relationship between **uer-ó-* and **uēr-ó-* may be explained in two ways. The most direct would be to suppose an endocentric genitival adjective of roughly the same meaning as the base (cf. Ved. *cítriya-* ‘shining’ ← *citrá-* ‘id.’). Alternatively, one might imagine a substantivized derivative (**uér-o-* ‘the observed, observance’) or employment of **uer-ó-* on the basis of which **uēr-ó-* would be derived and express the sense ‘observed’ or ‘of, within, or subject to observance’. In any case, the apparent lengthened grade of the preform of *vērus* would be attributable to *vṛddhi* derivation from a thematic nominal bearing an *e*-grade.

According to Nussbaum (p.c.; cf. Nussbaum 2018: 244 n. 24), a plausible case of *vṛddhi* involving a base bearing an *o*-grade would be *χωῶρος* ‘definite space, place’ (Hom.+), which would be akin to *χορός* ‘dance’. The meaning of the latter is best accommodated under the assumption that the preform of *χορός* denoted a ring-dance (Chantraine 2009: 1224–1225 with refs.) and that the root in question was **√(ǵ)her-* ‘surround, enclose’ (e.g. *χόρτος* ‘farmyard, pasturage’ [Hom. +], Lat. *hortus* ‘garden’, etc.). Under this analysis, *χορός* ‘dance’ is interpretable as the reflex of a *τομός*-type derivative ultimately of **√(ǵ)her-* ‘surround, enclose’, the original sense of **(ǵ)hor-ó-* being ‘surrounding, surrounded’ as a function of its derivation from a *τόμος*-type **(ǵ)hór-o-* ‘envelopment, enclosure’. With an increase to lengthened grade, a replacement of primary *-o-* by genitival *-ó-*, and, in a subsequent stage of derivation,

⁵² As noted previously, this traditional reconstruction is presented for convenience.

determinative retraction of the accent, the preform of $\chi\tilde{\omega}\rho\omicron\varsigma$ may be derived. By this account, $*(\acute{g})^h\bar{o}r\text{-}\acute{o}\text{-}$ would have been formed from a $*(\acute{g})^h\acute{o}r\text{-}o\text{-}$ ‘envelopment, enclosure’ and have meant ‘of the enclosure’. Its determinate derivative $*(\acute{g})^h\acute{o}r\text{-}o\text{-}$ would thus have meant ‘that which is of the enclosure, delimited space’.

A relevant question at this stage is the historical relationship between the genitival meaning of (P)IE $v\acute{r}ddhi$ and the general increase of $v\acute{r}ddhi$ itself. According to Schindler (Nussbaum p.c.), $v\acute{r}ddhi$ originated in hypostatic or de-phrasal derivation by the affixation of $*\text{-}\acute{o}\text{-}$ to substantives in the locative case (e.g. $*pod\text{-}/ped\text{-}$ ‘foot’ loc. sg. $*p\acute{e}d$ ‘at the foot’ \rightarrow $*p\acute{e}d\text{-}\acute{o}\text{-}$ ‘pedal’ $>$ $\pi\eta\delta\acute{o}\nu$ ‘end of an oar, oar blade’, i.e., ‘at the foot’, cf. Schindler 1972: 35). While this origin story is by no means completely accepted (v. Fortson 2020: 49), we would do well to consider how it relates to the formal and semantic explicanda. Regarding the semantics, we should note that static location is a standard means of conceptualizing appurtenance. If x is located at y , x may be conceptualized as an entity within the domain of and thus belonging to y . For example, beside $*de\acute{i}u\text{-}\acute{o}\text{-}$ ‘belonging to the sky, god’, there appears to be evidence of a derivative of $*d\acute{i}e\acute{u}\text{-}/di\acute{u}\text{-}$ ‘sky(-god), luminance, day’ whose e -grade surfaces after the $*\text{-}\acute{i}\text{-}$ of the root. Some indication that Latin $d\bar{i}us$ ‘daylit’ (Cato +) does not reflect $*de\acute{i}u\text{-}\acute{o}\text{-}$ ($>$ $deus$: gen. sg. $d\bar{i}v\bar{i}$ ‘god, divine’) is provided by Oscan **diiviai** ‘Diae’, whose $\langle\acute{i}\rangle$ does not represent the reflex of $*\text{-}e\acute{i}\text{-}$ (cf. **deikum** ‘dicere’). This **diiviai** would appear to be the feminine dative singular of a reflex of an $*\text{-}i\acute{o}\text{-}$ derivative to the preform of Latin $d\bar{i}us$. In all likelihood, the preform in question was $*di\acute{i}eu\acute{o}\text{-}$ (\rightarrow $*di\acute{i}eu\text{-}i\acute{o}\text{-}$, Nussbaum 1999b). What sense can be made of this form? Obviously, there is a relation to $*d\acute{i}e\acute{u}\text{-}/di\acute{u}\text{-}$ ‘sky(-god), luminance, day’ and clearly $d\bar{i}us$ ‘daylit’ has the right meaning for analysis as the reflex of genitival derivative to $*d\acute{i}e\acute{u}\text{-}/di\acute{u}\text{-}$ (i.e. ‘daytime’). The question would be to identify the process whereby $*\text{-}\acute{o}\text{-}$ is added to a form of

**d̥jéu-/diu-* whose full grade is in the “right” place, namely not where it appears in **deju-ó-* ‘god’. At some level in the history of **d̥jéu-/diu-*, the suffixal status of **-u-* is undeniable (e.g. Ved. *adyá* ‘today’, Lith. *dienà* ‘day’, etc., Nussbaum p.c.). We can thus analyze the preform as the *u*-stem **d̥j-éu-/di-u-* recognized by Rau (2003: 112ff.). The question now would be the formation of its locative.

At the earliest reconstructible stage, the formation of the locative singular to some types of athematic stems was characterized by an increase of one unit of *e*-grade applied to the allomorph of a suffix as it appeared in the weak form of a stem (e.g. Ved. *grávan-* m. ‘pressing-stone’ : weak stem, e.g., in instr. sg. *grávnā* : loc. *grávan*; Fortson 2010: 116). To this suffixally increased stem was optionally added a deictic **-i* (e.g. *grávani* ‘at the pressing-stone’). Moreover, in an **o/e* root noun like **pód-/péd-* ‘foot’ or **dóm-/dém-* ‘house’, for which the “suffix” was the ablaut pattern itself, the addition of one unit of *e*-grade to the weak stem resulted in the locatives **péd* ‘at the foot’ (cf. OIr. *ís* ‘below’ < **péd-su* << **ped-su* ‘at the feet’, Schindler 1972: 33, 35) and **dém* ‘at home’ (> Av. *dəm*, Schindler op. cit.: 35). Accordingly, when one unit of *e*-grade was added to the suffix of **di-u-*, the theoretically expected result would be **d̥j-éu* ‘in the sky; by day’.

The best evidence for this **d̥j-éu* appears to be Vedic *jyók* ‘for a long time’ (Lindemanized *jyók*).⁵³ The form is generally and justifiably associated with *dyav-* ‘sky, day’ (Mayrhofer 1986–2001 I: 604; NIL: 73), while the meaning and the hitherto unexplained *-k* call for comment. If **d̥j-éu* ‘in a day’ could be used to designate a general period of time (Weiss p.c.), the generic period might have been interpreted as a long time.⁵⁴ Though not entirely

⁵³ For phonological development **d̥j-* > *jy-*, see aan de Wiel 2000: 535ff.

⁵⁴ For example, while OE *hwīl* f. ‘while, time, a long time’ and its reflex denote a generic period of time, the use of (*for*) *a while* to express long duration is common, e.g., *after the party he*

comparable, the plurals in the phrases cited by Mayrhofer (1986–2001 I: 604), namely *dyúbhih* and *abhì dyún* ‘lange Zeit’, illustrate the semantic relationship between ‘day’ and ‘long duration’. In any case, everything preceding the *-k* of *jyók* more or less demands a relationship with *dyav-* ‘day’. Regarding the *-k* itself, one would have to reconstruct a **-k* of some description. While one might think of the deictic Proto-Italic **-k(e)* (e.g. *hic : hunc* ‘this one’, etc.), this is normally identified as a relative of the proximal demonstrative found in, for instance, Lithuanian *šìs* ‘this’ (< **kìs* ‘the one here’; de Vaan 2008: 102). Besides, proximal deictic meaning is not what would be expected for something that came to mean ‘for a long time’. Accordingly, it would be preferable to identify an element agreeable with the meaning of lengthy duration, that is, the ‘for’ in ‘for a long time’. Such an item may be found in the Proto-Slavic preposition **kъ(n)* ‘to’ (OCS *kъ*), which should go back to a **kom* conceivably ancestral to the Vedic particle *kám* that accompanies datives (Derksen 2008: 259). Though the rules governing the morphology of PIE particles, pronominals, and deictic elements are basically inscrutable, it does not seem difficult to imagine a directional particle **k* from which was ultimately derived the **kom* ancestral to **kъ(n)* ‘to’ and whose appendence to **d̥j-éu* ‘in a day’ would reinforce what would eventually become the sense of long duration.

That the addition of **k* was not actually the cause of this sense is suggested by the interpretation of Latin *diū*, which can mean both ‘by day’ and ‘for a while, for a long time’ (Pl. +), as the reflex of **d̥j-éu*, the Lindeman variant of **d̥j-éu* (v. Weiss 2020: 44). It is in light of the Lindeman variant that we must interpret *d̥tus* ‘daylit’ and its preform. It seems clear that *d̥tus* ‘daylit’ is somehow related to **d̥j-éu-/di-u-* ‘sky(god), day’. Moreover, as mentioned above and

stayed a while. Imagine a context in which focus intonation is used: *after the party he stayed a while*. Interpretation: the person in question may have overstayed his welcome.

discussed by Nusbaum (1999b), *d̄ius* ‘daylit’ cannot go back to **deǵu-ó-* ‘of the sky, god’, nor can it reflect the segmental sequence **d̄ieǵu-ó-* (> †*iovos*). In light of Oscan **diíviiai** ‘Diae’ (< PIt. **d̄iwijā-*), *d̄ius* ‘daylit’ must reflect the sequence **d̄ieǵu-ó-*. As evident, for example, from the 2nd declension masculine vocative singular to stems in *-ius* (e.g. *filius* : *fīlī* ‘son’), the sequence **-iē(-)* became **-ī(-)* already in Proto-Italic. A **d̄ieǵu-ó-* ‘of the clear sky’ would thus develop to a **d̄iwo-* (> *d̄ius*) unproblematically. The question here is what is implied by the phonological sequence **-iē-* within a form that must be reconstructed to explain the preform of Oscan **diíviiai** ‘Diae’. In other words, what is the origin of that sequence? Without doubt, and as we have mentioned, it must have been produced by Lindeman’s Law. This of course demands a monosyllable, which several forms of the basic **d̄i-éǵu-/di-ǵ-* ‘sky(god), day’ certainly were (e.g. acc. sg. **d̄iē̄m* > [Ved. *diyām* ‘sky’, Lat. *diem* ‘day’]). Accordingly, one could imagine that the strong stem in its Lindemanized form was selected as the base of the thematic adjective **d̄ieǵu-ó-* ‘of the sky’. The problem here is that there would be no way to motivate the selection of that variant.

Instead, it is explanatorily preferable to assume that the thematic adjective was formed on the basis of a form of **d̄i-éǵu-/di-ǵ-* in which it was possible for the Lindeman variant to be morphologized. This form would be the locative **d̄iēǵu* ‘in/at/under the sky’. It is important to note that this analysis, based on Nussbaum 1999b, kills several birds with one stone. That is to say, we account precisely for why a Lindeman variant would appear in a non-monosyllable (i.e., in a product of derivation whose phonological shape would decondition the Law), why the suffix of the base is in the *e*-grade, and, most importantly, why *d̄ius* means ‘daylit’, that is, ‘under a clear sky’ (e.g. *sub d̄iō caelō* [Cat.Agr.9.5.2]; *fulgur d̄iūm* ‘lightning in a clear sky’ [CIL 6 30878]).

This derivation amounts to taking an indeclinable adnominal that happens to be part of a paradigm and supplying it with an agreement-enabling inflectable element. It is thus a hypostasis. One should not forget the network of implications that are tapped into when one considers a **dijeu-ó-* with this derivational history. Something ‘in the sky’ may be understood to be ‘of the sky’, that is, of genitival meaning. It is in this light that we are to interpret the origin, for instance, of **deju-ó-* ‘god’. Since the hypostatic derivation of **-ó-* stem adjectives from commonly occurring locative adnominals resulted in semantically locative-genitival adjectives, and since the formation of the locative case for some athematics involved an increase of one unit of *e*-grade, it comes as no surprise that (Pre-)PIE should develop a rule of increase by one unit of full-grade plus **-ó-* to create nominals of general genitival value. In the case of **deju-ó-* in particular, the increase by one unit targeted a syllable that was of course uninvolved in the apophony of the base. This fact is a consequence of the status of *vrddhi* as a process independent of its de-locative origins. Similarly, the lengthened grades of, under the above-stated analyses, the *vrddhi* derivatives **uēr-ó-* ‘observed’ (> Lat. *vērus* ‘true’), **(g)hōr-ó-* ‘of the enclosure, enclosed’ (→ **(g)hōr-o-* ‘kind of enclosure’), etc. are attributable to the ultimate prototype of derivation from locatives to stems whose (zero-)suffixes in the weak stem already bore *e*-grade (e.g. **ped-* : loc. sg. **péd* ‘at the foot’ → **pēd-ó-* ‘id.’ > *πηδόν* ‘blade of an oar’ [Hom. +]).

It is in light of *vrddhi* as a semantically genitival exponent and its delocative origins that we are to interpret a certain set of evidence for **kó/él-u-* ‘covering’. Before examining that evidence, we should consider how this *u*-stem would have originally been inflected. This is best determined by comparing it to another *u*-stem that was assuredly acrostatic. Following Cowgill (1960), we can identify Greek οὐ ‘not’ (cf. Arm. *oč* ‘id.’) as the reflex of the neuter accusative singular **h₂óǵ-u* of **h₂ó/éǵ-u-* ‘lifetime, age, vitality’. Accordingly, though we do not know what

the gender of **kó/él-u-* would have been, we are in a position to assert that ablaut pattern of **h₂ó/éj-u-* and **kó/él-u-* would have been identical, as of course supposed by their assignment to the acrostatic class. What is relevant here is the general principle stated above, that is, to form the locative singular, one adds one unit of *e*-grade to the suffix as it appears in the weak stem. The weak stem of **h₂ó/éj-u-* would be **h₂éj-u-* (e.g. dat. sg. **h₂éj-u-ej* ‘for life, forever’ >> **h₂aij-éj* [> αἰεῖ ‘always’]), on the basis of which would be formed the locative **h₂j-éu* ‘in (life)time’. This locative is directly reflected by Lithuanian *jaũ* ‘already’ and OCS *ju(že)* (Smoczyński 2018: 441). As a member of the same accent-ablaut class as **h₂ó/éj-u-*, **kó/él-u-* is thus expected to have formed a locative of the shape **kl-éu* (Lindemanized **kll-éu*), for which the meaning would be ‘in/at/under cover(ing)’.

It is in light of this expectation that we now adduce the evidence of Proto-Germanic **χlewa-* (> ON *hlé* ‘shelter’, OS *hleō* ‘cover’, and OE *hlēow* ‘cover, shelter’ > PDE *lee* ‘sheltered side’). As evident from its reflexes, the basic meaning of this item must have been ‘shelter’, ‘protection’, or ‘concealment’. This last sense is quite clear, for instance, in Old Saxon. At *Hêliand* 1124, when Jesus is returning from the “forest” of the Judaeen desert to reveal his power to the world (*that he is kraft mikil kûðien wolda / weroda te willion* 1123–1124), he is said to leave the *hleō* of that forest (*thô forlêt he waldes hlêo*). Since Jesus was not there for shelter or protection, the only viable interpretation is that the forest concealed him until he was willing and ready to manifest himself to the people. In addition to *hleō* ‘Verborgenheit, concealment’, Tiefenbach (2010: 170) lists a feminine *wō*-stem *hlea* ‘Bedeckung, Verborgenheit’, which appears at 2410 in the Parable of the Sower: *thô slôgun thar eft krûd an gimang, weridun imu thene wastom: habda it thes waldes hlea forana oðarfangan* “but then there struck weeds in multitude, (and) hindered the (corn’s) growth: the forest’s *hlea* had covered it over” (2409–

2411). Rather than concealment, we observe the sense of superimposition, which in this case is the exact opposite of protection.

The immediate reason for noting the sense of ‘concealment’ and ‘overcovering’ is that the senses of ‘shelter’ or ‘protection’ are adjacent to pragmatic and semantic territory within which one can propose an alternative root etymology. According to Kroonen (2013: 231), **χlewa-* is to be understood as ‘shelter from the wind’. This is entirely credible; after all, this is indeed what its reflex means in English, Old Norse, etc. (cf. ON Theonym *Vindhlér* ‘Heimdallr’, de Vries 1977: 665). Moreover, there is substantial evidence from derivational relatives of **χlewa-* for a meaning in the vicinity of ‘warmth’. Given the climate of the lands inhabited by speakers of old and prehistoric Germanic languages, it comes as no surprise that the notions of shelter and warmth would be more intimately related. The question is what root etymology should be proposed on the basis of items like ON *hlýr* ‘warm, mild’ (cf. n. subst. *hlý* ‘protection, warmth’), OE *hlēowe* (*hlīwe*) ‘sheltered, warm’, etc., which reflect a **χliwja-* derived from **χlewa-*. For Pokorny (1959–1969: 551–552), de Vries (1977: 235, 241), and Kroonen (loc. cit.), this has been answered by supposing a connection with the root of Latin *calēre* ‘be warm, hot’. This connection is seemingly supported by another item, Proto-Germanic **χlēwa-* ‘warm’ (> Old Danish *laa* ‘lukewarm’, OHG *lāo* ‘mild, lukewarm’), along with an apparently derivative **χlēwija-* ‘id.’ reflected by Old Icelandic *hlér* ‘warm, mild’ (de Vries 1977: 241). The question here is how to characterize the relationship between **χlewa-* ‘shelter’ and this **χlēwa-* ‘warm’.

Pursuing the *calēre* connection, Kroonen assumes a **√kleh₁-* ‘warm, hot’ that made some kind of nominal stem in **-uó-* not further analyzed. This **kleh₁-uó-*, presumably meaning ‘warm spot’, is claimed to be the preform of **χlewa-* ‘shelter’ by Dybo’s Law of pretonic shortening (cf.

Goth. *qius* : Ved. *jīvá-* < **g^wih₃uó-* ‘alive’).⁵⁵ Correspondingly, the adjective **χlēwa-* ‘warm’ would reflect a **kléh₁-uó-* that would not undergo shortening (i.e. laryngeal loss). Accordingly, both **χlewa-* ‘shelter’ and **χlēwa-* ‘warm’ can be united by supposing that they simply reflect two different positions of the accent.

There are various problems with Kroonen’s analysis and root etymology. In the first place, his scenario requires a laryngeal whose existence and source cannot be established; the root itself (**√kel-* ‘warm werden’, LIV²: 323) was clearly *aniť*, as evident from the Baltic derivatives (Lith. *šiltas* ‘warm’, Latv. *silts* ‘id.’ [cf. Welsh *clyd* ‘warm, cozy’] < **k_l̥-tó-* ‘warmed, heated’). Moreover, since the root syllable of Latin *caleō* could easily have been modeled on a form potentially subject to Lindeman’s Law (e.g. *cale-faciō* ‘make hot’ < instr. sg. root noun **k̥(l)l-éh₁* ‘with heat’ [Jasanoff 1978: 118–126]; cf. *mare* < **m̥r-i-* ‘sea’), the likelihood of a *set-* root is minimal, and even if there were a *set-* root (e.g. Ved. *√srā-* ‘gar werden’, Mayrhofer 1986–2001 II: 668–669), Kroonen would need to postulate Schwebeablaut if a relation with Vedic *śarád-* f. ‘autumn, year’, Young Avestan *sarəd-* f. ‘year’, and Old Persian <θrd-> is maintained (< **kel-(e)d-*, NIL: 414–415). Alternatively, one could claim in defense of **kleh₁-uó-* and **kléh₁-uó-* that the **-éh₁-* is not of radical origin but constitutes the base from which a **-uó-* derivative was formed according to a de-instrumental pattern (cf. FCM of *cale-faciō* ‘make hot’). Against this claim is the observation that, while thematic possessive derivatives of *t*-stems, etc. are found in this value (e.g. Lat. *acētum* ‘vinegar’ < **h₂ek-éh₁-t-ó-*, Nussbaum p.c.), de-casulative behavior in the case of **-uó-* is marginal, though allegedly not impossible (e.g. Lat. *salīvā-* ← **salīuo-* ← **s_lh_xih₁-uó-* ‘slimy’ ← **s_lh_x-i-h₁* ‘with slime’, Vine 2016: 486–487). Finally, even if

⁵⁵ It should be noted, however, that it is not universally accepted that this rule of laryngeal loss involved sequences in which the vowel preceding the laryngeal was [– high] (cf. OIr. *sír* < **seh₁-ró-* ‘id.’ [cf. Lat. *sērus* ‘late’], Weiss p.c.).

we were to grant a **k̑leh̑uó-* ‘warm spot’ and a **k̑l̑eh̑uó-* ‘warm’, what sense could one make of their accents? One might assume that an original adjective **k̑leh̑uó-* came to be used as a substantive, but, as for **k̑l̑eh̑uó-* ‘warm’, Kroonen gives no explanation as to how its adjectival status relates to the position of its accent. Though we might imagine an eventually attenuated definite adjective **k̑l̑eh̑uó-* ‘(the) warm’ derived from a still adjectival **k̑leh̑uó-* ‘warm’, this analysis offers little help when so many explanatorily infertile assumptions have already been made.

The relationship between **χlewa-* ‘shelter’ and **χlēwa-* ‘warm’ is extensively discussed by Darms (1978: 54ff.), who suggests that it can be explained by supposing that **χlēwa-* is possibly an instance of *vȓddhi* within Germanic. Though such *vȓddhi* is not impossible, the derivational path is unnecessarily beset by the problematic proposal that the basic **χlewa-*, having been produced through the Proto-Germanic lowering of **/i/* before a mid or low vowel in the next syllable (< **χliwa-*; cf. OE *nest* ‘nest’ < **nizdó-*, Fulk 2018: 56), reflects a derivative in **-uo-* from **√k̑lej-* ‘lean, bend’ (LIV²: 332). The formally most akin alleged comparanda are Latin *clivus* ‘hill, slope’, Proto-Germanic **χlaiwa-* (> Goth. *hláiw* ‘grave’, OE *hláw* ‘mound’, etc.), and Gothic *hlijans* ‘tabernacles’ (acc. pl.), which, following Uhlenbeck (1900: 80), Darms takes to be a scribal error for **hliwans* (< **χlewa-* < **χliwa-*). The claim that *hlijans* was written erroneously is incredible, as <w> and <j>⁵⁶ are quite distinct. The path of least resistance may involve a more seamless link with **√k̑lej-* ‘lean, bend’. Given that, as Darms himself notes (1978: 59), other terms for structures appear to be derived from **√k̑lej-* (e.g. Goth. *hleipra* ‘hut, tent’ < **k̑l̑itreh₂-*, Hom. Gk. κλισίη ‘hut, shed, booth’ < **k̑lit̑ieh₂-*, etc.), *hlijans* is best taken via the Gothic raising of **/e/* back to a PGmc. **χlija-* characterized in turn by the usual raising of

⁵⁶ i.e. ʁ /w/ and ʒ /j/.

* /e/ before * /i/ or * /j/. Accordingly, the most suitable preform is a **klejo-* interpretable as a λευκός-type derivative (**klej-ó-*). As mentioned above, such a derivation would have the advantage of sharing an origin with more certain derivatives of **klej-* (e.g. Goth. *hleipra* ‘hut, tent’, etc.). Since the basic notion might have arisen from the fact that such structures are supported by posts on which the enclosing material leans, it is possible that **klejó-* had the sense ‘leant upon’ (cf. PDE *lean-to* ‘shelter with sloped roof’, OIr. *clí*, *cleth* ‘house post’, Nussbaum p.c.), in addition to the sense ‘leaning, bending’. Moreover, the sense of being ‘bent’ seems evident in the λευκός-derivative **klej-ó-* ‘bent’ reflected by Old Irish *clé* ‘left’ < *‘crooked’ (cf. OIr. *fochlae* < **upo-klej-o-* ‘north’; Goth. *hleidumei* ‘left’, Matasović 2009: 207; cf. Latv. *krails* ‘bent’ : *kreīlis* ‘lefty’, Pokorny 1959–1969: 935–938, s.v. (*s*)*ker-* ‘drehen, biegen’).

In any case, it is unlikely that *hlijans* constitutes evidence for a **χliwa-* from which the attested forms would develop through an intermediate **χlewa-*. Darms’ proposal of **χliwa-* (< **kli-uo-*) additionally rests on the above-mentioned association with Lat. *clivus* ‘hill, slope’ and PGmc. **χlaiwa-* ‘(grave-)mound’, which point to a **kloj-uo-* of some description. Moreover, Lithuanian *šleīvas* ‘bandy-legged’ and *šlīvas* ‘id.’ point to **klej-uo-* and **kli-uo-* respectively, the latter of which would also directly underlie the supposed **χliwa-*. In favor of **χliwa-* (< **kli-uo-* : **kloj-uo-*) semantically is the notion that a convex surface, given that it covers an interior space, is conceivable as a shelter. Against this argument is the fact that, by steps of inference (‘bent thing’ > ‘cover’ > ‘shelter’), a **kli-uo-* is more expensive than supposing a derivative of **kel-* ‘cover’. An additional expense is that, as Darms himself admits, the association of the supposed **χliwa-* (> **χlewa-*) with **χlēwa-* requires a *vṛddhi* derivative at an unusually late date.

Yet *vṛddhi* derivation remains the best way to account for **χlewa-* ‘shelter’ and **χlēwa-* ‘warm’. This claim is based on the notion that the meaning of the adjective **χlēwa-* is consistent

with the assumption of genitival derivation from an item with the sense ‘shelter’. Since **χlewa-* had the sense ‘shelter’, it is more than conceivable that **χlēwa-* had the sense ‘warm’ because its derivational meaning ‘under cover, sheltered’ was generated on the basis of the sense ‘shelter’. Moreover, the genitival generation of the ‘warm’ semantics is applicable whether the derivative reflects *vṛddhi* (Old Danish *laa* ‘lukewarm’, OHG *lāo* < **χlēwa-*), **-(i)ja-* [< **-ijo-*] (Oic. *hlýr* ‘warm, mild’ < **χliwja-*), or **-(i)ja-* [< **-ijo-*] added to the *vṛddhi*-characterized adjective (Oic. *hlær* ‘warm, mild’ < **χlēwija-*; cf. ὀρθός ‘straight, upright’ → ὀρθίος ‘id.’). As mentioned above, the association of warmth with shelter is a pragmatic consequence of climate.

If the semantics of warmth are entirely derivable from and localizable in genitival derivation from **χlewa-* or its preform, the natural question now is why **χlewa-*, an item for which we have to reason to attribute the semantic range ‘cover, concealment, protection’, means ‘shelter’. Though the obvious answer is that **χlewa-* is ultimately derived from **√kel-* ‘cover’, it is necessary to state explicitly how that derivation works. With evidence of an erstwhile *o*-stem **χlewa-* (ON *hlé* ‘lee’, OE *hlēow* ‘shelter’, OS *hleō* ‘concealment’) and de-thematic *h₂*-stem **χlewō-* (> OS *hleā* ‘overcovering’ < **-e-h₂-*) clearly involving the sense of superimposition, we can connect the dots by setting up an adjective **kleuó-* ‘covering, covered’. Given the certainty of the root etymology, what morphological analysis can be assigned? In principle, one might imagine a primary **-uó-* (adjective) to **√kel-* ‘cover’ (cf. Ved. *pak-vá-* ‘cooked’). The problem, of course, is that one would expect a **kel-uó-* or **k_l-uó-* rather than a **kle-uó-* for which one would have to assume a completely incomparable root allomorph.⁵⁷ This problem is not only solved but completely dissolves when we posit a morphological boundary between the **-eu-* and

⁵⁷ The avoidance of this assumption has no doubt contributed to the assignment of **χlewa-* to **√kel-* ‘warm, hot’ or **√klej-* ‘lean, bend’, despite semantic justification for **√kel-* ‘cover’.

the thematic vowel. What this means, naturally enough, is the acknowledgement of a *u*-stem to * \sqrt{kel} - ‘cover’.

It is not difficult to imagine what would be responsible for the shape of the *u*-stem base to which the thematic vowel is added, especially in light of what is simultaneously explained in terms of semantics. We have already hypothesized that, if a **kó/él-u*- existed, its locative would be **kl-éu*. This **kl-éu* would basically mean ‘in/at/under cover’. If one were to supply this adnominal phrase with hypostatic *-*ó*-, the output would be a **kl-eu-ó*- semantically equivalent to its base. In other words, the meaning of this item is in complete agreement with the supposition of derivation from an adnominal that bears the morphology of the locative case. What is important is that this **kl-éu*, however fixed and frequent it was, served as an adnominal. It is this adnominal status that rendered it eligible for hypostatic derivation, just as the form and meaning of, for instance, *πεζός* ‘on foot’ (Hom.+) are completely explicable on the basis of a derivation that selects an adnominally employed locative **péd-i* ‘on foot’⁵⁸ (> Lat. abl. sg. *pede* ‘by foot’) and generates an inflectable version of it (i.e. **ped-ĭ-ó*- ‘on foot’). Thus, when a hypostasizing *-*ó*- was added to **kl-éu* ‘under cover’, the result was an adjective **kl-eu-ó*- ‘under-cover’.

Now one could claim that **kl-eu-ó*- with its full-grade suffix is a kind of *vṛddhi* derivative of **kó/él-u*-, just as **dr-eu-ó*- ‘wooden thing, tree’ (> OE *trēow* ‘tree, etc.’, ON *tré* ‘id.’ etc.) appears to be a suffixally *vṛddhi*-ed derivative **dó/ér-u*- n. ‘wood, tree’ (> Hitt. *tāru*- ‘id.’, Vedic *dāru*- n. ‘id.’, *δόρυ* n. ‘tree, spear-shaft’). Yet what this claim would amount to is an

⁵⁸ This locative, with its deictic *-*i* added to the weak stem, is presumably younger than the one with lengthened grade (i.e. *péd* ‘at the foot’). In other words, this younger locative form is an expression of the shift toward identifying the deictic particle itself as the exponent of the locative case.

application of an analysis that relies on the same conceptual semantic nexus that gives rise to a genitival derivative. In other words, while **kl̥-eu-ó-* might have originated hypostatically as a de-locatival, it is still enmeshed in an inferential web of genitival relations. A substantive derived from **kl̥-eu-ó-*, namely **kl̥-eu-é-h₂-* (*vel* **kl̥-éu-e-h₂-* > OS f. *hlea* ‘overcovering’), or a **kl̥-eu-ó-* employed as a substantive (i.e. ‘under-cover’ is ‘a place under-cover’ is ‘a place with cover’ is ‘a place that covers’ is ‘a cover’), insofar as the substantive means ‘in the **kó/él-u-*’, would designate an entity that appertains to the **kó/él-u-*. Given this nexus of implications, it is entirely plausible, as discussed above, that *vṛddhi* originated in a handful of actual de-locativals on the basis of which morphological procedures like suffixal increment were generalized as general genitival exponents. In sum, when one operates with a de-locatival origin of *vṛddhi*, one gets the morphology of *vṛddhi* and the meaning of *vṛddhi* for free.

At this point, we have argued that Proto-Germanic **χlewa-* ‘shelter’ not only provides evidence for a *u*-stem to **√kel-* ‘cover’, but also that that *u*-stem was the base of a hypostatic derivation that contributed to providing the de-locatival blueprint for *vṛddhi* as a general genitival exponent in PIE. In accordance with the well-founded assumption that PIE had a genitival process characterized by adding one unit of full grade to a root or suffix of the base, we may assert that, **χlēwa-* ‘warm’, unless formed from **χlewa-* by *vṛddhi* within Germanic, reflects a **kl̥ēu-ó-* formed from **kl̥eu-ó-* (cf. **kreuḥ₂-ó-* ‘bloody’ → **krēuḥ₂-ó-* ‘a bit bloody’). If the latter, as we have reason to believe, meant ‘shelter’, then **kl̥ēu-ó-* (*vel* **χlēwa-*) could have been understood in the sense ‘in shelter’ or ‘in the lee’ (Nussbaum 2009: 11).

Proto-Germanic **χlewa-* ‘shelter, etc.’ and its ancestor **kl̥-eu-ó-* ‘under-cover’ are not the only genitival evidence for a *u*-stem to **√kel-* ‘cover’. The remaining evidence is provided by Greek itself. As both Chantraine (2009: 533) and Frisk (1960–1973: 897–898) point out in

connection with $*\sqrt{k}el-$ ‘cover’, $\kappa\lambda\epsilon\acute{o}\nu$ ‘sheath’ (Hom.+) might in fact continue a (Proto-Greek) $*kolew\acute{o}-$. This reconstruction is justified from the fact that, since $\kappa\lambda\epsilon\acute{o}\nu$ is found not only in Homer but in Attic prose as well (X.Cyr.1.2.9; Arist.HA.531b24), the sequences $*-e\lambda\acute{o}-$ and $*-eso-$ are both excluded from being ancestral to the uncontracted $-\epsilon\omicron-$ of $\kappa\lambda\epsilon\acute{o}\nu$ (cf. Ionic n. gen. sg. $\gamma\acute{\epsilon}\nu\epsilon\omicron\varsigma$ ‘of a race’; m. nom. sg. $\chi\rho\acute{\upsilon}\sigma\epsilon\omicron\varsigma$ ‘golden’; vs. Attic $\gamma\acute{\epsilon}\nu\omicron\upsilon\varsigma$ and $\chi\rho\upsilon\sigma\omicron\upsilon\varsigma$). In favor of $*-e\mu\omicron-$ is the variation in the spelling of the first syllable; while Homer displays an apparently metrically lengthened $\kappa\omicron\upsilon\lambda\epsilon\acute{o}\nu$ ‘sheath’, the extra-Epic reality of $\langle\omicron\rangle$ [o:] is supported by the $\kappa\omicron\upsilon\lambda\epsilon\acute{o}\varsigma$ ‘heart-sheath, pericardium’ of Ionic prose (Hp.Cord.3). To unite the two, one could claim that, whereas $\kappa\omicron\upsilon\lambda\epsilon\acute{o}\nu$ displays Third Compensatory Lengthening, the instances of $\kappa\lambda\epsilon\acute{o}\nu$ in Homer are attributable to dialects that did not undergo 3rd CL. Though this proposal is possibly on the right track, it gives rise to the disadvantageous implication that Attic $\kappa\lambda\epsilon\acute{o}\nu$ reflects a morphologically dubitable $*kolwew\acute{o}-$.⁵⁹

A path forward may be followed through comparison to Nussbaum’s (2009: 16–17) discussion of $\kappa\epsilon\nu\acute{o}\varsigma$ ‘empty’, which, as we saw in Chapter 3, may be taken back to a Proto-Greek $*kenw\acute{o}-$ (> Ion. $\kappa\epsilon\iota\nu\acute{o}\varsigma$). Unlike, for instance, $\sigma\tau\epsilon\nu\acute{o}\varsigma$ ‘narrow’ (Ion. $\sigma\tau\epsilon\iota\nu\acute{o}\varsigma$), evidence of whose originally basic u -stem as an erstwhile substantival FCM is provided by $\Sigma\tau\epsilon\nu\acute{o}\kappa\lambda\eta\rho\omicron\varsigma$ ‘Narrow Lot(ted)’, the source of the base of $\kappa\epsilon\nu\acute{o}\varsigma$ is less directly observable. Since Armenian sin (gen. $snoy$) ‘empty’ provides evidence for a $\lambda\epsilon\upsilon\kappa\acute{o}\varsigma$ -type $*\acute{k}en-\acute{o}-$,⁶⁰ it is justifiable to postulate a

⁵⁹ This dubitability stems from the hypothetically necessary assumption of a morphological boundary preceding the $*-w\acute{o}-$. One would be forced to assume a $*-\mu\acute{o}-$ derivative of a thematic stem and it is difficult to motivate this unusual sequence semantically.

⁶⁰ On the correspondence of root, see Clackson 1994: 138–139. According to Martirosyan (2010: 575), sin may also reflect a $*\acute{k}ene\mu\acute{o}-$, identical to the preform of the variant $\kappa\epsilon\nu\epsilon\acute{o}\varsigma$ (see below). This alternate preform does not rule out a $*\acute{k}\acute{o}/\acute{e}n-u-$, given that the $*-e\mu-$ of $*\acute{k}ene\mu\acute{o}-$ presupposes the eligibility of a preceding ablaut increment stemming from its origin as an athematic suffix – something to which $*-\mu\acute{o}-$ might not be entitled.

derivative **kó/én-u-* ‘emptiness’ (Nussbaum 2009: 16), whose weak stem would provide the base for the possessive **ken-u-ó-* ancestral to κενός/κεινός. Yet beside κενός/κεινός, Homer and the dialects also show κενεός (Hom., Cypr. *ke ne u wone* < PGk. **kenewó-*).

To explain κενός beside κενεός, Nussbaum (loc. cit.) has proposed to expand the scope of *vṛddhi* to include the modification of non-radical material. In light of our preceding discussion of the exponent’s de-locatival origins, whatever had been increased by the locative was at some stage a suffix or marker of primary derivation. As we have seen, when a hypostatic derivative was formed from **pód-/péd-* ‘foot’, the locative singular **péd* ‘at the foot’ provided the base to which the inflection-enabling **-ó-* was affixed (i.e. **péd-ó-* ‘(thing) at the foot’ > πηδόν ‘end of an oar’). Since the “suffix” of a basic root noun was the ablaut pattern itself, *vṛddhi* could give the impression that the locus of operation was the radical syllable. This arguably led to the formation of genitivals such as **der-u-ó-* ‘of, from wood’ (> OE *teoru* ‘tar’ > PDE *tar*, Kroonen 2013: 514) beside the formally more archaic and for that matter suffixally *vṛddhied* **dr-eu-ó-* (> OE *trēow* ‘tree’). Accordingly, that non-radical material was visible to *vṛddhi* is non-problematic. What is especially innovative is the invocation of the process to explain adjective to adjective derivation. Such an endocentric outcome is by no means unusual. As Nussbaum (2009: 14) notes, the input of a genitival process that produces an adjective can itself be an adjective (e.g. ὀρθός ‘upright’ → ὄρθιος ‘straight up’, Ved. *citrá-* ‘shining’ → *cítriya-* ‘id.’, etc.). In this sense, it is hardly surprising that from the possessive adjective **ken-u-ó-* ‘empty’ was derived a **ken-eu-ó-* ‘empty-ish’ whose genitively derived approximative force was eventually lost.⁶¹

⁶¹ A similar history may lie behind στερεός ‘firm, solid’ and ταναός ‘outstretched’. Since the preform of στερεός is likely **ster-eu-ó-* (Beekes 2010: 1400), one might imagine a **ster-u-ó-* serving as its base. As for ταναός, the evidence of τανυ- (e.g. τανύπεπλος ‘with flowing robe’) as an isolated FCM supports a *u*-stem substantive **tó/én-h₂-u-* ‘the outstretched, extension’ (← **tḡ-h₂-ó-* ← **tén-e-h₂-* ← **ten-ó-* ← **tón-o-* [τόνος ‘stretching’] ← **√ten-* ‘stretch’, Nussbaum

In almost the same manner we may view the ancestor of Attic κολεόν. Once we rule out *kolwewó- as a morphologically uninterpretable sequence, we are left with the above-mentioned *kolewó- (< *kól-εῦ-ό-). By comparison to *kén-εῦ-ό- beside *kén-ῦ-ό-, an intriguing possibility would be to derive *kól-εῦ-ό- ‘cover-like (thing)’ from a *kól-ῦ-ο- of some description. While this *kól-ῦ-ο- must be postulated and is of unclear morphological analysis so far, it is likely that possessive derivation lies somewhere in its history. In one scenario, the radical ο-grade would be a hold-over from the strong-stem vocalism of the original acrostatic *kól-él-ῦ- (→ *kól-ῦ-ό- ‘providing cover’). In another scenario, we might imagine a radical zero-grade possessive derivative *kól-ῦ-ό- ‘providing/provided with cover’ from which was derived a radical ó-grade determinative *kól-ῦ-ο- ‘that which provides cover’ (cf. *h₂s-tó- [→ *h₂s-to- > Ved. ásta- n. ‘home’] → *nós-to- [> νόστος ‘return home’], García Ramón 2016, Höfler 2019). In any case, *kól-ῦ-ο- could explain the [o:] <ου> of κουλεός ‘heart-sheath’ if we suppose that it served as the base of an *-εῖο- derivative *kól-ῦ-εῖό- ‘cover-like (thing)’,⁶² which could be formed from a substantive *kól-ῦ-ο- or an adjective *kól-ῦ-ό- (cf. the *-ο- → *-εῖο- of Ved. sána- ‘old’ → sanáya- ‘id.’). By this reasoning, κολεόν and κουλεός reflect two separate genitival formations derived in parallel from the same source.

That source of course need not be assigned the analyses mentioned above. One could in principle assert that the *kólῦο- apparently basic to the preforms of κολεόν and κουλεός is a primary *-ῦο- stem formed from *√kel- ‘cover’. The problem with this analysis is that it does not cohere with the preform of κολεόν. If we are dealing with a *-ῦο- stem, why should there be

p.c.), from which was formed a possessive *ten-h₂-ῦ-ό- ‘outstretched, thin’ (> Lith. *tévas* ‘thin’, Latv. *tiēvs* ‘id.’). Presumably a radical zero-grade variant of this possessive (i.e. *tḥ-h₂-ῦ-ό-) would be the base of a suffixally *vṛddhi*-ed *tḥ-h₂-εῦ-ό- ancestral to ταναός. Otherwise, ταναός would reflect a *tanawó- (< *ten-h₂-ῦ-ό-) by vowel assimilation (Nussbaum p.c.).

⁶² This form is comparable to θυρεός ‘door-stone’ in its oxytony.

what appears to be an apophonic increase just floating before the alleged suffix **-uo-*? If the *e-* grade is to be actually identified as constituting an allomorph of a real suffix, there is no choice but to identify that suffix as that of a *u*-stem. Though, as mentioned above, it is unclear how this *u*-stem was derivationally basic to **kól-u-o-* ‘covering’, what is beyond doubt is that a *u*-stem to **√kel-* existed.

We are thus in possession of at least two justifiably reconstructed items that support the hypothesis of our stem **kó/él-u-* ‘covering’. These are **kl-eu-ó-* ‘under-cover’ (> PGmc. *χlewa-* ‘shelter’) and **kól-eu-ó-* ‘covering(-like) thing’ (> *κολεόν* ‘sheath’). The former appears to be of so ancient a formation as to actually reflect de-locative hypostasis, while the latter seems to have been formed according to a fully-fledged genitive process, that is, by *vṛddhi* itself. As such, both **kl-eu-ó-* and **kól-eu-ó-* as derivational fragments may illustrate stages in the evolution of a genitive exponent as well as the conceptual basis of the derivational semantic category, namely the relationship between (static) location and appurtenance as realized by the relation OF. In the next Chapter, we shall in effect return to the relation WITH to examine more evidence for **kó/él-u-* as well as, crucially, for its *i*-stem sister.

CHAPTER 8

THE PREDICATIVE INSTRUMENTAL PERIPHRAISIS

In the previous Chapter, we discussed how the adnominal locative is interpretable as an expression of the relation OF. This interpretability conditions the emergence of a general genitival exponent from originally de-locatival hypostasis. In this Chapter, we shall establish a framework for assessing certain evidence of **kó/él-u-* and **kó/él-i-* by discussing an aspect of how the relation WITH that underlies possessive derivation is realized by the adnominal instrumental. We have already observed how the adnominal instrumental is eligible as a base for the formation of determinatives (e.g. **s/h₂-u-h₁-t-* ‘the healthy, health’, cf. Pike 2007). It is now necessary to consider the behavior of the adnominal instrumental itself.

The PIE instrumental case, as a syntactic and semantic operator, is one of the main ways by which the WITH relation expresses itself. Since substantives in the instrumental case could be used as adjuncts to verbs, often to indicate the means by which the action of the verb is performed, the adverbial usage of the instrumental has loomed large in our understanding of this case. Yet the instrumental could also be used as an adjunct attributed to substantives. The basis of this attribution is an underlying predication WITH $y(x)$. Since, as in possessive derivation, all sorts of entities can serve as y , the potential semantic roles of x are many and varied but are all based on the function discussed in Chapter 5: to *conjoin* two objects in such a way as to identify the one by means of the other.

