

Liquids plus s in Ancient Greek

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Various alternative solutions to the problem of liquid plus *s* sequences in ancient Greek are examined in the light of generative theory. Two solutions proposed in 1888 (one by Wackernagel and a complementary one by Solmsen), with certain refinements of theoretical interest, are shown to have the greatest explanatory power.

The history of sonorant clusters in Greek is far from clear. Various alternative proposals can be found in Wackernagel (1888), Solmsen (1888), Schwyzer (1939: 281 ff.), Lejeune (1972, § 112–34), Chantraine (1958: ch. 12), Risch (1956), Forbes (1958), Kiparsky (1967), and Cowgill (1969). It is probable that *s* became *h* before a resonant, at least in initial position. If the inscriptions can be taken at their face value, a metathesis of *hR-* to *Rh-* seems to be indicated, e.g. Pamph. *whē* 'himself' (< **swe*; cf. Skt. *svá-* 'one's own'). Such a metathesis is not without parallel. One finds it, for instance, between Sanskrit and Pāli, e.g. Skt. *snāyati* → **hnāyati* → P. *nhāyati* (later *nahāyati*) 'bathes', Skt. *jihvā* → P. *jivhā* 'tongue'.

The medial development in Greek is uncertain. Kiparsky (1967), amplified by Adams (1972), posits metathesis of *Rh* to *hR* which is in direct conflict with the apparent metathesis in initial position. Moreover, Kiparsky was assuming that *Rs* became *Rh* and then fell together with *hR* from *sR*. Cowgill (1969), making the same assumption, prefers to do away with metathesis and simply assimilate the *h* to the resonant. However, it is not clear that there was *s*-aspiration in sequences of liquid + *s* (*-Ls-*). If this is the case, we must constrain *s*-aspiration to apply to *-ms-*, *-ns-*, *-ys-*, *-ws-*, but not *-rs-*, *-ls-*. We must also account for the apparent assimilation of *-Ls-* in the aorist and a few unmotivated forms.

1. Assimilation in Unmotivated Forms

1.1. Wackernagel (1888: 127 ff.) proposed the theory that *-VLs-* became voiced to *-VLz-* (→ *V̄L*) when the accent was on the following syllable: ὄρσος (Att. ὄρρος) 'rump': οὐρά 'tail', κόρση 'head': κουρεύς 'barber', (F)ἔρση 'rain': οὐρέω (**worséyō*) 'urinate'. Cf. also

Att., Ion. *δειράς* 'ridge' which has been equated with Skt. *drśád-* 'rock' (cf. Kretschmer 1892: 443; Schwyzer, 285; Risch 1956: 425f.; Frisk 1.358; Lejeune, § 120). For other (regional) examples see Schwyzer, 285f. Wackernagel's hypothesis looks convincing for a limited body of data. It presupposes that *οὔρον* 'urine' and *κοῦρος* 'loppings' are analogical to *οὔρέω*, *κουρεύς* which is not unreasonable. Alternatively, these can be late derivatives or have a late accent shift.

The accent shift is particularly compelling for *κοῦρος* which is surely identical to regionally preserved *κορσός* (glossed *κορμός* 'trunk, log' by Hesychius). The most plausible reconstruction of *κουρεύς* is *κορσεύς*, also attested in Hesychius where it is glossed *κουρεύς*. Since *κουρεύς* goes back to *κορσεύς*, it follows reasonably that *κουρά* 'cropping of the hair' goes back to **korsá*, all of which belong to the enlarged root **ker-s-/kor-s-* 'cut' (Hitt. *karš-* 'cut off') (cf. Frisk 1.810f., 935; Chantraine 510, 573f.). For more discussion see § 3.4 below on *ἀκερσεκόμης* and *κείρω*.

1.2. It is highly doubtful that Skt. *drśád-* 'rock' is the etymon of Gk. *δειράς* 'ridge, crest'. More likely *δειράς* is connected with *δέρη* 'neck' from **dérwā* (so Chantraine 258); cf. Arc. *δέρφα* 'ridge' (well attested in the Orchomenus boundary tract of 369 B.C. [Schw. 664]), and the gloss in Hesychius: *δέρα· ὑπερβολή ὄρους* 'mountain pass'. Neither **derwád-* nor **drśád-* will give Att. *δειράς*. From **derwád-* we expect **δεράς* (cf. *δέρη*); from **drśád-* we expect **δρασάς* (**δράς?*) or possibly **δηράς* from an immediate but difficult to motivate **δαρασάς*, with lengthening. The only way to save the connection is by way of an ad hoc **dersád-*. But there is no connection to save. As Mayrhofer (2.61) points out, the alternative and probably more correct Sanskrit form is *dhṛśád-*, rendering futile any attempted connection with *δειράς*.