The object serving as the means of identification can be concrete or abstract. Let us focus on the abstract means. As we have repeatedly observed in possessive derivation, possession of an abstract opens up for the possessor the semantic roles with which the abstract is associated. Thus, something possessing an adjectival abstract may be – and usually is – interpreted as the theme

(e.g. **meg-h2-o-* ‘great, big’ [Ved. *mahá-* ‘id.’] ← **még-h2-* ‘the big, size, etc.’ [FCM ἀγα- ‘great’]); something possessing a verbal abstract may be interpreted as an agent, experiencer, etc., or as a patient/theme undergoing the action or being in the state denoted by the verbal abstract. As we have also observed, possessive derivation has numerous morphological markers capable of creating inflectable stems that realize adnominals. Yet possession itself also has the power to create already case-marked, and thus uninflectable, adnominals by means of the instrumental case.

Even when we put aside the abundant evidence of the adnominal instrumental in the daughter languages, we would already have some suspicion that the use of an adjectival abstract in the instrumental case was another means of expressing what was expressed by inflected adjectives derived from or basic to such abstracts. As demonstrated by Schindler (1986), the way to make sense of the χρῶσθρονος-phenomenon, that is, the replacement of an adjectival adnominal by the corresponding substantive as FCM of a *bahuvrīhi-*, is to suppose that the FCM represents the substantive in a construction in which it modified the substantive represented by the SCM. The question here is how a substantive could modify another substantive. The obvious answer is that the modifying substantive was in a particular case that enabled it to be an adnominal. Since the relationship that obtains between the compound members is possessive, that case must have been the instrumental (‘a throne with gold’). In the case of the famous Στενύκληρος, this conclusion involves the implication that PIE had at least two ways of creating an expression for ‘narrow’. One way involved possessive derivation of a fully inflected adnominal from the abstract (**stó/én-u-* ‘narrowness’ → **sten-u-ó-* ‘narrow’), while the other involved the use of that abstract in the instrumental case (**stén-u-h₁* ‘with narrowness, i.e., narrow’).

Though such uses and the ‘with *x*-ness’ glosses that represent them may seem strange to some speakers of many modern Indo-European languages, the use of abstracts in this way is merely an expression of the instrumental’s role in realizing the WITH relation regardless of where the thing possessed appears on the concrete-abstract spectrum. For example, at RV 1.138.3ab, a *yásya te pūṣan sakhyé vipanyávaḥ* / b *krátvā cit sántó* ‘*vasā bubhujiré* “Pūṣan, since in fellowship with you your admirers **who have just this purpose** have benefitted by your aid”,⁶³ it does not matter how concrete or abstract the conceptually abstract *krātu-* ‘mental power, resolution, etc.’ really is. What matters is that the instrumental case enabled one to say that one *has* that entity.

Beyond pointing out the general availability of the instrumental to create adnominal versions of concrete and abstract substantives, it does not seem possible to recover how a **stén-u-hi* would itself be motivated. That is to say, we do not know how an abstract instrumental substantive predicated of or attributed to another substantive would have differed in terms of non-superficial semantics from the attribution or predication of a fully inflected adnominal associated with that abstract. What is in any case clear is what is achieved semantically through the predication of an instrumental. As in the case of predicating inflected adjectives, what we get is a nominal sentence whose predicate constitutes a condition in which the subject exists. This stative nominal sentence pattern has been clear at least since Karl Hoffmann’s (1956a and b) work on the construction and Jasanoff’s (1978: 123) analysis of Vedic *gúhā* ‘hidden’ in *gúhā yad* ‘quod latet’, etc., as a predicative instrumental. Though the status of *gúhā* as a root-noun reflex is

⁶³ Here and henceforth Jamison and Brereton translation.

not beyond doubt,⁶⁴ there is effectively direct evidence that instrumental root nouns, particularly to adjectival roots, were used as predicates in nominal sentences.

As demonstrated by Balles (2000: 31–32; 2006: 258–260), the impersonal *χρή* is best analyzed as a predicative instrumental to a root noun. Though in Balles’ account the root in question is **√g^her-* ‘desire’ (> Ved. *√har-* ‘be gratified’, *χαίρω* ‘rejoice’, etc.), a likelier candidate, according to Nussbaum (p.c.), would be the **√g^her-* ‘short’ already mentioned by Pokorny (1959–69: 443) as the root of *χρή* and *χείρων* ‘worse’. Nussbaum’s justification for this etymology arises in part from the derivational history of the associated Old Irish *gar* ‘short’, which appears to reflect a Lindeman variant **g^hrr-ó-* of a **g^hr-ó-* analyzable, because of its radical zero-grade, as a possessive derivative of a root noun **g^her-/g^hr-* ‘shortness’ (cf. **luk-ó-* ‘light’ [Ved. *rucá-*] ← **leuk-/luk-* [Ved. *rúc-*, Lat. *lūx*]). Not only would its instrumental **g^hr-éh₁* be an impeccable preform of *χρή*, the gloss ‘with shortness’ is entirely concordant with the latter’s deontic meaning (i.e. **‘be short’* > **‘be lacking’* > ‘be necessary’, cf. *δεῖ* ‘is wanting’).

The existence of such obvious fossils as *χρή* is by no means the only evidence of semantically adjectival root nouns being used in the instrumental case to predicate states. One piece of evidence is based on Jasanoff’s (2002–2003: 147) analysis of *ē*-stative presents (e.g. Lat. *caleō* ‘am warm, hot’, etc.) as **-je/o-* derivatives of the instrumental root nouns themselves – in effect a verbalizing hypostasis of the uninflected stative predicate. According to this theory, the stative value of the eventual suffix stemming from **-éh₁(-))je/o-* is the direct result of the original stative use of the instrumental root noun. Though this exponent of stativity notably

⁶⁴ According to Barth (2018: 153–160), who argues against adverbial accent retraction as a general Vedic process and views the isolated oxytone in *guhá gúham* (RV 1.67.6) as a nonce creation, the best hypothesis is that *guhā* is simply the adnominal instrumental of a barytone thematic *gúha-* ‘hiding place’.

appears in derivatives of verbal roots (e.g. Lat. *clueō* ‘I am heard, am famous’, Lith. *turėti* ‘to have’ [∶ * $\sqrt{twerh_x}$ - ‘take’], etc.), it is of course at home in families formed from adjectival roots (e.g. θαρσέω ‘be of good courage’, Lat. *rubeō* ‘am red, redden [intr.]’, etc.), and is deeply embedded in the Caland System. Characteristically, what this Calandish status means, at least in part and in principle, is that, if a given adjectival root had a certain set of typical derivatives (*-*ró-* ∶ *-*i-*, etc.), an *-*éh₁(-)*j*e/o-* present could be analogically formed even from a root that had never formed an instrumental root noun potentially basic to a *-*j*e/o- present. It is naturally this productivity that makes *-*éh₁(-)*j*e/o-* a part of the Caland System.

It is worth considering the semantic slot filled by this member of the System. Though in principle a *-*j*e/o- present formed from an adnominal could be causative/factitive (e.g., as a reflex of the type, *μειλίσσω* ‘make mild’ ← *μείλιχος* ‘mild’ [Hom. +]), *-*éh₁(-)*j*e/o-* is largely intransitive.⁶⁵ Given that denominal *-*j*e/o- is not itself an exponent of intransitivity, the assumption would be that the intransitivity *-*éh₁(-)*j*e/o-* is a result of the type’s origin in hypostasizing statively employed predicative instrumental root nouns as verbs. While stativity would be the predictable output of this derivation, it is also worth mentioning that the intransitive present created by this hypostasis need not have been simply an inflectable stative predicate. With the addition of an exponent of tense and aspect, *-*éh₁(-)*j*e/o-* would have formed presents that, under certain circumstances, could express the gradual development of the state. In other words, it is more than conceivable that some *-*éh₁(-)*j*e/o-* presents could be used as anti-causatives, i.e., fientives (e.g. Lat. *rubeō* ‘am red’ and ‘grow red, blush, etc.’).

⁶⁵ As Nussbaum observes (p.c.), there is evidence of transitivity in Latin verbs like *puđet* ‘causes shame to *x* [acc.]’ and *misereor* ‘I pity’ (i.e. ‘I deem *x* [acc.] miser’).

For our purposes later on in this Chapter, it is important to note that this combination of stativity and anti-causativity (anti-causativity = fientivity) could be expressed by another formation: prototypically radical *e*-grade simple thematic presents (e.g. Ved. *tápa-* ‘be/become hot, burn’, φλέγω, -ομαι ‘blaze, shine forth’). According to, and in agreement with, Rau (2012), this class was originally active in form and intransitive in meaning. The causative actives apparent in Vedic (e.g. *práthati* ‘spreads out’) and dominant in Greek (e.g. φλέγω ‘burn, lights up, make illustrious’, ἐρεύθω ‘make red’ [cf. OE *réodan* ‘id.’]) are explained as back-formations from the middle, which appears in many cases to have replaced the older intransitive active (e.g. φλέγω ‘blaze, shine forth’, ἐρεύθω ‘become red’⁶⁶), probably due to a tendency to align middle morphology with reduced valency (i.e. the number of arguments supported by a predicate). Though the exact origin of this class of radical *e*-grade simple thematic active presents is perhaps imponderable, what is beyond doubt is its participation in the Caland system, especially as it is reflected in Indo-Iranian and Greek (e.g. Ved. *pr̥thú-* ‘broad’ : *práthas-* ‘expanse’ : *práthati* ‘spreads out’, ἐρυθρός ‘red’ : ἔρευθος ‘redness’ : ἐρεύθω ‘reddden’).

Having noted the existence of this type, henceforth designated the ἐρεύθω-type, let us return to the base of the **-éh₁(-)je/o-* stative, henceforth designated the *rubeō*-type. While, as mentioned above, the *rubeō*-type provides considerable evidence for the use of predicative instrumental root nouns, even clearer evidence is adducible from the *cale-faciō/-fiō*-type first explained by Jasanoff (1978: 121–126) as an (anti-)causative periphrasis consisting of the light verbs *fiō* ‘become’ or *faciō* ‘make’ and the reflex of the instrumental singular of a root noun.

⁶⁶ In a description of tetanus, καὶ τὸ πρόσωπον ἐρεύθει, καὶ σφόδρα ὀδυνᾶται, “and the face becomes red, and is greatly pained” (Hp.*Morb.*4.38).

Most notably, this (anti-)causative pattern is paralleled in Vedic by the use of the cognates *bhū-* and *dhā-* with *gúhā* in particular.

This Latin and Vedic evidence has justified the reconstruction of a widely recognized periphrastic construction consisting of the light verbs **d^heh₁-* ‘put, make, do’ (causative) and **b^huh_x-* ‘become’ (anti-causative) and an underlying stative nominal sentence constituted by an instrumental substantive predicated of either the subject of **b^huh_x-* or the object of **d^heh₁-*. While at the earliest reconstructible stage the substantive in question was a root noun, as exactly reflected in the *cale-faciō/-fiō*-type, a variety of stem-types could in principle be employed as instrumental stative predicates periphrastically augmentable by an anti-causative or causative layer. At roughly the same time as Jasanoff’s historical analysis of the *cale-faciō/-fiō*-type, Schindler (1980) demonstrated that the old Indic *cvi*-construction (e.g. Ved. *krūrā-* ‘bloody, wounded’ : *krūrī kṛ-* ‘to bloody, wound’) ultimately goes back to the use of predicative instrumental *i*-stem abstracts in the same construction as reflected by the *cale-faciō/-fiō*-type. As a whole, this construction has been extensively studied by Balles (2006), who thoroughly assesses the Indic evidence and effectively justifies Schindler’s reconstruction.

While the construction is perhaps most notable for its remnants in tense/aspect formation (e.g. Latin’s *-b-* morphs: *calēbit* ‘will be warm’, *monēbat* ‘warned’ etc., Jasanoff 1978: 123; Germanic weak preterite: Goth. *salbōda* ‘anointed’, cf. OHG *salba* ‘ointment’, Lühr 1984: 43–44; copular **h₁es-* : OCS *-ax-* imperfect *kryja-axo* ‘they covered’, Balles 2008: 169–171), it is also significant because it has left considerable traces in the realm of nominal morphology and arguably underlies certain secondary roots. The most famous of these traces is represented by the class of Latin adjectives in *-idus* (e.g. *rūbidus* ‘red, reddish’ [Pl.+]), first analyzed by Nussbaum (1999a) as the reflex of an *i*-stem and a suffix **-d^ho-* subsequently analyzed by Hackstein (2002)

and Balles (2003) as **-d^hh₁-o-*, a nominalized form of **d^heh₁-* and a compositional thematic suffix. The basic history of a form like *rūbidus* may be described as follows. Since the instrumental of **h₁ró/éud^h-i-* ‘the red, redness’, namely **h₁réud^h-i-h₁* ‘with red(ness), red’, was the complement (i.e. constitutive) of a predicative phrase selected by the causative **d^heh₁-*, the entire phrase **h₁réud^h-i-h₁ d^heh₁-* would mean ‘make *x* red, redden’. On the basis of this (kind of) phrase, one could form a compound such as **h₁reud^h-i-d^hh₁-ó-*, composed of the bare stem of the stative predicate, the zero-grade of the light verb, and a compositional thematic suffix analyzable ultimately as possessive. This compound would have two general meanings as a result of the semantics of the light verb. Since **d^heh₁-* has (at least) two arguments, a causal agent and patient/theme, the compound of which it is in effect the second member could in principle be used to refer to the agent or to the patient/theme. In other words, the formation of the compound effaces the distinction between ‘reddening’ and ‘reddened’; only context would have guided the users of such expressions. This theoretical expectation of diathetic variability is accompanied by the hypothesis that the anti-causative **b^huh_x-* could also serve as an effective SCM and that a compound so formed would with far less ambiguity be used to refer to the patient/theme. We shall return to nominal evidence of **b^huh_x-* in compounds parallel to the *rūbidus*-type later on in this Chapter.

The clearest trace of a *rūbidus*-type compound in Greek is arguably found in the family of $\sqrt{\beta\rho\bar{\iota}\theta}$ - ‘heavy, laden’ (Rasmussen 1989: 94–95), which forms a small but unmistakable Caland system complete with an adjective in *-ύς* ($\beta\rho\bar{\iota}\thetaύς$ ‘heavy’ [Hom. +]), a substantive in *-ος*, *-εος* ($\beta\rho\bar{\iota}\thetaος$ ‘weight’ [Hp., E.+], cf. $\beta\rho\bar{\iota}\thetaοσύνη$ ‘heaviness’ [Hom.+]), and, most interestingly, a descriptively simple thematic stative/anti-causative in *-ε/ο-* ($\beta\rho\bar{\iota}\theta\omega$ ‘am heavy, weighed down’ [Hom. +]). That this $\sqrt{\beta\rho\bar{\iota}\theta}$ - originates from the same root as the $\sqrt{\betaαρ}$ - of $\betaαρύς$ ‘heavy’ is

undeniable semantically (Frisk 1960–1973: 267–268; García Ramón 2009), and, in light of the intimate relationship between *i*-stems and *u*-stems, more than justifiable morphologically.

The PIE root is reconstructible as $*\sqrt{g^wreh_2}$ - ‘heavy’, from which, though their exact thematic base is unknown, an *i*-stem $*g^w r\acute{o}/\acute{e}h_2-i$ - ‘heaviness, weight’ and a *u*-stem $*g^w r\acute{o}/\acute{e}h_2-u$ - ‘id.’ were ultimately formed. While the proterokinetic internal derivative of the latter is widely reflected (Ved. *gurú-*, Av. *gouru-*, Goth. *kaurus** ‘heavy’), evidence of the *i*-stem is almost entirely confined to Greek (cf. Ved. *grīsmá-* m. ‘summer’, Wackernagel 1934: 197–198). Beside $\sqrt{\beta\rho\bar{\iota}\theta}$ - ‘heavy’, one can isolate a $\beta\rho\bar{\iota}-/\beta\rho\iota-$ that appears in various items in the semantically adjacent sphere of strength and intensity (e.g. $\beta\rho\iota\rho\acute{o}\varsigma$ ‘mighty’ [Hom.+], $\beta\rho\iota\eta\pi\upsilon\omicron\varsigma$ ‘loud-shouting’ [Hom.], $\beta\rho\bar{\iota}\mu\acute{o}\varsigma$ ‘μέγας, χαλεπός’ [Hsch.]). Moreover, there is a $\beta\rho\bar{\iota}$ which Apollonius Dyscolus deems equivalent to $\beta\rho\bar{\iota}\theta\acute{\epsilon}\omega\varsigma$ (*Adv.* 157.13), and which Hesychius glosses with $\acute{\epsilon}\pi\bar{\iota}$ τοῦ μεγάλου, καὶ ἰσχυροῦ, καὶ χαλεποῦ τίθεται (cf. $\beta\rho\iota\rho\acute{o}\varsigma$ ‘mighty’). Though it is unclear what the exact formal history of this item would be, its meaning strongly suggests that it should not be separated from forms in $\beta\rho\bar{\iota}-/\beta\rho\iota-$ nor from $\sqrt{\beta\rho\bar{\iota}\theta}$ - ‘heavy’. Given their sequence $\beta\rho-$ and the *set*-status of the ancestral root, it is necessary to assume laryngeal metathesis (Weiss 2020: 123–124, cf. Lat. [i.e. Sabellic] *brūtus* ‘heavy, unwieldy, stupid’ < $*g^w ruh_2to-$ [$\ll *g^w r\acute{h}_2-u-t(-)\acute{o}$ - ‘heavy’], cf. Latv. *grūts* ‘difficult’, de Vaan 2008: 76). In all likelihood, the environment for such a change (i.e. HI > IH / C(R)_C) would have been provided long ago by preforms such as that of $\sqrt{\beta\rho\bar{\iota}\theta}$ - in particular.

The semantic and morphosyntactic history resulting in this root begins with the predicative adnominal use of the instrumental of $*g^w r\acute{o}/\acute{e}h_2-i$ - ‘heaviness, weight’, namely $*g^w r\acute{e}h_2-i-h_1$, to mean ‘weighty’. The causative phrase $*g^w r\acute{e}h_2-i-h_1 d^h e h_1-$ would thus mean ‘render weighty’ and be eligible for representation as an adnominal compound $*g^w r\acute{h}_2-i-d^h h_1-\acute{o}$ -

‘rendering weighty’, ‘rendered weighty’, or simply ‘weighty’. While it is clear from the reflex that such a form would have undergone metathesis to $*g^wrih_2d^hh_1\acute{o}$ - at some point, it is unclear how one can clarify the morphological consequences of the Property Conceptual meaning represented by our last gloss ‘weighty’. In other words, how did the material preceding the supposed thematic suffix become a root with its own Caland system? A best guess to explain its reflex’s derivatives (i.e. βρῖθός ‘heavy’ : βρῖθος ‘weight’ : βρῖθω ‘am heavy, weighed down’) would exploit the internal analogies of the system. At an ideal level of morphological reconstruction, a prototypical adjective in -ός and a prototypical Calandish substantive in -ος, -εος could both appear in a given Caland system because the former would reflect an internal derivative of a determinate acrostatic *u*-stem derived from an *o*-stem adnominal, while the latter would reflect a determinate *s*-stem derivative of that selfsame *o*-stem. As one can imagine, the patterns of derivatives conditioned by the centrality of the primeval thematic adnominal would allow plenty of apparent by-passing of steps in a derivational sequence. Naturally, that sequence begins with a thematic adjective $*g^wrih_2(-)d^hh_1\acute{o}$ - ‘weighty’, but need not proceed to a *u*-stem substantive basic in the abstract to the ancestor of βρῖθός ‘heavy’, the continuator, in terms of its functional slot, of $*g^wrih_2(-)d^hh_1\acute{o}$.

A good bet would be to view the *s*-stem βρῖθος ‘weight’ as the direct reflex of the item derived from this thematic adjective. Though only first attested in the 5th century (Hp., E.+), in contrast to the already Homeric adjective in -ός and stative/anti-causative in -ε/ο-, βρῖθος would not be without parallel as an expression of a necessarily Pre-Proto-Greek morphological pattern. For example, it is at first glance by no means clear why the substantive corresponding to μέγας ‘great’ should be formed with the complex sigmatic suffix -θος (i.e. μέγαθος ‘size’ Hdt.; μέγεθος [Hom., Attic]). That this sequence was generated by derivation from a thematic stem is accepted

by Meissner (2006: 51–52), who writes “we find **-d^ho-* as in μέγαθος / μέγεθος, giving excellent support for Nussbaum’s hypothesis [1976: 90], argued almost entirely on the basis of evidence from Latin, that **-d^ho-* was a marginal Caland suffix”. While the past twenty or so years of research have shown that there was no such suffix *per se*, its association with the Caland system, though marginal relative to **-ró-*, **-ú-*, etc., is not only patent but falls out from our current understanding of the use of adjectival abstracts in the predicative instrumental causative periphrasis. What this claim amounts to is the scenario that the instrumental of **még^g-h₂-* ‘(the) big’ was used with **d^heh₁-*, that the periphrasis was compositionally nominalized as **még^g-h₂-d^hh₁-ó-* ‘(rendering/rendered) big’, and that the *s*-stem derived therefrom, namely **még^g-h₂-d^hh₁-o/es-* ‘magnitude’, came to serve as the abstract corresponding to the once definite adjective reflected by μέγας ‘magnus’.

The relationship between μέγας and μέγαθος is precisely comparable to that between πολύς ‘much, many’ and the effectively suppletive πλήθος ‘multitude’ (Hom.+) insofar as the latter serve as abstracts to the former. This fact itself invites the suspicion that πλήθος has a history similar to that of μέγαθος, the major difference being the status of the θ -bearing πληθ- as an effective root. This radical status is apparent from the fact that πλήθος has beside it what appears to be the reflex of an *h₂*-derivative of an oxytone *u*-stem adjective (πληθύς ‘multitude, crowd’ [Hom.+]) and, most interestingly, a stative/anti-causative in *-ε/ο-*, namely πλήθω (Hom.+), whose meaning ‘be/become full’, as opposed to †‘be/become much, many’, calls for comment.

An explanation for the discrepancy begins with a consideration of the semantics of **√pleh₁-* itself. By all accounts the root was a verbal one with the meaning ‘fill’ (e.g. πίμπλημι ‘id.’ [Hom.+], πλήτο ‘got filled’, etc.). Though in general accurate, this imprecise gloss conceals

a certain fact about the particular activity concept – that it is associated to a special degree of intimacy with the imposition of an abiding state abutting and even identical to what is in effect a Property Concept FULL. It is on the basis of this concept that, already in the proto-language, (1) certain historical derivatives of $\sqrt{pleh_1}$ - displayed Calandish behavior and (2) that they could be used in the non-PC (or trans-PC) quantificational sense ‘much, many’. Given the antiquity and profundity of these semantic associations, it is conceivable that even a formation as archaic as a root noun $\sqrt{pléh_1}/p\grave{h}_1$ - ‘, while principally employable as a verbal abstract ‘filling’, could also express the sense of a state (e.g. erstwhile FCM in Ved. *purandhi-* ‘Segensfülle’, Av. *parəndi-* ‘id.’ < $\sqrt{p\grave{h}_1-h_2end^h-i}$ - ‘full florescence, plenitude’ Mayrhofer 1986–2001: 145–146 with refs.) or be used to refer to something concrete (‘a filling’). According to Nussbaum (p.c.), this latter sense arguably underlies the term for ‘fortified settlement’ in Vedic *púr-* ‘city, citadel’ (loc. pl. *pūrṣú*, Mayrhofer 1986–2001: 145) and, if the *i*-stem is innovative, Lithuanian *pilis, -iēs* ‘fortress’ (Latv. *pils* ‘castle’, Smoczyński 2017: 961–962). That the sense of fortification should be involved secondarily is unsurprising; the organized concentration of people and property is correlated with the need and means, chiefly by enclosure and often elevation, to protect that assembly. The claim would thus be that $\sqrt{pléh_1}/p\grave{h}_1$ - *qua* concrete ‘filling’ was a political term – semantic territory where historical derivatives of $\sqrt{pleh_1}$ -, some of which we shall consider below, are well represented (e.g. $\pi\lambda\eta\theta\omicron\varsigma$ ‘the commons’ [e.g. Thuc.], Locrian $\pi\lambda\acute{\eta}\theta\alpha$ ‘assembly’, Lat. *plēbēs*⁶⁷ ‘the common people’).

⁶⁷ As suggested by Nussbaum and Weiss (p.c.), the *-b-* of *plēbēs* may have originated from an acrostatic paradigm with a full-grade ending, e.g. gen. sg. $\sqrt{plēfes}$ < *plēθwes* < $\sqrt{pléh_1d^h_1-u-es}$ ‘of the multitude’.

On the other side we should consider the employability of **pléh₁-/p_lh₁-'* as an expression of fullness itself. In theory, this abstract could serve as a predicative instrumental **p_lh₁-éh₁* 'with filling' eligible for use in the (anti-)causative periphrasis. The compound nominalization of the resulting phrase **p_lh₁-éh₁ d^heh₁-* 'provide *x* with filling' was thus **p_lh₁-d^hh₁-ó-* 'filling' but also 'filled, full'. Insofar as the theme-oriented resultative sense 'filled' was more or less equivalent to a timeless PC sense 'full', the *s*-stem substantive formed from **p_lh₁-d^hh₁-ó-* was, like the ancestor of μέγας, an adjectival abstract. As we have observed in our consideration of the background of Vedic *várivās-* n. 'open space' (: *urú-* 'broad' < **h₁ur_hx-ú-* 'id.' ← **h₁ur_hx-u-* 'width, breadth'), the formation of such an *s*-stem often involves the installation of a new *é*-grade in the root (**h₁ur_hx-u-* 'width, breadth' → **h₁ur_hx-ū-ó-* 'wide' → **h₁ur_hx-ū-o/es-* 'width, breadth'). We thus have some reason to suppose that the preform of πλῆθος was a de-thematic **pléh₁-d^hh₁-o/es-* 'fullness' (i.e. **-d^hh₁-o-s-*).

The derivation of **pléh₁-d^hh₁-o/es-* 'fullness' from **p_lh₁-d^hh₁-ó-* 'full' is supported by two clearly de-thematic categories. As mentioned above, the Locrian equivalent of πλῆθος *qua* 'assembly' appears to have been a πλῆθα (*IG9*[1].334.40) interpretable as the reflex of an **-h₂-* derivative of **p_lh₁-d^hh₁-ó-* with *é*-grade of the root (i.e. **pléh₁-d^hh₁-e-h₂-* 'the full, fullness'). This **p_lh₁-d^hh₁-ó-* was conceivably also the base of an acrostatic *u*-stem **pló/éh₁-d^hh₁-u-* 'fullness'. The main reason for supposing such a paradigm is the relative ease with which one can derive the form and meaning of the Latin *plēbēs* 'common people' associated with πλιθύς 'multitude, crowd' (de Vaan 2008: 471). With a zero-grade suffix and full-grade ending, a neo-acrostatic genitive singular, for instance, **pléh₁-d^hh₁-u-es* (<< **pléh₁-d^hh₁-u-s*) would have given a Proto-Italic **plē^hwes* ancestral to (**plēθwes* > **plēδwes* >) a **plēβwes* from which would develop the *plēbis* apparent in common and conceivably conservative phrases such as *tribūnus*

plēbis. This brings up the exact relationship with *πληθύς*. As this item is an \bar{u} -stem, that is, a $*-u-$ h_2 -stem, it is necessary to assume an adnominal u -stem. Given the originality of an acrostatic u -stem, it may be preferable to assume a proterokinetic adnominal basic to the $*pleh_1-d^h h_1-ú-h_2$ -reflected by *πληθύς*. In any case, the basic u -stem as well as the \bar{a} -stem reflected by *πλήθια* provide significant traces of derivatives that presuppose the thematic adnominal $*plh_1-d^h h_1-ó$ -‘full’ basic to $*pléh_1-d^h h_1-o/es$ - ‘fullness’. The question now concerns the derivational consequences of this radical \acute{e} -grade s -stem.

That the substantival slot of a given Caland system is frequently filled by a neuter s -stem is a settled matter. It is in light of this fact that we should consider the potential role played by the s -stem in implicationally generating another Calandish stem realizing another semantic-syntactic slot. One such slot was the stative/anti-causative present realized by the originally active radical \acute{e} -grade simple thematic stem or *ἐρεύθω*-type. Even when we restrict our attention to solely Greek data such as *θερός* ‘summer’ : *θέρομαι* ‘become hot’, *θάλλος* ‘heat’ : *θάλλομαι* ‘become hot’, *ψῦχος* ‘coolness’ : *ψύχομαι* ‘become cool’, *ἡδός* ‘delight’ : *ἡδομαι* ‘take delight’, *ἔρευθος* ‘redness’ : *ἐρεύθομαι* ‘become red’, *ψεῦδος* ‘deceit’ : *ψεύδομαι* ‘lie’, *ἔχθος* ‘hate’ : *ἔχθομαι* ‘be hateful, hated’ : *ἄχος* ‘grief’ : *ἄχομαι* ‘grieve’, and *κῆδος* ‘care’ : *κῆδομαι* ‘care about’, it is quite clear that a member of one these categories, namely a neuter s -stem or an *ἐρεύθω*-type anti-causative, could in principle have conditioned the creation of the other in a given family.

In the case of *πληθος* ‘multitude’ beside *πλήθω* ‘am/become full’, one might propose, following Rau (2009: 140), that the ancestor of the latter provided the model for the creation of the s -stem, under the assumption that *πλήθω* reflects a $*pléh_1-d^h e/o$ - formed with a distinct stative/inchoative suffix $*-d^h e/o-$. While such a suffix no doubt existed eventually (e.g. *βαρύθω*

‘be weighed down’ [Hom.+], μινύθω ‘decrease’ [Hom.+], etc.), the problem with assuming it for πλήθω becomes apparent when we reconsider βριθήω by comparison. Given the certainty that βριθήω ultimately shares a root with βαρύς, one would have to assume that the suffix **-d^he/o-* was added to the remnant of a nominal *i*-stem just as *-θε/o-* was added to βαρύς to create βαρύθω. Since, at some level, a denominal analysis is unavoidable, it is preferable to view βριθήω and πλήθω as expressions of the same tendency. In other words, at the historical stage at which the preforms of βριθήω and πλήθω were created, the **-d^h-* did not contribute to a verbal stem formant but was rather analyzable as part of a (secondary) root. The best way to arrive at a stage ancestral to a secondary root is to assume a compound whose derivatives developed Calandish (i.e. mutually suffix-substitutive and ultimately root-based) behavior.

If we start out with a systemically central **pléh₁-d^hh₁-o/es-* ‘fullness’, that is, an eventual root + *s*-suffix sequence **pléh₁d^hh₁-o/es-*, it is more than conceivable that the radical *é*-grade *s*-stem provided the model for the creation of an ἐρεύθω-type anti-causative to the “extended” **√pleh₁d^hh₁-* (e.g. **g^{wh}ér-o/es-* ‘warmth, heat’ [θέρπος ‘summer’, Ved. *háras-* n. ‘flame’] : **g^{wh}ér-e/o-* ‘be warm, hot’ [θέρομαι ‘become hot’] :: **pléh₁d^hh₁-o/es-* ‘fullness’ : *x = *pléh₁d^hh₁-e/o-* ‘be/become full’). That such a stem as **pléh₁d^hh₁-e-(t)i* ‘becomes full’ existed is probable when we consider the possibility that Old/Young Avestan *frāda-* ‘increase (trans. act./intr. mid.)’ is the cognate of πλήθω (Johansson 1917: 73; Cheung 2007: 86; Rau 2009 loc. cit.). This present is formed from a root *√frād-* ‘increase, prosper’ from which are derived a root-nominal adjective *frād-* ‘increasing’, a *t*-stem⁶⁸ (e.g. *frādat-vīra-* ‘increasing men’, *frādati-ca* ‘and to prosper’ [Yt.6.1]), and an *s*-stem *frādah-** in the personal name *Daǰhu-frādah-* ‘whose increase is of the land’ (Yt.13.116 [Bartholomae 1904: 682]; cf. *s*-stem infinitive *frādaǰhē* ‘to prosper’ Y.44.20).

⁶⁸ This stem would probably have been derived from a thematic adnominal (Nussbaum p.c.).

There is also an *i*-stem attested (acc. sg. *frāidīm* ‘prosperity’ [Y.53.6]). On the whole, these derivatives point to a lost thematic adnominal formed in parallel to the preserved radical adjective. As for the verb itself, it appears to display, as in the Greek thematics listed above, the same more recent utilization of the active vs. middle formal contrast as an expression of causation vs. anti-causation respectively (e.g. *frādaṭ* ‘makes prosper’ [Y.46.13d] : *frādāntē* ‘they prosper’ [Y.43.6c], García Ramón 2006: 200). By this account, *πλήθω* would more faithfully reflect the use of the active as an anti-causative.

What is being proposed is the generation of a secondary root on the basis of a compound formed from a light verb construction. Since a **pl̥h₁-dʰh₁-ó-* ‘full’ is potentially basic, most Caland-characteristically, to an *s*-stem (**pléh₁-dʰh₁-o/es-* ‘fullness’ [Av. *frādah-**, *πλήθος*]), an *i*-stem (**pló/éh₁-dʰh₁-i-* [Av. *frāidi-* ‘prosperity’]), and a *u*-stem (**pló/éh₁-dʰh₁-u-* [\gg *πληθύς*, Lat. *plēbēs*]), it is no wonder that a radical *é*-grade active thematic would be analogically derived on the model of an *s*-stem simply because anti-causatives in *R(é)S(-e/o-)* were entrenched in Caland systems with co-occurrent *s*-stem substantives near the center. For something like **pléh₁dʰh₁-e/o-* in particular, the designation as a derivative of a secondary root should be understood in solely formal, Calandish terms; there is no doubt that users were able to analyze this item as a derivative ultimately of a base **√pleh₁-* ‘fill’. It is likely this analyzability that rendered the interpretably suffixal **-dʰ(h₁)e/o-* deployable for the formation of anti-causative presents echoed by the likes of *μνύθω* ‘diminish’ (intr.) and *βαρύθω* ‘am weighed down’. Accordingly, while *βαρύθω* would reflect a conservatively active anti-causative “fientive” stem in **-dʰ(h₁)e/o-* formed more recently from the proterokinetic adjective **gʷr̥h₂-ú-* ‘heavy’, the synonymous *βρίθω* would reflect an earlier and genuinely substitutively formed present stem.

The facilitation of root-based derivation by appeal to the *s*-stem reflected by βρῖθος is probable precisely because of the prevalence of *s*-stems as fillers of the substantival slot. Though βρῖθος lacks the radical *é*-grade characteristic of the Calandish anti-causative simple thematic present, this deficiency is explicable as a reproduction of the radical grade proper to the *s*-stem model; while the preform of πλῆθος (: πλήθω) was marked both by determinative accent-retraction and *e*-grade of the root (i.e. *p^lh₁-d^hh₁-ó- ‘full’ → *pléh₁(-)-d^hh₁-o/es- ‘fullness’) – an incentive for the formation of a radical *é*-grade thematic present – the *s*-stem formed from the *rūbidus*-adjective *g^wrih₂(-)-d^hh₁-ó- ‘weighty’ simply repeated the base’s vocalism. It is thus not difficult to imagine that a *g^wrih₂(-)-d^hh₁-o/es- ‘weight(iness)’, possibly with the cooperation of an originally substitutively formed *g^wrih₂(-)-d^hh₁-ú- ‘weighty’ (> βρῖθός), would have invited a simple thematic *g^wrih₂(-)-d^hh₁-e/o- ‘become weighty’ with the only grade recognized for this secondary root, namely zero.

Like any historical enterprise, the tracing of derivatives such as βρῖθος and βαρύθω, the former synchronically primary and the latter de-adjectival, renders one conscious of paths not taken. In principle, a causative periphrasis involving the *i*-stem’s *u*-stem sister *g^wró/éh₂-*u*- could have been nominalized as a thematic adjective generative of its own Caland system (†√βρῶθ- : †βρῶθος : †βρῶθω). Similarly, it is conceivable that *g^wró/éh₂-*i*- (: *g^wr_hh₂-*i*- > Mlr. *bair* ‘heavy’) *qua* (definite) adjective (cf. τρόφις ‘well-fed’ : τρέφω ‘thicken’) might have survived to be the base of a stative/anti-causative present in *-d^h(h₁)e/o- (†βαρίθω). These possibilities are imaginable precisely because of our current understanding that acrostatic *i*-stems and *u*-stems were derived from the same thematic source. Accordingly, this derivationally parallel status as well as the homosemy of both stem-types may be taken as the basis for the hypothesis of *i*-stem

and *u*-stem remnants in intimately related families arguably sprung from nominalized (anti-)causative periphrases.

At this juncture and in this respect, the family that should concern us is that of εὐθύς ‘straight, direct, straightforward’. The most conspicuous fact about this adjective is that, while εὐθύς is the form in Attic and elsewhere (e.g., Pindar), the corresponding form in Homer and Ionic generally is ἰθύς. Since these two necessarily related forms cannot of course be reconciled phonologically, one must approach the question morphologically. This involves the integration of some additional data. Within Greek, we have the adverb εἶθαρ ‘at once, forthwith’ (Hom.+), whose meaning, if explained as the outgrowth of a sense ‘straightway, directly’, is entirely reconcilable with the semantics of εὐθύς/ἰθύς. More distant in every respect but conceivably related on semantic grounds is Vedic *sādhú-* ‘straight, correct, successful, conducive, etc.’, situated at the center of a robust Caland system based on an apparently solely Indo-Iranian root **√saHd^h-/sHd^h-* (Ved. *sidhrá-* ‘successful, efficacious’ [: *sídhya*ti ‘succeeds’] : *sádhiṣṭha-* ‘straightest, most effective’ : *sádhati* ‘succeeds; renders successful’; OAv. *hādrōiiā* ‘sincerely’⁶⁹ : *hādiṣta-* ‘most effective’). It is this relative isolation and striking morpho-semantic resemblance to the Greek data that give weight to the suspicion that the material preceding the **-d^h-* in all the adduced forms originates ultimately from the same root. In other words, the hypothesis is that, in light of the Greek data, the preform of **√saHd^h-/sHd^h-* lacks exact comparanda in Greek precisely because it would be based on a compound that nominalized a variant of the same construction consisting of the causative light verb and a nominal stem derived from the same root. Given the analysis of **√saHd^h-/sHd^h-* as the reflex of a secondary root based on a

⁶⁹ Pokorny (IEW: 892) states “*hādrōyā-* f. ‘Verlangen nach Erreichung des Zieles’ (von **hādra-* m., idg. **sēdh-ro-* ‘Erreichung des Zieles’)”. Gloss ‘sincerely’ is reproduced from Rau 2009: 165.

compound, the first member thereof would necessarily point to a substantive derived directly from a root of the shape **seh_x-*.

By appeal to εὐθύς itself, whose εὐ- under our hypothesis would allow us to exclude **-h₂-* and **-h₃-*, this root can be reconstructed as the **√seh₁-* identifiable in the **-ró-* adjective reflected in Latin *sērus* ‘late’, Old Irish *sír* ‘long, long-lasting’, and Old Welsh *hir* ‘long, tall, lengthy’. Though temporal meaning is well represented in the derivatives of this root (Ved. *sāyá-*n. ‘evening’, Goth. *seipus* ‘late’), such a sense is conceivably an outgrowth of the spatial meaning evident in, among other sources, the above-mentioned Celtic data (OIr. *sír* ‘long, long-lasting’, OW *hir* ‘long, tall’). It is therefore appealing to assign a general meaning ‘long’ to the adjectival root **√seh₁-*.

(Anti-)causation of a state characterized by this Property Concept has some relevant ramifications. As noted by Matasović (2009: 337), Middle Irish *sínid* ‘stretches, extends, straightens’ is undoubtedly related to *sír* ‘long’. Though the exact formal prehistory of this weak (originally denominal) verb is unclear, its meaning is entirely reconcilable with a derivation ultimately from **√seh₁-*. The justification for this conceivably arises from the notion of elongation. Based on our experience and observation principally of extending our arms, there is a correlation between elongation and extension, the former of which may thus provide the means of conceptualizing the latter. It is via the notion of extension in turn that one can infer direction or the imposition of the state of being straight. For the sake of comparison, this relationship is on full display in the derivatives of the **√h₃reg-* ‘extend, straighten’ (ὀρέγω ‘extend’ [Hom.+], Lat. *regō* ‘rule, keep straight’, etc.). In particular, the basis of the Property Conceptual sense ‘straight’ seems to be the understanding that an object existing in a state resulting from the act of extension has the property of being straight. This PC state can be reached from more than one angle. For

instance, the Vedic adjective ṛjú- ‘straight’ (cf. Av. *arəzu-* ‘id.’) reflects a proterokinetic derivative conceivably formed from an acrostatic *u*-stem derived ultimately from $*\sqrt{h_3reg-}$, while Latin *rēctus* ‘straight, upright’ reflects a verbal adjective in $*-tó-$ primordially capable of resultative-stative expression (i.e. ‘extended’, cf. ὀρεκτὸν δόρυ ‘pike’ B 543).

The question that confronts us now is the relationship between this semantic affinity and the morphological variants presupposed by the mainly Greek and Indo-Iranian data. Given the difficulty of separating εἰθύς/ἰθύς and $*\sqrt{saHd^h-}/sHd^h-$ formally and, above all, semantically, the best approach to solve the formal discrepancy would be to suppose that the secondary root reflected by Vedic $\sqrt{sādh-}/sidh-$ originated in the causative periphrasis and that the predicative instrumental employed in this construction was that of a root noun $*séh_1-/sh_1-$ ‘the long, length’ ($\leftarrow * \sqrt{seh_1-}$ ‘long’).⁷⁰ As such, the phrase $*sh_1-éh_1 d^h eh_1-$ ‘lengthen, elongate’ would belong to the *cale-faciō*-type and be eligible for the formation of a compound. Like $*p_lh_1-d^h h_1-ó-$ ‘filled, full’, this compound would consist of an absolute zero-grade FCM, a reduced form of $*\sqrt{d^h eh_1-}$, and a compositional thematic vowel. Via a thematic/patientive interpretation, this $*sh_1-d^h h_1-ó-$ would have originally meant ‘lengthened, elongated’. In light of the semantic outgrowths discussed above, this resultative sense would have easily entered the territory of ‘extended’, ‘straightened’, and, by the attenuation of resultative stativity, have assumed the PC meaning ‘straight’.

⁷⁰ As evidence for this root noun, I propose that $*séh_1-/sh_1-$ ‘the long, length’ had a locative $*sh_1-én$ ‘in/of/for a long (time)’ ($\rightarrow *sh_1-én-t$ > OHG *sint* ‘since’ : PGmc. $*sin(t)$ ‘ever, lasting’ [Goth. *sinteins* ‘daily’, OHG *sin-fluot*, *sint-fluot* ‘Sintflut, diluvium’, *singruona* ‘evergreen’, etc.], cf. αἰέν ‘ever, always’ < $*h_2ei-ǵ-én$ ‘in lifetime, forever’, ON *sí ok a* ‘ever and aye’) from whose hypostasis was generated $*sh_1-én-o-$ ‘long-existing’ (Ved. *sána-* ‘old’, etc., cf. OCS *davъnъ* ‘antiquus’ [$*\sqrt{d_μeh_2-}$ ‘long, far’]).

Though it is impossible to specify with precision the derivational stages to which corresponded the aforementioned semantic domains, the morphological history unfolding from **sh₁-d^hh₁-ó-* is not difficult to sketch. What does require initial comment is the justification for a thematic **sh₁-d^hh₁-ó-* in particular. In other words, given the implicationally generative nature of Caland systems, the *u*-stem adjective reflected by *sādhú-* could in principle have been formed originally from the root, as indeed the Vedic adjective is synchronically. Moreover, de-radical status is plainly attributable to the less frequent *sidhrá-* ‘successful, efficacious’ based on the zero-grade variant. Yet considering the availability of this latter allomorph, one wonders why the Vedic *ú*-stem adjective fails to be reflected as *sidhú-*†, as is usual for the continuants of proterokinetics. In this connection, one could claim that the allomorph *sādh-* is adopted from the ἐπέυθω-type present *sádhati* ‘succeeds; renders successful’. While certainly plausible and definitely viable as an explanation for an item like βρῖθός (: βρῖθος : βρῖθω), the claim does not address the question of how exactly, if we recognize the compositional origin of **√saHd^h-/sHd^h-* and thus the status of its preform as a secondary root, this Caland family was founded.

As in the prehistories of *√βρῖθ-* ‘heavy’ (< *‘laden’) and *√πληθ-* ‘full’ (< *‘filled’), it makes sense to suppose a thematic adjective at the origin of the system. Bearing the form **sh₁-d^hh₁-ó-* and the meaning ‘extended, straightened, straight’, this adjective would conceivably be the base of an acrostatic *u*-stem substantive **só/éh₁-d^hh₁-u-* ‘straightness, rectitude’ possibly ancestral to the Vedic hapax *sádhu-* n. ‘Heil, Segen’. While this substantive may in fact be a back-formation from *sādhú-* as Widmer (2004: 179–180) argues, it is interesting to note, as Widmer (loc. cit.) himself does, that the form corresponding to *sádhu-* in the *Sāmaveda* (I217c) is an *s*-stem *sádhās-* ‘id.’. Though it is impossible to be certain that its preform **séh₁(-)-d^hh₁-o/es-* ‘straightness, rectitude, etc.’ existed alongside its likewise de-thematic relative **só/éh₁-d^hh₁-u-*

‘id.’, the existence of such derivatives provides a much more economical way of explaining *sādhati* ‘succeeds; renders successful’. Our immediate comparandum in this regard is the **pléh₁(-)**d^hh₁-e/o-* ‘be/become full’ reflected by *πλήθω* ‘id.’ and Avestan *frāda-* ‘increase’. Given the antiquity of the *u*-stem and *s*-stem to the secondary root of this verb, it is appealing to suppose that, just as these nominal stems have provided the implicational blueprint for **pléh₁(-)**d^hh₁-e/o-*, the same stems to **seh₁(-)**d^hh₁-* ‘straight’ have conditioned the creation of an anti-causative radical *é*-grade thematic present **séh₁(-)**d^hh₁-e/o-* ‘get straight’. In particular, the radical *é*-grade *s*-stem possibly reflected by *sādhas-* would be a good candidate for the formation of such a verb. As for *sādhú-* itself, again while it is probable that its root vocalism is modelled on that of *sādhati*, this modelling is by no means necessary and does not exclude the erstwhile existence of a genuinely internally derived and ultimately de-thematic *u*-stem.

In fact, the existence of this thematic stem, namely **sh₁-d^hh₁-ó-* ‘extended, straightened, straight’, may be supported with a slight piece of extra-Indo-Iranian evidence. As de Lamberterie (1990: 295) notes with reference to Lidén (1906: 75–76), who associated *sādhú-* with the following form for the first time, Armenian *aǰ* (gen. *aǰoy*) ‘right, dexter’ appears to reflect the same root as reflected by Vedic *√sidh-* (< Proto-Indo-Iranian **√sHd^h-*). Though de Lamberterie operates with a reconstruction **sh₁-d^h-jō-* consisting of a root **seh₁-*, an extension in **-d^h-*, and a suffix **-jō-*, this sequence, phonologically supported by Martirosyan (2010: 99–100), who accepts the *√sidh-* connection, can be morphologically rewritten according to the following proposal. Supposing an acrostic *i*-stem formed from our **sh₁-d^hh₁-ó-* (i.e. **só/éh₁-d^hh₁-i-* ‘straightness, rectitude, the right’), we may suggest that this derivative was the base of a thematic possessive **sh₁(-)**d^h(h₁)-j-ó-* ‘right’ (> *aǰ* ‘id.’; cf. phonologically Arm. *mej* ‘middle’ < **méd^hjō-*). Accordingly, what one would infer from the Indo-Iranian and Armenian evidence is that at some

point in the language ancestral to both branches there was a root **seh₁d^h-* (<< **seh₁-d^hh₁-*) with the meaning ‘straight’. The question that reasserts itself here is the exact relation of this root’s reflex $\sqrt{s\bar{a}dh}$ - to the supposed root reflected by the semantically equivalent εὐθύς/ἰθύς.

The modern point of entry for addressing the question is naturally de Lamberterie’s (1990: 271–298) discussion of εὐθύς. His basic intuition, as confirmed by phraseological parallels and semantic analysis, is of course that εὐθύς/ἰθύς and $\sqrt{s\bar{a}dh}$ - are related in some way. In his final analysis, however, there is an apparent aporia consequent to the forced acceptance of “une racine à deux formes, **seh₁/sh₁-* et **sej-/si-*, dont chacune reçoit un élargissement **-k-* et **-d^h-*, ce qui aboutit à quatre bases radicales” (p. 294). Aside from, for example, the attempt to relate ἦκω ‘have arrived, am here’ (Hom.+) and the problematic assumption of root-extensions, the main difficulty in the reconstruction of a single root characterized by such an alternation is its profound lack of parallelism with any other PIE phenomenon. While one could merely imagine an *i*-present forming a stem that would eventually be reanalyzed as a root (cf., e.g., $\sqrt{peh_3}$ - ‘drink’ [e.g. Ved. *pátave*] : $\sqrt{pih_3}$ - [e.g. *pītáye*]), what the proposal is calling for is the complete substitutability of **-h₁-* and **-i-*; it is this that is objectionable. In any case, the object of his proposal resembles what we propose here: the origination of secondary roots.

For de Lamberterie’s secondary root analysis, the point of departure is a $\sqrt{sejd^h}$ - analyzable as the latter “form” of **seh₁/sh₁-* and **sej-/si-* and an extension in **-d^h-*. On the basis of this $\sqrt{sejd^h}$ - were formed a radical *é*-grade thematic present (**séjd^h-e/o-*) and, after the verbal stem, an adjective in **-ú-* (**sejd^h-ú-*). The reflex of the former would be Vedic *sédhati* ‘repels’, which we shall mention again shortly, while that of the latter an **εἰθύς* partially ancestral to εὐθύς/ἰθύς. Aside from the issue of its Pre-Proto-Greek preform, there is in fact some evidence for this reconstruction. As de Lamberterie notes (p. 287–288, with refs.), a Cretan inscription

from Lyttos (SEG 35: 991) displays the sequence ΑΟΔΟΣ | ΑΕΙΘΕΙΑ interpretable as ἄ ὀδὸς ἄ εἰθεῖα ‘the straight road’. While this form constitutes good evidence of *εἰθύς, this *εἰθύς, or rather εἰθύς*, is implausibly supposed to be the preform of εὐθύς by means of an *ad hoc* assimilation of the second member of the diphthong (Schwyzer 1959: 256; Willi 2001: 120–130). Similarly arbitrary is Chantraine’s (2009: 367) speculation that, under the influence of the adverb εὔ ‘well’, the εὐ– of εὐθύς arose from a refashioning of ἰθύς.

Concerning ἰθύς itself, de Lamberterie rightly rejects the possibility of precocious itacism on account of its already Homeric attestation. There thus arises the need, as we have seen, to account for the form as primitive from a Proto-Greek standpoint. To do this, de Lamberterie envisions a *ú*-stem adjective formed on the basis of a reduplicated present **si-sid^h-e/o-* comparable to the **si-sg^h-e/o-* ancestral to ἴσχω ‘hold fast’ (Hom. +); just as ἴσχω allegedly has beside itself a substantive ἰσχύς ‘strength’ reflecting, as a type, an **-ú-* (< **-ú-h₂-*) derivative of a supposed deverbal adjective **ισχύς* ‘strong’, ἰθύς is the base of a substantive ἰθύς ‘direction’ (Hom., *h.Ap.* 539; e.g., ἄν’ ἰθύν ‘against’ [*Φ* 303]). Since, given the Hesychian lemma βίσχων, γισχύν· ἰσχύν, this comparison must be rejected, de Lamberterie’s **si-sid^h-ú-* (> **hihit^hú-*), whose reduplicated sequence would underlie the *i-* of ἰθύς by contraction, should also be set aside as the preform of ἰθύς.

We are therefore in need of an explanation for three data points corresponding to what appear to be three items original from the standpoint of Proto-Greek: the εὐ– of εὐθύς, the εἰ– of εἰθύς*, and the *i-* of ἰθύς. Once we recognize, as we have already mentioned, that these items need not – indeed cannot – go back to the very same preform, we are then free to divide and conquer. Our first conquest should probably be the length of the iota in ἰθύς. Given our modern understanding of how such a phoneme could have arisen, the best hypothesis would be to assume

that it is the result of laryngeal metathesis. Again, if we accept, as most scholars justifiably do, that there is some distant kinship with *sādhú-*, we may thus propose that the $\overset{\cdot}{i}$ - of $\overset{\cdot}{i}\theta\acute{\upsilon}\zeta$, alongside the $-i-$ of $\epsilon i\theta\acute{\upsilon}\zeta^*$, reflects a suffix added to $^*\sqrt{seh}_1-$ ‘long’.

With our discussion of $\sqrt{\beta\rho\bar{\theta}}$ - ‘heavy’ in mind, this suffix can of course be identified as the formant of an *i*-stem determinative $^*s\acute{o}/\acute{e}h_1-i-$ ‘the long, length’ for which there is in fact some indirect evidence. As Kroonen (2013: 435) notes, Proto-Germanic seems to have had an adjective $^*s\bar{i}\delta a-$ ‘long’ (ON *síðr* ‘long, hanging down’, OE *síd* ‘wide, broad’, OFris. *sīde* ‘low’, MDu. *side*, *sijt* ‘broad, wide’, OHG *sīto* adv. ‘loose’), whose closest extra-Germanic relative would be an *i*-stem abstract reflected in Celtic (OIr. FCM *sith-* ‘long’, OW *hit* ‘length’, OBret. *hit* ‘id.’). In light of this connection, the possible preforms of the Proto-Germanic reconstruction $^*s\bar{i}\delta a-$ are $^*sh_1\acute{e}i\tau\acute{o}-$ (in principle), $^*seh_1i\tau\acute{o}-$, or $^*sih_1i\tau\acute{o}-$ with metathesis. Whichever one we choose, we must recognize (1) that an $^*-i-$ ultimately identifiable as the determinative suffix must have had a place in the Pre-Proto-Germanic preform and (2) that the *i*-stem formed with this suffix was obviously the base of a *t*-bearing derivative that continued the basic PC meaning ‘long’. Considering the eligibility of definite adjectives to be the bases of actual *t*-stems (e.g. Ved. *hári-* ‘tawny’ [$< ^*g^h\acute{o}/\acute{e}lh_3-i-$] : *harít-* ‘tawny; bay’ [$^*g^h\acute{e}lh_3-i-t-$]), and the employability of *t*-stems as abstracts (e.g. Lat. *salūs* ‘health’ $< ^*s\bar{i}h_2-u-h_1-t-$ ‘[that which is with] wholeness’), we might imagine that $^*s\acute{o}/\acute{e}h_1-i-$ *qua* definite adjective ‘(the) long’ was the base of a $^*seh_1-i-t-$ ‘length’ from which was formed a possessive $^*sh_1-i-t-\acute{o}-$ ‘lengthy’ (cf. erstwhile definite adjective with accent retraction *háríta-* ‘yellow, tawny’ $< ^*g^h\acute{e}lh_3-i-t-o-$). To account for the Germanic and Celtic data, we may propose that Germanic inherited a variant that had undergone the metathesis to $^*sih_1-t\acute{o}-$ in the dialect ancestral to both branches. On the basis of this adnominal was formed $^*sih_1-t-i-$ ‘lengthiness, length’. Since any syllable-forming desinence

would have conditioned the consonantal allophone, the resulting sequence **sih₁-t-i* would have undergone the *Weather Rule* (H > Ø / -V_TR-; Widmer 2004: 18–19; Neri 2017; Weiss 2020: 123), producing a generalized **si-t-i-* directly ancestral to the Celtic forms.

Whether one accepts these morphological details or not, the one piece of morphology that is simply undeniable in these preforms is, again, the **-i-* suffix. Though Kroonen assumes that this suffix was the formant of an *i*-present, this assumption does not pull its weight in explaining and cohering with the multitude of facts that the hypothesis of a nominal **-i-* suffix does. The specific means by which this hypothesis assumes explanatory power is the reconstructibility of the causative periphrasis.

Alongside the root-noun-based periphrasis **sh₁-éh₁ d^heh₁-* ‘lengthen, extend’, it is possible to reconstruct one that involved the *i*-stem **só/éh₁-i-* ‘length’. When this phrase, namely **séh₁-i-h₁ d^heh₁-* ‘lengthen, extend’, became the basis for a thematic compound, the result was a **sh₁-i-d^hh₁-ó-* ‘extended, straight’ for which there are two sources of indirect evidence in Hesychius. As evident from the second part of its gloss, the first lemma, ἰθα· ἡ θηλία τῶν ὑδάτων φύσις,⁷¹ καὶ ὀρθή, μακρά, στενή, δικαία, is assuredly related to ἰθύς. While the cause of its barytony remains unclear, the form is certainly that of a feminine adjective presupposing an **ἰθος* or **ἰθος* ‘straight’. This presupposition brings us to the second, and initially, unpromising datum: ἰθῶν· πυγῆ, λαγαρός, καὶ πρωκτός, ἄλλοι δὲ τὰ γλουτά. Capitalizing on the meaning of *πρωκτός*, one might imagine that *ἰθῶν* was a term for what Galen and posterity would respectively refer to as *ἀπευθυσμένον ἔντερον* and *intestīnum rectum* (cf. Skt. *sīdhra-* n. ‘anus’). The morphological history implied by this analysis would be that the apparently determinative *n-*

⁷¹ The meaning of this phrase is unclear to me.

stem (i.e. ‘the straight [gut], rectum’) was derived from a thematic adjective whose feminine ἴθα we seem to have attested.

Additional evidence is interpretable in light of our theories of potential derivatives of thematic stems. As mentioned above, there is good reason to associate the Homeric adverb εἴθαρ ‘at once, forthwith, εὐθύς’ with ἴθύς. The best analysis appears to be that it reflects the neuter accusative of an **-r/n-* stem. By appeal to Nussbaum’s (2014c: 234–238) analysis of τέκμαρ ‘sign’ (Hes.+) and other forms as reflecting substantivizations of thematic adjectives (e.g. **h₁i-tó-* ‘gone’ → **h₁i-t-γ-, -ten-* ‘travel’ [Lat. *iter* ‘way, journey’]), it is conceivable that **sh₁-i-d^hh₁-ó-* ‘straight, direct’, reflected as **sih₁-d^hh₁-ó-* by laryngeal metathesis, was the base of a **séj^hh₁d^hh₁-γ/-en-* ‘direction’, with retraction of the accent to an *e*-grade installed in the root.⁷²

The same installation of radical *e*-grade but with a different suffix may be involved in another piece of evidence for **sh₁-i-d^hh₁-ó-* ‘straight, direct’. As brilliantly argued by Nyman (1990), the semantic prehistory of Latin *sīdus*, *sīderis* n. ‘star, constellation’ is accessible provided that one analyze the meanings of the derivatives *cōnsīderāre* and *dēsīderāre* as holdovers from a time when the basic *sīdus* ‘star’, which the author reconstructs as **sīd^hos-*, meant ‘target, mark’ (< ‘direction’), the original context for these verbs of eventually mental experience being hunting (i.e. directing aim/missing the mark). In full agreement with this pragmatic/semantic scenario, we may add that the meaning of this *s*-stem was probably ‘direction’ by virtue of its derivation from an adjective with the meaning ‘direct’. Moreover, I propose that the adjective in question was our **sh₁-i-d^hh₁-ó-* ‘straight, direct’. While in principle the *-ī-* of *sīdus* could be the result of metathesis of the laryngeal in the root of this adjective

⁷² The substantivizing *é*-grade of **séj^hh₁d^hh₁-γ/-en-* ‘direction’ produced a sequence arguably subject to Hackstein’s (2002) rule of laryngeal deletion (**CH.CC* > **C.CC*). It is therefore conceivable that **sej^h.d^hh₁-* developed to **sej^h.d^hh₁-* already in the proto-language.

(**shid^hh₁-ó-* or **sih₁d^hh₁-ó-* → **síh₁d^hh₁-o/es-*), it is just as likely, especially in light of the apparent neo-full grade reflected by εἶθαρ, that the output of the derivation was **séi(h₁)d^hh₁-o/es-* ‘that which is straight, direction’.

Insofar as this *s*-stem substantive was the adjectival abstract corresponding to the meaning ‘direct’ of the secondary root **√séi(h₁)d^hh₁-* ‘straight, direct’,⁷³ it is conceivable that it could implicationally condition the creation of at least two derivatives of interest to us. We have already had occasion to mention Vedic *sédhati*, usually glossed as ‘repels’ and employed with the preverb *ápa* ‘away’. Given its appearance most notably with this preverb, it is likely that its earlier meaning was ‘direct, drive’ and that the sense of repulsion emerged from its use with this preverb. The meaning ‘direct’ would thus be an outgrowth of the causative ‘make straight’ – a semantic pathway perfectly paralleled by the frequent use of εὐθύνω/ἰθύνω with objects that are directed, driven, or steered, such as horses, wagons, or ships. This underlying causative meaning is reconcilable with an analysis of *sédhati* as the reflex of a radical *é*-grade thematic present. Following our treatment of the origin of πλῆθω, we may propose that the *s*-stem **séi(h₁)d^hh₁-o/es-* ‘direction, that which is straight’ provided the model for the de-radical formation of a **séi(h₁)d^hh₁-e/o-*, which, like Avestan *frāda-* ‘increase’, was used causatively going into Indo-Iranian. Accordingly, an original meaning of **séi(h₁)d^hh₁-e/o-* would have been an anti-causative ‘straighten (intr.), go straight’.

As for the simple adjective meaning ‘straight, direct’, it is also imaginable that the original system composed of the basic thematic adjective **sih₁d^hh₁-ó-* ‘straight, direct’ and the derived *s*-stem substantive was reoriented around the latter, resulting in the creation of a *u*-stem

⁷³ According to Weiss (p.c.), Old Irish *con-sáidi* ‘complains about; stirs up, excites, sets at variance’ could reflect a causative **sojd^hh₁éje/o-* ‘send straight’ to this secondary root.

adjective that need not have arisen by internal derivation from an acrostatic substantive. To explain Cretan εἰθεῖα, one could suggest a proterokinetic **séh₁(h₁)d^hh₁-u-/sih₁d^hh₁-éu-* whose strong stem would be continued, with adjustment of the accent, by the εἰθός* accessible through the Cretan form. Correspondingly, as the root vocalism of the weak stem is usually, but not universally (e.g. ἡδύς ‘pleasant’ < **s_ueh₂d-ú-* ‘sweet’), continued by adjectives in -ύς, the form in Homer and Ionic generally, namely ἰθός, is explicable as the reflex of a **sih₁d^hh₁-ú-*.

We are thus left with the need to account for εὐθός itself. Given our experience with the prehistoric relationship between βρῖθός and βαρύς, the former bearing the compositional remnant of an acrostatic *i*-stem and the latter reflecting an internal derivative of an acrostatic *u*-stem, it is worth reasoning in parallel fashion that, beside the *i*-stem employing periphrasis **séh₁-i-h₁d^heh₁-* ‘lengthen, extend’, there was an all but identical **séh₁-u-h₁d^heh₁-* ‘lengthen, extend’ based on a **só/éh₁-u-* ‘length’.

For the sake of providing evidence for this *u*-stem, we should note a certain parallelism between the possessives apparently formed from **só/éh₁-u-* and those from **só/éh₁-i-* (**suh₁-ló-* ‘long’ : **sih₁-ló-* ‘id.’ [> **si-ló-* > ON *sil* n. ‘langsam fliessendes Wasser’, cf. de Vries 1977: 475]). Just as we find evidence of a stem in **-mó-* derived from **só/éh₁-i-* (**si(h₁)-mó-* ‘long’ [: OHG *gi-semōn* ‘await’] → **só_i(h₁)-mo-* [> OHG *lanc-seim* ‘slow, lasting’]), there appears to be evidence of an adjective in **-mó-* formed from **só/éh₁-u-* (→ **sh₁-u-mó-*; cf. **kruh₂-mó-* ‘gory’ [Av. *xrūma-* ‘grisly’] ← **kréh₂-/kruh₂-* ‘gore’ [Av. *xrū-* f. ‘id.’]). Under the meager and dubitable entry **seuə-, sū-* (‘(loslassen?) nachlassen, lassen’? IEW: 915), one finds the subsequently reassociated ἐάω ‘leave alone, allow’ (: **√h₁ueh₂-* ‘leave’, Nussbaum 1998b) alongside a stray **sū-mó-s* ‘flagging, tarrying’ reconstructed to account for the *sūm-* of OHG *vir-sūmen* ‘neglect, delay’ (< **-sūm-iji/a-* : NHG *ver-säumen* ‘id.’). Given the connection between

length of time and (morally unacceptable) lingering (*sūmīg* ‘negligent, dilatory’ : *sūmen* ‘give way’ : *sūmheit* ‘negligentia’; NHG *Saumsal* ‘id.’ : *saumselig* ‘dilatory’; cf. $\delta\eta\theta\acute{\alpha}$ ‘for a long time’ : $\delta\eta\theta\acute{\upsilon}\nu\omega$ ‘tarry’), this $\sqrt{sūm}$ - is in all likelihood the reflex of a **suh₁-mó-* ‘long’ consisting of a once possessive suffix *-mó-* and a secondary root arising from reanalysis of the sequence **suh₁-* produced by laryngeal metathesis.

The hypothesis that this **suh₁-* was a secondary root of considerable antiquity even in the proto-language is consistent with, supported by, and illuminative of some Indo-Iranian data. One datum that stands a chance of being explained via **suh₁-mó-* is the post-Rigvedic *svāmín-* m. ‘master’. According to Sims-Williams and Tucker (2005: 595–602), *svāmín-* was once an Indo-Aryan *i*-stem whose instrumental singular in *-inā* triggered remodeling as an *-in-* stem (cf. Ved. *kīrī-* m. ‘singer’ : *kīrīṇ-* ‘id.’). Their major claim is that this **svāmi-* reflects a stem in **-mi-* with an unusual allomorph of $\sqrt{seh_1}$ - ‘impel’, the basis of the root-etymology being the notion that the *svāmín-* is an authority figure conceivably instigative of the sacrifice (cf. Ved. *sūri-* ‘patron’ < **suh₁-r-i-* ‘impelling one’, Barnes forthcoming). Given its honorific value and resemblant root-shape, **svāmi-* is identified as a relative of Bactrian $\chi\omicron\upsilon\alpha\chi\omicron$ ‘elder’ (< **h₂ājah-aka-* [: PIr. **h₂aH-*jāh-*]) and Avestan *h₂uōišta-* ‘best, eldest’ (cf. OAv. *dāmi-* ‘creating’ [adj.] : Ved. *dhéṣṭha-* ‘most bestowing’) – a sense of seniority argued to have arisen from the meaning ‘most impelling’ in a manner comparable to Vedic *jyēṣṭhá-* ‘eldest’ (: *jyēṣṭha-* ‘mightiest’ : $\sqrt{jyā}$ - ‘overpower’).*

Since, however, we possess extra-Indo-Iranian evidence for a **suh₁-mó-* expressive of *temporal* length in particular (OHG *sūmen* ‘linger’), it seems preferable to associate *svāmín-* ‘master’, $\chi\omicron\upsilon\alpha\chi\omicron$ ‘elder’, and *h₂uōišta-* ‘eldest’ (<< PIr. **h₂aH-išta-*) – the last clearly a rhyme form to its phonologically regular opposite *yōišta-* ‘youngest’ (Fortson 1996: 43) – with the

* $\sqrt{sueh_1}$ - secondary to * $\sqrt{seh_1}$ - ‘long’ rather than * $\sqrt{seuh_1}$ - ‘impel’. Like the **sh₁-én-o-* reflected by *sána-* ‘old’, **suh₁-mó-* may very well have borne the sense ‘long-existing’, itself ameliorable to ‘long-standing, senior’. It is accordingly conceivable that **svāmi-* reflects an exemplar **suó/éh₁-m-i-* ‘the senior’ derived from a **suh₁-mó-* whose relation to **suéh₁-jos-* ‘elder’ and **suéh₁-isto-* ‘eldest’ would be characteristically substitutive (cf. YAv. *tax-ma-* ‘firm’ : *tqš[̣]-iih-* ‘firmer’ : *tañc-išta-* ‘firmest’). As for the position of the new full-grade, we need look no farther for comparanda than in * $\sqrt{dueh_2}$ - ‘long, far’, the position of whose full-grade is variable but normally right before the laryngeal (OP *duvaišta-* ‘very far’ : Ved. *daviṣṭhá-* ‘id.’).

If, as seems likely, * $\sqrt{sueh_1}$ - ‘long’ is related to * $\sqrt{seh_1}$ - ‘long’, one can infer not only that **só/éh₁-u-* existed, but that it was formed so long ago as to participate in derivations and constructions whose products provided the basis for secondary roots in PIE itself. Regarding in particular parallel derivation and the apparent use of parallel derivatives as predicative instrumentals in the causative construction, we are at liberty to suggest that one such secondary root was a * $\sqrt{seu(h_1)d^h h_1}$ - ‘straight’ generated in the same manner as the homosemous * $\sqrt{seh_1 d^h h_1}$ - and * $\sqrt{sei(h_1)d^h h_1}$ - ancestral to $\sqrt{sādh-}$ and $\sqrt{\epsilon i\theta-}/\sqrt{i\theta-}$ respectively. On the basis of **séh₁-u-h₁ d^heh₁-* ‘elongate’ was formed a **sh₁-u-d^hh₁-ó-* ‘elongated, extended, straight’ whose reflex **suh₁-d^hh₁-ó-* (>> **suh₁d^hh₁-ó-*)⁷⁴ ‘straight’ was conceivably the base of an acrostatic **sóu(h₁)d^hh₁-u-/séu(h₁)d^hh₁-u-* ‘straightness’ basic itself to a proterokinetic adjective **séu(h₁)d^hh₁-u-/suh₁d^hh₁-éu-* ‘straight’. In sum, just as *sādhú-* and $\epsilon i\theta\acute{\upsilon}\varsigma$ * reflect the full-grade of the strong stem and the oxytony born of the weak, * $\sqrt{seu(h_1)d^h h_1-\acute{u}}$ - can be evaluably identified as the preform of an $\epsilon\theta\theta\acute{\upsilon}\varsigma$.

⁷⁴ Though perhaps unworthy of mention, it is not inconceivable that $\acute{\upsilon}\sigma\sigma\acute{o}\varsigma$ m. ‘javelin (Plb. +) reflects a possessive derivative of an *i*-stem abstract derived from our **suh₁d^hh₁-ó-* ‘straight’ (Transponat **suh₁d^h(h₁)-j-ó-* ‘straight’).

Admittedly, the derivational chain extending from the reconstruction of **séh₁-u-h₁ d^heh₁-* cannot be substantiated fully and must rely on several postulates, the first of which, as in the history unfolding from **séh₁-i-h₁ d^heh₁-*, would be a thematic adjective **sh₁-u-d^hh₁-ó-*. It is impossible to state definitively whether this adjective was the base of an acrostatic *u*-stem substantive from which was derived the adjective ancestral to εὐθύς or, as in the scenario discussed above, the preform of εὐθύς was formed from an eventual secondary root through the intermediation of an *s*-stem that itself must be postulated.

Despite these uncertainties, it is likely that there was indeed such a root meaning ‘straight, direct’ and that, at some identifiably Greek level, the existence of its reflex √εὐθ- did not entirely depend on the adjective in -ύς. To substantiate this claim, we may note another Hesychian lemma: εὐθέρα· μέρος τι τῆς νεώς. Though it is unclear exactly what kind of nominal stem this lemma point to, its relation to εὐθύς is highly probable from, for instance, the lexicographer’s identical glossing of a certain relative of this -ύς stem: εὐθυντηρία· τὸ ἐν τῷ ἐδάφει σύμμαγμα ὑπὸ τῶν ἀρχιτεκτόνων. καὶ μέρος τι τῆς νεώς. As defined by LSJ, this feminine substantivization of an adjective in -ιος derived from a *nomen agentis* to εὐθύνω designates “the part of the ship wherein the rudder was fixed”. In all likelihood, the εὐθέρα designated the same or similar component. For the sake of stating the morphological possibilities, we may suggest that, unless it reflects a feminine substantive derived from an adjective in -ερός (a type notably affiliated with *s*-stems [e.g. κρατερός : κράτος]), the form points to the accusative singular of a stem in **-ér-*, the main comparandum being the ultimately Calandish αἰθήρ, αἰθέρος m./f. ‘heaven, ether’ (cf. αἴθρος ‘the clear chill of morn’ [Hom. +] : αἴθω ‘light up, burn’ : αἰθός ‘burning; shining’, etc.). Whether the evidence of εὐθέρα and its interpretation as the bearer of an √εὐθ- reflecting a secondary root of the meaning ‘straight,

direct' are acceptable or not, what remains clear is this: the hypothesis of a *u*-stem FCM completely parallel to the *i*-stem justifiably reconstructed for εἰθύς*/ἰθύς is the only way to unite data that are evidently worthy of association on formal and semantic grounds (i.e. Ved. *sādhú-* 'straight' [root noun origin] : εἰθύς*/ἰθύς 'straight' [*i*-stem origin] : εὐθύς 'straight' [*u*-stem origin]).

The principal consequence of our discussion of εὐθύς and its relatives is that it is perfectly reasonable, when the data are various but reconcilable, to proceed to reconcile them by means of morphological procedures predisposed to create isofunctional formal variants. By way of comparison, it is *communis opinio* that Hittite *daluki-* 'long', Vedic *dīrghá-* 'id.', Avestan *darəγa-* 'id.', δολιχός 'id.' (cf. ἐνδελεχής 'continuous, perpetual' [Pl.+]), Latin *longus*, PGmc. **langa-*, etc. are all related to each other, and yet there is no phonological way to derive every one of them from a single preform. It is therefore necessary to attribute to the proto-language variants that have been regularly generated by identifiable rules of PIE syntax and derivation. As we have been attempting to demonstrate for much of this Chapter, a major consequence of these rules is the generation of secondary roots whose derivatives contain remnants of nominal stems. The claim is that, by invoking the compounds formed on the basis of PIE (anti-)causative periphrases, we can unearth hitherto inaccessible layers of PIE nominal morphology.

It is in this spirit that we shall undertake our next excavation project prior to the ultimate assessment of evidence for **kó/él-u-* and, most importantly, for **kó/él-i-* at the end of this Chapter. The main respect in which the next set of data differ from the relatives of √βῖθ- 'heavy', √πληθ- 'full', and √εὐθ- 'straight' is the hypothesis that such compounds and secondary roots could also arise on the basis of nominalizations of the anti-causative periphrasis with **√b^huh_x-* 'become'. Bearing the compositional thematic vowel, an SCM constituted by **√b^huh_x-*

would in the first instance be entirely parallel in form to the $*-d^h h_1 -\acute{o}-$ reconstructed as the nominalization of the causative light verb. Setting aside for a moment the role of $*\sqrt{b^h u h_x}-$ as the anti-causative light verb in the predicative instrumental periphrasis, we have reason to believe that, already in the proto-language, the historical result of adding the compositional thematic vowel to $*-b^h u h_x-$ was, first, the loss of the laryngeal by the so-called the $\nu\epsilon\omicron\gamma\nu\acute{o}\varsigma$ rule (Jasanoff 1997: 180–2 with refs.), and, second, the loss of the resulting glide (i.e. $*-b^h u h_x -\acute{o}- > *-b^h \mu\acute{o}- > *-b^h o-$). Amidst the evidence for this arguably already PIE $*-b^h o-$ (e.g. Lat. *probus* ‘upright’ < $*pro-b^h o-$ < $*pro-b^h \mu\acute{o}-$ < $*pro-b^h u h_x -o-$ ‘with a forthright nature’, Weiss 2020: 173), one may note the $-\phi\omicron-$ (Ved. *-bha-*) that appears in various names for animals and their offspring (e.g. ἔριφος ‘kid’, cf. Lat. *ariēs* ‘ram’; ἔλαφος ‘deer’ [$< *h_1 \acute{e}l -\eta -b^h o-$]: ἔλλός ‘fawn’ [$< *h_1 \acute{e}l -n -\acute{o}-$], cf. Lith. *ėlnis* ‘deer’; Ved. *vr̥ṣan-* ‘bull’ → *vr̥ṣa-bhá-* ‘id.’).

At face value, there are two possibilities for the origin of this $-\phi\omicron-$. According to the scenario just mentioned, $-\phi\omicron-$ would reflect $*-b^h o-$, ultimately the verbal governing member of a $*\sqrt{b^h u h_x}-$ compound that nominalized a syntagm with the meaning ‘be born of x (abl.)’. If this $*-b^h o-$ is best analyzed as an erstwhile second member of a verbal governing compound, it follows that the compound originally represented a construction in which the nominal predicate (the generative animal), being the source, had ablative value in the internal syntax of the compound; the perfective copula $*b^h u h_x-$ would merely predicate the ablative noun phrase of the offspring specified. Naturally, the specific meaning of $*b^h u h_x-$ in such constructions was ‘be born’.

While the designation of animals by reference to the adults from which they are born is pragmatically and semantically appealing, it is worth noting the other morphologically relevant means of conceptualizing these animals. Given that the offspring naturally resembles or appears like the adult of the species, it is conceivable that the $-\phi\omicron-$ in question goes back to a thematic

derivative of $*\sqrt{b^h e h_2}$ - ‘shine, appear’ (i.e. $*-b^h h_2-o-$). For the animal names in particular, there is in fact no way to exclude this possibility. Moreover, there is semantic justification for the supposition that this $*-b^h h_2-o-$ is reflected, for example, in the epithet ἄργυρος ‘shiny-white’ (Hom.), whose compositional preform appears to contain the weak stem of an FCM $*h_2 ó/érǵ-u-$ ‘brightness, whiteness’ (i.e. $*h_2 erǵ-u-b^h h_2-o-$ ‘shining/appearing bright’, Heidermanns 1996: 270). Concerning the syntax on which this compound is based, we might suppose that forms of $*\sqrt{b^h e h_2}$ - ‘shine, appear’ were used with the instrumental of this abstract (i.e. $*h_2 é rǵ-u-h_1 b^h e h_2-$ ‘look bright’). Since there is in fact a root noun to $*\sqrt{b^h e h_2}$ - (Ved. $bhā́$ - f. ‘light, radiance’), it is conceivable, as in the case of $*-d^h h_1-ó-$, that the sequence $*-b^h h_2-ó-$ was in the first instance analyzed as a possessive derivative of a verbal abstract root noun SCM representing a finite verb whose predicate was the instrumental of the abstract $*h_2 ó/érǵ-u-$ represented as the FCM. Regarding the syntax conceivably underlying the $*-b^h h_2-o-$ compounds attributable, under one scenario, to the animal names, one might imagine a phrase consisting of the root noun $*b^h e h_2-$ ‘appearance’ and the genitive of the adult animal (i.e. ‘[having] the appearance of x’).

Though, as just stated, it is impossible to exclude the possibility that the zoonymic $-φο-$ reflects $*-b^h h_2-o-$, it is also necessary to note that there are cases where a derivation involving $*-b^h h_2-ó-$ is unlikely semantically, especially when we take into account lexical data arguably related historically. On the basis of this claim, let us proceed to meet the family where such data make their home.

Anyone perusing the IEW entry under $*(s)ter-$, whose derivatives arguably belong to a semantic field encompassing ‘hard’, ‘firm’, ‘solid’, ‘stiff’, ‘rigid’, ‘rough’, ‘unyielding’, ‘barren’, and ‘void’, will be struck both by its size (p. 1022–1027) and by the formal diversity of the associated material. This formal breadth is largely due to the inclusion of data that Pokorny

analyzes as consisting of the root in question plus additional material, the notorious extensions that have always caused trouble because of their resistance to morphosemantic analysis. Though I do not presume to be able to assign an identifiable function to every so-called extension, I do believe that it is possible to show that some of the material in this entry contains the remnants of nominal morphology associated with the predicative instrumental (anti-)causative periphrasis.

We can begin this demonstration with some Greek data, the most familiar of which is στερεός ‘firm, solid, stiff’. Given its preform **ster-ey-ó-*, which we have analyzed as a suffixally vṛddhied derivative of an **-ó-* possessive adjective formed from a *u*-stem abstract (i.e. **stó/ér-u-* ‘hardness, solidity’ → **ster-u-ó-* ‘solid’ → **ster-ey-ó-* ‘somewhat solid’ [cf. κενός : κενεός]), the post-radical *-t-* in the obviously related and previously mentioned adjective στéριφος ‘firm, solid, barren’ (post-Hom.) is by now unsurprising; both items point to a thematic adnominal from which a **stó/ér-u-* and **stó/ér-i-* would be derived. Before examining that history, we should note another undeniably related set of data: στéρφος, -εος ‘hide, skin’ (A.R., etc.) and its immediate relatives. The most immediate seems to be Hesychius’ material adjective στερφίνα· δερματίνη· οἱ δὲ δέρματα ὄνεια· οἱ δὲ στεῖρα, ἢ σκληρά. Based on the second part of this gloss (particularly σκληρά), there is strong semantic ground for associating στερεός and στéριφος historically. Since a raw hide is a hard and stiff thing, it is no wonder that such an object/substance should have been conceptualized as an entity characterized by that Property Concept. Beside √στερ- itself, that concept seems to have been expressed by a related root √στερφ-. While this root’s most notable derivative is the *s*-stem just mentioned, Hesychius also attests a στéρφνιον whose own gloss, σκληρόν, στερεόν, leaves little doubt that the meaning

‘hide, skin’ of στέρφος is a derivative sense. What we are undeniably dealing with is a secondary root, for which there is some evidence, most decisively from Slavic.⁷⁵

This evidence illustrates different ramifications from the semantic territory ‘hard, firm, solid, stiff, rigid’ attributable to \sqrt{ster} - and its offspring $\sqrt{sterb^h}$ -. Whereas Church Slavonic *ustrabiti* ‘restore, refresh, heal’ and Old Polish *postrobic* ‘strengthen’ point to a causative $\sqrt{storb^h\acute{e}je/o}$ - whose underlying state was ‘be firm, solid, stout’ (cf. Church Slavonic *strǫblǫ* ‘sound, firm’), the fientive found in older Russian *stérbnutʹ* ‘stiffen, become rigid, die’ displays more or less the opposite semantic direction. Of some interest is the Russian Church Slavonic aorist *u-strebe* (ουστρεβε) ‘grew up, ἠδρύνθη’. Like the genuine Old Russian present *usterbnuti*, this aorist reflects the zero-grade of the root. As a thematic aorist, the form as a whole (except preverb) would thus go back to a $\sqrt{strb^het}$ ‘became stiff, stout, etc.’ morphologically and semantically comparable to the solely Homeric active thematic aorist ἔτραφε ‘grew up’ corresponding to τρέφομαι ‘become thick, grow, etc.’. If comparison with the present and aorist of this ultimately adjectival root (cf. ταρφύς ‘thick’) has any merit, it suggests that there should have once been a radical *é*-grade thematic present $\sqrt{stérb^h-e/o}$ - ‘become stiff’. By most accounts (e.g., Orel 2003: 375 with refs.; Kroonen 2013: 477), this present is actually reflected in Germanic (OE *steorfan* ‘to die’, OFri. *sterva* ‘id.’, OS *sterĥan* ‘id.’, OHG *sterban* ‘id.’). Moreover, the meaning of this verb has provided some justification for the association of the marginally attested and morphologically indeterminable Middle Irish *ussarb*, glossed with *bás* ‘death’ (eDIL s.v.). A reasonable guess would probably be that this Irish substantive reflects a *nomen actionis* formed on the basis of a $\sqrt{stérb^h-e/o}$ - or its reflex that had already developed the sense ‘die’. While it is unclear whether the sense/meaning ‘die’ evident in *stérbnutʹ* and NHG

⁷⁵ I thank Wayles Browne for his guidance concerning the following discussion.

sterben should be attributed to the reconstructible simple thematic verbal stem(s) formed from the root $*\sqrt{sterb^h}$ -, there is little doubt that there was such a root. The question we must now attempt to answer is how this root arose.

In light of its historical segmentation as $*ster + b^h$, the former element being identifiable as $*\sqrt{ster}$ - ‘hard, stiff, etc.’, the best available analysis of $*ster$ -, given the necessary origin of b^h - either from $*\sqrt{b^huh_x}$ - or, in principle, $*\sqrt{b^heh_2}$ -, is that it reflects a root noun FCM $*ster$ - ‘stiffness’ whose instrumental was predicated by means of a verb derived from one or the other of the two “ b^h -” roots just mentioned. On semantic grounds in particular, we have reason to doubt that the verb in question was $*b^heh_2$ - ‘shine, look, appear’ (Ved. *bhāti* ‘shines’). While it is imaginable that speakers would have used an expression like $*str-éh_1 b^heh_2-ti$ ‘it looks stiff’ from time to time, the less visual nature of the Property Concept expressed by $*\sqrt{ster}$ - makes an origin in an anti-causative construction, which would have been common in any case, more likely.

Like the other root noun periphrases we have reconstructed, namely $*p_lh_1-éh_1 d^heh_1$ - ‘provide with filling’ and $*sh_1-éh_1 d^heh_1$ - ‘elongate, extend’, $*str-éh_1 b^huh_x$ - would have expressed a change of state, the main difference of course being the absence of agency (i.e. ‘become stiff’). Accordingly, the resulting compound $*str-b^h(\underline{u})-ó$ - would have solely and originally borne the simply patientive/thematic sense ‘stiffened, (having become) stiff’. Since, however, it is more than imaginable that its re-analyzed reflex $*strb^h-ó$ -,⁷⁶ interpreted as a simple thematic adjective, would have lost this resultative sense, the *s*-stem substantive $*stérb^h-o/es$ - derived from this adjective would thus have meant ‘stiffness, stiff thing’. As an abstract/adjectival exemplar belonging to what was at some point a productive and influential

⁷⁶ This thematic adjective seems to have been the base of a radical *ó*-grade determinative $*stórb^h-o$ - ‘stiffness’ reflected by ON *starf* n. ‘labor, toil, exertion’ (Kroonen 2013: 474).

type, this *s*-stem may be viewed as the fulcrum on the basis of which were formed the radical *é*-grade anti-causative **stérb^h-e/o-* (aor. **strb^h-e/o-*) and, with radical status more firmly secured, the causative **storb^h-éje/o-*. On the nominal side, we may note the **-ló-* adjective **strb^h-ló-* ‘stiff, firm’ reflected by Church Slavonic *strъblъ* ‘sound, firm’ as well as what might have been an ultimately attenuated resultative adjective in **-nó-*, namely **strb^h-nó-* ‘stiffened’, which seems to have been the base, with addition of endocentric *-ijo-* and installation of determinative radical *é*-grade ([definite] adjective), of the stem ancestral to *στέρφνιον* (· σκληρόν, στερεόν).

The preceding discussion has focused on the genesis of the secondary root **√sterb^h-* ‘stiff’ on the basis of a compound whose FCM was a root noun employed in the anti-causative predicative instrumental periphrasis. Given the syntactic and semantic equivalence of a *u*-stem or *i*-stem abstract, it should come as no surprise that such stems would be identically employed. The primary difference is the derivational history and how that history contributes to explaining the semantic variety of certain forms (particularly *στέριφος* ‘solid’ and ‘barren’) assignable to the primary root **√ster-*. As an adjectival root, **√ster-* is hypothesized as the base of the abstract/exemplar root noun we have just discussed as well as of a semantically parallel τόμος-nominal **stór-o-* ‘the stiff’. To this reconstructed nominal correspond two reflexes which illustrate the substantival and definite adjectival interpretations. On the one hand, we seem to have in Tocharian A the substantive *ṣtare* with the meaning ‘effort’ (cf. semantically ON *starf* n. ‘Arbeit, Streben, Amt’ → *starfa* ‘sich abmühen’, IEW: loc. cit.), and, on the other, the Proto-Germanic adjective **stara-* ‘stiff, fixed’ (MDu. *star* ‘id.’, MHG *star* ‘id.’), whose most notable derivative is the *senēre*-type stative reflected by ON *stara* ‘stare’, OHG *starēn* ‘id.’, and OE *starian* ‘id.’.