Semantically *δειράς* belongs with **dérwā* 'neck, ridge'; cf. the use of *πολυδειράς* 'many-crested' of the many-necked hydra in Quintus Smyrnaeus (6.212). Compare also the metaphorical use of Indo-Iranian *grīvā-* '(nape of the) neck' in Av. *arəzūrahe grīvā-* 'neck/crest of Arzura', a mountainous rendezvous of demons, from which use stem Pahlavi *grīvak*, Pers. *girīve* 'mountain pass' ('col de montagne, dépression montagnaise' [Benveniste 1966: 63]). For justification of the derivation of **derwád-* from **dérwā*, cf. *σκιά* 'shade, shadow': *σκιάς* 'canopy', *οἶνη* 'vine': *οἰνάς* 'vine, wine', etc. (Chantraine 1933: 353).

Having demonstrated that **derwád-* 'ridge' is a perfectly plausible derivative of **dérwā* 'neck, ridge' formally and semantically, it remains only to explain the phonology of Att. *δειράς*. It is noteworthy that *δειράς* does not

occur in Attic prose. It is also significant that Pindar uses *δειράς* instead of the Doric form *δηράς* attested on Crete (2 ×). It seems likely that this word was proper to the poetic *Kunstsprache*. This is supported by the formulaic character of *πολυδειράς* in Homer: Il. 1.499 (= 5.754) *ἀκροτάτη κορυφή πολυδειράδος Οὐλύμπιοι* 'upon the topmost peak of many-crested Olympos'. Since the earliest occurrences of *δειράς* are in Homer (cf. the hymn to Pythian Apollo 281: *προσέβης πρὸς δειράδα θύων* 'you went forth speeding to the mountain ridge'), the word's locus of diffusion can be identified as Ionic where *δειράς* from **derwád-* is regular (cf. *δειρή* 'neck'). **Derwád-* will also regularly give Cret. *δηράς* (cf. Cret. *κωρα* = Ion. *κούρη* from *kórwā* 'girl' well attested in Mycenaean).

1.3. *Ὀυρέω* 'urinate' has been identified with Skt. *varṣáyati* (V+) 'make rain' and reconstructed **worséyō* (Wackernagel 1888: 129, Schwyzer, 285; Forbes, 237; Frisk 1.567, 2.447; etc.). The word must somehow be related to Lat. *ūrīna* 'urine', *ūrīnor* 'plunge in water, dive', ON *úr* 'fine rain'; cf. also Skt. *vár(i)*, Toch. A *wār*, B *war* 'water' (Ernout-Meillet 755; de Vries 635; Frisk 2.447). The connection of Hitt. *še-e-ḫur* 'urine', Alb. *shur(r)* 'id.' (on which see Hamp 1965: 139f.), OCS *syřŭ* 'moist' with *Ὀυρέω* (cf. Beekes 1969: 76, via **soh₁ur-* → *our-*) is not without phonological and derivational problems. For more discussion of the root **seXw-(r)-/ *suX-(r)-* (with *o-* coloring laryngeal?) see Winter (1965: 194–97). It is generally assumed that *Ὀυρέω* began with *w* because of the syllabic augment (e.g. aor. *ἐούρησα*). Since it is difficult to find a reasonable alternative to **worséyō* that is as formally and semantically satisfying, one may conclude that the traditional reconstruction of *Ὀυρέω* as **worséyō* is correct, confirming Wackernagel's rule of *-rs-* voicing in unaccented syllables.¹⁾

1.4. The remaining word with *-rs-* voicing is *ὄρρά* 'tail', which is claimed by Wackernagel to go back to **orsá*, beside *ὄρρος* which remains in *ὄρρο-πύγιον* (Att. *ὄρρο-πύγιον*) 'tail (of a bird), rump', etc., and Att. *ὄρρος* 'rump'. Relatives of this set include OHG *ars*, Eng. *arse*, etc. (Frisk 2.427, 428, 446; Wackernagel 1916: 226; cf. also Forbes, 237). Schwyzer (286) and Lejeune (§ 133 n. 5), following Persson (1893: 273) and Brugman(n) (1, § 846 Anm.),