If this adnominal **stór-o-* was the base of an *i*-stem, it would be a **stó/ér-i-* with the more or less predictable meaning ‘stiffness’. Depending on one’s assumptions about the semantic territory of the primary root, what is not entirely predictable is the fact that στéριφος means both ‘solid’ and ‘barren’, the latter sense being assigned by Pokorny to a separate root, namely and most notably that of Vedic *starī-* f. ‘infertile cow’ and στειρα ‘barren’ (Hom.+), both of which go back to a **ster-i(e)h₂-* of some description. Setting aside for the moment details of morphology, we should observe that there is an undeniable affinity between the Property Concepts realized by ‘hard, stiff, etc.’ on the one hand and ‘barren’ on the other. As a fundamentally biological PC, BARREN intersects with STIFF by virtue of the correlation between lack of pliancy and the incapacity to receive or produce. Rigid entities do not yield, take in, or put themselves forth in the dynamic manner characteristic of fertility (i.e. cultivable land) or sexual maturity (i.e. organisms). Given this conceptual connection, and the primacy of ‘hard, stiff, etc.’ as the basic meaning of **√ster-*, it is worth asking whether it is possible to identify a derivative in which the shift from ‘stiff’ to ‘barren’ could be localized. Though a matter of considerable uncertainty, this question might begin to be addressed with the theoretical admission that the *i*-stem **stó/ér-i-* for which we find so much evidence in the **√ster-* family could in principle be the derivative of at least two thematic bases. While, as mentioned above, this stem might be produced from **stór-o-* *qua* (definite) adjective, there is some evidence that a radical *e*-grade possessive, namely **ster-ó-* ‘stiff, barren’ (← **stór-o-* ‘stiffness’), also served as the base of a **stó/ér-i-* with the sense ‘barrenness, infertility’.

Before considering this *i*-stem, let us discuss some evidence for the **ster-ó-* on which it depends. Peeling back the Germanic **-ōn-* stem reflected by Gothic *stairō* ‘infertile woman’, we can remark that this weak feminine would very likely continue a de-thematic **-h₂-* stem **ster-e-*

*h*₂- whose radical *e*-grade would betray its origin from a **ster-ó-* ‘stiff’ bearing the already entrenched sense ‘barren, infertile’. Less decisive but still worth mentioning is the evidence for an *n*-stem to **√ster-* (OHG *stero* ‘ram’ [presumably castrated], Alb. *shjerrë* ‘lamb’ < **ster-en-* [de Vaan 2008: 586]). This indecision arises from the possibility that a **ster-o/en-* could be reconstructibly primary. Yet such a derivation would be unlikely, necessitating as it does the attribution of the sense ‘barren, infertile’, which we suspect to be conceptually and morphosemantically derivative, to the earliest reconstructible stage. Instead, even the fully ablauting **stér-ōn/stǵ-n-ós* set up by Kroonen (2009: 189–190) on the basis of West Germanic fragments (e.g. NHG *Storre* m. ‘stump; gelded stallion’, Du. dial. *storre* ‘small person or animal, piglet’ < **sturran-*) would be reconcilable with the supposition of an originally de-thematic *n*-stem that has conceivably adopted amphikinesis secondarily (i.e. **stér-o-n-* >> **stér-on-* ‘the infertile one’; cf. Av. *marətān-/marəθn-* ‘mortal man’, Nussbaum p.c.).

The reconstruction of **ster-ó-* ‘stiff’ with the already dominant sense ‘barren’ has the advantage of explaining some hitherto isolated material. Under the old assumption of a separate **√ster-* ‘barren, infertile’, the most notable member of the family after *στειρά* itself is of course Latin *sterilis* ‘unfruitful, barren’, which seems to have replaced a thematic variant *sterilus** (Fest. *sterilam sterilem* Lindsay 1913: 419). Since an **-e-* would have become †*-u-* before the *l*-punguis of this thematic form (v. Weiss 2020: 69–70), it is likely that it reflects a **ster-i-lo-* analyzable as a possessive **-ló-* derivative of the *i*-stem presumably derived from **ster-ó-* ‘barren’. It is at this point that we should consider another conceptual and semantic connection that may support the reconstruction of this thematic adnominal. Such a connection would be based on the correlation between infertility or unproductivity and vacuity or privation. Accordingly, it is not inconceivable that our **ster-ó-* ‘barren’ would have also borne the sense

‘(de)void’ – a semantic outgrowth easily illustrable for *sterilis* itself (e.g. *non tamen adeo virtutum sterile saeculum* “yet the age [was] not so destitute of virtues” [Tac.*H.*1.3]).

The particular advantage of operating with a **ster-ó-* of such a sense is that it allows us to flesh out de Vaan’s (2008: 586) intuition of a relation between *sterilis* and the $\sqrt{\sigma\tau\epsilon\rho-}$ of $\sigma\tau\acute{\epsilon}\rho\omicron\mu\alpha\iota$ ‘be without, lack, lose’ (Hes.+), a root otherwise known only from Greek. Though of ancient appearance, this radical *é*-grade anti-causative thematic present is slightly younger than the undoubtedly related $\sigma\tau\epsilon\rho\acute{\epsilon}\omega$ ‘deprive’ (Hom.+). Given its original base $\sigma\tau\epsilon\rho-\epsilon-$ (aor. infin. $\sigma\tau\epsilon\rho\acute{\epsilon}\sigma\alpha\iota$ [v 262], cf. $\acute{\epsilon}\sigma\tau\acute{\epsilon}\rho\eta\sigma\alpha$ [E.*Andr.*1213]), this semantically identifiable causative is structurally comparable to the radical *o*-grade type but for the absence of *o*-grade itself. This slight deviance may merit a denominal analysis, especially in light of the ease with which this isolated Greek root can be related to the derivatives of $\sqrt{*ster-}$ *qua* ‘barren’. By comparison to our earlier account of $\mu\bar{\iota}\sigma\acute{\epsilon}\omega$ from a Proto-Greek $*m\bar{i}k-\acute{i}\acute{\epsilon}-\acute{i}e/o-$ ‘belittle’ derived from an adjective $*m\bar{i}k-\acute{i}\acute{o}-$ ‘small, little’, we make note that the addition of $*-\acute{i}e/o-$ to thematic stems sometimes results in the preservation of thematic vowel in the *e*-grade (e.g. $\phi\iota\lambda\acute{\epsilon}\omega \leftarrow \phi\acute{\iota}\lambda\omicron\varsigma$), as opposed to its complete replacement elsewhere (e.g. $\kappa\alpha\theta\alpha\acute{\iota}\rho\omega$ ‘purify’ $\leftarrow \kappa\alpha\theta\alpha\rho\acute{\omicron}\varsigma$ ‘pure’, $\chi\alpha\lambda\acute{\epsilon}\pi\tau\omega$ ‘treat harshly’ $\leftarrow \chi\alpha\lambda\epsilon\pi\acute{\omicron}\varsigma$ ‘harsh’ [Hom.+], etc.). The invocation of this preservation permits the reconstruction of a factitive $*-\acute{i}e/o-$ present derived from the adjective **ster-ó-* ‘barren, void’. Standing beside its parallel substantival derivative **ster-i-* ‘barrenness, vacuity, privation’, the resulting verb $*ster-\acute{\epsilon}-\acute{i}e/o-$ ‘make void, deprive’ would have contributed to speakers’ postulation of a root $\sqrt{*ster-}$ ‘devoid’ on the basis of which Greek or its ancestor would form the radical *é*-grade thematic present underlying $\sigma\tau\acute{\epsilon}\rho\omicron\mu\alpha\iota$ ‘be without, lack, lose’ (< **‘become void’*). Naturally, the postulation of such radical meanings relies on the derivational realia. As just mentioned, a fairly central one among them was the *i*-stem derived from our **ster-ó-*. The

meaning of this *i*-stem is supported by the analysis of **ster-i-lo-* as a possessive. This analysis may in turn be supported and augmented by Nussbaum's (p.c.) interpretation of the necessarily possessive **ster-i(e)h₂-* (Ved. *starī́-* f. 'infertile cow', *στεῖρα* 'barren') as the reflex of a **ster-ǵ-ih₂-* 'barren' derived from the *i*-stem abstract basic to **ster-i-lo-* as well. Given the unwontedness of the sequence **ǵi* in the proto-language (v. Nussbaum 2021: 400–401), it is probable that the first segment of the *devī-*suffix conditioned the loss of the base's *i*-suffix when the *devī-*stem's suffix was in zero-grade (i.e. **sterǵih₂-* > **sterih₂-*). By recognizing this phonological effacement, we can restore the *i*-stem **stér-i-* 'barrenness, privation'.

By recognizing in turn an *i*-stem with this meaning, we are now in a position to consider its contribution to the latter sense of the meaning of *στέριφος* 'firm, solid; barren, unfruitful'. Given this semantic range, I suggest that *στέριφος* reflects a compound whose FCM **steri-* is the formal exponent corresponding to two different thematic derivatives of the same **√ster-* whose derivatives partly occupy the domain of 'hard, stiff, etc.', on the one hand, and partly that of 'barren, infertile, void' on the other. In particular, while the definite adjective **stór-o-* '(the) stiff' would be the base of a **stó/ér-i-* 'stiffness', the adjectival derivative of the abstract **stór-o-* 'stiffness' itself, namely **ster-ó-* 'stiff, barren, void', would be the base of a formally identical *i*-stem bearing the sense 'barrenness, privation'. Accordingly, it is not unthinkable that the periphrasis **stér-i-h₁ b^huh_x-* would have meant according to context either 'become stiff' or 'become barren'. Correspondingly, the resultative thematic/patientive compounds formed on the basis of this periphrasis would have meant '(having become) stiff, stiffened' or '(having become) barren'. For the preform of *στέριφος* in particular, we might imagine a **st(e)r-i-b^h(ǵ)-ó-* basic to the attenuated definite adjective **stér-i-b^ho-* conceivably ancestral to the Greek adjective.

As suggested by the tentative reconstruction **st(e)r-i-b^h(y)-ó-*, there is a fair possibility that there was once a compound with an absolute zero-grade FCM. This **str-i-b^h(y)-ó-* may in fact be reflected by the Middle Low German *strif* (var. *stref*) ‘stiff, taught, firm’ adduced by Pokorny (loc. cit.) and Frisk (1960–1973: 810) in connection with the adjective στριφνός ‘firm, hard, solid’ (Hp.+; → στρίφνος ‘tough, gristly meat’ [LXXJb.20.18]). As in the case of Church Slavonic *strьblъ* ‘sound, firm’ (< **str̥b^h-lô-* ‘stiff, firm’) and the **-nó-* stem **str̥b^h-nó-* ‘stiffened’ basic to the ancestor of στέρφνιον (· σκληρόν, στερεόν), the conceivably resultative **-nó-* stem reflected by στριφνός suggests that **str̥b^h-* was analyzed at some point as a root. The radical status of this **√strejb^h-* ‘stiff’ may be appreciated with an examination of some Germanic verbs.

The West Germanic languages present evidence for a **√str̥b-* ‘strive’ basic to several variants belonging to the weak conjugation. In Old High German, we find an apparently class I *streben* ‘strive’ (NHG *streben* ‘strive, aspire’)⁷⁷ whose variant *strebōn* belongs to class II. Beyond High German, we may select Middle Dutch *streven* ‘strive’ (de Vries 1971: s.v. *streven*), Old Saxon *strevōn* ‘id.’ (> MLG *streven* ‘to become or be stiff; stretch; resist; fight; make an effort’), and Modern West Frisian *stribje* ‘strive; become rough, stiff’. The general impression derived from these data is the difficulty of reconstructing a stem belonging to one particular weak class in Proto-West-Germanic. Moreover, there is some evidence that there was also a variant belonging to the strong conjugation. Pokorny observes that, beside *streven*, Dutch displays an archaic variant *strijven*. Though this form is identified as weak by Philippa et al. (2003–2009: s.v. *streven*), its root vocalism makes it difficult to exclude the existence at some point of a strong verb for which there is in fact some evidence in Middle High German. As noted

⁷⁷ *Althochdeutsches Wörterbuch*. (n.d.). <http://www.koeblergerhard.de/ahdwbhin.html> (last accessed February 16th 2023).

by Pfeifer (s.v. *streben*),⁷⁸ one does find attested, corresponding to weak *streben* ‘strive, rise up, move, struggle, fight’, a 3rd singular preterite *strêp* and past participle *gestreben* ‘striven’. Naturally, this evidence of a strong verb further complicates our reconstruction. We should therefore state what we are in a better position to accept.

First of all, the semantics of this West Germanic lexeme fit perfectly well with the meaning attributable to $\sqrt{\text{ster-}}$ ‘stiff, rigid’. The very notion corresponding to ‘strive’ is intimately related to our sense of what the human body experiences when undertaking or preparing to undertake an exertion. Secondly, this semantic association can be granted a historical foundation by recognizing the basic status of the form ancestral to the above-mentioned Middle Low German *strif* (var. *stref*) ‘stiff, taught, firm’. If a weak verb is attributable to Proto-Germanic and its ancestor, whatever kind of weak verb it was must have been denominal to the reflex of $\sqrt{\text{srib}^h\text{-ó-}}$ ‘stiff’. For example, one can imagine a *senēre*-type stative/anti-causative $\sqrt{\text{srib}^h\text{-éh}_1\text{(-)jē/o-}}$ ‘be, become stiff’ as per Jasanoff (2002–2003: 155–156). Alternatively, or in addition to this scenario, the presumably resultative $\sqrt{\text{-nó-}}$ stem reflected by στριφνός (cf. στεγνός ‘covered, watertight’ [Hdt. +] : στέγω ‘cover’ [A. +]) does support, as proposed above, the reconstruction of a $\sqrt{\text{strejb}^h\text{-}}$ ‘stiff’; it is from this root that one might have derived a radical *é*-grade anti-causative $\sqrt{\text{stréjb}^h\text{-e/o-}}$ ‘become stiff’ possibly reflected faintly in Middle High German and Dutch, though this cannot be proved. What is in any case certain is the existence of some ultimately denominal verb to the secondary root $\sqrt{\text{strejb}^h\text{-}}$ in the dialect ancestral to Germanic. The derivational history of this secondary root proposed here, namely as the product of reanalysis from a compound formed on the basis of a

⁷⁸ „streben“, in: Wolfgang Pfeifer et al., *Etymologisches Wörterbuch des Deutschen* (1993), digitalisierte und von Wolfgang Pfeifer überarbeitete Version im Digitalen Wörterbuch der deutschen Sprache, <<https://www.dwds.de/wb/etymwb/streben>>, abgerufen am 16.02.2023.

predicative instrumental anti-causative periphrasis, can be shown to make sense in the context of additional Germanic data interpretable as evidence for the causative periphrasis with the *i*-stem **stó/ér-i-* ‘stiffness’.

Going back to the earlier question of extensions, we are now in a position to affirm that the descriptive extension **-b^h-* added to **st(E)r-(E)i-* is all the more interpretable as the remnant of a nominal form of **√b^huh_x-* ‘become’ when the entire sequence **str-i-b^h-* is juxtaposed to the descriptive sequence **str-i-d^h-* reflected in Germanic. Beside **√striþ-* ‘strive’, West Germanic presents evidence for a **√strið-* whose most notable derivative is the Class I strong verb **striði/a-* (OHG *strītan* ‘fight’, MHG *strīten* ‘battle, endeavor; stride’ NHG *streiten* ‘contend’; MDu. *striden* ‘resist, struggle’, Du. *strijden* ‘fight’; OS *strīdan* ‘quarrel, argue’, MLG *strīden* ‘straddle the legs apart, stride’; OFri. *strīda* ‘fight’; OE *strīdan* ‘stride’). The way in which Kroonen (2013: 485) glosses this item, namely as ‘to stand upright, resist’ (s.v. **strīdan-*), reveals something of its semantic core and undeniable resemblance to **√striþ-*. In other words, the senses ‘stride’ and ‘strive, contend’ are reconcilable if one operates with the notion of entrance into the state of standing firmly and erect. The anti-causation of this particular state is a prerequisite both for the motion expressed by ‘stride’ and for the general exertion particularly realized in resistance or contention.

This latter sense is well-represented in the substantival relatives of **striði/a-* (OHG *strīt* ‘strife’, OS *strīd* ‘conflict, effort’ [*i*-stem noted by Tiefenbach 2010: 377], OFris. *stríd* ‘quarrel, fight’). The *i*-stem reconstructible on the basis of Old Saxon, namely **striði-* ‘strife, effort’, stands beside the thematic adjective **striðā-* reconstructed by Orel (2003: 382, s.v. **striðaz*) on the basis of ON *stríðr* ‘strong, rapid, hard, stubborn, severe’ (cf. OHG *ja*-stem adj. *einstrīti* ‘tenacious, rebellious’), the closest nominal relatives of which are the ON *a*-stem *stríð* n. ‘woe,

grief, strife, combat’ and the feminine *ōn*-stem *strīða* ‘strife, hardness, adversity’ (de Vries 1977: 553). Though the formal details of the derivational history vis-à-vis the preform of the strong verb attested in West Germanic remain unclear, what is undeniable and noteworthy is the semantic core ‘hard’ evident in the Norse adjective. This adjective’s preform **strīða-* ‘hard, stiff’ would thus stand beside a **strīði/a-* whose basic meaning was ‘stand firm’ – a sense entirely reconcilable with an earlier anti-causative meaning **‘become stiff’*.

Given this formal and semantic relationship as well as the generally recognized appurtenance of **√strið-* ultimately to PIE **√ster-* ‘hard, stiff, etc.’ (Pokorny loc. cit., de Vries loc. cit., etc.), it is justifiable to reconstruct, beside the anti-causative periphrasis **stér-i-h₁ b^huh_x-* ‘become stiff’, a causative one with *d^heh₁-* ‘put, make, do’. In doing so, we would be joined by Kroonen himself (loc. cit.), who sets up a “compound root” **strei-d^hh₁-* ‘to stand upright’ as the ancestor of his **strīdan-* ‘to stand upright, resist’. By appeal crucially to the predicative instrumental causative periphrasis, this reconstruction can now be motivated and established on the basis of a phrase **stér-i-h₁ d^heh₁-* ‘make stiff, stiffen’. Though much remains murky, we can state with some confidence that this phrase was the basis for a thematic adjective **str-i-d^hh₁-ó-* ‘stiffened, stiff’ completely parallel to the one ancestral to MLG *strij/stref* ‘stiff, taught, firm’. The most that can be reasonably said is that this adjective must have formed a critical mass of derivatives capable of providing a model for the simple thematic present inherited by Proto-Germanic. In other words, and for the sake of stating a scenario, once **str-i-d^hh₁-ó-* ‘stiff’ and its derivatives, such as the preform of ON *strīðr* (< [determinative] **stréj^hd^hh₁-o-* ‘[the] stiff’ or **strej^hd^hh₁-ó-* ‘[somewhat] stiff’), were analyzed as root + suffix formations, it is conceivable that the **√strej^hd^hh₁-* posited on the basis of these stems became the base of a radical *é*-grade simple

thematic present **strējd^hh₁-e/o-* ‘become stiff, stand upright’ ancestral to the strong verb definitely attributable to Proto-Germanic.

At this point in our argument we would do well to state once again what remains relevant for the interpretation of the evidence with which we shall eventually conclude this Chapter. In the case of the relatives of βρήθω, ἰθύς, and στέρφος (: στριφνός), what we are dealing with is the fossilization of substantives, in this case *i*-stem abstracts, in compounds underlying certain secondary roots. For the “extensions” of **√ster-* in particular, the secondary roots in **-d^h-* and **-b^h-* with a preceding “extension” in **-i-* should now seem hardly co-incidental. Both so-called extensions are interpretable by appeal to the (anti-)causative periphrasis. We therefore have in place a framework for analyzing fossilized layers of nominal material, represented most notably and relevantly by the *u*-stem and the *i*-stem. As envisioned at the beginning of this Chapter, our analysis is designed to render interpretable certain evidence for the *u*-stem **kó/él-u-* and, above all, for the *i*-stem **kó/él-i-* ‘covering’. We are now ready to consider that evidence.

The *u*-stem **kó/él-u-*, for which we have already provided evidence in the preceding Chapter, simply has more and, in terms of derivational semantics, varied evidence than its *i*-stem sister. In other words, while there is genitival as well as possessive (particularly predicative instrumental) evidence for **kó/él-u-*, the only unambiguous evidence for **kó/él-i-* that I have been able to find, as it happens from Germanic, derives from nominal and even verbal stems based ultimately on compounds formed from the predicative instrumental (anti-)causative periphrasis. To provide one last intimate parallel for interpreting that *i*-stem evidence, let us consider some Greek reflexes of its *u*-stem sister.

The basis of interpreting this evidence, as well as the evidence of **kó/él-i-* for that matter, is the recognition that the meaning of **kó/él-u-*, namely ‘covering’, may be arranged in a

structure that predicates a state. The most intimate parallel for this stative expression is Vedic *gúhā* itself, the predication of which means ‘hidden, concealed’. By comparison to this predicative instrumental, it is not difficult to imagine a phrase **kél-u-h₁ b^huh_x-* whose literal meaning was ‘become with covering’.⁷⁹

As I have argued elsewhere (Merritt 2021), Greek has two main sources of indirect evidence for this particular phrase: κέλῶφος, -εος ‘sheath, case, shell, husk, pod’ (Ar., Arist.+) and καλύπτω ‘cover’ (Hom.+). Given the form and meaning of the latter, it cannot be seriously denied that there is a connection to **√kel-* ‘cover’. The problem has always been the origin of the entire base καλυφ- (cf. περι-καλυφ-ή ‘wrapping’ [Pl.Lg.942d]); while the sequence καλ– is certainly the reflex of **√kel-* in some way, proponents of the **√kel-* connection have been unable to determine the morphological history of the once post-radical –υφ-.

The point of entry for the solution of this problem arises from the recognition that the entire base καλυφ- strikingly resembles the root or base of the *s*-stem κέλῶφος (→ κελύφιον Arist. HA622a7; κελῶφανώδης ‘husk-like’ Thphr.CP1.7.2 ← κελύφανον; κελύφανα: λεπίσματα Hsch.). Without much discussion, Chantraine (2009: 494) and Frisk (1960–1973: 818) claim a relationship with καλύπτω. Both mention the difference of the supposed radical vowel’s quality (i.e. κελ-) as well as the quantity of the vowel preceding the labial element (i.e. –ῶφ-),⁸⁰ which Frisk singles out as subject to conjecture. With these differences in mind, there are at least three reasons for attributing an etymological relationship to κέλῶφος and καλύπτω. First and most simply, κελ- may reflect the *e*-grade of **√kel-*. Second, the possibility that the ancestor of κέλῶφος was restricted to ‘biological covering’ is completely straightforward, and in fact

⁷⁹ ‘becloaked, bemantled, besheltered, becoveringed’ (Nussbaum p.c.).

⁸⁰ The final foot in in the phrase ἀντωμοσιῶν κελύφη ‘the husks of affidavits’ (Ar.V.545) is a bacchius (i.e. $\sim \bar{\sim}$).

paralleled for the root in question by OE *hulu* ‘hull, husk’, which, as we have observed in Chapter 6, would reflect a Lindeman variant of the radical zero-grade de-thematic h_2 -stem also ancestral to Latin *clam* ‘secretly’ (i.e. $*k\acute{l}-\acute{e}-h_2-$ ‘concealment’, [de Vaan 2008: 117]; cf. grade of root in $\varphi\upsilon\gamma\eta$ ‘flight’). Third and doubtless without coincidence, $\kappa\acute{\epsilon}\lambda\bar{\upsilon}\varphi\omicron\varsigma$ displays the most peculiar sequence $-\bar{\upsilon}\varphi-$ all but identical to that of $\kappa\alpha\lambda\acute{\upsilon}\pi\tau\omega$. Given that what precedes this sequence reflects an isolable Indo-European root, it follows that the bases $\kappa\alpha\lambda\upsilon\varphi-$ and $\kappa\epsilon\lambda\bar{\upsilon}\varphi-$ contain related remnants of derivational material. In particular, it is arguably the case that $\kappa\alpha\lambda\acute{\upsilon}\pi\tau\omega$ and $\kappa\acute{\epsilon}\lambda\bar{\upsilon}\varphi\omicron\varsigma$ were at some stage derived from nominals whose stems were formed with the ancestors of $-\upsilon\varphi-$ and $-\bar{\upsilon}\varphi-$ respectively.

As we have observed in all adduced reflexes of nominalizations of the predicative instrumental periphrasis, the normal procedure for the formation of such compounds is the use of the substantive’s bare stem as FCM (e.g. $*str-i-b^h(\mu)-\acute{o}-$ ‘stiffened, stiff’ [$>$ MLG *stref* ‘taut’]). This bare stem – in this case \acute{o}/\acute{e} -acrostatic – could surface in absolute zero-grade (vide supra), in its weak form (e.g. Lat. *gelidus* ‘ice-cold’ [$<$ $*gel-i-d^h h_1-o-$], cf. ON *kylr* ‘chill’ [$<$ $*kuli-$], OE *ciele* ‘id.’ [$<$ $*kali-$]), or even in its strong form (e.g. Lat. *solidus* ‘solid’ $<$ $*solh_2-i-d^h h_1-o-$ [v. Nussbaum 1999a: 401]). Accordingly, we should expect the compound formed on the basis of $*k\acute{\epsilon}l-u-h_1 b^h u h_x-$ to have been $*k\acute{l}-u-b^h(\mu)-\acute{o}-$, $*k\acute{\epsilon}l-u-b^h(\mu)-\acute{o}-$, or $*k\acute{o}l-u-b^h(\mu)-\acute{o}-$ ‘provided with covering’. However, the bare stem is not what is reflected by $\kappa\acute{\epsilon}\lambda\bar{\upsilon}\varphi\omicron\varsigma$, the length of whose upsilon suggests the preservation of the instrumental desinence and its incorporation into the compound (i.e. $*k\acute{\epsilon}l-u-h_1-b^h(\mu)-o-$). While the use of inflected forms as first members of verbal governing compounds is not unknown (e.g. Hom. loc. pl. $\acute{o}\rho\epsilon\sigma\acute{\iota}-\tau\rho\omicron\varphi\omicron\varsigma$ ‘reared in the mountains’, Ved. instr. $g\acute{i}r\bar{a}-v\acute{y}d\bar{h}-$ ‘increasing with song’ etc., Scarlata 1999: 368–369), an additional account may be necessary to explain the appearance of an instrumental reflex.

Explanations may be sought within the paradigm of **kó/él-u-* itself. In one scenario, because the locative **kl-éu* was especially frequent, the weak cases of the old acrostatic paradigm adopted suffixal *e*-grade, the result of which was neo-proterokinesis (i.e. **kól-u-/kl-éu-*; cf. Lat. *mare* < **m̥r-i-* << **m̥r-ej* ‘in the sea’ loc. of **móri-/méri-*, cf. OIr. *muir*, Schindler 1994: 398). Nevertheless, one may object that, while neo-proterokinesis is common elsewhere (cf. Ved. *dāru*, gen. *dróh* ‘of wood’), it is not the procedure adopted by the ancestor of Greek, whose erstwhile acrostatics reflect radical *o*-grade and suffixal zero (e.g. *δόρυ*, gen. *δορός/δουρός* < **dor-w-ós* ‘of wood’).⁸¹

According to Nussbaum (p.c.), some insight into what happened to Pre-Proto-Greek acrostatics may in fact be afforded by an examination of *πόλις* ‘city’ (Hom.+), whose radical etymon’s *set*-character, likely and long attributable to derivation from **√pleh₁-* ‘fill’ (Pokorny 1959–1969: 798–801), is suggested by comparison to the above-mentioned Vedic *púr-* ‘fortified settlement’ and Lithuanian *pilis*, *-iẽs* ‘fortress’. While most dialects seem to have generalized the nom.-acc. stem *πολ-ι-* to the oblique (e.g. gen. sg. *πόλιος*, Buck 1955: 91), Homer displays, uniquely among *i*-stems, an allomorph *-η-* (e.g. gen. sg. *πόληος*) reflected by the *-ε-* of Attic (by quantitative metathesis) and some early Ionic inscriptions (e.g. *πόλεως*). The origin of this *-η-* is unclear. Though it is often assumed to have arisen from a lengthened grade locative singular **-ēi* (Sihler 1995: 314; dat. sg. *πόληϊ*, Weiss 2020: 264) of proterokinetic origin (cf. Ved. *agnā* ‘in the fire’, YAv. *gara* ‘on the mountain’; PIIr. **-ā* < **-ē* < **-ēi*, cf. nom sg. *πειθ-ώ* ‘persuasion’ [**-ō* < **-ōi*], Hackstein 2017: 1316 with refs.), another scenario better explains why originally acrostatic **pólh₁-i-* is the only example (almost) of *-ις* : *-εως* *i*-stem inflection in Homer (Nussbaum p.c.). If

⁸¹ The reflection of radical *o*-grade and suffixal zero appears to be restricted to neuters of this type (Nussbaum p.c.).

we start out with an acrostatic paradigm (nom. sg. **pólh₁-i-s*, gen. sg. **pélh₁-i-s*, loc. sg. **p_lh₁-éi*) and suppose that, in at least the language ancestral to Greek and Indo-Iranian, the zero-grade root allomorph conditioned by the locative was later generalized in the weak stem (e.g. OAv. nom./acc. sg. *āiiiū* : gen. sg. *yaos̥* < **h₂ǵ-éu-s* ‘of life’ : **h₂ǵ-éu* ‘in (life)time’), one would only need to observe that, unlike Indo-Iranian’s suffixal full grade and desinential zero (e.g. Ved. gen. sg. *agnéh* [< **-éǵ-s*]), Pre-Proto-Greek introduced a full grade ending (i.e. gen. sg. **p_lh₁-ǵ-ós* [*vel sim.*] << **pélh₁-i-s*).⁸² Accordingly, once the allomorphic sequence **p_lh₁-ǵ-(ós, -éi, etc.)* (: strong stem **pólh₁-i-*) developed to (Pre-)Proto-Greek **plēǵ-* (e.g. gen. **plēǵós*), the radical *o*-grade of the strong stem **pol-i-* was easily introduced (e.g. **pólēǵios*) to produce the stem variant reflected by *πολη-* (e.g. gen. *πόληος*).⁸³

By appeal to this scenario, the weak stem of our original **kó/él-u-*, with its strong stem in **kól-u-*, weak stem in **kél-u-*, and locative singular in **kl-éu* (Lindemanized **k_ll-éu*), would be minimally remodeled, possibly after the locative, with radical zero-grade (i.e. **k_ll-u-*). We may thus suppose that, after the oblique was renewed as **k_ll-u-*, the old acrostatic radical *e*-grade instrumental **kéluh₁*, having been isolated from the paradigm, became an indeclinable adnominal (cf. PDE *life* : *alive* < OE PP *on lífe* ‘in life’) – a situation comparable to the aforementioned *gúhā* of Vedic. Since **kéluh₁* no longer belonged to the paradigm but still participated in the **b^huh_x-* periphrasis, the entire indeclinable itself, rather than the bare stem of the old acrostatic, was selected when the anti-causative periphrasis required nominalization (i.e.

⁸² Though it is unclear how the allative ending interacted with the ablaut of the stem, Cypriot <*u-wa-i-se* / *za-ne*>, which reflects the allative **h₂ǵu-h₂é(-ǵ)* ‘for life, forever’ (Weiss 1994: 151–154), may simply reflect the totally zero-grade weak stem of the remodeled acrostatic paradigm inherited by Greek’s ancestor.

⁸³ These developments may be summarized as follows: (1) **pólh₁-i-* : **pélh₁-i-* : loc. sg. **p_lh₁-éi*, (2) **pólh₁-i-* : **p_lh₁-ǵ-*, (3) **póli-* : **plēǵ-*, (4) **póli-* : **pólēǵ-* (Nussbaum p.c.).

**keluh₁-b^h(u)-ó-* ‘covered’) – an event in principle no different from the use of prepositional preverbs (i.e. fossilized nominals) as first members of verbal governing compounds. For example, the first member of the Vedic compound *sacā-bhū́-* ‘being along with’ likely reflects the instrumental of some *nomen actionis* ultimately from **√sek^w*- ‘follow’, which has been grammaticalized as an adverb/indeclinable adjective/preposition/preverb, while the second member reflects the athematic nominalization of **b^huh_x-*. At some point, then, the compound adjective **keluh₁-b^h(u)-ó-* ‘covered’ served as the base of a determinate *s*-stem (i.e. **keluh₁-b^h(u)-o/es-* ‘covering’, cf. πηρός ‘disabled’ : πᾶρος ‘weakness’ [Alc.98], στεῖνός ‘narrow’ → τὸ στεῖνος ‘confined space’ Hom. + [Nussbaum 2014a: 235]; Ved. *srutá-* ‘flowing’ → *srótas-* ‘stream’, etc.), from which the form and special semantics⁸⁴ of κέλῶφος developed unproblematically.

In the meantime, the renewal of **kó/él-u-*, the neo-acrostic **kól-u-* : *k̑l-u-* : loc. *k̑l-éu*, continued to be used in the anti-causative periphrasis with **b^huh_x-*. In contrast to the indeclinable adjective **keluh₁*, the instrumental of the new paradigm, possibly a Lindemanized **k̑l-u-h₁* or a **k̑l-u-éh₁* with full grade ending (cf. Ved. *ūtí* ‘with help’, OAv. *xrat-ū* beside *xraθ-βā* ‘with

⁸⁴ It should be noted that the semantic development assumed here does not at first appear to be what would be predicted strictly on the basis of a nominalization of an *anti*-causative periphrasis, as we would then expect **keluh₁-b^h(u)-ó-* to refer to that which has undergone the event as theme or patient. However, in light of the possessive semantics of the construction and the built-in diathetic variability of what is still a noun with a complex argument structure (i.e. **kó/él-u-* ‘*x*’s covering of *y*’), it is by no means written in the stars that the possessor of the possessive (i.e. instrumental) verbal noun always be conceived of as a theme or patient. In the case of κέλῶφος, what seems to have happened is a semantic development based on the descriptively agentive reading available to possessives (i.e. *‘that which has come to have [literally ‘be with’], i.e. developed, a covering’ > *‘that which covers, a cover’ > ‘shell, husk, etc.’).

By way of contrast, Orel (1998: 474) derives Albanian *thelb* ‘kernel’ from a Proto-Albanian **tsalba*, which he considers ultimately derivative of **√kel-* ‘cover’. If this etymology is correct, it may point to the nominalization of a **b^huh_x-* periphrasis involving a hypothetical root noun **kl-éh₁* (i.e. **kel-/kl-*). In that case, the etymon of *thelb* would illustrate the thematic/patientive interpretation of the possessive.

spiritual power’), was recognized as a desinence-bearing item. Accordingly, when the periphrasis was nominalized, the form selected as first member was the simple weak stem $*k̑ll-u-$ derived from the allomorphs available in the simplex. The second member of the compound would be the nominalized form of $*b^huh_x-$, which could have been thematic (e.g. ἔριφος, κέλῶφος < $*k̑eluh_1-b^h(u)-o/es-$ ← $*k̑eluh_1-b^h(u)-ó-$, etc.) or athematic (e.g. Ved. *sacā-bhū-* ‘being along with’). Altogether then we would have a compound adjective $*k̑ll-u-b^huh_x-/b^h(u)-ó-$ ‘become/made covered’, in which the Lindeman variant was not reduced to a monosyllabic $*kl-u-$, simply because that form did not or no longer existed, whereas the entirely morphologized $*k̑ll-u-$ not only existed but was likely the only recognizable zero-grade form.

If we operate with an athematic second member, $*k̑ll-u-b^huh_x-$ would undergo phonological changes previously discussed. Since $*\sqrt{b^huh_x}$ did not allow full grade of the root under any circumstances (Jasanoff 1997), the m./f. nominative singular, for instance, would have been $*-b^huh_x-s$ (cf. *sacā-bhū-h*). However, any vowel-initial endings (i.e. the majority) would have conditioned the $\nu\epsilon\omicron\gamma\upsilon\varsigma$ rule; genitive singular $*-b^huh_x-ós$, for instance, was followed by $*-b^h(u)-ós$ and ultimately $*-b^h-ós$ (cf. again ἔριφος and Ved. *vṛṣa-bhā-*). While in the language ancestral to Vedic the nominative singular $*-b^huh_x-s$ conditioned the remodeling of the oblique cases (e.g. *-bhūh*, gen. *-bhúvah*, dat. *-bhúve*, etc.), it may be argued that, in the language ancestral to Greek, the allomorph $*-b^h-$, as analyzable from the genitive, dative etc. (i.e. $*-b^h-ós$, $*-b^h-ej$, etc.), conditioned a levelling to the exclusion of the allomorph $*-b^huh_x-$. At some point, then, the stem of our compound may have been simply $*k̑ll-u-b^h-$, which was eventually understood as a simple adjective with the meaning ‘covered’. Pre-Proto-Greek $*k̑ll-u-b^h-$ or Proto-Greek $*k̑alup^h-$ would have thus been eligible as a base for the formation of a $*-j̑e/o-$ denominal present with the basic causative/factitive meaning ‘make *x* covered’ (i.e. $*k̑ll-u-b^h-j̑e/o-$ > $*k̑alup^h-j̑e/o-$ >

καλύπτω, cf. κορύσσω ‘apply helmet’ ← κόρυς, -ύθος ‘helmet’). Alternatively, and more plausibly, if the base was thematic all along (i.e. **k̑ll-u-b^h-ó-*), the derived καλύπτω could reflect the other procedure whereby denominal **-je/o-* was substituted for, rather than affixed to (e.g. κόσμος → κοσμέω ‘adorn’, αἶνος → αἰνέω ‘praise’, etc. < **-e-je/o-*), the thematic vowel (e.g. χάλεπτω ‘treat harshly’ ← χαλεπός ‘harsh’ Hom. +, μειλίσσω ‘treat gently’ ← μείλιχος ‘gentle’ Hom.+, etc.; cf. Av. *baēšaziia-* ‘heal’ ← *baēšaza-* m./n. ‘medicine’, Tucker 2004: 559).

In light of the derivationally determined syntactic and semantic identity of **k̑ó/él-u-* and the hitherto purely postulated **k̑ó/él-i-*, we hypothesize, just as we find nominal and verbal evidence pointing to the nominalization of a periphrasis **k̑él-u-h₁ b^huh_x-* ‘come to be with covering, become covered’ (>> **k̑ll-u-h₁/k̑l- μ -éh₁ b^huh_x-*), that there also existed an (anti-)causative periphrasis whose heavy member was **k̑ó/él-i-*. Given all we have learned in this Chapter, evidence for this *i*-stem, incidentally from Germanic, may now be adduced.

In all branches of this family there is evidence for a root that may be reconstructed as * $\sqrt{\chi l i \bar{b}}$ - ‘protect’. In Gothic we have a Class I weak verb *hleibjan* ‘care for’ (+ dat.) (e.g. *hleibida Israela þiumagu seinamma* ‘he hath holpen his servant Israel’ [Luc.1.54]), whose exact Old Norse cognate is *hlífa* ‘shelter, protect, spare’ (+ dat.). Based on this correspondence, the * $\chi l i \bar{b}$ -*iji/a-* reconstructed by Orel (2003: 177, s.v. **xlībjanan*) is attributable to Proto-Germanic. Though Seebold (1970: 261) had also reconstructed this weak verb, he also reconstructs, on the basis of Old High German *līban*, *leib*, *libun*, ‘care for, spare’ a strong verb *hleib-a-* ‘schonen’ (i.e. * $\chi l i \bar{b}$ -*i/a-*). We are thus in a situation similar to the reconstructive aporia relating to the verbs derived from * $\sqrt{s t r i \bar{b}}$ -. Whether we attribute this variety to Proto-Germanic or not, the origin of * $\sqrt{\chi l i \bar{b}}$ - as a whole can be uncovered if we bring certain nominals into the picture. The immediate nominal relative of ON *hlífa* ‘shelter, protect, spare’ is the strong feminine *hlíf* ‘cover, shelter,

protection, shield’ whose exact OHG cognate is *lība* ‘calming, attention, care’. While the sense ‘shield’ of this Norse item has invited comparison to Latin *clipeus/clupeus* ‘round shield’ (de Vries 1977: 238; Orel 2003: 177 with refs.), the etymological uncertainty surrounding the Latin term seriously undermines the genetic connection. As suggested by Zupitza (1899: 94), what may be more plausibly connected with *hlíf* is the Old Irish *o*-stem *clíab* m. ‘basket; skep, beehive; coracle, currach; framework of the ribs, breast, bosom’ (eDIL). Given its Proto-Celtic preform **kleibo-* and semantics of envelopment and enclosure, this connection is justifiable. By comparison of their roots, Proto-Germanic **√χlīb-* (→ **χlīb-ō-* ‘protection’) and Proto-Celtic **√kleib-* (→ **kleib-o-* ‘container’), we can proceed to evaluate the PIE possibilities.

According to Orel (loc. cit.: s.v. *xlībanan*), **√χlīb-* “continues IE **k̑leǵ-* ‘to bend’”. Despite the lack of PIE roots of the shape **(k̑)leǵ(h)-*, there is basically no justification for connection with the ‘lean’ root and much against it morphosemantically. On the morphological side, maintenance of a connection to this verbal root **k̑leǵ-* requires a labial element that would have no analysis other than as an extension. This is an analysis of last resort and generally bad practice if it can be avoided. On the semantic side, there is a slight degree of conceivability, for instance because certain nominals derived from **√k̑leǵ-*, such as **k̑léǵtreh₂-* (Goth. *hleipra* ‘hut, tent’) and **k̑litǵeh₂-* (κλισίη ‘hut, shed, booth’), denote objects that, by virtue of their construction with pieces of wood leaning on each other, provide something that may be aptly called shelter. Nevertheless, there is simply no *derivational* semantic path from ‘lean’ to the meaning exhibited by *hlíf* and its relatives.

Fortunately, we can associate **√χlīb-* with a semantically perfect PIE root without appeal to extensions of any kind, using technology developed extensively in this Chapter. The root is obviously **√kel-* ‘cover’. What has not been obvious is how to get to what must be a secondary

root $*k̑lejb^{(h)}$ - whose meaning ‘protect’ is in effect identical (cf. Lat. *prōtegō* ‘cover, protect’). Middle Irish *clíab* may again provide some help. Assuming that its labial reflects $*b^h$ rather than the marginal $*b$, we can set up its preform as a $*k̑lejb^h-o-$ of some description. Whatever the explanation as regards the radical *e*-grade, it is highly probable and even necessary that we are dealing with a neo-full-grade. This means that the base of $*k̑lejb^h-o-$ was a $*k̑lib^h-ó-$ whose derivational semantic analysis we are now more than ready to undertake.

If, as seems abundantly probable, *hlíf* is reflex of an item ultimately derived from $*\sqrt{k̑el}$ - ‘cover’, we have no choice but to interpret the $*-i-$ of our $*k̑lib^h-ó-$ as a suffix. Since there is no evidence of an *i*-present to $*\sqrt{k̑el}$ - ‘cover’, this suffix is better taken to be of nominal origin. Accordingly, the analysis of $*k̑lib^h-ó-$ as an erstwhile compound $*k̑l-i-b^h(u)-ó-$ with the absolute zero-grade of an *i*-stem FCM is truly beyond doubt.

The reflexes of the derivatives of this $*k̑l-i-b^h(u)-ó-$ are interpretable in light of the periphrasis in which this *i*-stem took part. Based on the phrase $*k̑él-i-h_1 b^huh_x-$ ‘become covered’, the resulting $*k̑l-i-b^h(u)-ó-$ would mean more or less ‘come to be with covering, covered’. As a compositionally generated possessive,⁸⁵ $*k̑l-i-b^h(u)-ó-$ would have preserved the diathetic ambiguity characteristic of possessives derived from verbal abstracts associated with more than one argument. Accordingly, the meaning of $*k̑l-i-b^h(u)-ó-$ would not be unlike that of the $*k̑eluh_1-b^h(u)-ó-$ underlying the base of the *s*-stem reflected by κέλῶφοϛ. That which has come to have a covering by being provided with one may be considered an entity that itself

⁸⁵ What is meant here is the idea that possessive $*-ó-$ forms a stem derived from a compound verbal abstract whose SCM is a root noun. While $*k̑l-i-b^h(u)-ó-$ does not presuppose such an SCM in this particular case, the compound type would in general be attributable to the use of $*b^húh_x-/b^huh_x-$ as an SCM.

provides cover. The consequence of this reasoning is clear: **kl-i-b^h(u)-ó-* would at times have been able to refer to an agent or instrument that covers.

Following this interpretation, we may suppose that **kl-i-b^h(u)-ó-* was an adjective with the meaning ‘covering’. Since *clíab* is a substantive whose specific senses are in complete accord with this general and abstract meaning, it is probable that its preform **kléib^h-o-* was in fact a radical *é*-grade determinate derivative (ultimately) of **kl-i-b^h(u)-ó-* (i.e. → **kléib^h-o-* ‘the covering’). Though a genitival **kléib^h-ó-* cannot be formally excluded, one would have to suppose an eventually substantival use as opposed to the more or less direct route presented by determinative derivation. Moreover, the existence of what appears to be a determinative reflected by *hlíf* supports an analysis of the preform of *clíab* as a parallel derivative. In other words, **kl-i-b^h(u)-ó-* ‘covering’ (>> **klib^h-ó-*) would be the base both of a **kléib^h-e-h₂-* ‘the covering’ (> ON *hlíf*, OHG *liba*) and of a **kléib^h-o-* ‘id.’ (> Mlr. *clíab*).