¹⁾ Wolfgang Blümel (personal correspondence) reminds me that *ὄρανός* 'sky, heaven' with its Aeolic forms Boeot. *ὄρανος*, Lesb. **ὄρανος* must be accounted for here (< **worsanós*). Wackernagel, of course, explained it by way of (w)orsó- (varṣá-) which is not good enough. Apparently Wackernagel's rule must be modified to map *-VLs-* into (*-VLz-* →) *-VLL-* in *pre-accented* syllables, viz. **(w)orsanós* → **orranós* (followed by accent shift in one dialect area, quantity shift elsewhere). The 'distant' effect of the accent is reminiscent of German *Hannoveráner* (with [v]) beside *Hannóver* (with [f]).

take *οὐρά* from **orswá* (cf. Skt. *ῥῥvá-* 'high, sublime') or **orsyá* (adj. to *δρρος*). Neither of these is etymologically grounded (cf. Frisk 2.446). It is peculiar, moreover, that the same scholars who posit **orswá* to explain the voicing/lengthening in *οὐρά* seem not to have noticed the discrepancy in positing **purswós* to block assimilation in *πυρρός/πυρρός* 'flame-colored' (so Chantraine 1933: 123; Schwyzer, 335f. [w. lit.]; Lejeune, § 133 n. 5). For more discussion of *πυρρός* see § 2.2f. below. Wackernagel and his followers (e.g. Kretschmer 1892: 443; Froehde 1894: 219, 221f., etc.; more references in Schwyzer, 286) have a good point that the most reasonable reconstruction for *οὐρά* is **orsá*, and the correlation between accent and *-rs-* voicing in *δρρος*: *οὐρά* is undeniable. I suspect that this correlation is not fortuitous.

1.5. In a synchronic description one would certainly have to relate *κόρρης* (nickname of the first man who shaved his beard at Athens) and *κουρεύς* 'barber', *δρρος* 'rump' and *οὐρά* 'tail', and maybe also, depending on the abstractness of the linguist, *ἔρρη/ἔέρρη* 'dew, rain' and *οὐρέω* 'urate' (altho in the latter case lexicalization of *-our-* is probable because of semantic remoteness and *οὐρον* 'urine'), from which any linguist would deduce a rule by which unaccented *-ors-* becomes *-our-* in a limited set of data, confirming Wackernagel's hypothesis. Compare *-ks-* in English, for instance, which voices in a limited body of data under exactly the same accentual conditions described by Wackernagel for Greek *-Ls-*; e.g. *exercise*: *exért*; *execute*, *exécution*: *exécutive* (cf. Chomsky and Halle 1968: 158, 221) but *exequy*: *exéquial*, *exigent*: *exigency*, *exodus*: *exódic*, *exogen*: *exógenous* (all with *-ks-*). Also as in Greek the voicing process does not operate over (synchronically perceptible) boundaries: *exámple*, *exámmine*, *exémplary*, *exháust*, *exhíbit* (with *-gz-*) vs. (1) *ex* 'remove': *ex-énterate*, *ex-éstuate*, *ex-húme*, *ex-hále*, etc.; (2) 'former': *ex-úrbanite*, *ex-ártist*, *ex-intern*, *ex-Íowan*, *ex-áuditor*, etc. (with *-ks-*).

In spite of objections by Brugman(n) (1, § 846 Anm.), Forbes, and others, I find absolutely nothing wrong with Wackernagel's formulation—except for his insistence on resorting to the most incredibly ad hoc means to explain away the exceptions which are more numerous than the instances of rule-observance. This, of course, is not a criticism of the man but of the state of linguistic theory at the time which had no provision for rules applying to small bodies of data. It is to Wackernagel's credit to have had the foresight to recognize something that his theoretical environment did not permit. Most of Wackernagel's exceptions are over bound-

aries and from the *s*-aorist, a problem that was partially remedied in the same volume by Solmsen (1888: 352–58).