What is assumed here is that **χlīb-ō-* ‘protection’ is as much an original form from the standpoint of Proto-Germanic as **kleib-o-* ‘container’ manifestly is for Proto-Celtic. The installation of radical *é*-grade interpretable in the background of the preforms of both reconstructions would of course be of nominal origin. In keeping with the weak Class I verb reflected in Gothic *hleibjan* ‘care for’ and Old Norse *hlífa* ‘protect’ is the supposition that **χlīb-ō-* reflects a derivative of **klib^h-ó-* formed in parallel to a base **kléib^h-o-* from which the weak verb would be derived. Since denominal **-je/o-* is not associated with the installation of *e*-grade in the base, the preform of *hleibjan* and *hlífa* would likely be derived from the substantival **kléib^h-o-* ‘cover’ ancestral to *clíab*. This denominal would belong either to the suffixally substitutive (e.g. Av. *baēšaza-* m./n. ‘medicine’ → *baēšaziia-* ‘heal’) or retentive type (e.g.

κόσμος → κοσμέω ‘provide with κόσμος, adorn’). In either case, the resulting **kleib^h(-é-)je/o-* would more or less have meant ‘provide with **kleib^h-o-*, cover’.

This does of course bring up the question of the origin of the Class I *strong* verb that Seebold (loc. cit.) attributes to Proto-Germanic alongside the weak. This attribution is slightly problematic if the only evidence for a strong verb to **√χlīb-* is Old High German *līban*, *leib*, *libun*, ‘care for, spare’. Yet if its strong conjugation is somehow an inheritance from the dialect ancestral to Proto-Germanic, the emergence of the underlying radical *é*-grade *simple* thematic present would indeed depend on the interpretation of **kleib^h-* as a root. Though the background of this putative present **kleib^h-e/o-* ‘cover, protect’ may be depicted in various ways, it is not worth the attempt principally because nothing really obliges us to attribute **χlīb-i/a-* to Proto-Germanic. We are in a somewhat different situation when we consider Seebold’s next reconstruction.

Beside **√χlīb-* ‘protect’, Proto-Germanic seems to have had a **√χlīð-* of suspiciously similar semantics. The main derivative of this root is a substantive assuredly attributable to Proto-Germanic: **χlīð-a-* n. ‘cover, means of closure, enclosure’ (ON *hlið* ‘gate(way), gap, interval’; OE *hlid* ‘lid, cover’ [cf. OE *gehlid* ‘lid, covering, roof, enclosure, vault’], OFris. *hlid* ‘lid’, OS *hlid* ‘id.’, OHG *ubirlit* ‘id.’). Beside this substantive, Ingvaemonic displays evidence of a Class I strong verb **χlīð-i/a-* (OE *be-hlīdan* [-*hlād*, -*hlidon*, -*hliden*] ‘cover over’, OFris. *hlīda* ‘cover’, OS *bihlīdan* [-*hlêd*, -*hlidun*, -*hlidan*] ‘cover over’) that Seebold (1970: 262) attributes to Proto-Germanic. As there is no evidence of a weak verb, we are left with two possibilities: (1) this strong verb is an Ingvaemonic creation or (2) it existed in Proto-Germanic. In both cases, we need an account of its origin, particularly in relation to the much more widely reflected substantive **χlīð-a-* ‘cover, etc.’.

Given its broader attestation, **χlið-a-* is likely an inheritance rather than creation of Proto-Germanic. This assessment brings up the question of how its root came about. As in the case of **√χliþ-*, there are only so many Pre-Proto-Germanic possibilities, again leading to potential associations with but two PIE primitives: **√klej-* ‘lean’ and **√kel-* ‘cover’. For obvious formal reasons, the preferred association has been with **√klej-* ‘lean’ (Pokorny 1959–69: 600–602). In particular, Orel (2003: 177) claims an exact equation with Vedic *śritá-* ‘leaning on, situated in’ (: *śráyati* ‘leans’). While phonologically and morphically impeccable, the supposition of an eventually substantivally employed **kli-tó-* ‘leaning (thing)’ is vitiated by the fact that leaning is not the essential activity of a lid. Rather, a lid is a thing that covers; any reasonable account of the PIE origin of this Germanic noun must accord with that fact.

If one were to insist on a derivation from the **-tó-* verbal adjective to **√klej-* ‘lean’, the semantic problem could be addressed in the following way. One could suppose that a **kli-tó-* was used to refer to an object composed of pieces of wood whose leaning on each other created an enclosure or barrier. This analysis may be supported by ON *hlið* whose sense ‘gate(way), gap, interval’ deviates from the primarily superimpositive semantics of the West Germanic data. If the sense of the Old Norse noun is taken to be more conservative, an apt morphosemantic comparison would involve the relatives of Homeric κλισίη ‘hut, shed, booth’. Morphologically closest to **kli-tó-*, the putative ancestor of **χlið-a-* ‘cover, (means of) enclosure’, is Hesychius’ κλίτος (· τόπος ὑκατωφερής), which could reflect either a masculine *o*-stem or an *s*-stem derivative. In either case, its ancestor would have referred to an entity whose downward inclination resulted in enclosure or superimposition. On the other hand, superimposition could be an outgrowth of the basic arrangement of leaning wooden objects. In this connection several Hesychian entries may be adduced: κλισίον· προστάς, πρόστων. καὶ βοῶν στάσις καὶ εἴσοδος.

ἔνιοι τὰς τοῦ πυλῶνος θύρας πλατείας, εἰς ἃς δύναται ζεῦγος βοῶν εἰσελθεῖν; κλισίη· σκηνή· καθέδρα δ 123 καὶ ἡ ἔπαυλις π 159· ἀπὸ τοῦ κλίνεσθαι ἐν αὐτῇ τὰ θρέμματα. καὶ πρόθυρον. Νίκανδρος; κλισίαι· αἱ αὐλαιοὶ πυλῶνες; κλίτα· στοαί. ἢ σέλλας εἰς τὸ κατακλίνεσθαι. When the originally wooden objects arranged in succession were in the state of being **kli-tó-* ‘leaning’, they could either support a roof, serve as an enclosure, or perform both functions.

And yet huts, porticos, and gateways are not themselves covers, whereas a lid certainly is. Nevertheless, if we continue with **kli-tó-* from **klej-* ‘lean’, we might next suppose that its substantival use amounted to the sense of a neuter verbal abstract ‘leaning’. When used concretely, a **kli-tó-* might have been used to refer to a collection of leaning (wooden) objects and, by extension, to a roof or wall. Alternatively or in addition, a **kli-tó-* might have also been used refer to a single leaning object – perhaps composed of several constituent pieces – that was set up against an enclosure, thus constituting a cover or gate for the enclosure itself. The main feature of these semantic scenarios is that the senses of covering and enclosure are secondary, dependent as they are on specific procedures of construction. What is fairly certain is that Proto-Germanic **χlið-a-* meant ‘cover, (means of) (en)closure’. What the above-reasoning demands is that this meaning developed from the sense ‘a leaning, leaner’. While, as suggested by the Greek data, a Neolithic architectural tradition might have been responsible for some senses displayed by reflexes of **χlið-a-* (‘gateway’, ‘fence’, etc.), it is still a fairly tortuous road.

In response, a proponent of the **klej-* connection might assert that, despite the secondary status of the semantics of covering and enclosure, one of the main features in its favor is the localizability of the architectural semantics in a series of formations based on the **-tó-* verbal adjective in particular. Admittedly, there is no way of undermining this particular argument. The only thing left at this stage is to consider what would follow from the pursuit of

the $*\sqrt{k}lej-$ hypothesis versus the $*\sqrt{k}el-$ hypothesis. In particular, what other facts or pieces of evidence become more intelligible when we operate with one hypothesis or the other.

One fact that is difficult for the $*\sqrt{k}lej-$ hypothesis to explain is the very co-existence of $*\sqrt{\chi}līb-$ ‘protect’ and $*\sqrt{\chi}lið-$ ($\rightarrow *χlið-a-$ ‘cover, [means of] enclosure’) in Proto-Germanic. Whatever the origin of the latter, their semantic similarity and all but total formal identity render plausible the possibility that both originated in the same PIE root. In the case of $*\sqrt{\chi}līb-$ ‘protect’, there is no morphosemantically viable way from $*\sqrt{k}lej-$. Unless one makes use of an unevaluable labial extension unaccountably affixed to a form of $*\sqrt{k}lej-$, there is no path at all, as there is no such labial suffix. Alternatively, if we operate with the $*\sqrt{k}el-$ that must underlie $*\sqrt{\chi}līb-$ ‘protect’ in any case, we can preserve the parallelism, most notably comparable to the historically co-radical $*\sqrt{s}trib-$ ‘strive’ and $*\sqrt{s}trið-$ ‘stand upright’, and reach the semantics of $*\sqrt{\chi}lið-$ far more directly.

We should also return to consider the origin of the strong verb $*χlið-i/a-$ in light of each hypothesis. In both hypotheses, this verb or its imaginable ancestor would be younger than or dependent on the substantive $*χlið-a-$ or its ancestor. Under the $*\sqrt{k}lej-$ hypothesis, the genesis of $*χlið-i/a-$ is not entirely straightforward. A Pre-Proto-Germanic origin can probably be excluded as there is no conceivable means by which $*kli-tó-$ would be the base of a $*kléit-e/o-$ ‘provide with a $*kli-tó-$ ’ that could not be the regular preform of $*χlið-i/a-$ in any case. The normal process of course is the addition of $*-je/o-$. For this reason, one could imagine a $*kli-té-je/o-$ or, if formed later, a $*χlið-iji/a-$ whose reflex was by some unknown analogy reformed as a strong verb. While this is not inconceivable in light of the variation we have seen in verbs of both conjugations to the same root, there is no evidence of a weak verb to which the attested strong one would be secondary. Naturally, this could be a consequence of the available evidence, but

that evidence is explicable otherwise. What is most pressing is the need to explain the strong verb we actually have.

A denominal analysis of some kind is fundamentally necessary; the various scenarios of the alternative, such as a **-d^he/o-* present to **√klej-*, are unappealing. Yet if we set up a scenario within Germanic, we find ourselves in aporia, as there is, at least to my knowledge, no way to generate a **χlið-i/a-* solely on the basis of a **χlið-a-*. If, on the other hand, we operate with the **√kel-* hypothesis, the universally necessary denominal analysis works either within Germanic or its ancestor.

The denominal analysis naturally begins with **χlið-a-* itself, whose Pre-Proto-Germanic form must now be discussed. Under the **√kel-* hypothesis, there are two phonological possibilities: **kl-i-tó-* or (descriptively) **kl-i-d^ho-*. The first is less likely for several reasons. While semantically conceivable as some kind of possessive derivative of our much sought after *i-*stem, the immediate reason to exclude it is that there is no clear path by which the material preceding the thematic vowel could be reanalyzed as a secondary root capable of becoming basic to a radical *é*-grade thematic present. In contrast, with the **kl-i-d^ho-* that we may present precisely as **kl-i-d^hh₁-ó-*, there is such a parallelable path.

Given its basis as a nominalization of the causative periphrasis **kél-i-h₁ d^heh₁-* ‘provide with cover’, the *rūbidus*-type nominal **kl-i-d^hh₁-ó-* would have been used to refer either to the entity provided with cover or to the one providing cover itself. In light of the latter agentive or instrument-oriented interpretation, the meaning of **χlið-a-*, particularly as reflected in West Germanic, is entirely explicable. Whereas this is the main reason for preferring the **√kel-* hypothesis generally, the specific advantage of **kl-i-d^hh₁-ó-* is, as just mentioned, the parallelable possibility that it provided the model for the formation of a simple thematic present

like βριῖθω or πλιθήω. Though the Calandish background of these stems is not paralleled in the relatives of *χλιθ-*a-*, and thus cannot be invoked in an account of the origin of *χλιθ-*i/a-*, there is the possibility that *χλιθ-*i/a-* or its ancestor was formed according to an analogy that could have only arisen in the context of specific derivatives of *√*kel-*.

The genesis of a **kléid^hh₁-e/o-* somehow based on **kl-i-d^hh₁-ó-* depends on the existence at some point of a *√*kleid^hh₁-* reanalyzed from the nominal. If we suppose that this nominal **kl-i-d^hh₁-ó-* was specifically an adjective, it would not have been the only adjective in the *√*kel-* family analyzable as consisting of a zero-grade root/base and a thematic suffix. The postulation of this adjective is justified by the indirect evidence for a possessive derivative of a root noun to *√*kel-*. As mentioned in Chapter 6, Latin *clam* and OE *hulu* f. ‘husk, pod’ are best analyzed as members of the φυγή-type, that is, as reflexes of an *-*h₂-* derivative of a thematic adnominal whose zero-grade root is explicable by appeal to possessive derivation from a root noun. What this reconstructible **k(l)l-é-h₂-* ‘covering’ thus presupposes is an adjective **k(l)l-ó-* ‘covering’ apophonically comparable to the semantically equivalent **kl-i-d^hh₁-ó-* eventually interpreted as a formation based on a secondary root (i.e. **klid^hh₁-ó-*). Given this equivalence, and given that the fundamental finite verb of the family was the radical *é*-grade thematic present **kel-e/o-* ‘cover’, it is possible to set up an analogy **k(l)l-ó- : kel-e/o- :: klid^hh₁-ó- : x* whose solution was **kléid^hh₁-e/o-* ‘cover’. While this analogy would have produced the preform of *χλιθ-*i/a-*, it is also appropriate to reckon with the possibility that the same analogy took place in Proto-Germanic. Assuming the inheritance of the thematic nominal basic to **k(l)l-é-h₂-* ‘covering’ (> *χυλō- ‘[seed-]covering’ > OE *hulu* f. ‘husk, pod’), we could also set up an analogy involving the perfectly reflected thematic present (e.g. OE *helan* ‘conceal, hide, cover’, etc.): *χυλα- ‘covering’ : *χελ*i/a-* ‘cover’ :: *χλιθ-*a-* ‘covering’ : *x* = *χλιθ-*i/a-* ‘cover’.

Whichever path we take, the priority of **χlið-a-* and the absence of evidence for a weak verb force us to consider scenarios of the kind we have been discussing. Though the presentation of such scenarios may leave one with the impression of inventions to contend with impenetrable obscurities, it should be stressed that these scenarios are devised with sensitivity to what is rendered highly improbable by the available evidence. To reiterate, the **√klej-* hypothesis, while formally and even semantically appealing for **χlið-a-* itself (< **kli-tó-* ‘construction consisting of leaning objects’ or ‘apposed leaning object’) is not as formally and semantically appealing as the **√kel-* hypothesis. It does not provide as straightforward a semantic path to the root of **χlið-a-* and **χlið-i/a-*, nor does it provide a formally clear way to account for the origin of the strong verb, which, under the **√klej-* hypothesis, would have to be generated within Germanic by an entirely unknown, possibly unrecoverable procedure. These uncertainties have no doubt led Seebold (loc. cit.) to dismiss **√klej-* in favor of the **√kel-* hypothesis, despite the morphological and derivational semantic obscurities that we have attempted to illumine here.

The major consequence of these attempts is as follows. Whatever scenario or chronology we adopt, the ultimately preferable hypothesis of **√kel-* necessitates the analysis of post-radical material not only suspiciously resemblant to that of a root **√χliþ-* ‘protect’ that we have strong reason to believe to be based on **√kel-*, but also containing the remnant of the very same formant of a nominal stem hypothesized to have been used in a variant of the very same construction that gave rise to that **√χliþ-*. This stem ultimately was, with a fairly high degree of probability, the **kó/él-i-* that we have reconstructed as the sister of **kó/él-u-* ‘covering’.

This Chapter may be concluded with the observation that, while we have had for some time now theory-internal justification for the reconstruction of **kó/él-i-*, there is no substitute for the collection and evaluation of the evidence for the form that we had been postulating. Though

these activities, which have substantially involved the presentation of parallels necessary for the interpretation of that evidence, have taken up a great deal of our attention, the ultimate reward is the security with which we can reconstruct both **kó/él-u-* and **kó/él-i-*. The lexical and derivational semantic history of these sister stems is the subject of our final Chapter.

CHAPTER 9

THE GENEALOGY OF THE PROPERTY CONCEPT

Justification for the reconstruction of **kó/él-u-* and **kó/él-i-* has up until now been phonological, morphological, and syntactic. At the foundation of the latter morphological domain has been the reconstruction of the derivational semantic processes responsible for the formation of the stems whose scattered reflexes have been used to piece together an account of the form and meaning of **kó/él-u-* and **kó/él-i-* as products of a series of more or less predictable, algorithmic processes. In such a program, the basic unit of lexical meaning, the arch-abstraction known as the PIE root, is inserted into a machine consisting of derivational rules whose product is the particular abstraction known as the PIE lexeme. Yet in the background consisting of our reasoning there are innumerable calculations of probability and of relations of meaning that allow us to assess the evidence on the basis of which we reconstruct the very processes that enable us to perceive still more relations. Naturally, these calculations, performed by both producers and analysts of linguistic data, are the fundamental result of our experience of the world and of the conceptual and semantic systems developed to deal with it. Correspondingly and accordingly, the question of what **kó/él-u-* and **kó/él-i-* meant, that is, how their range of senses interfaced with the conceptual systems of ancient people, is something that we must handle head-on.

The question of lexical, as opposed to derivational, semantics is posed at the service of our ultimate object: the nature of the Property Concept expressed by $\sqrt{\kappa\alpha\lambda}$ - ‘beautiful’. Up to this point, the hypothesis that **kel-* ‘cover’ is its etymon has been positively pursued solely by appeal to the kinds of derivatives with which it is associated. From here onward, we must also consider what the lexical meanings attributable to those derivatives may reveal of the nature of the Property Concept in question.

Perhaps the first step is to ask what kind of concept $\sqrt{\kappa\alpha\lambda}$ - expresses. By modest and provisional appeal to Dixon's (1982: 16) classification and its application by Rau (2009; 2012), we can accept that there is a class PHYSICAL PROPERTY of which, according to Rau (2009: 79), BEAUTIFUL and its opposite are members. This claim is best explored in light of some pairs Dixon himself mentions: HARD / SOFT; HEAVY / LIGHT; ROUGH / SMOOTH; HOT / COLD; SWEET / SOUR. When one considers the actual English adjectives corresponding to these conceptual representations, it is clear that they often bear senses that correspond not to PHYSICAL PROPERTY, but to other PC categories, most notably HUMAN PROPENSITY and VALUE. For example, the sense of *cold* 'unaffectionate' and that of *light* in *make light of* 'treat/consider unimportant' correspond to HUMAN PROPENSITY and VALUE respectively. The cognitive mechanism generative of these conceptually distinct senses may be identified as Conceptual Metaphor (Lakoff and Johnson 1980, 1999).⁸⁶ Whatever label is used, it is fair to say that, on the basis of certain fundamental correlations in our experience, concepts belonging to different and frequently more complex categories of understanding are provided with the infrastructure necessary for their formation, existence, and accessibility. In the case of the above-mentioned senses, the natural origin of the path as well as the distinctive distance covered by the transference itself are clear and palpable.

It is in this connection that we should consider the consequence of claiming that BEAUTIFUL belongs to PHYSICAL PROPERTY. If indeed that is the case, it is fair to say that an imaginable transference underlying some consequently derived sense expressed by the

⁸⁶ For general treatment of the methods and frameworks related to Conceptual Metaphor Theory, see Dancygier and Sweetser 2014 and Sullivan 2017. For an early application to Indo-European data, see Sweetser 1990: 23–48. For specific treatment of Conceptual Metonymy, see Panther and Thornburg 2018. For criticism of this system of methods, see Haser 2005.

corresponding English adjective *beautiful* has not in fact covered much distance from the supposed source domain of PHYSICAL PROPERTY to the target domain of, above all, VALUE. Leaning more heavily on the universalizing fiction of conceptual representation, we may assert that BEAUTIFUL, if indeed it even belongs to PHYSICAL PROPERTY, is so close to the domain of VALUE as to be considered an inherently evaluative concept.

The considerable if not total consistency in the correlation between BEAUTIFUL and VALUE is necessarily but insufficiently dependent on that which fundamentally fuels the transference to, e.g., VALUE from other more humble and more definitely physical properties. This fuel is naturally perception, that is, the provision of percepts necessary for evaluation, decision-making, and action-taking. If with any justice BEAUTIFUL is assignable to PHYSICAL PROPERTY, it is on account of its rootedness in perception or aesthesis. Though audition can at times be the basis of the beautiful, percepts apparently possessed of the property are principally objects of vision. Among the innumerable indications of this fact, one more relevant to us is the formation and use of items derived from light-emission PC roots in a sense approaching or equivalent to ‘beautiful’ (e.g. Ved. *śubh-* f. ‘splendor’ ← √*śubh-* ‘shiny’, Rau 2009: 180). Given Rau’s (p. 79) attribution of LIGHT / DARK to PHYSICAL PROPERTY, we would have to say that the mode of reasoning responsible for the transference, that is, for the sense ‘beautiful’, has deposited its cargo at the extremity of but still within PHYSICAL PROPERTY. Yet some semantic units are already well placed to interface with concepts localized at that extremity, particularly the categorial border shared with VALUE.

What this adjacency tells us about BEAUTIFUL is perhaps what function it performs in a conceptual system: directly feeding and stimulating the evaluative component of that system by means of primarily visual percepts. The cause of the primacy and privileging of visual stimuli is

not difficult to imagine. As Aristotle observed (Met. 1.980a), people's appetency for awareness conditions their preference for vision, seeing as the manifold distinctions made manifest by this sense in particular feed cognition more than any other. So central is cognition to the τέλος of human beings that, even when life feels horrendous or pointless, we persist in the collection of sensory data to feed that activity. In effect, beauty seems to ensure that we have a sense of value in life.

Since beauty is a sign of value, BEAUTIFUL may serve as a mediator of VALUE. At the core of this mediation is a mapping for which the distance between the source and target may vary from culture to culture and from semantic unit to semantic unit. As a case in point, it is occasionally the case that English *beautiful* is used in the sense 'good', as when someone is morally evaluated (e.g., *she's a really beautiful person* in reference to character). This use points to the conceptualization of the prototypical VALUE PC GOOD by means of BEAUTIFUL.

Upon reflection, we may suggest that this conceptualization had yet to reshape the meaning of simple positive adjective καλός. If its semantic history is any guide,⁸⁷ its purely aesthetic value, at least insofar as BEAUTIFUL and GOOD are semanticized by the lexeme καλός, is greater in the Archaic period than in the Classical, Hellenistic, etc. (Mod. Gk. καλός 'good'). It is arguably this fundamentally aesthetic value that still allows BEAUTIFUL as realized by √καλ- to be a problem of VALUE. Hesiod's designation of Pandora as a καλὸν κακὸν (*Th.584*) is perhaps the clearest indicator of this ambivalence.

Understandably, the basis of the problematization is in the nature of beauty itself. Since it so often cooccurs with what is valuable and good, its occasional association with what turns out to be undesirable and bad is a culturally significant question inspiring poetic and plastic

⁸⁷ For discussion of the adjective's lexical semantic change, see Smothers 1947.

productions. This occasional discrepancy is a cultural fuel whose continued exploitation depends on the conceptualization of GOOD by means of BEAUTIFUL. Given the intimately evaluative nature of BEAUTIFUL, this pathway of conceptualization is likely to remain open for as long as human beings continue to exist.

To return to our earlier question of categorial membership, if the idea of BEAUTIFUL as a fundamentally evaluative *PHYSICAL PROPERTY* seems like a contradiction, the resolution, or at least deeper understanding, of that contradiction depends on the same faculty responsible for the evaluation of almost anything with a physical property, namely perception. What obviously allows the above-mentioned use of *cold* and *light* in an evaluative sense is that COLD and LIGHT (etc.) are, like all concepts, ultimately dependent on perception. It is justifiable and ideally unobjectionable to assert that these properties do not actually exist in the physical world independently of entities to perceive and conceptualize them. Indeed, their ontological independence, that is, as properties that would exist without being perceived, is wholly a consequence of their reification as concepts.

In the case of BEAUTIFUL, the fiction of ontological independence is analytically advantageous. Just as it is possible to conceive of other more definitely physical properties as existing independently of perception, so, too, is it possible to conceive of beauty as existing independently of evaluation, that is, as a physical property purely dependent on perception. The isolation of the perception-based core of the concept is the point of departure for uncovering the relationship between $\sqrt{\kappa\alpha\lambda}$ - and its hypothetical etymon. The best way to orient ourselves in the relationship between the PC BEAUTIFUL and the Activity Concept COVER is perhaps to investigate certain paths whereby the generic object of perception is conceptualized. In other

words, what lexemic evidence can be adduced to improve our understanding of the sources of what we shall represent as FORM?

Nature has ensured that the shortest and most beaten path to FORM is SIGHT. This association, so basic as to be apt to escape notice, is evidenced most prominently by the *s*-stem substantive εἶδος ‘shape, figure, form’, which is used to refer to the object rather than to the act of vision. While this stimulus-orientation is without doubt related to that of the radical *é*-grade thematic present εἶδομαι ‘seem, appear’, the meaning ‘appearance’ and its outgrowth ‘shape, form’ are a function of the fact that * $\sqrt{\text{uej}d}$ - originally accommodated an experiencer and a stimulus, however we understand the exact nature of that experience. Accordingly, some substantives derived ultimately from this root in the proto-language would have been predisposed to denote the process or state of appearance or the apparent thing itself. For example, though the root as reflected in Indo-Iranian is effectively split on the basis of stems that serve the meanings ‘know’ (Ved. *veda* ‘know’ : Av. *vaēdā* ‘id.’) and the more agentive ‘find’ (e.g., nasal infix present in Av. *vīnastī* ‘finds’ [: thematized in Ved. *vindāti* ‘id.’]), the meaning of the Avestan *i*-stem *vaēdi-* ‘form’, which Bartholomae (1904: 1321) understands as ‘Gestalt, Form’, is historically intelligible as a result of the specifically visual, generally experience-expressing value of * $\sqrt{\text{uej}d}$ - ‘see, know, notice’. Given the evidence for a *u*-stem * $\sqrt{\text{u}ójid}$ -*u*-/ $\sqrt{\text{uej}d}$ -*u*- to this root (e.g., Av. dat. inf. *vīduiē* ‘to know’, Rau 1998: 148–149), we would expect to find evidence of an *o*-stem, given that *o*-stem adnominals are eligible as bases to determinate *u*-stems. Though continued substantivally, this *o*-stem, namely * $\sqrt{\text{uej}d}$ -*o*-, is reflected in Celtic (OIr. *fíad* ‘in the presence of’, MW *gwydd* ‘sight, presence’, Matasović 2009: 407–408), Slavic (OCS *vidъ* ‘sight, view, appearance’, Russian *vid* ‘id.’, etc., Derksen 2009: 521), and, given the Slavic, demonstrably Baltic. Interpretable as derived from the * $\sqrt{\text{uej}d}$ -*ó*- basic to the preform of Avestan

vaēdi-, the **uējd-o-* reconstructed by Smoczyński (2018: 1622) is ancestral to Lithuanian *vėidas* ‘face’ and Latvian *veīds* ‘external appearance, shape, form’. Beside its instrumentative denominal *veīduōt* ‘shape’, *veīds* is the base of an adjective *veidīgs*, which Smoczyński (loc. cit.) glosses with ‘nice-looking’ and ‘peculiar’. The first sense nicely illustrates an enduringly noteworthy tendency for adjectives derived from substantives with the meaning ‘form’ to be ameliorated. For example, and for the root in question, the Odyssean εἰδάλιμος (ω 279; εἰδαλίμας· καλᾶς [Hsch.]), derived from εἶδος as κῶδάλιμος ‘glorious’ (Hom.+) is from κῶδος ‘glory’, profiles the positive sense of its base.

Though in Homer the frequent positive sense of εἶδος usually emerges through qualification or context (εἶδος ἀρίστη ‘best in appearance’ B 715, etc.; περίεσσι γυναικῶν / εἶδος τε μέγεθός τε [σ 249], Eurymachus to Penelope), the somewhat bare use of εἶδος by Herodotus, namely εἶδεος ἐπαμμένος ‘possessed of appearance, i.e. comely’ (ὄσαι μὲν νυν εἶδεός τε ἐπαμμέναι εἰσὶ καὶ μεγάθεος, ταχὺ ἀπαλλάσσονται, 1.199), points to the germ of amelioration within the aesthetic substantive itself. By comparison, Latin *speciēs* f. ‘look, form, (mere) appearance, etc.’ (cf. *aspectus* ‘view, appearance, form’) is particularly illustrative of this descriptively ameliorative tendency (cf. PDE *looks* : *look*). Within its richly polysemous system, one finds well entrenched the senses ‘splendor’ or ‘beauty’, which themselves largely form the basis of the possessive *speciōsus* ‘beautiful, splendid, etc.’. Yet as with *speciēs* itself (*qua* ‘pretense, pretext, etc.’), there is of course the recurrent tension resulting from the sense of mere appearance, especially when that which appears only seems to be good, but is in fact of questionable value (‘showy; specious’).

Conceptualizing prominence in a visual array is another way by which FORM is structured. As listed by Buck (1949: 874–875), the sense ‘form, shape’ can be expressed in

Latvian by *stāvs* ‘growth, stature’ (: *stāvēt* ‘stand’) in addition to the *veīds* ‘look’ noted above. This sense may be compared to the historically co-radical Latin substantive *status* in the familiar senses of ‘state’ or ‘condition’, which approach ‘form’ (cf. Lat. *īnstar* ‘likeness’). It is worth considering how the visual prominence underlying this sense of form comes about. In the case of the morphosemantic mappings ancestral to *stāvs* ‘growth, stature’ or, approximately, Latin *status* ‘(way of) standing, position’, FORM is approached on an explicitly single-argument basis; that is, the state of objects in a visual array is conceptualized without a causal history involving any other entity. This kind of conceptualization stands in close contrast to the pathway evidenced by the derivational history of MHG *gestalt* f. ‘form, shape’ (> NHG *Gestalt* ‘id.’), whose relation to *stellen* ‘set up’ presupposes, prototypically, agency in the original conceptualization as expressed by the feminine preterite participle of that causative verb. What should be borne in mind is the role of prototypically human agency in the creation and formalization of percepts, in addition to the realization of the notion of natural form by means of lexemes meaning ‘stature, size’.

Concerning natural form, the substantive μέγεθος ‘size’ as an exponent of an aesthetic notion is primarily the product of that notion’s use in evaluating the physical appearance of human beings. Its role in the early Greek conception of somatic aesthetics is clear (e.g. καλός τε μέγας τε Φ 108). What needs to be stressed in this connection is the fact that humans, both as percepts and perceptors, are central to the aestheticization of μέγεθος, understood as the state of being both tall and well-proportioned (Verdenius 1949). In other words, the sense of ‘stature’ attributable to the PC substantive μέγεθος is a function of its application to an object of standing interest: people.

Given the role people play as dynamic objects of aesthesis, the process responsible for their physical form is liable to re-presentation as the form itself. That process is of course growth

and its role in conceptualizing the human form is easily illustrable (Av. *raoda-* m. ‘Wuchs; [pl.] das äussere Ansehen’, Bartholomae [1904: 1495], Latv. *augums* ‘stature, height; form; frame; figure’ [: *augt* ‘grow’], etc.). The dominant exponent of this pathway in early Greek poetry is *φυή* ‘growth’, which, together with *εἶδος*, *μέγεθος*, and *δέμας* ‘build’, serves as part of an anthropocentric aesthetic network (*εἶδος τε μέγεθος τε φυήν τ’ ἄγχιστα ἐώικει*. B 58; *οὐ δέμας οὐδὲ φυήν* A 115). Like *εἶδος* ‘look’, *φυή* is predisposed to express apparent physical value. This expression is on full display at θ 167–168, where Odysseus fends off verbal attack by commenting on the disparate distribution of valuable characteristics (*οὕτως οὐ πάντεσσι θεοὶ χαρίεντα διδοῦσιν ἀνδράσιν, οὔτε φυήν οὔτ’ ἄρ φρένας οὔτ’ ἀγορητῶν*. “so not to all men do the gods give fine things, not physique nor intelligence nor eloquence”). The passage displays not only the familiar tendency for ameliorative sense, but also, via the idea of divine endowment, the conceptualization of physical form as the product of agency. While in the case of *φυή* the notion of growth as the result of an internally caused process is fundamental to its aesthetic meaning, the notion of agency in the generation of physical form is instrumental to the causal structuring of that concept.

Given the ever-present need to discern human intentions and, correspondingly, the tendency to interpret phenomena as their effects, the divine provision of *φυή* may be considered an instance of the predisposition to attribute agentive causes to forms. In light of its co-radicality with *δέμω* ‘build’, the above-mentioned *δέμας* ‘build’ is a clear expression of this predisposition. Occurring in Homer more frequently and in more varied contexts than *φυή* but referentially equivalent thereto, *δέμας* appears to have been the main lexical contributor to the conceptualization of the human form. When its ancestor first came about, any number of artificial structures might have been denoted (cf. *δέμνια* ‘bedstead’ [Hom.+]). When its reflex

actually appears in Homer, δέμας is almost exclusively restricted to the denotation of the human bodily frame (cf. PDE *build* ‘body-shape’). A notable exception is its use as an apparently adverbial accusative comparing mass combat to blazing fire (ὡς οἱ μὲν μάρναντο δέμας πυρὸς αἰθομένοιο· [Λ 596, etc.]). Here the sense of δέμας is undeniably ‘(in the) form (of)’. While one might imagine the opposing armies forming a massive body of flame, that is, through interpretation as a secondary (nominative) predicate (“they fought [as] a body of blazing fire”), a more accurate characterization would appeal to the intimate use of δέμας ‘body, bodily frame’ as an accusative of respect with predicates of resemblance (ἔοικα ‘am like’, εἶδομαι ‘seem like’, ὅμοιος ‘like, similar’). What is in any case certain is the dependence of the sense ‘form’ on ‘bodily frame’, particularly that of humans.

The significance of δέμας is for us the fact that, unlike the semantically adjacent εἶδος or φυή, form is conceptualized ultimately by means of a technological notion; the source or conceptual base in the conceptualization of FORM, namely BODY, is the target in the conceptualization by means of BUILD. While we will return to the intermediation of the body in the formalization of the object, we should note at this juncture that the object is often subject to conceivably immediate formalization through the idea of an artefact. In light of its apparently trivial status, this observation stands for us in need not of evidence but illustration.

To begin generally, the form of an artefact can be variously conditioned by the addition, ablation, or pression of material. To the additive domain may be assigned the conception evidenced by δέμας itself, whose overlap with φυή is attributable to the notion of accretion. In contrast, the form of an artefact can result from the removal of material (e.g., abscision, incision, etc.). Finally, the application of pressure to an invariant amount of susceptible material can contribute to the creation of an artefact. Indeed, while one of these functions may be especially

salient in conceptualizing an artificial form, any and all of them can jointly contribute to the creation of that form. Embroidery, for instance, involves impressive and incisive perforation with certain displacement if not removal of material as well as addition of material. Given the experientially interlocked nature of creative functions, it is no wonder that the derivatives of **√pejk-* ‘cut’, for instance, encompass such a variety of activities, products, and properties (writing, painting, variegation, etc.).

An example on which we have already touched is the polysemy of this root’s derivative **pik-ró-*. Depending on the diathetic interpretation of the verbal root’s semantics, the reflexes of this **-ró-* stem adjective come to express two different physical property concepts evidenced by *πικρός* ‘bitter’ (< *‘cutting’) and OCS *pъstrъ* ‘variegated’ (< *‘cut’; cf. *ποικίλος* ‘variegated, various’). In light of Vedic *śilpá-* ‘variegated’ (: *śilpa-* ‘adornment, craft’) (< **śiplá-* < **piśla-* < **pikró-*, Tedesco 1947), the aesthetic sense of the latter is reconstructible for the form **pik-ró-* in particular. Moreover, that exact sense does tell us something about what kind of cutting was involved. Since variety of color is the product, the precise function must have been the repetition of superficial incision.

While this pathway is certain for the semantics of **pik-ró-* ‘variegated’, it is necessary to consider other modes and results of cutting in order to interpret a set of evidence in the related domain of form. However its ancestral root is to be reconstructed, there is general agreement that Old Irish *delb* ‘form, figure, appearance, shape, image, statue’ (< Proto-Celtic **delwā-* ‘form, appearance, image’, cf. OW *delu* [> MW *delw* ‘imago, figura, effigies’], Corn. *del* [Matasović 2009: 95]) is genetically co-radical with Latin *dolāre* ‘chip, hew, shape’ and Lithuanian *dalýti* ‘divide, share’ (Smoczyński 2018: 194). As for the post-radical material, Pokorny’s comparison of **delwā-* (s.v. **del-* ‘spalten, schnitzen, kunstvoll behauen’) to the Proto-Slavic *ū-*stem **dъly*

(e.g., Middle Bulgarian loc. sg. *dbl̃vi* ‘in a barrel, cask’, Russian CS loc. sg. *delvi* ‘id.’) suggests that the post-radical sequence of **delwā-* was **-u-e-h₂-*. Whether we operate with a boundary after **-u-* or not, we must acknowledge that **delwā-* presupposes a thematic adnominal base. Though not an adnominal, the Old Irish *dolb* ‘magic, illusion, appearance’ (cf. Middle Irish *ā-* stem *dalb* ‘fiction, falsehood, guile’) adduced by Matasović (loc. cit.) points to an originally determinate **dolwo-* interpretable as a derivative parallel to **delwā-*. Since their reflexes are both in the semantic domain of appearance, it is conceivable that their shared ancestral base was a radical zero-grade thematic adnominal of theme/patient-orientation, implying a history comparable to that of **pik-ró-* ‘variegated’ *qua* ‘cut’. The product of this cutting could conceivably be one of two kinds: by incision as in **pik-ró-* or abscision. While it is impossible to determine the original conception, two things are certain; first, if abscision was the most salient process involved, the mode thereof must have been characterized by the disposal of what was abscised and by the preservation of what remained; second, the remaining portion became the basis contributing to the expression of the concept FORM.

The actual formation as well as scientific exploration of that concept depends, as in any conceptual investigation, on the integration of data from adjacent domains. It is chiefly by this integrative treatment that we can observe the network of relations that give concepts their structure. Again, *δέμας* nicely illustrates the interlocked nature of domains. Whereas, like the preform of *delb* ‘form’, its etymon conceivably and principally denoted an artefact (i.e. a structure), its reference to the physical body is clearly the basis of the broader aesthetic sense (i.e. in *δέμας πυρός* ‘form of fire’) more directly acquired by **delwā-* ‘form’ (< ‘graving’). This use of *δέμας*, as Cunliffe (1977 [1924]: 87) astutely notes, is much like PDE *like*, which “has developed fr. orig. Teutonic **līko-*, body, form”. Whatever its morphosemantic history in the

stage ancestral to Proto-Germanic (IEW: 667; Orel 2003: 247; Kroonen 2013: 336–337), it is clear that **līka-* n. (Goth. *leik* n. ‘body’, ON *lík* ‘id.’, OE *líc* ‘id.’, OS *līk* ‘id.’, OHG *līh* ‘id.’) was a general term for ‘body’. For something to be **galīka-* (Goth. *galeiks* ‘similar’, OE *gelíc* ‘id.’, etc.) to something else means that there is a relation between the two in respect of the body. Such a body cannot be the physical body itself, but the formal representation of the object.

The conceptualization of FORM by means of BODY relies on the totality of the perceptible object. Yet in the domain of the physical body there are two entities whose role in constituting the body is so significant as to be particularly connected to the conception of form: FACE and SKIN. If viewed in light of distinguishing and interpreting percepts, form may be considered the means by which those percepts are identified and classified. Given the distinctive role of the face and skin in these functions, the path between their conceptual representations and FORM is brief and frequently travelled. For FACE, let us note again that the Lithuanian and Latvian reflexes of **uējd-o-* ‘sight’ mean ‘face’ and ‘form’ respectively. Here it is arguably the case that the meaning of Lithuanian *véidas* ‘face’ is an outgrowth of the meaning inherited by Latvian *veīds* ‘form’, just as Latin *faciēs* appears to have generally denoted ‘form’ and, in particular, ‘face’, that is, the formal feature by which a person is most identifiable and individuated.

If FACE is the particular means of identifying the individual par excellence, the skin’s almost complete co-extension with the body in general ensures that in terms of classification SKIN provides a path to FORM. The polysemy of Old Norse *hamr* m. is especially instructive in illustrating the relationship between the two concepts. On the one hand, it signifies ‘skin’ (e.g. *álptar-hamr* ‘swan’s skin’, *varg-hamr* ‘wolfskin’, etc.) or ‘slough (of snakes)’ (cf. ON *hams* m. ‘id., husk’), and, on the other, ‘shape, form’. The importance of the latter sense is evidenced by the term’s centrality to the conception of shape-shifting (Guðmundsdóttir 2007: 279–280). To be

ham-ramr is to have such an ability and the denominal *hamask* ‘rage’ means to undergo that process (‘*sich in Tiergestalt verkleiden, daher: rasen’, IEW: 556–557). What these meanings obviously indicate is the sense that assuming the skin of something is tantamount to becoming, or at least appearing to be, a different kind of being.

Given the intimate relation between FORM and SKIN, our understanding of the former may be deepened by considering how the latter can be conceptualized. One way of course is to view skin as that which covers the body. This notion, repackaged as the integumentary system in modern anatomy, is understandably ancient, widespread, and basic. As a simple and clear illustration, Tocharian B *ewe* ‘skin, hide’ reflects, according to Adams (2013: 103–104 s.v. *ewe*), a **h1óu-es-* ‘± covering’ ultimately derived from a **√h1ey-* ‘put on’ also reflected in Latin *induō* ‘don’, Lithuanian *aunù* ‘put on shoes’, etc. The idea of covering or superimposition is fundamental, but the fact that it is fundamental does not mean that the conception is incapable of further analysis. If, as seems undeniable, skin can be conceptualized as a covering under the assumption that *it covers the body*, it is necessary to ask in what sense that notion makes sense. Certainly, the skin of an organism is not some superimposable thing by means of which the body of that organism is covered either as an event or a process. Perhaps, then, it makes more sense to interpret the statement as one whose predicate expresses a state. While such stativity is, or at least seems, unproblematic, we appear to be left with a mereological problem; unless we state instead that the skin covers *the rest of* the body, the part is alienable from the whole. One’s body *begins* with one’s skin; it cannot unequivocally cover the whole of which it is a part. The conception, therefore, that the skin covers the body must rely on some sort of compression consisting in the effacement of the body’s totality and the representation of all but a part as a whole. While such compression no doubt serves some computational and communicational

function, the status of skin as the instrument of COVER just happens to open up the idea of skin's alterity, by which I mean that it is somehow something else; after all, a great many things may be thought to be covered by things belonging to another kind.

The notion of alterity is explicit in another pathway of conceptualizing skin. Among Buck's (1949: 200–201) introductory remarks to his list of lexemes for 'skin' is the observation that "[t]he semantic sources are partly 'covering, surface' of the 'body', but oftener 'tear, cut' or the like, orig. referring to the hide detached from the body". While it is in general difficult to reason clearly about causation in paths of conceptualization, it is conceivable that the notion of alterity has been fostered by reflection on the resemblance between the skin of a whole living being and an artefact produced by the retention of a part abscised from a once living non-human whole. In other words, skin is conceptually alien and alienable in part because of its routine removal from other animals and its artificial reapplication to, above all, the physical person of a human being.

Buck (loc. cit.) notes that the difference in the sources for 'skin' "is not reflected in actual difference in usage". Though, as he observes, δέρμα is mostly used by Homer in the sense 'hide', its later range includes the skin of living beings. The Homeric situation is therefore contrary to Buck's observation. The rarity of δέρμα in the sense of living human skin, which in Homer corresponds to a separate lexeme (χρῶς, χρῶς m.), is attributable to the fact that its prototypical sense, i.e. its meaning, is in earlier Greek 'hide'. This meaning is the result of its use in reference to a detached object. The acquisition of the sense of living (human) skin on the part of δέρμα is an expression of the recurrent conception of SKIN as HIDE, a certain product of abscision (cf. Ved. *cárman-* 'skin, hide' < **kér-mṇ* 'cutting').

What deserves inquiry is the main baggage of this conception. If skin is where the body, and thus somebody, begins, and if skin, perhaps for some reason of computational or communicational efficiency, is conceptualized as a hide – something detached and reapplied – there necessarily arises a degree of alterity and alienability. Since people know the origin of the worn artefact in the biology of other like beings, and recognize its resemblance to a part of their own body, the body that is the rest of the body becomes a part in place of a whole. The identity of that part is a question of identity itself, of appearance and persistence of self.

The interplay of appearance and personal persistence inherent in Odysseus's disguise as an aged mendicant provides considerable insight into a conception of skin that makes this interplay possible. Elaboration of and upon this conception is clearest in the transformation itself (v 429–437):⁸⁸

ὥς ἄρα μιν φαμένη ράβδῳ ἐπεμάσσαι Ἀθήνη.
κάρψε μὲν οἱ χροῖα καλὸν ἐπὶ γναμπτοῖσι μέλεσσι,
ξανθὰς δ' ἐκ κεφαλῆς ὄλεσε τρίχας, ἀμφὶ δὲ δέρμα
πάντεσσι μελέεσσι παλαιοῦ θῆκε γέροντος,
κνύζωσεν δὲ οἱ ὄσσε πάρος περικαλλέ' ἐόντε·
ἀμφὶ δὲ μιν ράκος ἄλλο κακὸν βάλεν ἠδὲ χιτῶνα,
ῥωγαλέα ῥυπόωντα, κακῶι μεμορυγμένα καπνῶι·
ἀμφὶ δὲ μιν μέγα δέρμα ταχείης ἔσσε' ἐλάφοιο,
ψιλόν·

“Having thus spoken Athena touched him with her wand.
She shriveled his beautiful skin on his curvy limbs,
and effaced from head his blond hair, and set about
all his limbs the hide of an old codger,
and dimmed his eyes that were before well beautiful,
and threw about him another nasty set of rags and tunic,
tattered, befilted, blackened by hideous smoke.
and round him set she a swift hind's big bare pelt;”

⁸⁸ For discussion of the role of transformation in Homer, Schwabl 1982.

One can learn a great deal about what something is by thinking about its becoming. Though still Odysseus, Odysseus becomes somebody else, in a sense both alien to natural experience and yet easily apprehensible. This apprehensibility is a product of an ancient network of inferences echoed amongst the constituents of the transformation, which strikingly and imaginably is one of mere appearance rather than totality of being.

The two parameters by which his total appearance is altered are the apparent state of his physical body, which even visibly remains constitutionally intact (cf., before fight with Irus, φαῖνε δὲ μηρούς / καλούς τε μεγάλους τε [σ 67–68]), and the manner in which he is clothed. For the most part, the values of these parameters are set by what is superimposed. Though the image begins and continues with phenomena of senescence portrayed as the effects of agentive actions of various kinds (κάρψε, ὄλεσε, κνύζωσεν), the overarching action by which the apparent state of the hero's physical body is affected and to which the poet also assigns divine agency is the setting about (ἀμφι...θήκε) of an old man's hide-like skin (δέρμα) upon all his limbs (ἐπι γναμptoῖσι μέλεσσιν). This action responds particularly to the withering of the beautiful human skin (χρόα καλόν). Whereas the withering contributes to the transformation through alteration of (pre-)existing skin, the same image of senescence is generated from the alternative angle of superimposing new skin that is in fact old.

Given that the withering and the putting around, the main events of the aging, lead to the same place, there appear to be two ways in which we can think about what happened to the χροά καλόν in this disfigurative process. Beyond the notion of divine agency, the first way, namely withering, is quite familiar as anti-causation; the beauty of the skin seems to dissipate as the wrinkles appear, but the skin itself, at least in some folk-conception, persists. The other way is truly unusual, yet utterly apprehensible; if the necessarily withered/wrinkled skin of an old man

is superimposed, it follows that in some sense the *χρόα καλὸν*, insofar as it is beautiful, is not destroyed but concealed. Such concealment, the very purpose of course of Athena's activity, intimately involves the notion of preserving the identity of Odysseus and his characteristics, among which is his beautiful skin, under the alienable disguise.

The idea that (particularly aged) human skin can be superimposed undoubtedly owes its origin and development to the very activity portrayed in the second part of the transformation: the dressing with (hideous) clothes.⁸⁹ While one can infer the introduction of ugliness from the withering of the beautiful skin and the dimming of the *previously* very beautiful eyes, this dressing with dirty rags and tunic is where explicit ugliness enters the picture (*κακὸν; κακῶι*). Yet the deerskin that effectively completes the dressing is not described as ugly, though it is inferably. There is a certain parallelism. Just as the ugly rags and tunic receive an enveloping layer of hide (*δέρμα*), the human skin (*χρόα*) whose beauty seems to be destroyed by withering is paradoxically enveloped by the very same skin (*δέρμα*).

The question boils down to how one can conceive of a transformation, something necessarily based on an internal temporal structure. The poet exploits two conceptions, alteration of the same entity and imposition of another entity, and creates an image of the corrugation of extant skin through the idea of superimposing some other thing familiar from the aesthetically alterative and alienable world of clothing, whether woven or gained by abscision.

Since clothing, some of which was the actual skin of a non-human, is worn, it is worth asking what consequences that has for one's understanding of the age-related alteration of existing human skin that is in some sense the same. When clothing and similar articles are habitually worn, they of course become worn. The object becomes worn by being worn (PDE

⁸⁹ On the role of clothing in concealing and reasserting Odysseus' identity, see Block 1985.

wear < **uos-éje/o-* ‘wear’). Fundamentally, this change is one of loss: the disintegration of the material composing a mere artefact. As for what remains, there is attention paid to its torn and ragged state – a result of interaction with that inside which the clothed body finds itself. Contact with the environment, that is, life in the world, wears a person out. Just as Odysseus wears what is tattered (ράκος; ῥωγαλέα), his skin is withered with what can be imagined as cleft-like wrinkles.

And yet, insofar as such signs of agedness seem to cover the body, the fictive old age is not the product of ablation but of superficial accretion. However this figurative accretion is thought to be produced, its existence is undeniable from the fact that old age is ideally susceptible to ablation itself.⁹⁰ Fairly straightforward is the Iliadic case in which Phoenix imagines a hypothetical divine promise to shave off his old age and render him youthful (γῆρας ἀποξύσας θήσειν νέον ἠβώοντα I 446). When in the *Hymn to Aphrodite* Dawn fails to request that Tithonus remain youthful, the assumption of the neglected request is that γῆρας is something that some deity will have to shave off for the maintenance of the favorite’s youth (ἦβην αἰτήσαι, ξῦσαί τ’ ἄπο γῆρας ὀλοιόν 224). Since that merely immortalized favorite is not of course a god, he is necessarily subject to the effectively inalienable accretion of old age that no one is both willing and able to scrape away. In the *Hymn to Demeter*, by contrast, the epiphanous goddess simply shoves it off of her own accord (γῆρας ἀπωσαμένη, 276). Such is seemingly the way of reptiles, arthropods, and so celestial anthropoids. Humans, however, require divine intervention.

Such a requirement is met by the Aśvins, whose rejuvenation of the devoted Cyavāna is mentioned throughout the *Rigveda* (e.g. *yuvām cyāvānam aśvinā jarantam / pūnar yūvānam cakrathuḥ śácībhiḥ* “[y]ou, o Aśvins, made the aging Cyavāna a youth again through your

⁹⁰ On this image in early Greek Epic, see Brown 2014.

powers” 1.117.13ab; *púnaś cyávānaṁ cakrathur yúvānam* “and you made Cyavāna youthful again” 1.118.6d).⁹¹ Different aspects of the rejuvenation are thrown into relief depending on the image. On one occasion, the rejuvenation is specifically a reconstitution compared to the construction of a chariot (*yuvām cyávānaṁ sanāyām yáthā rátham / púnar yúvānaṁ caráthāya takṣathuḥ* “[y]ou two fashioned old Cyavāna, like a chariot, into a youth again, (for him) to move about” 10.39.4). Much to the dissatisfaction of Dawn, moving about is exactly what Tithonus cannot do (ἀλλ’ ὅτε δὴ páμπαν στυγερόν κατὰ γῆρας ἔπειγεν / οὐδέ τι κινῆσαι μελέων δύνατ’ οὐδ’ ἀναεῖραι, *hAp.*233–234), whereas Odysseus, for whom old age is merely superficial, certainly can and must if he is to regain his wife and household. What this shows is that freedom from old age is *partly* defined by what one can do. Freed from old age, Cyavāna can satisfy his wife’s desire (*yúvā yádī kṛtháh púnar / á kāmam ḡṇve vadhvāḥ* “as a youth—since you two made him so again—he meets the desire of his wife” 5.74.5cd). Yet desire itself depends not only on ability and action but appearance. Just as Zeus had abducted Ganymede ὄν διὰ κάλλος (*hAp.*203), so too did Dawn snatch Tithonus (218), whose own κάλλος-inspired desirability fades precisely when signs of age appear (αὐτὰρ ἐπεὶ πρῶται πολλαὶ κατέχυντο ἔθειραι / καλῆς ἐκ κεφαλῆς εὐηγενέος τε γενείου, / τοῦ δ’ ἦτοι εὐνής μὲν ἀπείχετο πότνια Ἥως, 228–230). One’s youthful beauty seems necessary for another to feel desire, whereas youth itself appears to be constitutionally necessary for one to move in satisfaction of that desire.

This is a question of ontological interdependence, of external appearance and internal structure, of form and (dys-)function. Unlike Odysseus, Cyavāna is absolutely and unequivocally old, as is Tithonus. From this state the Aśvins’ servant stands in need of total liberation. For Cyavāna to be liberated therefore means that he neither looks nor “is” old (*yuvām cyávānaṁ*

⁹¹ For discussion of the nature and development of the Cyavāna story, see Hopkins 1905.

jaráso 'mumuktam “[y]ou two released Cyavāna from old age” 7.71.5) – a sense captured by Griffith’s (1889–1892) rendering of *jarás-* m. with two noun phrases (“ye freed Cyavāna from old age and weakness”). This rendering highlights old age in isolation from the decrepitude it causes. As is clear from the case of Tithonus, such old age cannot of course be the lengthy duration of Cyavāna’s life; indeed, the rejuvenation is an act of prolonging it (*prátiratam jahitásyāyur dasrā / ád ít pátim akṛṇutaṃ kanínām* “[y]ou extended the lifetime of him who was left behind, wondrous ones, and thereby you made him the husband of young women” 1.116.10cd). Liberation from old age as distinct from the weakness it causes can only mean therefore the restoration of the *appearance* or form of youth rather than of youth itself.

This restoration is vivid and pliant. When the notion of release prevails alongside that of appearance, what we get is the image of assisted ecdysis in which the “covering” (*vavri-* m.), understood by Jamison and Brereton to be the beneficiary’s aged skin, is likened to a mantle (*jujurúšo nāsatyotá vavrim / prámuñcataṃ drāpim iva cyávānāt* “[a]nd, Nāsatyas, from Cyavāna, who had become old, you removed his covering [=aged skin] like a garment” 1.116.10ab). What is as alien to one’s sense of youthful self and as inalienable from oneself as aged skin is for beneficent gods as easy to remove as clothes are alienable from one’s body. Such Aśvinic ease is equally evident from their removal of Cyavāna’s *vavri-* “like a cloak” (*prá cyávānāḥ jujurúšo / vavrim átkam ná muñcataḥ* “[y]ou remove the covering like a cloak from Cyavāna, who had become old” 5.74.5ab). As a generic covering (cf. *vṛṇóti* ‘covers’), *vavri-* m. is used to refer to all sorts of objects, such as skin, clothing, and hidden places.⁹² Insofar as that covering is an item of clothing, the implicational network proper to such an item is inherited.

⁹² The Young Avestan cognate *°vaoiri-* is used to refer to the skin on milk (*hqm.vaoirinqm* ‘with skin/cream’ and *us.vaoirinqm* ‘without skin/cream’ V.5.52; Grestenberger 2013: 283–284).

If rejuvenation can be understood as the removal of aged skin like clothing, it follows in principle that the process could also be conceived as the superimposition of youthful skin. What we get in the case of Cyavāna is something more to the point: *utā tyád vām juraté asvinā bhūc / cyāvānāya pratītyam havirdé / ádhi yád várpa itáūti dhattháh* “[a]nd again, Ásvins, this is your recompense to Cyavāna, the giver of offerings, who was growing old: that you two lay an ageless appearance on (him)” 7.68.6. The logic of the supernatural is impeccable, and generative of deeper understanding. Though intimately tied to the preservation and presentation of the body, clothing is alien to and removable from that body. Since some clothing is made from hide inherently resembling human skin, the now metaphorically derived and conceptually accessible removal of said skin should in principle enable the definition of exactly what some body is by analyzing it from something else ultimately alien to that body.

In this connection, it is notable that, when Athena restores Odysseus’ form for the sight of his son (π 172–182), the restoration is not portrayed as putting the hero’s youthful skin back on:

ἦ, καὶ χρυσεῖηι ῥάβδῳ ἐπεμάσσατ’ Ἀθήνη·
 φᾶρος μὲν οἱ πρῶτον εὐπλυνῆς ἠδὲ χιτῶνα
 θῆκ’ ἀμφὶ στήθεσσι, δέμας δ’ ὄφελλε καὶ ἦβην,
 ἄψ δὲ μελαγχροῖης γένετο, γναθμοὶ δὲ τάνυσθεν,
 κυάνεαι δ’ ἐγένοντο γενειάδες ἀμφὶ γένειον.
 ἦ μὲν ἄρ’ ὣς ἔρξασα πάλιν κίεν· αὐτὰρ Ὀδυσσεὺς
 ἦϊεν ἐς κλισίην. θάμβησε δὲ μιν φίλος υἱός,
 ταρβήσας δ’ ἐτέρωσε βάλ’ ὄμματα, μὴ θεὸς εἴη,
 καὶ μιν φωνήσας ἔπεα πτερόεντα προσηύδα·
 “ἄλλοῖός μοι, ξεῖνε, φάνης νέον ἢ ἐπάροιθεν,
 ἄλλα δὲ εἶματ’ ἔχεις, καὶ τοι χρῶς οὐκέθ’ ὁμοῖος.

“So spake Athena, and touched him with her golden wand;
 first a well-washed cloak and tunic
 did she set about his breast, and made his build and youth to wax,
 his dark skin returned, and his jaws became defined,
 and the hairs of his beard turned glossy-black about his chin.
 having made him so she went back; and Odysseus

entered the hut. His dear son marveled at him,
and in fright cast his sight aside, lest a god it be,
and speaking he addressed him with winged words:
“Different, o stranger, dost thou seem to me now than before,
thou hast other clothes, and thy skin is alike no longer.”

What we find instead is an image of his proper skin reasserting itself (ἄψ δὲ μελαγχροῖς γένετο), the only superimposition being the well-washed cloak and tunic. This reassertion suggests that, while a δέρμα is alien and can thus be donned, worn, and doffed, a χρώς is not so alienable, though it is indeed alterable (καί τοι χρώς οὐκέθ’ ὁμοῖος). Correspondingly, Cyavāna’s problem cannot be solved with a mere *vavri-* any more than Dawn can undo her lover’s age-related disfigurement by decking him out (εἴματα καλά διδοῦσα 232). Since the corporeally inalienable can be altered by withering eld, what is needed is a *vārpas-* that persists and cannot be thus altered. The slightly paradoxical feature is the fact that, unlike the reappearance of Odysseus’ dark skin, the appearance of the *vārpas-* is a superimposition (*ādhi...dhatthāḥ*) and as such presupposes its alterity. Yet the end justifies the means if what the *Aśvins* superimpose is understood to be the complete form underlying both aesthetic and constitutional transformation.

This complete transformation, but in the natural direction, has come upon Tithonus and is in store for Anchises. While Dawn’s emotions are inexplicit, her βουλή makes clear enough that the situation is so aggrieving that her lover’s body and thus the aesthetic cause of her grief must be locked away and concealed (ἐν θαλάμῳ κατέθηκε, θύρας δ’ ἐπέθηκε φαεινάς 236). The relation between the desire inspired by beauty and the grief caused by its loss to old age is echoed by Aphrodite’s specious admission that, were Anchises (unnaturally) to remain such as he is (εἶδος τε δέμας τε) and be hers, her heart would not be enveloped by grief (οὐκ ἂν ἔπειτά μ’ ἄχος πυκινὰς φρένας ἀμφικαλύπτει 243), just as old age will soon indeed envelop Anchises (γῆρας ὁμοίον ἀμφικαλύψει 244).

As a transformative process, envelopment is characterized by the above-mentioned ambiguity between being and simply seeming. Given the relation between old age and naturally alterable, conceptually alienable skin, there is space for the conception of aged skin and the state it indicates as mere appearance. Accordingly, unlike the inalienable γῆρας that will soon envelop Anchises, it is the alienability of the δέρμα γέροντος that allows the proper χρώς of Odysseus to be superficially alterable.

The alienability/alterity of skin, as evidenced by the etymology of δέρμα itself (: δέρω ‘flay’), has conditioned the interpretation of the *s*-stem χρώς (gen. χροός m.) as the reflex of some lexeme that designated a set amount of ablated material (Buck loc. cit.). Tentatively following the tradition of association with χραύω* ‘graze, scrape’ (3rd sg. aor. subj. χραύση E 138), Chantraine (2009: 1234) supposes a **k^hrowǵs* whose oblique **k^hrowoh-* underwent a syllable-deletion, resulting in a **k^hroh-* to which the nominative was presumably back-formed. Chantraine’s scenario is partly based on that of Szemerényi (1967: 22), who had assumed an etymologically unclear **k^hroǵs* (> χρώς by contraction), of which the oblique **k^hrooh-* was reflected as χρο- either by contraction (followed by shortening) or by hyphaeresis.

Both of these scenarios, their starting points in particular, are problematic on account of their phonological assumptions and of the formal anomalousness of what is reconstructed. Chantraine’s reconstruction of a Proto-Greek **k^hrow-oh-* relies on an association with Mycenaean *a-ko-ro-we* (dual *a-ko-ro-we-e*), which, given its qualification of cattle, has been interpreted as referring to the color of their skin (e.g., (*h*)*akhrōwēs* ‘of uniform color’, Chadwick-Baumbach 1963: 257 with refs.). This connection with χρώς is only a guess and, as noted by Szemerényi (loc. cit.) and Meissner (2006: 137–138), is not the only interpretation (‘with pointed ears’ [: ἄκρος + οὔς, Gallavotti 1957: 9] is equally conceivable). It does not impose itself, and

even if it did, it would impose other problems. The *(h)a-k^hrow-eh-* that Chantraine would tepidly support in connection ultimately with *χραύω** is taken to be a compound comparable to *ἀναιδής* ‘shameless’ (: *αἰδώς* ‘shame’). As mentioned above, Chantraine reconstructs as the base of that adjective a **k^hrowōs* whose oblique was **k^hrowoh-*. Even if one ignores the dubitability of the syllable-deletion imagined, **k^hrowoh-* is anomalous and thus highly doubtful from the comparative standpoint. As an *s*-stem with suffixal *o*-grade, one would certainly not expect to find *o*-grade of the root. While one could imagine a **k^hrewoh-* ancestral to **k^hrowoh-* by vowel assimilation, such an assumption would be yet another burden on economy. As for the root itself, there is much difficulty. The connection with *χραύω**, maintained by IEW (s.v. *g^hrēu-* ‘rub’) and going back at least as far as Schmidt (1893: 370–371), is presented by Chantraine with reservation, and rejected by Frisk (1960–1973: 1120–1) and Beekes (2010: 1650–1). Skepticism of that connection is justified when we consider how *χραυ-* would seem to reflect a descriptive **g^hreh₂u-* both mysterious in itself (Beekes 2010: 1647) and phonologically irreconcilable with Chantraine’s **k^hrowoh-* or its imaginable variants.

Szemerényi (loc. cit.) does not discuss his Proto-Greek **k^hroōs* (: **k^hrooh-*) in connection with a particular PIE root. Even if one disregards this oversight, the Proto-Greek reconstruction itself does not map onto something resembling a plausible output of PIE phonology and morphology. Given the sequence of vowels in the **k^hrooh-* supposed, one would have to assume that there had been a laryngeal between them and that the descriptive root, whatever its identity, was of the shape **(^g^h)reh_x- ‘?’*. Yet even if one accepts that assumption, there arises the problem that the consequent **(^g^h)rEh_x-os-* is structurally aberrant. Moreover, even with acceptance of **(^g^h)rEh_x-os-*, it is unclear why the vowel of the root should be *o* as allegedly reflected in **k^hrooh-*. While one could imagine coloring under the assumption of a root **(^g^h)reh₃-*, a Greek-

internal assimilation of the vowel of the root to that of the suffix is also, and merely, imaginable (i.e. **k^hreoh-* > **k^hrooh-*). In sum, Szemerényi's assumption-laden and explanatorily destitute **k^hroōs* (: **k^hrooh-*) must also be rejected.

Whatever the root of *χρῶς*, it must have been of the shape **(g^her-*. The notion that *χραίνω* 'touch slightly, smear, stain' or *χρίω* 'touch surface slightly, rub, anoint' could be related is deeply problematic principally because the roots of these verbs cannot be compared to that of *χρῶς* in a morphologically principled manner. One cannot really evaluate Pokorny's speculation that the root of *χραίνω* and the root of *χρίω* respectively reflect a **√g^hren-* and **√g^hrēi-* formed by extension from a **√g^her-* 'rub', whose most notable and certain derivative is what appears to be the reflex of an *s*-present (Skt. *gharṣati* 'rubs, grinds', *ghṛṣta-* 'rubbed').

The question boils down to one of morphology and semantics. To begin on the semantic side, we must ask how plausible it is *a priori* that a term meaning 'skin' would reflect a derivative of a root that meant 'rub, scrape'. What conceptual pathway is actually envisioned? No doubt, as mentioned above, the lexical semantic histories of *δέρμα* and Vedic *cárman-* are in the back of one's mind. Yet is it truly plausible that the concept of hide, so disposed to aid in conceptualizing that of skin, should be accessed via the notion of what is rubbed or abraded, rather than what is actually cut and abscised? What this means is that it may be a step too far to assume that effectively the same semantics would be operative if the original root meant 'rub'. Since this argument is not of course probative, insofar as it is somewhat conceivable that 'hide' could theoretically be a sense of something that meant 'product of scraping' (though perhaps not 'rubbing'), the onus should therefore be borne by how well the hypothesis of this **√g^her-* fares with the fact that *χρῶς* would necessarily reflect an *s*-stem.

Under his subentry for the *s*-extension, Pokorny (s.v. $\sqrt{g^h}er-$ ‘hart worüber streichen, reiben’) lists Russian *goróxъ* ‘Erbse’ and Serbo-Croatian *gräh* ‘Bohne, Erbse’, which appear to reflect a $\sqrt{g^h}ōrs-$ of some description. Under the assumption that Sanskrit *gharṣati* ‘rubs, grinds’ and the reflexes of Proto-Slavic $\sqrt{g^h}ōrxъ$ ‘pea’ (v. Derksen 2009: 179) belong to the same root, it is not necessarily the case that the final segment of the Sanskrit root is identical to the \sqrt{s} - in the preform of the Proto-Slavic. Given the intensiveness and repetition of action expressed by *gharṣati* (cf. βούλωμαι ‘wish’, Jasanoff 2003: 133), the \sqrt{s} - in this verb, as mentioned above, is likely the remnant of the suffix of an *s*-present (rather than an extension). If one assumes that this suffix was reinterpreted as part of the root, it would be necessary to conceive of $\sqrt{g^h}ōrs-$ as a genitival derivative of some simple thematic nominal of the shape $\sqrt{g^h}ōrs-$. Since this story of reanalysis does not impose itself, the alternative would be to view the \sqrt{s} - of $\sqrt{g^h}ōrs-$ as the remnant of a nominal *s*-suffix forming a stem indirectly basic to a preform $\sqrt{g^h}ōr-s-$. In theory, this *s*-stem could be related to the one ancestral to χρώς, but then again such a relation is far from necessary and is in fact evidentially underdetermined in the case of $\sqrt{g^h}er-$ ‘reiben’. As just alluded to, even Pokorny’s connection between *gharṣati* and *goróxъ* and *gräh* must be merely assumed. Given their leguminal semantics, it does not seem unthinkable that a connection should be sought in the realm of biological envelopments (cf. OE *hulu* f. ‘husk, pod’ < Proto-Germanic $\sqrt{χ}ulō-$ ‘[seed-]covering’). In any case and in sum, while the preform of these Slavic data is theoretically supportive of the reconstruction of an *s*-stem possibly related to the one reflected in χρώς, there is no guarantee that $\sqrt{g^h}ōrxъ$ ‘pea’ is from $\sqrt{g^h}er-$ ‘rub’.

If $\sqrt{g^h}er-$ ‘rub’ is to be set aside, we should look to another root and reapply our criteria:

(1) evidence for an *s*-stem and (2) a radical meaning that can be channeled by the *s*-stem

derivative in a manner reconcilable with the meaning of $\chi\rho\acute{\omega}\varsigma$. Both of these standards are met by $*\sqrt{g^h}er-$ ‘greifen, fassen, umfassen, einfassen’ (IEW: 442–443).

Before developing a scenario in justification of this connection, some discussion is in order concerning the root’s exact reconstruction. As presented by Pokorny, its first segment is $*g^h$, of which the sole evidence within the entry itself is Lithuanian $\check{z}\tilde{a}ras$ ‘Lauf, Weg, Runde, Wendung’, which is deemed uncertain. The uncertainty of the velar endures in the LIV² entry (p.177), whose question mark precedes the $*\sqrt{g^h}er-$ ‘nehmen, holen’ ancestral to the Vedic \sqrt{hr} - ‘take’ basic to the thematic present $h\acute{a}rati$ ‘takes, brings’. Moreover, LIV² expresses uncertainty concerning the relation of Latin $hortus$ ‘garden’, etc., which IEW had associated. The assumption inherent in the LIV² entry is that, since the Vedic verb means ‘take, bring’, it is not necessarily the case that $h\acute{a}rati$ is related to extra-Indic nominals, most notably Latin $hortus$, which point to a root meaning ‘surround, enclose’. This uncertainty may be abstractly addressed with the argument that the notion of taking is adjacent to that of embrace. For an entity to take something is equivalent to that something’s entry into the sphere of power projected by that which takes. The motion-related sense of bringing is also a natural outgrowth of taking inasmuch as the agent’s sphere of control is mobile as a function of that agent’s mobility. Accordingly, it is likely, if not certain, that $h\acute{a}rati$ and $hortus$ share a root.

The more pressing matter is the semantically justifiable relation of $*\sqrt{g^h}er-$ to the root ancestral to that of OCS $grad\bar{b}$ ‘town’. For this root, Pokorny reconstructs two variants $*\sqrt{g^h}erd^h-$ and $*\sqrt{g^h}erd^h-$ ‘umfassen, umzäunen, umgürten’. The main reason for this reconstructed variation is the apparent fluctuation in the Balto-Slavic evidence. In light of Vedic $g\acute{r}h\acute{a}$ - ‘household’ (Av. $g\acute{e}r\acute{a}\delta a-$ m. ‘demonic habitation’) and Albanian $gardh$ ‘hedge, fence’, the preform of OCS $grad\bar{b}$ (Russian $g\acute{o}rod$, etc.) must of course be $*g^hord^ho-$, also reflected as Lithuanian $ga\check{r}das$ ‘fold, pen’

and Latvian *gārds* ‘pig pen’ (Smoczyński 2018: 313). Beside these reflexes of **g^hord^ho-*, there appears to be a highly resemblant group composed of Russian *zoród* ‘wooden frame for drying hay, enclosure for a haystack’ and Lithuanian *žardas* ‘rack for drying flax’ (Latv. *zārds* ‘hayrack’). Moreover, Lithuanian presents a *žārdis* ‘enclosure for animals’ whose Old Prussian relative was *sardis* ‘fence’. All of this taken together suggests that there was a variant **√g^herd^h-* that existed in Pre-Proto-Balto-Slavic. In light of the Vedic *grhá-* and Albanian *gardh*, this variation should be retrojected to some stage of the proto-language, though its ultimate origin is unclear. Whatever was responsible for the unusual correspondence, it is safe to assume that there was at some stage a root **√g^herd^h-* ‘encircle, enclose’ (LIV²: 197).

The question now concerns the relation of this **√g^herd^h-* to the supposed **√g^her-* ‘greifen, fassen, umfassen, einfassen’. Pokorny comments that Latin *hortus* justifies an analysis of **√g/g^herd^h-* as an extended form of that **√g^her-*. In light of what the reflexes of **g^hrd^hó-* and **g^hord^ho-* actually mean, it is thoroughly plausible and generally accepted (e.g. de Vaan 2008: 290–291) that *hortus* reflects an ultimately co-radical derivative. What may be contested of course is the interpretation of **√g^herd^h-* as an *extended* form, as opposed to a root that emerged by reanalysis of some derivative(s) of the “un-extended” root. In addition and in sum, the reasonable assumption of some relation between **√g^herd^h-* and the **√g^her-* given by Pokorny is consistent with the re-construction of the latter as **√g^her-*.⁹³

Now that we have established **√g^her-* ‘enclose, envelop’ as the form of our proposed root, let us consider its derivatives in order to provide the history of *χρῶς* with the background it needs. A relatively recent and highly illuminative datum added to the list of reflexes of such

⁹³ In light of *harmyá-* ‘large house, stronghold, prison’ [*< *g^her-m-ijó-* ‘enclosure’]: Av. *zairimiiāuuant-* ‘with a permanent house’ (Mayrhofer 1986–2001 EWAia II: 807), it may be necessary to operate with an original **√g^her-*.

derivatives is Hittite *karije/a-zi* ‘bedecken, verhüllen, verstecken’ (: ^{TÚG}*kariulli-* n. ‘hood’), which Rieken (1999: 74) has derived from Pokorny’s * $\sqrt{g^h}er-$ ‘greifen, etc.’. This derivation is not accepted by Kloekhorst (2008: 449–450), who deems convincing Puhvel’s (1984–: 82) claim that Vedic *cárman-* ‘skin, hide’ (Av. *carəman-* ‘id.’), Latin *corium* ‘leather’, *scortum* ‘hide’, *cortex* ‘rind, bark’, and OHG *skirm* ‘cover, shelter’ point to a root * $\sqrt{(s)ker-}$ that did not mean ‘cut’ as normally supposed (* $\sqrt{(s)ker-}$ ‘schneiden’ IEW 938–947). Accordingly, Kloekhorst reconstructs a *(*s*)*kr-je/o-* which, though undefined, is presumably supposed to mean ‘cover’ as a function of its derivation from an alleged root of that meaning; after all, the above-mentioned nominal data all refer to objects that in some sense “cover”.

This reasoning is faulty for reasons that should be clear from some of the preceding discussion in this Chapter; an absconded object, insofar as it acts as a surface, is re-applicable as a covering both in mind and in action. Since Puhvel and Kloekhorst have to invent a root meaning ‘cover’ in order to accommodate those nominal data, it is far preferable to operate with a version of Rieken’s derivation. Furthermore, Kloekhorst’s objection that Rieken’s derivation supposes an unattractive semantic development *‘to grasp, to seize’ > *‘to enclose’ > ‘to cover’ is also unsustainable because, on the one hand, the concepts of such activities are in mutual proximity, and, on the other, because it assumes in a historicized manner a linear development from a meaning ‘to grasp, to seize’ evident in Vedic and presupposed to be original. When instead we compare Vedic *hárati* ‘takes’ and Hittite *karije/a-zi* ‘cover’, which under our analysis would reflect *(\acute{g})^h*ér-e/o-* and *(\acute{g})^h*yr-je/o-* respectively, we can reconstruct a radical semantic range of physical comprehension, embrace, and envelopment. This reconstruction is supported by the traditionally associated nominal material.

The most prominent nominal derivative is of course **(ǵ)^hór-to-* ‘enclosure’. As noted by de Vaan (2008: 291), Latin *hortus* and Oscan *húr̄z* could reflect a radical zero-grade, but this would be arbitrary principally in light of *χόρτος* ‘farm-yard, fodder’ and Old Irish *gort* ‘field, crops’. Whatever the derivational base of this stem, it is without doubt a determinative. When we consider the preform of *χορός* ‘dance’ (· κύκλος, στέφανος), we are on firmer theoretical footing. The **(ǵ)^hor-ó-* to which it points may be possessively derived from a **(ǵ)^hór-o-* ‘enclosure’. In all likelihood, one of these simple thematics provided the base not only of the *v̄r̄ddhied* preform of *χῶρος* ‘place’ (< **(ǵ)^hór-o-* ← **(ǵ)^hōr-ó-* ‘enclosure-like’, Nussbaum p.c.), but also the base of the preform of *χόριον* ‘membrane that encloses the fetus in the womb, afterbirth’ (Hp., Arist., etc.) and ‘any intestinal membrane, haggis-like dish made therefrom’ (Cratin., Ar., etc.). Pokorny is uncertain about this last datum; while the item appears under his **√ǵ^her-* ‘greifen, etc.’, the latter set of senses just mentioned presumably conditioned his registration of the term under the entry including *χορδή* ‘guts, string of guts’, Latin *haru-spex* ‘soothsayer’, etc. (IEW: 443). Whether *χόριον* belongs with **√ǵ^her-* ‘envelop’ or not, what merits attention is the *a priori* ease with which something that meant ‘envelopment’ should also be used in the biological sphere (e.g., seeds, membranes, etc.).

With this trivial observation in mind, it is worth revisiting the Russian *goróxъ* ‘pea’ and Serbo-Croatian *gràh* ‘bean, pea’, for whose preform Pokorny presented **ǵ^hōrso-* as a possibility. Seeing that we have rejected the association with Sanskrit *gharṣati* ‘rubs’, we are free to reassociate this item, though our starting point is better presented as a Pre-Proto-Slavic **gōrso-* ‘legume’. According to Derksen (2009: 179), Russian *goróxъ* and its exact Slavic relatives are related to Lithuanian *gar̃šas* ‘Aegopodium podagraria’ (i.e. ‘goutweed’), which Smoczyński (2018: 317) mentions as a dialectal variant of *garšvà* ‘id.’ and as a relative of the Proto-Slavic

**gòrx̃* given by Derksen. Given the meaning of the Lithuanian term, Pokorny aligns it with OHG *gers* ‘Aegopodium podagraria’ (> NHG *Giersch* ‘id.’) and assigns it to its own entry (*√g^hers-* “in Unkrautbezeichnungen?” IEW 445). It is not immediately clear whether and how the decidedly non-leguminal Balto-Germanic meaning and the Balto-Slavic morphology can be reconciled. Moreover, the Lithuanian and German data point to slightly different preforms, *(*ǵ^horso-* and *(*ǵ^herso-* respectively. If Proto-Slavic **gòrx̃* is related to these forms, it would of course reflect a *(*ǵ^hōorso-* necessarily analyzable, at least on the superficial level of form, as a *vṛddhi* derivative of the *(*ǵ^horso-* reflected in Lithuanian. Since the difference in root vocalism between the preforms of *gāršas* and OHG *gers* appears to be the product of derivation of considerable antiquity and since these terms both mean ‘Aegopodium podagraria’, that sense must be considerably ancient. If, therefore, one wishes, on somewhat fitting formal grounds, to view Proto-Slavic **gòrx̃* ‘pea, peas’ as the reflex of a *vṛddhi* derivative of the preform of *gāršas*, one would have to assume that the meaning ‘Aegopodium podagraria’ either did not yet exist or was a sense so marginal that it did not feed the genitival derivation realized by the *vṛddhi*.

Here there are certain imponderables, but the main point to be made in this connection is that, since Lithuanian *gāršas* and OHG *gers* must go together, Proto-Slavic **gòrx̃* ‘pea, peas’, if it is related to *gāršas* as is justifiably supposed, must reflect *(*ǵ^hōorso-*. The question then concerns the relationship between this necessarily genitival derivative and the lexical meaning of its reflex. What would the base of *(*ǵ^hōorso-* have to have meant in order for this derivative to have a leguminal sense? In other words, how might one conceive of peas?

An answer may lie in what follows from the supposition that *gāršas* and *gers* are related to Russian *goróx̃* etc. The preforms of these items appear to be parallel determinatives

conceivably characterized by the installation of radical *ó*-grade and *é*-grade respectively (*(*ǵ*)^h*ó*rs^o- : *(*ǵ*)^h*é*rs^o-). What this therefore means is that there may have been an adjective of the shape *(*ǵ*)^h*r*s^ó- whose meaning was of such a kind as to condition the emergence of the sense ‘goutweed’ on the part of its derivatives. For the sake of setting forth a scenario, we should begin with the observation that *Aegopodium podagraria* is a rapidly spreading weed growing low to ground. Its popular designation *Snow on the Mountain* refers not only to its white flowers backgrounded by green foliage, but also to its expansive, rather than individually concentrated, distribution. Rather than rising from the forest floor in such a way that the plants appear distinct from each other, goutweed covers the ground, so much so that other species find it difficult to compete. By this account, the sense ‘*Aegopodium podagraria*’ would be an outgrowth of a meaning ‘covering’ borne by *(*ǵ*)^h*é*rs^o- and its Pre-Proto-Balto-Slavic sister *(*ǵ*)^h*ó*rs^o-.

Despite the fact that this account requires the supposition that the sense ‘*Aegopodium podagraria*’ was generalized somewhat independently in two formally distinct derivatives, the story does buy us a morphosemantic motivation for the Slavic data. If *(*ǵ*)^h*ó*rs^o-’s main meaning was ‘(the) covering’, the *(*ǵ*)^h*ō*rs^o- ancestral to Proto-Slavic **gōrxb* ‘pea(s)’ is interpretable as a genitival *(*ǵ*)^h*ō*rs^ó- meaning ‘in/of/from *(*ǵ*)^h*ó*rs^o-’. Accordingly, *(*ǵ*)^h*ó*rs^o- *qua* ‘covering, envelopment’ might have had the sense ‘pod’ (cf. OE *hulu* ‘id.’ < **k̑l-e-h₂* ‘covering’), on the basis of which *(*ǵ*)^h*ō*rs^ó- would have referred to its nutritious contents (e.g. ‘pea in a pod’).⁹⁴

Since the root of course would be our **ǵ*^h*er-* ‘enclose, envelop’, it follows that *(*ǵ*)^h*r*s^ó- ‘covering (adj.)’, the hypothetical base of *(*ǵ*)^h*ó*rs^o- ‘envelopment, pod’, is best analyzed a *(*ǵ*)^h*r*-*s*-*ó*-, that is, as a possessive derivative of an *s*-stem (cf. **k̑h₁-s-ó-* ‘strong’ [Ved. *śūṣá-*

⁹⁴ Another possibility, brought to my attention by Sturt Manning (p.c.), is that *(*ǵ*)^h*ó*rs^o- was used to refer to undergrowth in general. By this analysis, *(*ǵ*)^h*ō*rs^o- would have designated peas or pea-pods of/from/in pea-plants covering the ground.

‘strong, loud’] ← **kéuh₁-o/es-* ‘swelling, strength’ [Ved. *sávas-* ‘strength’, Av. *sauuah-* ‘advantage’]). Interestingly, our *(*ǵ*)^h*órso-* ‘pod’ is formally and lexically comparable to the preform of OHG *hulisa* ‘husk, pod, etc.’ (NHG *Hülse* ‘id.’), which, though the exact formal details are uncertain (Transponat **k_l-es-e-h₂-* ‘the covering’, cf. OHG *hulla* ‘cloak, veil’ < **k_lséh₂-* ← **k_l-s-ó-* ‘Verbergen habend’, Höfler 2017a: 296), can be traced back to a derivative of an *s*-stem to **√kel-* ‘cover’ (IEW: s.v.). Accordingly, the base of *(*ǵ*)^h*ṛ-s-ó-* would likely have been a proterokinetic *(*ǵ*)^h*ér-o/es-* ‘covering, envelopment, enclosure’.

Additional support for this derivation may be provided by Latin *horreum* ‘barn, storehouse, granary’ (Pl.+). According to de Vaan (2008: 290), this item, while lacking an agreed etymology, is “from a root **ǵ^her-* ‘grab’” and is interpretable as the reflex of a derivative of a **ǵ^hṛ-so-* (> Proto-Italic **χor-so-* ‘enclosed’). Citing Nussbaum (2007) for the notion that derivatives in **-so-* were productive at some point, de Vaan claims that **ǵ^hṛ-so-* is not impossible, despite the absence of evidence for an *s*-stem to the root in question. In light of our preceding discussion, it appears more likely that there was indeed an *s*-stem to **√ǵ^her-* ‘enclose, envelop’. Under the assumption that *horreum* belongs with **√ǵ^her-* ‘enclose, envelop’ (a barn being an enclosure after all; cf. Lat. *cohors*, *cohortis* in the sense ‘enclosure’, Nussbaum p.c.), we should consider the possible preforms of the entire stem: *(*ǵ*)^h*ṛseǵo-* or *(*ǵ*)^h*orseǵo-*. Since we are dealing with a genitival in **-eǵo-*, have reason to believe that a substantival *(*ǵ*)^h*órso-* ‘covering’ existed, and recognize that, whereas *(*ǵ*)^h*ṛso-* is less clearly substantival, the base of a genitival is usually substantival, *(*ǵ*)^h*orseǵo-* is the likelier preform. Accordingly, if *(*ǵ*)^h*órso-* meant ‘covering, enclosure’, its genitival derivative *(*ǵ*)^h*orseǵo-* would have meant ‘of the enclosure’ and, as a substantive, ‘a kind of enclosure’.

Putting all of this together, we are now in a better position to recognize the existence of an *s*-stem $^{*(\acute{g})^h\acute{e}r-o/es-}$ ‘covering, envelopment, enclosure’. Supported by evidence for an external derivative $^{*(\acute{g})^hr-s-ó-}$, this proterokinetic $^{*(\acute{g})^h\acute{e}r-o/es-}$ is conceivably basic to an internal derivative. At the earliest stage accessible by internal reconstruction, this derivative would in theory have been a hystero-kinetic $^{*(\acute{g})^hr-és-/(^{\acute{g}})^hr-s-}$. As an adjectivally employable possessive derivative of a verbal abstract, $^{*(\acute{g})^hr-és-/(^{\acute{g}})^hr-s-}$ would have qualified the agent, instrument, or even patient/theme of the action designated by $^{*(\acute{g})^h\acute{e}r-o/es-}$. Its adnominal status would also have entitled $^{*(\acute{g})^hr-és-/(^{\acute{g}})^hr-s-}$ ‘covering, enveloping (adj.)’ to be the base of a determinative formed by retraction of accent to a radical *e*-grade installed to receive it (cf. $^{*g\eta h_1-tó-}$ ‘born’ [: Lat. *nātus* ‘id.’] → $^{*g\acute{e}nh_1-to-}$ ‘the born’ [: OHG *kind* ‘child’]). The resulting amphikinetic $^{*(\acute{g})^h\acute{e}r-os-}$ would thus have meant ‘the covering, envelopment’. Whatever its exact origin, the fortune of this amphikinetic is clear. Its sense ‘envelopment’ would have conditioned its use in reference to skin and its frequent radical zero-grade (e.g. loc. sg. $^{*(\acute{g})^hr-és-i}$ ‘on the surface’) would have been generalized as observed elsewhere (e.g., Ved. acc. sg. *uṣāsam* ‘dawn’ [: Lat. *aurōra* ‘id.’] << $^{*h_2\acute{e}us-os-ṃ}$ ‘the shining one, dawn’). With the usual generalization of suffixal *o*-grade, the resulting $^{*(\acute{g})^hr-ós-}$ or $^{*k^hróh-}$ would give the $\chi\rho\acute{o}\varsigma$ with which we are familiar.

The use of $^{*(\acute{g})^h\acute{e}r-os-}$ ‘covering, envelopment’ in the sense ‘skin’ is an expression of SKIN IS COVER. As discussed above, this transference, though seemingly simple and intuitive, relies on a not so simple notion of ontological independence. Since alien objects like the skins of dead beasts and works of weaving truly cover the whole human body in its veritable totality,⁹⁵ living skin can be thought to cover the body in its merely apparent totality. If skin is thus

⁹⁵ By “whole”, I mean as the whole thing it is, not of course that clothes cover the entire surface of the body.

conceptualized as the covering of the body, it assumes some degree of alterity from that of which it is a part. Given the underlying truth of skin's status as a part inalienable from the living whole, it comes as no surprise that conceptual metonymy would generate polysemy leading to additional somatic senses.⁹⁶ While the ancestor of *χρῶς*, whose dominant sense in Homer is 'skin', might have meant 'skin' as opposed to 'flesh', *χρῶς* in Homer may denote both the skin above and the flesh beneath. As noted by LSJ, *χρῶς* can mean 'flesh' as opposed to 'bone' – a sense well exemplified by *φθινύθει δ' ἄμφ' ὀστεόφι χρῶς* in the passage where Eumaeus describes the grief-stricken Laertes' abstention from food and drink (*π* 145). The fact that, before dying out, *χρῶς* would develop a distinctly “deeper” meaning is demonstrable from its sense's opposition to 'skin' in the Septuagint (*λέπρα παλαιουμένη ἐστίν, ἐν τῷ δέρματι τοῦ χρωτός ἐστίν* Le.13.11). Finally, as also noted by LSJ, there are cases where the sense of *χρῶς* approaches 'body' itself (*ἀσθενεῖ μὲν χρωτὶ βαίνων* “walking with his weak frame” *Pi.P.1.55*). This last sense is basically constituted by the notion of comprised flesh. Thus what started out as an exterior part was internalized nearly to the point of co-extension with the whole.

This particular semantic trajectory is arguably a function of the depth inherent to the human body. To understand the outgrowth of meaning that decisively won out, it is necessary to consider the superficial starting point of that trajectory. If for the moment we try to set aside the biological in general and the human in particular, we may attempt to observe that the conceptualization of skin as a covering is conditioned by the belief that the body has an inside and an outside that together make the body what it is. Concerning the semantic history of *χρῶς*, one's sense of what exists on the inside conditions the above-mentioned emergence of senses that are no longer skin-deep. Again, if we try to set aside the biological, it may be acknowledged

⁹⁶ For an excellent case study in this process, see Wilkins 1996.

that, in setting aside for the moment the conditioning role of animal-hide and clothes, the original conception of skin as covering is an attempt to provide substance and access to the notion of a surface. While for the preform of *χρῶς* this is a specifically human surface with all its complexities and implied depth, if there is simply a sense of an interior, a superficies is presupposed. Even when there is nothing *over* which a surface exists, a surface can exist through analysis of length and width from the world of depth and apparent solidity in which we are embodied and with which we interface.

The surface of something can be conceptualized in various ways evidenced by lexicalizations. For example, Latin *aequor* ‘Fläche’, eventually restricted to ‘surface of the sea’, reflects an *s*-stem substantivization of *aequus* ‘level’, while in Latvian the notion can be lexicalized by *viršus* ‘top, upper part’ (e.g. *no zemes viršus* “ἀπὸ προσώπου τῆς γῆς” Gen.6.7; cf. Lith. *viršius* ‘top’, OCS *vrъxъ* ‘height’ : Ved. *varṣ-mán-* ‘id.’). Finally, as evident from this last example and eternally recurrent grammaticalizations (e.g. Lat. *ante* ‘before, in front of’ < **h₂ent-i* ‘on the face’, cf. Hitt. *ḫant-* ‘forehead, front’), FACE is a fertile source, simply because, of all solids, the human body has contents holding our most fervent interest.

The urge to comprehend an object, to understand what exists on the inside and under can only be addressed by attending to the outer and the upper. In this sense, the term ἐπιφάνεια ‘superficies’ (Democr., Arist., etc.) is entirely intelligible, the preverb betraying the conception that what we see is *on* something (i.e. on the outside, cf. NHG *Aussehen* ‘appearance, resemblance’); that is to say, the perceptual construction of objects involves the setting of surfaces upon them. This is not to say that the experiencer is an agent; it rather seems that the experiencer is but a spectator. Accordingly, if the program of experience involves the setting of

surfaces in the construction of objects, the properties of those surfaces are equally emergent from the interaction between the program and the entities that it renders into objects.

It is in this respect that we can understand the sense of *χρῶς* with the liveliest afterlife. Conditioned by its designation of the surface of the human body, *χρῶς* is used to refer not only to living skin by itself, but also to its color or hue, which in Homer is notoriously variable. Such variability is characteristic of *κακότης* (τοῦ μὲν γάρ τε κακοῦ τρέπεται χρῶς ἄλλυδις ἄλληι N 279), whereas permanence of hue marks the man of martial worth (τοῦ δ' ἀγαθοῦ οὔτ' ἄρ τρέπεται χρῶς οὔτε τι λίνη / ταρβεῖ, N 284–285). Regarding skin's permanent color, there are generally categoric and specifically aesthetic expectations. As evident, for instance, from the restoration of Odysseus as *μελαγχροῖς* (π 175; cf. description of Eurybates as *μελανόχροος* at τ 246), “black” skin is normal for and proper to real Mediterranean men, whereas “white” skin, as Dee (2003–2004: 161–162) observes, was accepted and expected of “women, barbarians living north of the Alps, the perilously ill, pasty-faced philosophers, and cowards”.

Since variability in the hue of an individual's skin and the variety in skin-color amongst groups are matters of constructive perception and classification, it comes as no surprise that color itself can be conceptualized by means of skin. That the chromatic semantics of *χρῶς* are an expression of this conception is evident from the fact that *χρῶς* is first and foremost an anatomical term only secondarily used for a type of visual percept – the predominant sense of its largely post-Homeric genitival derivative *χροιά* ‘superficial appearance (“skinniness”), color, esp. color of the skin, complexion’ (LSJ s.v.).

The multifaceted nexus between skin and color is especially evident in the semantic range of Vedic *várṇa-* m. ‘color’.⁹⁷ Historical chance governing the nature of interaction between

⁹⁷ For treatment of specific color terms in Vedic, see Hopkins 1883.

the Indo-Aryan migrants and the Subcontinent's indigenous population in the Bronze Age has conditioned the complexification and varied lexicalization of COLOR FOR RACE. Regarding the lexicalization in question, while *várṇa-* can mean 'social group', that sense is based on skin's superficially distinctive appearance, and on a simpler kind of metonymy (i.e. SKIN FOR COLOR) that gave rise to the chromatic sense of χρώς and its derivatives. In this connection, it is important to note that, though the Vedic term lexicalizes the intersection of skin and social identity/alterity, *várṇa-* does not itself mean 'skin' but 'color' (cf. Av. *varənah-* n. 'id.'). According to Chakravarty (2003: 2–3), who approaches the polysemous system by means of traditional exegetical terms, the primary series of senses consists of *rūpa-* 'outward appearance', *varṇa-* 'color', *kānti-* 'beauty' (i.e. 'loveliness'), and *dīpti-* 'luster' (i.e. 'splendor'). A real sense particularly of the latter two may be gleaned from this description of Dawn (RV 1.92.10):⁹⁸

a *púnaḥ-punar jāyamānā purāṇī*
 b *samānām várṇam abhī śumbhamānā*
 c *śvaghnīva kṛtnūr víja āminānā*
 d *mártasya devī jaráyanty áyuh*

“Being born again and again though ancient, (always) beautifying herself to the same hue, like a successful (gambler) with the best throw who diminishes the stake (of his opponent), the goddess keeps diminishing the lifetime of the mortal as she ages him.”

As suggested by Griffith's translation of pāda b (“decking her beauty with the self-same raiment”), *várṇa-* is something continually superimposed as a beautiful thing ('als Schmuck sich anlegen', Grassmann 1996: s.v. *śubh-* [*abhī*]). While the loveliness of Dawn arises from this adorable act of adornment, her sublime, subtly disturbing splendor consists in the fact that this act is tied to the precariousness of life and its inexorable wasting away. The contrast set up in the

⁹⁸ Text of Aufrecht 1877; Jamison-Brereton (trans).

image is arguably where its ultimate beauty derives. A major base of that beauty is the aesthetic meaning of *várṇa-*.

It is generally accepted that the meaning of *várṇa-* is due to its ancestor's derivation ultimately from the same root reflected in Vedic *vṛṇóti* 'covers' (Mayrhofer 1986–2001 II: 517–518). In all likelihood, that root is **h₂uer-* 'cover' ('einschließen, stecken, hineintun' LIV²: 227), which Lubotsky (2000: 317–8) has plausibly reconstructed largely on the basis of Indo-Iranian and Balto-Slavic evidence (e.g. Vedic *ápāvṛti-* 'opening', *ápāvṛta-* 'opened' : *vṛṇóti* 'covers', Av. *vərənao-* 'id.', Lith. *atvérti* 'open', OCS *zavrěti* 'shut', etc.). This attribution is justifiable by means of a long neglected but still appealing comparandum. As a minor note of comparative evidence reproduced by Chakravarty (2003: 2), Monier-Williams (1899: s.v. *varṇa-*) states "accord. to some, Slav. *vranŭ*, 'black', 'a crow'; Lith. *várnas*, 'a crow.'". Despite the imperfect citation (OCS *vranŭ* 'raven; black'; Lith. *var̃nas* 'raven' : *várna* 'crow'), the connection is worthwhile, though not endorsed by Pokorny, who assumes an ultimate derivation from a **√uer-* 'brennen, verbrennen, schwärzen' (IEW: 1166; **√uerH-* 'heiß sein' LIV²: s.v.). This derivation, also adopted by Smoczyński (2018: 1609–1610), relies on the assumption of a **uor(H)-nó-* 'burnt, black as a result of burning', conceivably a possessive derivative of a radical *ó*-grade determinative to an imaginable **-nó-* verbal adjective. Given the number of formal and semantic steps, this etymology is far from preferable to the one involving Vedic *várṇa-*. An excellent defense of the connection therewith has been given by Schmalstieg (1999: 109–110), who argues that an adjective with the meaning 'colored' could easily be narrowed as a specific chromonym. Despite its intersection with the more complex concept of race, the dated sense of PDE *colored* "black" is an example of such narrowing. As Schmalstieg notes, Latin *colōrātus* 'colored' did have the sense 'ruddy', which has been generalized as the primary meaning in Spanish *colorado*

‘red’ (cf. *de color* ‘colored’). If therefore it is perfectly acceptable in principle that the semantic development was *‘colored’ > ‘black’ > ‘corvid’, it remains to be seen how the adjectival sense *‘colored’ emerged, as *várṇa-* ‘color’ would reflect a substantive **(h_x)ǵór-no-*.

With its radical and accented *o*-grade, this apparently determinate substantive would be derived from an adjective conceivably of the shape **h_xǵer-nó-*, perhaps, (if not simply a primary **-nó-* stem adjective), a possessive derivative of the **-men-* stem reflected by Vedic *várman-* ‘armor’ (i.e. **h_xǵér-mṇ* ‘covering’ → **h_xǵer-(m)n-ó-* ‘covering, covered’). If therefore **h_xǵer-n-ó-* meant ‘covering’ (adj.), **(h_x)ǵór-no-* would mean ‘the covering’. Though the richness of people’s experiences that lay behind this meaning is of course unrecoverable, it is fairly clear that at some point the mind of an individual or, given the generality of the concept, those of a group of disparate individuals generated a new sense of this **(h_x)ǵór-no-* as an expression of a conception provisionally representable as COVER FOR COLOR.

That this generation occurred long before Proto-Indo-Iranian existed is evident, as asserted, from the Balto-Slavic data. Lithuanian and OCS have *vaĩnas* and *vranъ* respectively, both meaning ‘raven’ (Russian *vóron* ‘id.’). Given this semantic match, the sense ‘raven’ is probably of some antiquity, but ultimately derived from *‘colored’ as noted above. In light of the fact that the accent paradigm 4 of Lithuanian *vaĩnas* points to an original oxytone, the preform of *vaĩnas* and *vranъ* is easily analyzed as a possessive derivative of the preform of Vedic *várṇa-*; on the basis of the sense ‘color’ in **(h_x)ǵór-no-* ‘covering’, the meaning ‘colored’ was expressed by means of the substitutive possessive **-ó-* (i.e. **(h_x)ǵor-n-ó-* ‘colored’; Nussbaum p.c.). It is this relationship that allows us to reconstruct the form and meaning of **(h_x)ǵór-no-* ‘covering, surface, color’ (> *várṇa-* ‘color, form, beauty’) with exactitude.

The metaphor responsible for the aesthetic sense of **(h_x)μór-no-* (> *várna-*) is instantiated with comparable richness in Latin *colōs* [gen. *colōris*, m.] >> *color* ‘color’, the single gloss only scratching the surface (‘dye’, ‘hue’, ‘complexion’, ‘pretext’, etc.). For our purposes, it is necessary to note that *color* is no exception to the general rule according to which an evaluatively neutral perceptual term is apt to be used with a sense of beauty. In Vergil’s Second Eclogue, the shepherd Corydon, unrequitedly desirous of the fair-skinned Alexis, exclaims (Verg.*E.2.17*):

*o formose puer, nimium ne crede colori!
alba ligustra cadunt, vaccinia nigra leguntur.*

“O beautiful boy, trust not overmuch in thy color!
White privets fall, whortleberries get picked.”

On the one hand, what is here meant by *color* is relatively concrete, namely the skin-color or complexion of an individual; on the other hand, the aesthetic property inherent in that complexion is highly abstract and, given the context and adjective *fōrmōse*, presents itself inferably in the representation of the speaking character’s subjectivity, within which we have a snapshot of frustrated desire alongside a botanic prefiguration of the loss of what caused it.

This image of a complexion that inspires desire is understandably possible only if the inspirative property focalizes itself in an object that, as a part, contributes to the constitution of the whole *fōrma* (temporarily) proper to the ἐρώμενος. While color here is tied to a concrete feature of an individual, there is evidence that *color* lexicalizes the generic target of a metonymy, namely COLOR FOR FORM, by which the outward appearance of something is conceptualized. For example, Seneca the Younger poses the question (*Ep.108.5*): *non novimus quosdam, qui multis apud philosophum annis persederint et ne colorem quidem duxerint?* “do we not know some people who have sat through (classes) with a philosopher over many years and have taken not

even a tinge?”). Insofar as *color* here signifies mere appearance, it is negative and insufficient. Yet, as one might infer, even the mere color is preferable to nothing drawn from the experience. This conceivable preferability suggests that “color” does indeed have some valid, constitutive role.

The fact that *color* can lexicalize the aesthetic target in COLOR FOR FORM is of course a product of the conception that conditioned the perceptual sense of the lexeme’s preform. It is widely known and generally agreed that Latin *color* reflects an *s*-stem derived ultimately from * $\sqrt{k}el-$ ‘cover’ (IEW: s.v.; de Vaan 2008: 126).⁹⁹ The preform might thus have been * $k\acute{e}l-os-$ ‘the covering’, an amphikinetic derivative comparable to the * $(\acute{g})^h\acute{e}r-os-$ we have reconstructed as the preform of $\chi\rho\acute{\omega}\varsigma$ ‘skin’. If this is the case, it would similarly presuppose a proterokinetic * $k\acute{e}l-o/es-$ ‘covering’. In any case and in particular, it is worth comparing the semantic afterlives of * $(\acute{g})^h\acute{e}r-os-$ and * $k\acute{e}l-os-$; while the reflex of the former means ‘skin’ and thus ‘color’ secondarily, that of the latter primarily means ‘color’, with ‘skin-color’ being secondary in a manner comparable to but of course not identical with Vedic $v\acute{a}r\eta na-$ ‘color’. The historical question we might ask ourselves, despite our endless lack of an ultimate answer, is what conditioned the biological outgrowth on the part of * $(\acute{g})^h\acute{e}r-os-$, but the sense of a property of visual perception on the part of * $k\acute{e}l-os-$ directly. It seems as though * $(\acute{g})^h\acute{e}r-os-$ took the scenic route, whereas * $(h_x)\acute{u}ór-no-$ and * $k\acute{e}l-os-$ cut to the chase. It might in principle have been the other way around.

The best way to compare the journeys consists in the assertion that the uses that gave rise to their divergent senses are expressions of the urge to conceptualize SURFACE. The original actional way (COVER FOR SURFACE) in which the surface came to exist fades into the background in relation to the lexeme, as * $(\acute{g})^h\acute{e}r-os-$ is used of the principal biological surface,

⁹⁹ For an alternative, see Höfler 2015.

namely skin, while **(h_x)uór-no-* and **kél-os-* are used in reference to the generic visually perceptible surface and in particular to color – a specific and fundamental parameter constitutive of visual appearance. If we view color not in the sense of a discrete member of a set but as the totality of hues, shades, etc. interactively proper to the whole perceptible object at a particular moment of experience, the surface that is projected becomes the chromatic totality (SURFACE FOR COLOR). It is arguably this totality that facilitates the fluid connection between color and visual appearance in general.

Such fluidity is characteristic of the Old Irish *u*-stem *dath* n., a general term for ‘color’. In addition to such senses as ‘dye’, ‘hue’, and ‘complexion’ (“esp. beautiful complexion”, eDIL: s.v.), *dath* can be used to refer to the outward appearance of something, especially when it conceals what is real (cf. Lat. *color* qua ‘excuse, pretext’). The fact that *dath* means ‘color, outward appearance’ is the echo of its reflecting **d^hh₁-tu-* ‘placement’ (NIL: 101). This reflection brings up the matter of how a surface comes about, given what we know about the aesthetically vehicular role of the concept. In the case of Latin *color*, what must be presupposed COVER FOR SURFACE – a conception whose source serves in one whose target, CLOTHING, also has an aesthetically vehicular role.

It is clear that CLOTHING participates in the conceptualization of FORM. There is in this connection a certain parallelism worthy of note. While FORM is accessible through the notion of an artefact worn by the body, it may also be conceptualized by means of SKIN, as observed in our discussion of Old Norse *hamr* m. ‘skin, slough; shape, form’. An examination of this lexeme’s relatives is advantageous for the investigation of pathways in the corresponding conceptual domain.

The form is immediately comparable to OE *ham* m. ‘covering, garment, shirt’, reflecting a Proto-Germanic **χama-*, beside which one finds reflexes of an *n*-stem **χaman-* (OE *hama* m. ‘covering, dress, garment’, OS *hamo* m. ‘covering’, OHG *hamo* m. ‘skin, covering, net’, Orel 2003: 158; Kroonen 2013: 206). Given the meanings observed outside of North Germanic, where there notably appears the sense ‘apparition’ on the basis of ‘form’ (Faroese *hamur* ‘ghost’, Norwegian *ham* ‘id.’, Swedish *ham* ‘id.’, v. Güntert 1919: 65), the sense ‘form’ itself is obviously a late and peculiarly northern outgrowth of a polysemous system whose historically central member was ‘covering’, with an excrescent ‘skin’ and ‘clothing’ in its orbit. The cause of the fact that **χama-*, from whose preform that of **χaman-* appears to have been determinatively derived, bore this meaning is in all likelihood its reflection of a τωμός-type adjective derived ultimately from **√kēm-* ‘cover, wrap’ (IEW: 556–557). Despite the absence of evidence for a primary verbal derivative, this reconstructed pairing of radical form and meaning is justified on the basis of nominals whose senses only make sense in light of that pairing. For example, Pokorny’s adduced *sāmulyà-* n. ‘woolen shirt’ (RV) seems to reflect a derivative of a stem in **-lo-* derived from a **kó/ém-u-* ‘covering’. Such a derivation is reconcilable with Matasović’s (2013: 3–4) identification of κόμη ‘hair of the head’ (Hom.+) as a derivative of what is reconstructed as **kēm(H)-* ‘to cover’ in disregard of the above-cited Vedic substantive. The *u*-stem suggested by that substantive would in theory be a derivative parallel to the Greek term’s preform **kóm-e-h₂-* ‘covering’, determinatively derived from the adnominal **kóm-ó-* ‘covering’ basic to the determinate **kóm-o-n-* from which **χaman-* developed as a variant of the **χama-* reflecting the substantival use of the τωμός-nominal.

The artificial excrescence represented in this lexeme’s semantics is naturally an instantiation of COVER FOR CLOTHING alluded to above. While evidence of the fruit of this

conception is trivially adducible (Lat. *toga* ‘garment, gown’ [*< *tog-e-h2-* ‘covering’]¹⁰⁰ : *tegō* ‘cover’ [*< *téǵ-e/o-* ‘id.’]; καλύπτρη ‘veil, headdress’ : κάλυμμα ‘head-covering, hood, veil, etc.’: καλύπτω ‘cover’), it is worth noting that such a conception is far from being the only one available.¹⁰¹ For instance, Greek σχῆμα ‘bearing, appearance, form, shape, figure’ (post-Hom.) and Latin *habitus* ‘condition, bearing, posture, form, make-up’ both have the sense ‘attire, dress’ (LSJ ‘dress, equipment’, OLD ‘style of dress’, cf. Fr. *habit* ‘garment’). As evident from their relation to *ἔχω* and *habeō* respectively, the basic meaning of appearance arose from the notion of a body’s perceptible support of itself as an expression of what may be represented as HOLD FOR FORM (cf. STAND FOR FORM [Lat. *status* ‘condition’, Latvian *stāvs* ‘figure’]). After the centralization of perceptual-aesthetic sense brought about by this conception, the vestimentary sense emerged through the use of FORM itself in the conceptualization of CLOTHING.

Just as CLOTHING can be conceptualized by COVER, the somatic excrescence represented in the semantics of **χama-* is an expression of the equally familiar conceptualization of SKIN by means of COVER. In addition to this basic conception, the family of **χama-* also presents evidence of BODY in general as target. As listed by Orel (2003: 247), there is in most Germanic dialects evidence of a compound consisting of **χama(n)-* ‘cover’ as second member and **līka-* ‘body’ as first (OE *līchama* ‘body, corpse’, OHG *līhhamo* ‘id.’, Old Dutch *līkamo* ‘id.’, OS *līkhamo* ‘id.’, ON *līkami*, *līkamr* ‘id.’). Since its reflexes suggest that **līkaχama(n)-* was in sense all but identical to **līka-* itself, the question accordingly concerns the peculiar contribution of the SCM in what must have basically meant ‘body-cover’. With the exclusion of an analysis as a governing compound, principally because one would expect the sense ‘skin’ or ‘clothing’ rather

¹⁰⁰ For the possibility that the apparently cognate South Picene *tokam* means ‘external form’, see Watkins 1995: 132.

¹⁰¹ For discussion of clothing from the standpoint of IE onomasiology, see Lane 1931.

than ‘body’, the underlying syntax is in all likelihood that of a karmadhāraya (i.e. ‘a covering that is a body’). This latter analysis, supported with the observation of Güntert (1919: 64) that OE *flāschama* ‘body, carcass’ bears roughly the same meaning (i.e. ‘a *hama* consisting of *flāsc*’),¹⁰² is consistent with the notion that COVER participates in the conceptualization of BODY – a conception entailing and entailed by the conceit that the efficient cause of life is an internality.

In this connection, the motivation of BODY IS COVER appears to be that it profiles the relationship between the form of what is or was a lifeform and the inferable cause of its observable activity. When BODY is conceptualized in performative terms as the instrumental argument of COVER, one is encouraged to consider, by virtue of the entailed internality imposed by this function, the existence of an internal entity identifiable as that inferable cause, namely the self, on the social understanding of which Nature places an understandably high premium. With, by contrast, the above-discussed conceptualization of BODY by means of BUILD (e.g. δέμας ‘body’ : δέμω ‘build’), the focus is on the form itself, rather than its performance of what is not directly perceptible.

As discussed in connection with δέμας and *līka-, the perceptibility of BODY as a whole conditions its participation in the conceptualization of the ordered percept represented by FORM. It is worth noting what is missing in this conception. When one conceives of that percept as a body, the body does not necessarily present itself with a causal history. When, by contrast, FORM is conceptualized with, for instance, GROWTH or CUT (e.g. φυή ‘stature’; Old Irish *delb* ‘form’),

¹⁰² The possibility should be noted that Vedic *śārīra-* ‘body’, which has been connected with *√*kēl-* ‘cover’ at least since Charpentier 1907: 23, reflects a determinate derivative of a *-*ro-* stem adjective derived from the phrase **kēl-i-h₁* ‘with covering’.

what is profiled is how the form came to be. This kind of causal history is recoverable in the case of a Vedic nominal whose lexical meaning clearly illustrates the amelioration of item that expressed FORM as a function of a superimpositive conception.

Appearing as a neuter substantive and comparative adjective, Vedic *vápuṣ-* (: *vápuṣṭara-*) is understood to mean ‘wonder’ and ‘wonderful’ respectively. According to Sastri (1951: 93–95), this understanding is best captured by identifying *vápuṣ-* as an expression of sublimity. As evident, for instance, from the estimative *vapuṣyá-* ‘marvel at’, the term refers to the stimulus of the experience of wonder. Since *vápuṣ-* may designate the property conditioning this experience, as when the Maruts anoint and adorn themselves for wonder and splendor respectively (*vápuṣe* : *śubhé* [RV 1.64.4]), *beauty* or *Schönheit* are often appropriate renderings.

The question we might pose is how this term came to command the semantic range of wonder and beauty. As listed by Monier-Williams (s.v.), the primary sense of *vápuṣ-* is ‘form, figure’, with ‘wonderful appearance, beauty’ being the prominent outgrowth. Under the assumption that the sense ‘form’ is historically primary, Mayrhofer’s (1986–2001 II: 505) claim of etymological inelucidity should be set aside in favor of his admission of the conceivability of the association with \sqrt{vap} - ‘strew’ proposed by Pisani (1967: 380), who notes the non-evaluative sense ‘body’ attested in Epic. Given its potential for ameliorative aesthetic use (cf. RV 1.92.4 *ádhi péśāṃsi vapate nṛtúr iva* “she [Dawn] strews ornaments on herself like a dancing girl”), this association with \sqrt{vap} - should not only be maintained, but also brings up questions of a derivational and lexical semantic nature whose pursuit will facilitate conceptual enquiry.

Whatever the details of their preforms’ bifurcation, the comparison of the simple thematic present formed from \sqrt{vap} - (: *vápati* ‘strews’) with Hittite’s *hi*-conjugated *ḫuwapp-*/*ḫupp-* ‘cast, throw’ justifies the reconstruction of a $*\sqrt{h_2yep}$ - whose basic meaning was ‘cast’

(Melchert 1988: 233; 2007; 2013: 175). Since STREW presupposes the general kind of motion represented by CAST, it is conceivable that the sense ‘strew’ reflected in Vedic developed for the sake of specifying a particular resultant state. When an object or group of objects is cast in such a way as to be strewn, the resultant state is typically a distribution resulting in a single stratum. When, however, the resultant state of what is cast involves more than one stratum, the state may be described as an accumulation (HEAP).¹⁰³ The notion that both ramifications, STREW and HEAP, are evident in the semantics of items derived ultimately from $*\sqrt{h_2u\acute{e}p-}$ ‘cast’ will enable us to identify the reflexes of derivatives capable of clarifying the history of *vápuṣ-* ‘form’.

As a root corresponding to an action, $*\sqrt{h_2u\acute{e}p-}$ was conceivably the base of substantives that served as abstractly or concretely employable verbal nouns. One such substantive might have been a root noun $*h_2u\acute{e}p-/h_2up-$ ‘casting, cast’ for which there is some indirect evidence in the form of Hittite *hūppa-* ‘heap’ (cf. ON *kǫstr* m. ‘pile’ : *kasta* ‘throw’). Insofar as simple thematic derivatives with zero-grade of the root are identifiable as possessives of root nouns (cf. $*k\acute{e}l-/k(l)l-$ ‘covering, cover’ → $*k(l)l-ó-$ ‘covering’ [adj.]), *hūppa-* may be analyzed as the reflex of a determinate derivative of such a possessive. Interpreted as a patientive adnominal, the possessive $*h_2up-ó-$ ‘thrown, cast’ would be eligible for a determinative derivation, one type of which would have the accent-retraction resulting in the $*h_2úp-o-$ ‘the cast’ plausibly ancestral to *hūppa-* (cf. $*k(l)l-ó-$ ‘covering, covered’ [adj.] → $*k(l)l-é-h_2-$ ‘the covering; the covered’ [Lat. *clam* ‘secretly’, OE *hulu* f. ‘husk, pod’]).

¹⁰³ In connection with $*\sqrt{h_2u\acute{e}p-}$ in particular, the association between accumulation and temporal frequency may account for the etymology of Proto-Germanic $*u\acute{f}t\acute{o}$ ‘often’ (Goth. *ufta*, OE *oft*, etc.), often but dubitably connected with $\acute{u}\pi\acute{o}$ ‘under’, Gothic *uf* ‘id.’, etc. (Kroonen 2013: 558). Since $*\sqrt{h_2u\acute{e}p-}$ formed a verbal adjective in $*-t\acute{o}-$ (: Ved. *uptá-* ‘strewn’), one might suppose an instrumental $*h_2up-t\acute{o}-h_1$ of the sense ‘in a piled up way, frequently’ (cf. NHG *häufig* ‘frequently’ : *Haufe* ‘heap’).

In addition to its basic meaning ‘the cast’ underlying the attested sense ‘heap’, there is reason to suppose that **h₂úp-o-* or its reflex could also be used to refer to riverbanks – features of terrain characterized by their height relative to the river itself (cf. OCS *brěgъ* ‘bank, shore, steep slope’ : **√b^herǵ^h-* ‘high’, Derksen 2008: 37). Indeed, as Melchert observes (2013: 176), Sanskrit *vapra-* ‘mound, earthen bank’ (cf. Av. *jaiwi-vafra-* ‘mit tiefem Schnee’), having as its base *√vap-* ‘strew’, does bear the meaning ‘high riverbank’. If, accordingly, **h₂úp-o-* did have the sense ‘riverbank’, an imaginable genitival adjective such as **h₂up-iō-* would expectably bear the sense ‘of the riverbank’. Since a substantive derived from such an adjective would in all likelihood signify the river itself, we might be able to assign a formally and semantically acceptable etymology to Lithuanian *ùpė* f. ‘river’ (Latv. *upe* f. ‘id.’), whose traditional association with Vedic *áp-* f. ‘water’, reproduced by Derksen (2015: 483; cf. OPr. *ape* ‘brook, stream’) and dismissed by Smoczyński (2018: 1567–1568), should be set aside in favor of derivation from a **h₂up-iē-h₂-* ‘that which is of the riverbank, river’ derived ultimately from the root noun of **√h₂uep-* ‘cast’.

Beside the root noun, there is abundant indirect evidence that another substantive formed from **√h₂uep-* was of the τόμος-type. The most comparable set of forms pointing to such a substantive consists of OCS *vapa* ‘pool, swamp, lake’ and Sanskrit *vāpī-* f., which Monier-Williams defines as ‘any pond (made by scattering or damming up earth), a large oblong pond, an oblong reservoir of water, tank, pool, lake’. Since at least one of these forms points to a lengthened grade of the root, one can generally assume a genitival derivation from a **(h₂)uóp-o-* ‘casting, cast’ by means of *vṛddhi*. The specifics of formation obviously differ. In light of their senses, it is clear that the derivational semantic process in question has prepared the way for what happens to be a lexical semantic match. Since, as we observed in the case of Lithuanian *ùpė*

f. ‘river’, a body of water may be characterized as that which is “of” the higher features of terrain defining said body, it is possible that $*(h_2)\mu\acute{o}p-o-$ in the sense ‘heap, height, bank’ was the base of two genitival adjectives: $*(h_2)\mu\bar{o}p-\acute{o}-$ ‘of the bank’ and $*(h_2)\mu\acute{o}p-i-/(h_2)\mu\bar{o}p-i-$ ‘id.’. While the former is of a common type we have encountered before (e.g. $*(\acute{g})^h\bar{o}rs\acute{o}-$ ‘in/of/from the envelopment’ ← $*(\acute{g})^h\acute{o}rso-$ ‘envelopment’), the latter is of a vanishingly rare kind (e.g. $*d^h\acute{o}l-o-$ [ON *dalr* ‘dale’] → $*d^h\acute{o}l-i-$ [ON *dæll* ‘dalesman’]) which, according to Nussbaum (2014d), is basic to the evidently genitival stem-type in non-ablauting $*-i-h_2-$ ancestral to the $v\acute{r}k\bar{i}$ -stem-class (cf. Ved. *rathī́-* ‘of the wagon, wagoneer’ ← *rátha-* ‘wagon’). As a likely member of that class, Sanskrit *vāpī-* plausibly reflects a $*(h_2)\mu\acute{o}p-i-h_2-$ ‘that which is of the bank’ analyzable as a determinate derivative of the *i*-stem adjective. In parallel fashion, OCS *vapa* appears to reflect a $*h_2\mu\bar{o}p-\acute{e}-h_2-$ derived from the $*(h_2)\mu\bar{o}p-\acute{o}-$ ‘of the bank’ arguably formed from $*(h_2)\mu\acute{o}p-o-$ in the sense ‘heap, height, bank’.

Another set of forms brings up the issue of the geometric ramifications discussed above. While the preform of OCS *vapa* presupposes a $*(h_2)\mu\bar{o}p-\acute{o}-$ whose base bore a sense generated through the multistratal ramification, there is reason to suppose that $*(h_2)\mu\bar{o}p-\acute{o}-$ could also be used in the sense ‘of the strewing, spreading’ by virtue of the unistratal ramification realizable in the meaning of $*(h_2)\mu\acute{o}p-o-$ ‘casting, cast’. If we assume that $*(h_2)\mu\acute{o}p-o-$ could be used in the sense ‘strewing, spreading’, it is conceivable that $*(h_2)\mu\bar{o}p-\acute{o}-$ is directly reflected by Russian Church Slavonic *варъ* m. ‘color, paint’ (: *варьно* ‘lime, whitewash’). While *варъ* is traditionally considered cognate with Old Prussian *woapis* ‘dye’ and Latvian *vāpe* [var. *vāpa*] ‘glaze’ (Trautmann 1923: 341–342), in which case one would have to exclude the above reconstruction, it is not improbable, especially in light of the semantically adjacent borrowing of Belorussian *krasá* ‘color’ or Old Polish *krasa* ‘id.’ (Old Lithuanian *krosà* ‘dye’, Smoczyński 2018: 612; Latv.

krāsa ‘color’, Karulis 1992: 418), that the root of the Baltic forms is of Slavic origin. Since a substantive meaning ‘of the spreading’ can certainly signify the spread substance itself, it is more than conceivable that $*(h_2)\mu\bar{o}p\text{-}\acute{o}$ - in the sense ‘(what/which is) spread’ could have developed the sense ‘paint’ or ‘color’ observed in *vap̃* and its possible Baltic imitators.

The notion that the τόμος-type base of this Slavic form’s preform could bear the sense ‘spreading’ receives some support from Vedic *vap̃á-* ‘intestinal membrane, omentum’, itself recognized as formed from \sqrt{vap} - ‘strew’ (Mayrhofer’s 1986–2001 II: 504–505). Given its relation to $\sqrt{h_2\mu ep}$ - ‘cast’, the only possible preform of *vap̃á-* is a $*h_2\mu ep\text{-}\acute{e}\text{-}h_2\text{-}$ to be analyzed as a determinate derivative of a patientive $*temh_1\text{-}\acute{o}\text{-}s$ -type adnominal possessively derived from $*(h_2)\mu\bar{o}p\text{-}o$ - ‘strewing, spreading’. Since that which possesses spreading may be thought to have undergone that action, the derived $*h_2\mu ep\text{-}\acute{o}$ - could have had the sense ‘strewn, spread’. Since, moreover, that which is spread may be thought to cover and enclose the space over which it is spread, it is conceivable that the derived $*h_2\mu ep\text{-}\acute{e}\text{-}h_2\text{-}$ developed the sense ‘covering’, from out of which excreased the biological ‘skin, membrane’ (SKIN IS COVER).

In light of the unistratal conception necessarily assumed to account for its meaning, the evidence of Vedic *vap̃á-* offers some insight into the relation between \sqrt{vap} - ‘strew’ and *vápuṣ-* ‘form’. The immediate formal question is the derivational history of *vápuṣ-* itself. By comparison, for instance, to Vedic *áyus-* n. ‘liveliness’ beside its base *áyú-* ‘lively’ (← *áyu-* n. ‘life’), we would have to suppose that the preform of *vápuṣ-* was determinatively derived from some sort of *u*-stem adnominal. Though neither an adnominal nor expressive of the unistratal ramification, Hittite *wappu-* c. ‘riverbank, river shore’, recognized by Catsanicos (1985: 125) as a relative of \sqrt{vap} - ‘strew’, does indeed point to a $*(h_2)\mu\bar{o}p\text{-}u\text{-}/h_2\mu\acute{e}p\text{-}u\text{-}$ ‘the cast’, whose base must of course have been a thematic adnominal. Like the polysemous $*(h_2)\mu\bar{o}p\text{-}\acute{o}$ - ‘of the bank’

(multistratal) or ‘of the strewing’ (unistratal), there is reason to suppose that such a thematic base of this **(h₂)μ_op-u-/h₂μ_ep-u-* could instantiate both ramifications, under the assumption that, just as **kel-ó-* ‘covering, covered’ was the base of **kól-u-/kél-u-* ‘covering’, the **temh₁-ó-s-* type **h₂μ_ep-ó-* ‘casting, cast’, *ex hypothesi* expressive of the unistratal ‘strewn, spread’ (→ **h₂μ_ep-é-h₂-* ‘covering’), was the base in question. If, therefore, **h₂μ_ep-ó-* ‘cast’ meant ‘heaped up’ (→ **h₂μ_ep-é-h₂-* ‘heap’ [: Skt. *valmīka-varā-* ‘ant-hill’]), its derivative **(h₂)μ_op-u-/h₂μ_ep-u-* ‘the cast’ could accordingly express the sense ‘heap, height’ underlying the Hittite ‘riverbank’.

Additional evidence for this sense as well as for the *u*-stem in general can be derived from Greek αἰπύς ‘high, steep’ – an item basically lacking an etymology (de Lamberterie 1990: 312). The first step in clarifying its origin is to set aside the traditionally associated αἶψα ‘forthwith, suddenly’, whose meaning of immediacy may be thought to derive from a sense ‘precipitously’ attributable to the sense ‘steep’. Since, however, the primary sense of αἰπύς seems to be ‘high, lofty’, as in its typical use as an epithet or designation of cities (e.g. Messenian toponym καλήν τ’ Αἴπειαν ‘and fair Hightown’ [I 152]), and since αἶψα must be akin to synonymous adverbs, such as ἐξαίφνης ‘suddenly’ and ἐξαπίνης ‘id.’, whose own kinship to αἰπύς is formally dubitable, it is preferable to account for αἰπύς on its own terms. Beside the adjective in -ύς, √αἰπ- is the ultimate base of a substantive αἶπος n. ‘height’ (A.+) and a pair of Homericly attested adjectives, αἰπός ‘high, lofty’ and αἰπεινός ‘id.’, the latter of which points to the basicity and antiquity of the later-attested *s*-stem substantive (< **aip-eh-nó-* ‘having height’). Concerning the origin of this substantive, there are two possibilities. Given the general dominance and formal imitability of the stem filling the adnominal slot of a Caland system, it is at first glance conceivable that αἶπος owes its initial creation to the rule replacing the -ύ- of αἰπύς with -ος (cf. βαθύς ‘deep’ : βάθος ‘depth’ [: older βένθος ‘sea-depth’]). On second glance, one

might consider the possibility that, just as τὸ στεῖνος ‘narrowness’ was formed from στεῖνός ‘narrow’, αἰπός ‘high, lofty’, the thematic by-form coeval with αἰπύς, was in fact the σ-stem’s base. Pursuit of what this latter possibility implies turns out to be somewhat fruitful.

We can take as our starting point the observation of de Lamberterie (1990: 303) that “il serait certes possible, mais arbitraire, de poser un dérivé *αἰπρός de αἰπύς, du type de ταναρός en regard de *τανός ou de *στενρός en regard de *στενός”. Since we do not share the assumption, namely that such thematic by-forms are senseless thematizations of *u*-stem *adjectives* – on the basis of which assumption such a derivation would indeed seem arbitrary – we can again apply the crucial analysis according to which στενός/στεῖνός reflects a derivative of the *u*-stem *substantive* reflected in the FCM of Στενύκληρος. Since in all likelihood the **sten-u-ó-* ancestral to στενός/στεῖνός is a possessive derivative of a **stó/én-u-* ‘narrowness’, and since such possessive derivation by means of *-ó- is apt to produce a stem characterized by absolute zero-grade (cf. **kūh₁-s-ó-* ‘strong’ [Ved. *śūṣá-* ‘strong, loud’] ← **kéu_h1-o/es-* ‘swelling, strength’ [Ved. *śávas-* ‘strength’, Av. *sauuah-* ‘advantage’]), it is not inconceivable that the acrostatic substantive reflected by Hittite *wappu-* c. ‘riverbank, river shore’ had an abstract value that rendered it eligible to serve as the base of a possessive adjective of Property Conceptual meaning. In other words, because the determinate *(*h₂uóp-u-/h₂uép-u-* ‘the heaped’ could bear the abstract sense ‘height’, its possessive derivative would bear the expected meaning ‘having height, high’. Beside an internal **h₂uép-u-/h₂up-éu-* ‘high’, with whose fate we shall concern ourselves shortly, we can hypothesize an externally derived absolute zero-grade **h₂up-u-ó-* ‘id.’ (cf. γλυκκόν· γλυκύ ‘sweet’ [Hsch.]). Taking this sequence into (Pre-)Proto-Greek reveals the likelihood of dissimilation (cf. εἶπε < **e-ue-uk^w-e-t* ‘spoke’); it is hard to imagine that, under the pressure of all that labiality, an **aupwó-* (i.e. **aipwó-*) would not develop to an **aipwó-*

ancestral to αἰπός ‘high’ and basic to the preform of αἶπος ‘height’. It is accordingly conceivable that, under the influence of *aipwó- and its derivative *áip-w-os/eh-, the reflex of the proterokinetic adjective derived from *(h₂)uóρ-u-/h₂uép-u- ‘height’, namely *aup-ú- ‘high’, would be replaced by *aip-ú- with ease – an event or process possibly helped along by the reflex of an imaginable neo-acrostatic *(h₂)uóρ-u-/h₂up-u- ‘height’ (cf. [Pre-]Proto-Greek póli- [: πόλις] : *plēj-´ [πόληος]), whose weak stem would be reflected as an excessively labial *aupw- (> *aipw-).

While this etymological association of αἰπός with *√h₂uεp- expands the set of evidence for the *u*-stem we know is needed for the history of vápuš- ‘form’, the etymology itself highlights the problem of the unistratal vs. multistratal ramifications. It is clearly the case that vápuš- reflects a *h₂uép-u-s- derived from a *u*-stem adjective. The problem raised by the association with the Greek adjective is that the multistratal meaning of its proterokinetic preform *h₂uép-u-/h₂up-éu- ‘high’ does not match the unistratal sense needed to account for the meaning of the Vedic noun. Unless we suppose an implausibly high degree of polysemy for the proterokinetic adjective, that is, a patientive sense like ‘spread over > covering’ in addition to the Property Conceptual sense reflected in Greek, it is perhaps too late in the derivational sequence to view *h₂uép-u-/h₂up-éu- as the base of *h₂uép-u-s-.

A preferable scenario presents itself if we return to the τόμος-derived *h₂uεp-ó- basic to the preform of vapá- ‘omentum’. Since this determinative *h₂uεp-é-h₂- must have meant ‘what is spread over, covering’, it follows that the parallel determinative *(h₂)uóρ-u-/h₂uép-u- ‘the cast, strewn’ could have been used as a definite adjective with the sense ‘which is spread over, covering’. According to Nussbaum (p.c.), such a derivation of an *s*-stem substantive from what must have been a definite adjective is paralleled, for instance, in the origin of Latin *cinis*, *cineris*,

m. ‘ash’ (de Vaan 2008: 115) beside κόνις, κόνιος f. ‘dust, ash’ (Hom.+). Whatever its root-etymology, the Greek *i*-stem points to what may be tentatively reconstructed as a **kón-i-/kén-i-* obviously employed as a substantive. In light, moreover, of the denominal κονίω ‘cover with dust’ (Hom.+), whose \bar{i} points to the sequence **-isjV-* (cf. τελείω ‘complete’ : τέλος ‘end’), we can suppose that, on the basis of its adjectival use, **kón-i-/kén-i-* ‘the dusty’ was the base of an *s*-stem substantive **kón-i-s-* ‘dustiness’ basic to a denominal **kon-i-s-je/o-* ‘render dusty’, a possessive **kon-i-s-ó-* ‘dusty’ (> TB *kentse* n. ‘rust’, Adams 2013 s.v.), and, with its weak stem, the **kén-i-s-* ‘dustiness’ ancestral to *cinis* ‘ash’. Correspondingly, the weak stem of the definite adjective **(h₂)uóp-u-/h₂uép-u-* ‘the spread, covering’ seems to have been the base of a **h₂uép-u-s-* ‘that which is spread over, covering’.

The lexical semantic development of this *s*-stem as well as of its base appears to have been determined by the same series of conceptions. As listed by Monier-Williams, Epic Sanskrit attests a personal name *vapu-* f. belonging to an Apsaras. Given the beauty of such divinities, the name, clearly connected with *vápuṣ-* ‘wonderful form, beauty’, must have meant ‘Beauty’ (cf. *vapuṣ-* f. ‘Beauty personified as a daughter of Dakṣa and Dharma’, MW s.v.). Since, in all likelihood, the form of this name reflects the weak stem of **(h₂)uóp-u-/h₂uép-u-* ‘the strewn, spread’, it is plausible that **h₂uép-u-* was also employed as a substantive bearing the same sense as the derivative formed on the basis of its adjectival use (cf. adjectival *tápu-* ‘hot’ : *tápuṣ-* ‘id.’). By comparison to the conception COVER FOR SURFACE, it is conceivable that the substantives **h₂uép-u-* and **h₂uép-u-s-* both expressed the sense ‘covering, surface’ as an expression of SPREAD FOR SURFACE. By additional comparison to SURFACE FOR COLOR and COLOR FOR FORM, it is imaginable that **h₂uép-u-* and **h₂uép-u-s-* both developed an aesthetic sense on the basis of a conception, namely SURFACE FOR FORM, the use of whose target in the conceptualization of

beauty would have been responsible for the sense ‘wonderful appearance’ attributable to *vapu-* and *vápuš-* (FORM FOR BEAUTY).

Given the superimpositive starting point, it is worth considering another path by which beauty can be conceptualized. As was in fact the case for the preform of Russian Church Slavonic *варъ* ‘color, paint, dye’, the acrostatic *u*-stem derived ultimately from **√h₂uep-* ‘cast’ might in principle have developed the sense ‘color’ via SURFACE FOR COLOR. Subsequently, just as Vedic *várṇa-* ‘color’ could occasionally express the sense ‘splendor’, the meaning ‘wonderful appearance, beauty’ proper to *vápuš-* might otherwise have resulted as the realization of COLOR FOR BEAUTY.

The centralization of the sense ‘beauty’ as an outgrowth of ‘color’ is arguably exemplified by the reflexes of Proto-Slavic **krāsà* f. (accent paradigm b) (OCS *krasa* ‘adornment, decoration’, Russ. *krasá* ‘beauty’, Pol. *krasa* ‘beauty, color’), which remains etymologically unclear (Derksen 2008: 245). The first step toward clarification rests on the recognition that **√krās-* was probably more than just an exponent of the meaning ‘beautiful’. Though the sense of beauty was entrenched from early times, as evident from the meanings of the reflexes of the derived **krásьnъ* (OCS *krasьnъ* ‘beautiful’, Russ. *krásnyj* ‘red, [obs., coll.] beautiful’, Pol. *krasny* [poet.] ‘red, beautiful’, Bulgarian *krásen* ‘beautiful’), it is clear that the primary domain of this root was chromatic rather than evaluatively aesthetic (e.g. Pol. *krasy* ‘variegated, colorful’ : *krasula* ‘roan’). Russian *krásit’*, for example, has as its primary sense ‘color, dye, paint, stain’ (cf. Pol. *krasić* ‘paint, decorate’). Given its preform’s denominal relation to that of *krasá* (: Russ. *kráska* ‘paint, tint, color, dye’), it is entirely appropriate to suppose that **krāsà* and **krásiti* meant ‘color’ and ‘colorare’ respectively, these being the senses echoed by the above-mentioned Baltic borrowings (Old Lithuanian *krosà* ‘dye’ : *krōsyti* ‘dye, paint’, Latv.

krāsa ‘color’ → *krāsot* ‘color, stain, paint’). Since, moreover, **krāsà* meant ‘color’, the derived **krāsbn̄* would have originally meant ‘colored’ or ‘colorful’, the former sense underlying the notably Russian ‘red’ in a manner exactly comparable to Spanish *colorado* ‘id.’ (: *de color* ‘colored’), and the latter forming the basis of the widespread ‘beautiful’ – a sense which might have assisted the shift from ‘color’ to ‘beauty’ on the part of **krāsà* itself. It is especially in light of the apparently secondary status of ‘beauty’ that the proposals concerning this item’s etymology are to be evaluated.

Though somewhat diffident, Vasmer (1953–1958: s.v. красá), who also mentions the formally untenable association with Lithuanian’s etymological mysterious *grōžis* ‘beauty’ and *gražùs* ‘beautiful’ (v. Smoczyński 2018: 379), opts for a connection with Old Icelandic *hrósa* ‘gloriarí’, *hróðr* m. ‘glory, praise’, etc. (IEW: s.v. *kar-*, *karə-* ‘laut preisen, rühmen’), whose ancestral root seems to have been **√kreh₂-* or **√kreh₃-* (OE *hrēð* ‘glory’ < **χrōþi-* ‘id.’ < **kréh_{2/3}-ti-* : **kṛh_{2/3}-tí-* [: Ved. *kīrti-* ‘fame’], Kroonen 2013: 249). This connection, reliant on the association between beauty and the glory produced through praise, should be dismissed primarily because it leaves the chromatic senses of **√krās*-related material unexplained. One would have to suppose that apparently ancient senses such as ‘color’, ‘paint’, etc. developed as outgrowths of positive aesthetic senses, themselves secondary to those of social evaluation. Issues of direction and distance constitute sufficient justification for rejection.

Given the priority of “physical” semantics, Pokorny (1959–1969: 571–572) assigns OCS *krasa* ‘venustas, pulchritudo’, etc. to the root reflected in Old English *heorþ* ‘hearth’, namely what may now be represented as **√kerh₃-* ‘burn’ (Goth. *hauri* n. ‘coal’, Lith. *kuriù*, *kùrti* ‘kindle’, Kroonen 2013: 258). While what burns may shine and what shines may be beautiful, there are potentially insurmountable hurdles in form and meaning. The first formal matter is the

fact that the root reflected in **krāsà* would have the shape *CREH* rather than the *CERH* of the root in question. The second formal matter is the status of what would be by this hypothesis a post-radical **-s-* (e.g. OHG *harsta* f. ‘roaster’, Lith. *kárštas* ‘hot’, Latv. *kar̂st* ‘become hot’). Though it could in principle be of nominal origin, it seems instead to be the remnant of a verbal stem-formant comparable to that reflected in βούλωμαι ‘wish’ (< **g^wól-s-/g^wél-s-* ‘want’, Jasanoff 2003: 75–76). These formal considerations would lead to a set of reconstructed choices (i.e. **kreh₃seh₂-* : **kroh₃seh₂-* : *krōh₃seh₂-*) whose morphological and derivational semantic histories would be difficult to determine. In other words and in particular, it is unclear within what confines imposed by some series of derivational semantic processes the lexical semantic story from BURN to COLOR can be situated. This lack of clarity is a major reason for rejecting an association with **√kerh₃-* ‘burn’.

The formal foundation of reasoning in favor of a new association is the need for a preform whose root syllable was heavy and whose stem ended in the reflex of **-e-h₂-*. Since some laryngeal would satisfy the first requirement and a thematic adnominal base would fit the second, one’s sense of probability calls for a thematic derivative of an *s*-stem derived from a root with a vowel immediately preceding a final laryngeal. At first glance, the involvement of such a root in the etymology of an item belonging to immobile accent paradigm (b) is problematic.¹⁰⁴ Instead of suffixal accentuation, what is expected is immobile accent paradigm (a), the usual outcome for items whose accented roots were in lengthened grade (e.g. **slàva* [a] ‘glory’ < **klōveh₂-* ‘κλέος’) or whose accented full-grade roots ended in a syllable-closing laryngeal (e.g. **stàti* [a] ‘stand’, Dersksen 2008: 465–466). Since the consistently root-accented reflexes of the

¹⁰⁴ I am grateful to Jay Jasanoff (p.c.) for guidance in interpreting accentological data, which are systematically examined in Jasanoff 2017.

derived **krāsiti* and **krāsъnъ* do point to the weight normally responsible for membership of paradigm (a), the fact that **krāsà* belongs to paradigm (b), though not unparalleled (cf. **trāvà* f. [b] ‘grass’, Derksen 2008: 496), is admittedly unexplained. Despite this oddity, effectively nothing should stand in the way of reconstructing a preform with a laryngeal-bearing root in the dialect ancestral to Proto-Slavic.

In accordance with the hypothesis that the **-s-* of **krāsà* ‘color’ reflects the zero-grade suffix of an *s*-stem, and by comparison to the derivative ultimately of **√h₂uep-* ‘cast’ reflected by Russian CS *варъ* ‘color’, it seems appropriate to suppose that the root ancestral to the **krā-* of **krāsà* is **√kreh₂-* ‘heap, strew’ (‘aufhäufen, sammeln’, LIV²: 367; cf. Pokorny 1959–1969: 617). The clearest reflex of a verbal derivative to this root is Latvian *krāju, krāt* ‘put aside, accumulate, amass’. Accordingly, **krāsà* would reflect either a **króh₂seh₂-* or a **kréh₂seh₂-* analyzable as derivative of a thematic adnominal derived from an *s*-stem. By comparison to the form of Latin *fās* ‘morally right’ (< **b^héh₂-o/es-* ‘saying, utterance’, de Vaan 2008: 203), we may hypothesize that the *s*-stem to **√kreh₂-* was a **kréh₂-o/es-* ‘heaping, strewing, spreading, covering’ for which there is some indirect evidence in Baltic.

Lithuanian and Latvian respectively attest to a *krósnis, -ies* f. ‘(stone-)stove; pile of stones’ and *krâsns* ‘stove’, which Smoczyński (2018: 613) and Karulis (1992: 419) both connect with Latvian *krāju, krāt* ‘amass’. While Smoczyński’s connection with *krât* and thus **√kreh₂-* is entirely justified, what this scholar analyzes as a suffix *-sni-* is in need of further clarification. If we compare the dialectal Latvian *krâsts* m. ‘oven’ (: *krâstīt* ‘collect, hoard’), we may suppose a formation similar to Latin *fâstus* ‘right’ (← *fâs* ‘id.’), that is, a possessive in *-tó-* derived from an *s*-stem basic to a **-nó-* stem from which the ancestor of this *-sni-* stem was formed. Since that *s*-stem had the sense ‘heaping, heap’, its derivative, namely **křh₂-s-nó-* (cf. *λύχνος* ‘lamp’ < **lúk-*

s-no- ‘the lighted’ ← **luk-s-nó-* ‘lighted’ ← **léuk-o/es-* ‘light’), would have borne a meaning ‘heaped’ subsequently determined by means of the acrostatic *i*-stem derivative **kréh₂-s-n-i-* ‘the heaped, heap’ ancestral to the Baltic cognates.

Given the evidence for an *s*-stem, we may proceed with the hypothesis that the preform of **krāsà* was derived from a simple thematic derivative of **kréh₂-o/es-* ‘heaping, strewing, spreading, covering’. There are in principle two possibilities: a possessive **kṛh₂-s-ó-* ‘spreading, spread, covered, etc.’ or a genitival **kreh₂-s-ó-* ‘of the spreading, covering’. Though it is of course impossible to determine with certainty which of the two was involved, an appeal to comparison with an item in the same semantic domain seems justified. Just as **(h₂)uóp-o-* ‘the strewing’ was the base of the genitival **(h₂)uōp-ó-* ‘(thing) of the strewing’ ancestral to Russian CS *vapъ* ‘color, paint’, it is imaginable that **kréh₂-o/es-* was the base of a **kreh₂-s-ó-* basic to a **kréh₂-s-e-h₂-* meaning ‘that which is of the spreading, covering’. If we compare the etymologically superimpositive and the ameliorable but basically chromatic semantics of Latin *color* and Vedic *várṇa-* (cf. OIr. *dath* ‘color’), we might be able to conceive of what **krāsà* and its preform meant to certain denizens of (post-)chalcolithic Ukraine. While it is possible that **krāsà* could express the sense ‘beauty’ as outgrowth of ‘color’, what is certain is that, by the time Proto-Slavic came into being, the meaning of this lexeme had already been determined by SURFACE FOR COLOR (: SPREAD FOR SURFACE).

In our treatment of the etymologies of Vedic *vápuṣ-* ‘wonder’ and OCS *krasa* ‘adornment’, we have identified two conceptions, FORM FOR BEAUTY and COLOR FOR BEAUTY, on the basis of which the reflexes of **h₂uép-u-s-* ‘the spread, form’ and **kréh₂-s-e-h₂-* ‘that which is of the spreading, color’ came to mean ‘wonderful form’ and ‘beauty’ respectively. With the aid of lexicalizations and human conditions discussed throughout this chapter, we have

provided ample illustration of the fundamental relations between BEAUTY, general aesthetic concepts, and those of superimpositive activity. We are now at long last entirely prepared to discuss the realization of such relations in the semantic range reconstructible for **kó/él-u-* and **kó/él-i-* as well as the derivationally reproduced portion of that range by means of which the Property Concept investigated in this work was lexicalized in the dialect ancestral to Greek.

By virtue of their derivation from the adnominal **kél-ó-* ‘covering, covered’ (→ **kél-o-* ‘the covering, covered’ > Luvian **zalla-* ‘hiding place’ [→ *zalli-*^(ti) ‘cover’]; > MIr. *cel* ‘death’), **kó/él-u-* and **kó/él-i-* would of course have meant ‘the covering, covered’ theoretically in all the senses made available by their status as determinate derivatives of a possessive adnominal derived ultimately from the tri-argumental **kel-* ‘cover’. Within this set of possibilities, it can be assumed that the basic sense was either that of a verbal abstract (‘covering’) or of an exemplar identifiable with the root’s instrument argument (‘covering, cover’). In light of the conceptual neighborhood of COVER (: PROTECT : CONCEAL), it can also be assumed that this abstract vs. concrete (or function vs. argument) distinction would be seamlessly reproduced in the senses of ‘protection’ and ‘concealment’, the latter of which is of particular interest because of its introduction of an additional argument concerned with whether it experienced some stimulus. While in the sense of ‘concealment’ the purpose of the instrument argument is to ensure the non-occurrence of such experience, an inanimate exemplar of the sense ‘covering’ could conceivably serve as an object of experience on the basis of its role as an instrument whose superimposition is the basis of a surface. This general reasoning leads us to suppose that **kó/él-u-* and **kó/él-i-* were very likely used in a sense approaching that of ἐπιφάνεια ‘perceptible surface’ as an expression of COVER FOR SURFACE. The question that confronts us is what additional senses can be inferred on that basis.

By comparison to the instrument-denoting exemplar **kél-os-* reflected by Latin *color*, it is probable that **kó/él-u-* and **kó/él-i-* could express the sense ‘color’ (SURFACE FOR COLOR). There is in fact some evidence that **kó/él-u-* in particular expressed this sense. As listed by Smoczyński (2018: 1351), the Lithuanian ichthyonym *šalvis*, *-iės* (a.p. 4) f., beside which one finds *šalvas* m. as a dialectal variant, may be used to refer to the brown trout (*salmo trutta fario*), the brook trout (*salvelinus fontinalis*), the whitefish (*coregonus*), or the greyling (*thymallus thymallus*). Though the form is often compared to Russian *solověj* ‘nightingale’, the connection is uncertain due to the possibility of its preform’s derivation from a Proto-Slavic **solvb* cognate with ON *sǫlr* ‘dirty-yellow’, OHG *salwo* ‘id.’, etc. (Derksen 2008: 460–461). As Smoczyński himself notes, the Transponat (corresponding to the dialectal variant *šalvas*) would be a **kol-uo-* of some description. In light of the tendency to refer to fish by their color both generally and specifically, this reconstruction is best analyzed as a possessive derivative of a **kól-u-* that meant ‘color’. We can accordingly suppose that, while the dialectal *šalvas* reflects the substantival use of a possessive adjective **kol-u-ó-* ‘colored’, the preform of the standard *šalvis* was derived on the basis of its thematic base’s adjectival use.¹⁰⁵

Though this Lithuanian term may offer evidence for the sense ‘color’ attributable to **kó/él-u-* in particular, we are not in a position to infer that both **kó/él-u-* and **kó/él-i-* expressed that sense. What can at the very least be assumed is that, on the basis of an eventually dominant sense ‘(perceptible) surface’, both **kó/él-u-* and **kó/él-i-* could be used to refer to the external appearance of an entity (SURFACE FOR FORM). In consideration of all the evidence and patterns of thought surveyed, nothing should prevent us from supposing that, deep within the

¹⁰⁵ I thank Miguel Karl Villanueva Svensson (p.c.) for discussion concerning the prehistory of the accent of these forms.

protolanguage, the semantic range of both **kó/él-u-* and **kó/él-i-* underwent the same expansion into the territory of what may be generally represented as ‘form’.

If, as is now more than imaginable, a major sense of both **kó/él-u-* and **kó/él-i-* was indeed ‘form’, it is conceivable, especially in light of the development inferable for **h₂uép-u-s-* > *vápus-* ‘wonderful form’, that both terms could bear the sense ‘beauty’. Time and again, we have observed cases where evaluatively neutral, general aesthetic substantives are used in an apparently ameliorated sense. The observable fact is that, once a sense in the territory of ‘form’ is acquired and centralized by a given lexeme, that lexeme is predisposed to express an apparently positive sense (e.g. σοὶ δ’ ἔπι μὲν μορφῇ ἐπέων, ἔνι δὲ φρένες ἐσθλαί. [λ 367]). The pragmatics of this phenomenon are fairly clear; interlocutors assume each other’s willingness to be informative (Grice 1975). Since ‘good form’ contains more information than ‘form’, it is understandable that there should arise many a context in which the specific sense would be preferred. The underlying question concerns the predisposition for amelioration in particular; after all, an equally evaluative sense ‘bad form’ would carry just as much information.

When we ask such a question, we are of course no longer solely in the territory of lexical semantics and pragmatics, but of conceptual analysis and philosophy. At the descriptive level of conceptual relations, we may observe that the lexical semantic tendency for substantives of the meaning ‘form’ to be used with a sense in the vicinity of ‘beauty’ is a necessarily recurrent expression of an essential (i.e. hardwired) pattern of thought representable as FORM FOR BEAUTY.¹⁰⁶ Given this essential status, it stands to reason that the lexical semantic tendency may be better understood if we attempt to develop some sense of what motivates the underlying

¹⁰⁶ For discussion of developmental stages in one’s conceptualization of BEAUTY, see Diessner et al. 2016, especially page 43, where an interviewee is reported to have conceptualized the property concept as CONTENT, as opposed to the conception by means of FORM discussed here.

conception. Understanding why FORM should be a means by which BEAUTY may be conceptualized requires some consideration of the properties of the concepts. In this work, we have defined FORM as an ordered percept or generic object of aesthesis, and may define BEAUTY as the form of value when desire is an end in and of itself (i.e. desire to desire). As ordered percept, form is at the foundation of our ability to assign objects to sets. In the absence of form, there is no basis for value, meaning, and desire. Life (ψυχή), as a desiderative principle, would be impossible. As an adaptive recursive function, this principle induces the desiderative unit to continue to assign objects to sets and thus to remain alive long enough for its genetic or memetic¹⁰⁷ material to be copied. In terms of what may be termed “existential semantics”, beauty appears to be an adaptation that induces the experience of value and meaningfulness necessary for the desiderative unit to persist in its engagement with form.¹⁰⁸ There is thus a necessary relationship between the two concepts, conditioning the conceptualization of BEAUTY by means of FORM.

While we can assume that this conception was responsible for the occasional use of **kó/él-u-* and **kó/él-i-* ‘form, outward appearance’ in a sense approaching ‘beauty’, it is unclear whether such an ameliorated sense was ever centralized as the primary meaning in the protolanguage itself. If such centralization did occur, the meaning of any of their possessive derivatives would be expected to correspond to the Property Concept. For example, as noted by Schindler himself (1980: 392), the adjective corresponding to the PDE root noun *beauty* is the derived *beautiful*. If, however, the centralization of ‘beauty’ (*vel sim.*) on the part of **kó/él-u-*

¹⁰⁷ For the original discussion of this imaginable unit of cultural replication, see Dawkins 1989: 192ff.

¹⁰⁸ For discussion of beauty and aesthetics from the standpoint of neuroscience and evolutionary psychology, see Chatterjee 2014.

and **kó/él-i-* is a bridge too far, there is another path by which the PC meaning might have developed.

Recognition of this path depends upon the general observation that the meaning of a possessive sometimes diverges from what is mathematically expected of such a derivative (Nussbaum p.c.). For example, while the meaning of Latin *barbātus* ‘bearded’ is entirely predictable on the basis of *barba* ‘beard’, *lūnātus* from *lūna* ‘moon’ does not mean ‘having the moon’, but ‘having the shape of the moon’. This general phenomenon instantiates itself in an especially apposite manner in the relationship between Latin *fōrma* ‘form’ and its possessive *fōrmōsus* ‘beautiful’. Though the former does indeed have the sense ‘beauty’ in accordance with the tendency discussed above, its primary meaning is the neutral ‘figure, shape, appearance’. The meaning of the latter, however, is only positive. Just as PDE *shapely*, the possessive adjective derived from *shape*, does not mean ‘having shape, shaped’, but uniformly ‘well-shaped’, the positive evaluative meaning of the derivative *fōrmōsus* is configured on the basis of only one particular sense belonging to its base. We have already identified the causes of such configuration. On the conceptual side, one may note the underlying correlation of form and beauty responsible for amelioration, and, on the pragmatic side, the desire for and thus attribution of value to additional information in the form of specificity; after all, all sorts of things have *fōrma*, but only some things have one worth mentioning.

It is at this point that we are in a position to specify the exact forms in whose meaning it can be supposed that the Property Concept corresponding to Proto-Greek * $\sqrt{k\alpha}l-$ was first realized: a **k̑l̑-u-ó-* and a **k̑l̑-i-ó-* ancestral to the **kəl-wó-* and **kəl-ió-* reconstructed for Proto-Greek. It is by now entirely clear that the only plausible analysis for these preforms is as simple thematic possessives to whose bases their *-ó- was affixed with such violence as to result in an

absolute zero-grade – a phenomenon indicative of considerable antiquity. To exemplify this derivation from and its effects on a *u*-stem, we may note that Tocharian B *enkwe* ‘man’ (TA *oñk* ‘id.’), which Campanile (1969) connected with Greek νέκῶς ‘corpse’ (cf. Av. *nasu-* ‘id.’), must reflect a **ñk̥-u-ó-* ‘with death, which dies, i.e. mortal’, precisely analyzable as a possessive of **nó/é̃k̥-u-* ‘death’ (Hackstein 2019: 108 with refs.). As for derivation from an *i*-stem, the Vedic adverbial accusative *túyam* ‘swiftly’, whose immediate ancestor was formed by accent-retraction and whose divergence in semantics from \sqrt{tav}^i- ‘strong’ supports its antiquity, points to a **tuh₂-i-ó-* ‘strong’ derivable from a **tó/é̃uh₂-i-* ‘swollen strength’ reflected as the FCM *tuvi-* ‘strong’ (e.g. *tuvijātá-* ‘of mighty birth’, Nussbaum p.c.); the adjective *távyā-* ‘strong’, by contrast, would reflect a more recent layer of derivation from the *i*-stem.

For Greek, we may cite *καίρος* ‘decisive time’, reflecting a radical zero-grade **k̥r̥-i-ó-* analyzable as a possessive of an *i*-stem substantive **kór-i-/kér-i-* ‘the cutting, cut’ (‘biting one’ > *κόρις* m. ‘bedbug’, Russ. *kor̆* f. ‘moth’) derived ultimately from **√(s)ker-* ‘cut’ (: *κείρω* ‘cut short, shear’, Wilamowitz 1880: 508). By contrast, *λοῦσσον* ‘pith of the fir-tree’ (v. Nussbaum 1999a: 403), especially in light of Old English *līeg* ‘fire, flame, lightning’ (< **louk-i-* ‘luminance’), would have to be explained by supposing the addition of the possessive **-ó-* to the strong stem of the *i*-stem. The same phenomenon is arguably encountered in the preform of the above-discussed *šal̥vas* ‘greyling’. If, as seems likely, the Lithuanian ichthyonym does go back to a **kól-u-ó-* ‘colored’, it is conceivably a younger derivative of **kó/él-u-* than the **k̥l̥-u-ó-* paired with the possessive derived from the *i*-stem.

The most striking feature of the derivation is the nature of this pairing. It is characterized by complete morphological, syntactic, and lexical semantic parallelism. Only in one segment did these forms differ. In all other respects, **k̥l̥-u-ó-* and **k̥l̥-i-ó-* must have been all but identical. At

the morphological and derivational semantic level, such identity is predictable; both forms were derived from stems derived in turn from the same thematic source¹⁰⁹ (i.e. **k̑el-ó-* ‘covering’). What is peculiar morphosemantically and lexically is the length of time during which the preforms of **k̑əl-wó-* and **k̑əl-ǰó-* had to have clung to each other without breaking off to contribute to or form families of their own, as in the case of the **m̑īk-wó-* ‘little’ ancestral to *μῆκρός* ‘id.’ (: *μῆκ-ρός* ‘id.’) and the **m̑īk-ǰó-* ‘id.’¹¹⁰ basic to the **m̑īk-ǰé-ǰe/o-* ‘belittle, despise’ ancestral to *μῆσέω* ‘hate’ (: *μῆσος* ‘id.’). In other words, **k̑̑̑̑-u-ó-* and **k̑̑̑̑-i-ó-* were understood for a very long time to be derivatives of the same root. The only way in which such enduring co-radicality is imaginable is to suppose that their PC meaning was so removed from the non-aesthetic senses of their bases and of other **√k̑el-* derivatives that the **k̑̑̑̑-* of **k̑̑̑̑-u-ó-* and **k̑̑̑̑-i-ó-* could be learned by many as its own (adjectival) root. Yet it is of course unclear whether a derivation **√k̑̑̑̑-* ‘beautiful’ → **k̑̑̑̑-u-ó-* : **k̑̑̑̑-i-ó-* was truly an option in the language ancestral to Greek and Indo-Iranian. There is no comparative evidence for something so specific. What can instead be proposed for both branches is a remarkably close parallelism in the use of historically co-radical material.

Uncovering that parallelism involves the hypothesis of another kind of parallel derivation. In the case of **k̑̑̑̑-u-ó-* and **k̑̑̑̑-i-ó-*, both the form and meaning of the derivatives are due to their status as cousins derived from single parents sprung from a single source. Since the sisters **k̑̑̑̑/él-u-* and **k̑̑̑̑/él-i-* both meant ‘form’, their consobrinial offspring would convey the meaning ‘well-formed, beautiful’ by virtue of a possessive derivation that in each case happened

¹⁰⁹ In principle, that thematic source might otherwise have been the **k̑̑̑̑̑̑̑̑̑-l-ó-* derived from the root noun.

¹¹⁰ The *u*-stem and *i*-stem bases of the preforms of these thematic adjectives were presumably derived from the preform of *μῆκρός* ‘μῆκρός’.

to be realized by the addition of a suffix, i.e., externally. Attention to the incidentally external nature of their possessive derivation entails the prediction that the meaning ‘formosus’ could also be expressed by an item formed by *internal* derivation. It is therefore conceivable that, just as **kó/él-u-* and **kó/él-i-* formed **k̑l̑-u-ó-* and **k̑l̑-i-ó-*, the acrostatics were also basic to a **kél-u-/k̑(l̑)l-éu-* and a **kél-i-/k̑(l̑)l-éj-* that inflected proterokinetically.

In the case of **kó/él-u-* ‘covering’, there is some evidence that such a derivation took place. Despite its status as non-evidence for derivation on the basis of the sense ‘form’, *κόλυξ*, *κάλυκος* f. ‘seed-vessel, husk, shell, pod, flower-cup’ clearly has the right meaning for analysis as historically co-radical with *καλύπτω* ‘cover’. Just as this verbal stem points to the retention of a Lindeman variant in a sequence no longer subject to the law (i.e. **k̑llub^h-je/o-* ‘render covered’), it is quite imaginable that, when **kó/él-u-* ‘covering’ formed the adjective **kél-u-/k̑(l̑)l-éu-* ‘(with) covering’, the variant stem-shape **k̑ll-u-*, inferred from the strong and weak stem, was morphologized before being selected as the base of a determinate *k̑*-stem **k̑ll-u-k̑-* ‘the covering’ (cf. **sh₁-én-e-k̑-* ‘the old’ [Lat. *senex*] ← **sh₁-én-o-* ‘old’ [Ved. *sána-* ‘id.’, Lith. *sėnas* ‘id.’]).

In the case of the *i*-stem, however, there is not only indirect evidence for a proterokinetic derivative, but also for its derivation from **kó/él-i-* with the exact aesthetic sense hypothesized. Insofar as **kó/él-i-* meant ‘form’, **kél-i-/k̑l̑-éj-*, the internal sister of external **k̑l̑-i-ó-*, would have meant ‘well-formed’. To a degree, therefore, **kó/él-i-* was the abstract substantive corresponding to two parallelly derived possessive adjectives, one of which was **kél-i-/k̑l̑-éj-*. Yet given the salience of the PC meaning proper to the possessive adjective, it is conceivable that speakers felt a need for the adjective’s specific lexical meaning to be realized in an (abstract) substantive corresponding to **kél-i-/k̑l̑-éj-* itself. In other words, there was a need for a substantive with the

meaning ‘formositas, beauty’. Such a derivative is most easily imagined if we compare what appears to be a determinate h_2 -stem derived from a proterokinetic adjective. As discussed in Chapter 8, the $*s\acute{e}i(h_1)d^h h_1-u-/sih_1d^h h_1-\acute{e}u-$ ‘straight, direct’ ancestral to Cretan εἰθύς* and Ionic ἰθύς must have been the base of the $*sih_1d^h h_1-\acute{u}-h_2-$ ‘direction’ ancestral to ἰθύς f. ‘direction, goal’ (πᾶσαν ἐπ’ ἰθύν ‘for every enterprise’ [δ 434]). Just as the base’s absolute zero-grade was selected for the stem in $*-h_2-$ (i.e. $*sih_1d^h h_1-\acute{u}- \rightarrow *sih_1d^h h_1-\acute{u}-h_2-$), it is possible that $*\acute{k}\acute{e}l-i-/k\acute{l}-\acute{e}i-$, from which the form $*\acute{k}l-i-$ could be inferred, was the base of a $*\acute{k}l-i-h_2-$ arguably ancestral to Vedic $\acute{s}r\acute{i}-$ ‘beauty’ (Av. $sr\bar{i}-$ ‘id.’).¹¹¹

Before pursuing this etymology in its own right, it is of course necessary to observe that there is reason to doubt this lexeme’s traditional association with κρείων/κρέων, –οντος ‘lord, ruler’, solely on the basis of which a $*\sqrt{k}reih_x-$ with the meaning ‘splendid’ or ‘conspicuous’ has been deemed reconstructible ($*\acute{k}reih_x-ont-$ ‘glorious’, Nussbaum 1976: 104–105; Narten 1987; Mayrhofer 1986–2001 II: 665–666; ‘sich auszeichnen, vortrefflich sein’, LIV²: 337). As argued by Lucien van Beek (2014), the immediate preform of κρείων/κρέων is an Attic-Ionic $*\kappa\rho\acute{\eta}\omega\nu$ whose reflex underwent quantitative metathesis (i.e. κρέων), but whose first syllable’s original quantity was represented with the <ει> of Epic κρείων (i.e. no metrical lengthening per se). Given the appearance of κρείων/κρέων mostly and most notably in Homer and later poetry, it is plausibly argued that, wherever the form occurs outside of Attic or Ionic (e.g. Pindar, Cypriote inscriptions), it is a borrowing from the influential Ionic of the Epic tradition.

¹¹¹ I thank Alan Nussbaum for bringing to my attention the possibility of associating $\sqrt{s}ray^i-$ ‘beautiful’ with $\sqrt{\kappa}\alpha\lambda-$ ‘id.’. It is, moreover, interesting to observe that $\acute{s}r\acute{i}-$ is something that can be worn (Agni; $\acute{s}r\acute{i}ya\dot{m} \acute{v}\acute{a}s\bar{a}no \acute{a}m\acute{r}\acute{t}o \acute{v}\acute{i}c\acute{e}t\bar{a}$ “dressing himself in beauty, immortal and discriminating,” RV 2.10.1), as is the case for $\acute{v}\acute{a}pu\dot{s}-$ (Dawn; $\acute{p}\acute{a}d\bar{y}\bar{a} \acute{v}\acute{a}ste \acute{p}urur\acute{u}\bar{p}\bar{a} \acute{v}\acute{a}p\bar{u}\dot{m}\dot{s}i$ “[a]t her feet she of many shapes [=Dawn] clothes herself in wondrous forms.” 3.55.14).

On the basis of such argumentation as well as the observation that, as far as can be discerned, the meaning of κρείων/κρέων is solely political (rather than aesthetic), van Beek proposes to derive κρέων, whose stem in -οντ- is convincingly argued to be an innovation (cf. λέων ‘lion’ : λέαινα ‘lioness’), from a Proto-Greek *krāhon- akin to *k^hh₂-s-n- ‘head’ (Ved. gen. *śīrṣṇāḥ*, cf. κρᾱτός < *krāh^htós ‘of the head’). By appeal to derivation from locatives in descriptive *-én proposed by Nussbaum (1986: 186–194), it is conceivable, as noted – but not preferred – by van Beek himself (2014: 117), that the form *k^hh₂-s-én ‘at the head’ (> Ved. *śīrṣán* ‘id.’) was the base of a *k^hh₂-s-ón- (or *k^hréh₂-s-on-) meaning ‘the one at the head’. Given the fundamentality of the conception LEADER IS HEAD (cf. OF *chief* ‘leader’ < VL *capus* ‘caput’, Heb. רִאשׁוֹן ‘head, leader’, etc.), we can assume that the preform of κρέων was used to refer to the person belonging to a part of a political or military group conceptualized as the head of an organism with which that entire group is identified.

If, as seems likely, the reaffiliation of κρέων denies justification to the reconstruction of *√k^hrej_x-, the √srayⁱ- of which *śrī-* is a primary derivative must be explained in a new way. In particular, given that *śrī-* (Av. *srī-*) is synchronically a root noun parallel to other primary derivatives (*á-srīra-* ‘ugly’ [Av. *srīra-* ‘beautiful’] : *śréyas-* ‘more b.’ [Av. *srayah-*] : *śréṣṭha-* ‘most b.’ [Av. *sraēšta-*]), we must consider how, in light of our hypothetical *kl-i-h₂- ‘formositas’, (the preform of) Proto-Indo-Iranian *√clajH- ‘beautiful’ came into being. It turns out that it is not difficult to motivate the existence of such a secondary root; it all hinges on the reanalysis of a secondary adjective as primary. As we observed in the genesis of the *√sueh₁- ‘long’ secondary to *√seh₁- ‘long’, sometime after the *u*-stem *só/éh₁-*u*- ‘length’ formed a possessive *sh₁-*u*-mó- > *suh₁-mó- ‘lengthy, long’ (: OHG *vir-sūmen* ‘neglect, delay’), the adjectival derivative in *-mó- could be reinterpreted as the bearer of a suffix added to the zero-

grade of a Property Conceptual $*\sqrt{sueh_1}$ - from which, characteristically, it was possible to derive a $*sueh_1-iōs$ - ‘longer, elder’ (Bactrian $\chiουα\chiο$ ‘elder’) and a $*sueh_1-isto$ - ‘longest, eldest’ (Av. $huuōišta$ - ‘eldest’) by suffixal substitution and the insertion of a new full-grade (cf. YAv. $taxma$ - ‘firm’ : $tqš-iiah$ - ‘firmer’ : $tañc-išta$ - ‘firmest’). In the same way, it is appealing to suppose that the preforms of $śréyas$ - ‘more b.’ (Av. $srayah$ -) and $śréṣṭha$ - ‘most b.’ (Av. $sraēšta$ -) were derived from a newly analyzable root by the insertion of full-grade and, in particular, the replacement of the suffix forming the stem of a possessive adjective interpreted as the exponent of the positive degree. In all likelihood, that possessive adjective can be identified as the preform of Avestan $srīra$ - ‘beautiful’.

Just as Schindler (1980: 392) observed that the historical analysis of $srīra$ - ‘schön’ was as a derivative of the root noun $srī$ - ‘Schönheit’, one can easily imagine that the preform of $srīra$ - was a possessive $*klih_2-ró$ - ‘beautiful’ formed from $*klīh_2$ - ‘beauty’ as had $*kél-i-/kl-ej$ - ‘formosus’ (: $*k_l-i-ó$ -) been formed from $*kó/él-i$ - ‘form’. Moreover, in a manner comparable to the way in which $*kél-i-/kl-ej$ - ‘formosus’ came to be sufficiently distinct from a possibly moribund $*kó/él-i$ - as to merit its own substantival derivative, that derivative eventually required an adjectival derivative of its own. It is accordingly imaginable that, when that adjective was formed, its distinctively Calandish $*-ró$ - was felt to be an addition to the stem of what was in effect a root noun $*klīh_2$ - like PDE *beauty* itself. Thus in the fullness of time were $*klīh_2$ - and its derivative $*klih_2-ró$ - ‘beautiful’ possibly reanalyzed as parallel derivatives of a root $*\sqrt{klejh_2}$ - basic to its own $*kléjh_2-iōs$ - (> $*clajH-iās$ -) and $*kléjh_2-isto$ - (> $*clajH-išta$ -).

If, however, we compare the role of the preform of $\epsilon\chi\theta\rho\acute{o}\varsigma$ ‘hateful’ (: $\epsilon\chi\theta\acute{i}\omega\nu$: $\epsilon\chi\theta\iota\sigma\tau\omicron\varsigma$), the reflex of a merely descriptive adjective in $*-ró$ - (i.e. $*eḡ^h-s-t-r-ó$ - ‘external’), in singlehandedly generating its own einzelsprachlich Caland system, it is not difficult to imagine

that the root from which our adjective in **-ró-* was formed only arose in Proto-Indo-Iranian. The safest position would thus be that Proto-Indo-Iranian **√clajH-* ‘beautiful’ and Proto-Greek **√kəl-* do not reflect secondary adjectival roots that existed in the dialect ancestral to both branches, but that the materials from which these roots were generated certainly did. What evidently occurred was the inheritance of **klíh₂-* (→ **klíh₂-ró-*) in the east, and that of **k_{l̥}juó-* and **k_{l̥}jó-* in the west.

Just as **kél-i-/kl-ej-* was the base of the **klíh₂-* indirectly underlying the particular Caland system attested in Indo-Iranian, one can assume that the emergence of a **√kəl-* with Calandish derivatives is proximately attributable to the formation of an *s*-stem substantive from **k_{l̥}juó-* or its reflex. Whether this *s*-stem was formed as a **k_{l̥}j̄-o/es-* in the dialect ancestral to Proto-Greek or as a **kəl-jos-* in Proto-Greek itself cannot be determined. What can be safely inferred is the cause of only adding the suffix and retracting the accent (cf. κῶρος ‘power’ < **kúh₁-r-o/es-* ← **kúh₁-ró-* [: Ved. *śúra-* ‘strong’]), rather than additionally installing a radical *e*-grade to receive it (cf. Ved. *párīnas-* ‘fullness’ : *pūrṇá-* ‘full’).

At some point during the coexistence of the homosemous thematic possessives, lexical loss and replacement must have denied speakers the evidence necessary to maintain the connection of **k_{l̥}juó-* and **k_{l̥}jó-* with **√kel-* ‘cover’. Accordingly, when a substantive expressive of their peculiar (PC) meaning was required – the characteristically Calandish option being an *s*-stem with radical *é*-grade – no such radical *é*-grade was installed, as there was no allomorphic parallel.¹¹² Just as the preform of βρῖθος ‘weight’ was formed from **g^wrih₂d^hh₁-ó-* ‘rendered heavy’, it can be assumed that **k_{l̥}j̄-o/es-* (> **kəl-jos-*) was formed from **k_{l̥}j̄(-)ó-* (> **kəl-jó-*)

¹¹² It is in this light that the objection of Thompson Clarke (1988: 141), who claims that the absence of radical *e*-grade may disfavor an Indo-European etymology, cannot be sustained.

without a new full-grade simply because zero was the only known grade in which this PC root appeared. By the time the *s*-stem was formed, we may readily suppose that any regular morphosemantic association between the verbal $*\sqrt{k\acute{e}l-}$ (: καλύπτω ‘cover’) and an adjectival $*\sqrt{k\acute{l}-}$ ($\rightarrow * \sqrt{k\acute{\alpha}l-} > \sqrt{\kappa\alpha\lambda-} \rightarrow$ κάλλος : καλός ‘beautiful’) had effectively ceased to exist.

CONCLUSION

This study has served as an attempt to investigate the Property Concept BEAUTIFUL in terms of its interrelations in a conceptual system. Given the insight into that system uniquely provided through the formal lens of linguistic inquiry, we have operated under the assumption that an investigation into how a family of Ancient Greek words came to express the concept in question can deepen our understanding of the concept itself. While investigating the historical cause of the fact that *καλός* means ‘beautiful’ is the specific means to this end, the general aim of the study has been an examination of the philological, linguistic, and conceptual context in which the etymology of $\sqrt{\text{καλ-}}$ proposed here is situated.

In the Introduction, we observed the frequency and formulaic behavior of forms of $\sqrt{\text{καλ-}}$ used with terms for skin, hair, armor, and clothing. This observation is consistent with and supportive of the derivation from Proto-Indo-European $*\sqrt{\text{kel-}}$ ‘cover’, but neglected in the previous accounts surveyed in Chapter 1. The major problem with these accounts is still a common feature of much work in Greek and Indo-European linguistics and etymology: the association of phonologically resemblant roots whose meanings appear associable with whatever attested lexeme is in question. Since etymology is only feasible in the context of classes of data and of the theories necessary for their historical interpretation, Chapters 2 and 3 served to discuss that context from the Greek standpoint, while Chapters 4 to 8 addressed nominal morphology and derivational semantic categories for Indo-European in general. With this formal background, we proceeded in Chapter 9 to consider the interface between the evaluative Property Concept BEAUTIFUL and the kind of lexical meanings eventually attributed to our reconstructed derivatives of the associated PIE root. Such consideration consisted of a network-based analysis of Indo-European terms and concepts in the domain of FORM. The relationship between FORM

and the concept in question was analyzed in such a way as to aetiologize the lexical semantic developments underlying the family of Greek words in etymological pursuit of which this contextualizing study was structured. It is by reference to this attempt to contextualize that I hope broader and deeper historical and comparative research into concepts and their linguistic expression may be undertaken.

Derivational Sequence

*√*k_l*- ‘cover’ → **k_l*-*o*- ‘covering’ (subst.) → **k_l*-*ó*- ‘covering, covered’ (adj.)

**k_l*-*ó*- → **k_l*-*é*-*i*- ‘covering, surface, form’ (subst.) → **k_l*-*í*-*ó*- ‘shapely’ (adj.) → **k_l*-*í*-*o*-*es*- ‘shapeliness’ (subst.) > κάλλος ‘beauty’

**k_l*-*ó*- → **k_l*-*é*-*u*- ‘covering, surface, form’ (subst.) → **k_l*-*μ*-*ó*- ‘shapely’ (adj.) > καλός ‘beautiful’

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Abbreviations

CIL = 1862–. *Corpus Inscriptionum Latinarum*. Berolini: apud Georgium Reimerum & Walter De Gruyter.

eDIL 2019 = *An Electronic Dictionary of the Irish Language*, based on the Contributions to a Dictionary of the Irish Language (Dublin: Royal Irish Academy, 1913–1976) (www.dil.ie 2019). Accessed on [February 10, 2023].

IEW = Pokorny, Julius. 1959–1969. *Indogermanisches etymologisches Wörterbuch*. Bern: Francke.

IG II² = *Inscriptiones Graecae, consilio et auctoritate Academiae Litterarum Regiae Borussicae editae*. Berlin, 1873 +.

KZ = *Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der Indogermanischen Sprachen*

LfgrE = Snell, Bruno et al. 1955–. *Lexikon des frühgriechischen Epos*. Göttingen.

LIV² = Rix, Helmut and Martin J. Kümmel. 2001. *Lexikon der indogermanischen Verben*. 2nd ed. Wiesbaden: Reichert.

LSJ = Liddell, Henry George and Scott, Robert. 1996. *A Greek-English lexicon: with a revised supplement*. 9th ed. Oxford: Clarendon Press.

NIL = Wodtko, Dagmar S., Britta Irslinger, and Carolin Schneider. 2008. *Nomina im Indogermanischen Lexikon*. Heidelberg: Winter.

OLD = Glare, P.G.W. (ed.). 1982. *Oxford Latin dictionary*. Oxford.

SEG = *Supplementum epigraphicum graecum*. Leiden, 1923 +. Alphen aan den Rijn: Sijthoff & Noordhoff.

WH = Walde, Alois and Johann Baptist Hoffmann. *Lateinisches etymologisches Wörterbuch*. 2 vols. Heidelberg: Winter.