2. Unassimilated *-Ls-* Sequences

2.1. Forbes (1958) proposes the theory that *-VLs-* gave *-VLz-* (\rightarrow $-\bar{V}L-$) while *s* remained in *-Ls-* sequences. In her system every one of the following ‘key’ words with *-Ls-* requires a special explanation:

Hom. *τέλσον* ‘place where the plow turns at the end of the furrow’ (see Beekes 1969: 275f.) is cognate to Skt. *karṣū* (B+) ‘furrow’, *kārṣati* (V+) ‘plows’ and reconstructs from **kwel-s-* (cf. Brugman(n) 1, § 846; Mayrhofer 2.177; pace Forbes (260f.) whose **tel-t-y-o-* is completely ad hoc). **Eρσην* (in most dialects) ‘male’ (= OP *arṣan-* ‘man’) in Forbes’ system owes its *-rs-* analogically to (Hom.) *ἄρσην* ($<$ **rs-*), which is dubious because only *ἔρσην* is inherited; *ἄρσην* is generalized from the original paradigm **rs-n-ós* \rightarrow **ars-nós* (where the *s* should not have survived) [cf. Beekes 1972: 35]. Forbes assumes that (Aeol.) *θέρσος* (Hom. *Θερσίτης*, etc.) is analogical to (Hom.) *θάρσος* ‘courage’, which is dubious for two reasons. First, only *θέρσος* could be inherited since neuters in **-es-* had radical full grade in IE (cf. Meillet-Vendryes, § 598; Chantraine 1958: 23; Shipp 1972: 18, etc); second, the phonetic development of **thṛsos* was *θράσος* (cf. also *θρασύς* ‘bold’, etc.) and by the rules for syllabic liquids in Attic and Ionic *θάρσος* has to be motivated by *θέρσος* rather than vice versa (cf. Kuryłowicz 1956: 180ff.; 1968: § 318; O’Neil 1969: 18ff.; Miller 1973: 689f.). Forbes also has to explain the *s* in *τέρσσομαι* ‘become dry’ by analogical generalization from *ταρσός* ‘wicker frame for drying cheeses; basket’, which illustrates beautifully to what lengths scholars will go to make a theory work. As in the case of *θάρσος*, the *-ar-* reflex of **r* must be motivated by the full grade *τέρσσομαι*, and if anything is ‘analogical’ it is *ταρσός* not *τέρσσομαι*. Forbes also has no non-adhoc way of explaining the *-rs-* in Hom. *ἔρση/ἔέρση* (on which alternation see Beekes 1969: 76ff.), Cret. *ἀέρσα*, Lesb. *ἀέρσα* (Sappho) ‘dew, rain’ (Skt. *varṣá-* ‘rain’, etc.) Whether *κόρση* ‘temple, head’ is from **kers-* ‘cut’ and means ‘the shorn spot’ (Schwyzer, 285; Frisk 1.923; Chantraine 568) or is derived from the IE word for ‘head’/‘horn’ with a different enlargement (Benveniste 1935: 24f., 175) is immaterial, for either way it is a problem for Forbes whose only reason for disputing it (258ff.) is that it constitutes another exception to her ad hoc theory.

2.2. Assessing the relative merits of Forbes’ theory against Wackernagel’s, of the forms in § 1 Wackernagel can explain *ῥρσος/οὔρά*, *κόρσης/κουρεύς*, and *(F)έρση/οὔρέω* ($<$ **worséyō*). Forbes cannot explain *ῥρσος*, *κόρσης*, or *(F)έρση*. Of the forms in § 2 Wackernagel can explain as perfectly regular *τέλσον*, *ἔρσην*, *θέρσος*, *τέρσσομαι*, *ἔέρση*, *κόρση*, and, regardless of the etymology, *ἄλσος* ‘(sacred) grove’

(on which see Beekes 1969: 276; Chantraine 65; Furnée, 253) and *χέρσος* (Hom.) 'dry land' (see Merlingen, 49; Furnée, 54). Forbes cannot explain any of these without recourse to analogy or ad hoc reconstructions. Any theory which does not yield the correct output for any of the 'key' forms cannot possibly be right.

A potentially problematical word for Wackernagel is *πυρός* 'flame-colored' (beside Corinth., Cypr., Myc. *purwós*). The reconstruction **purswo-* (Schwyzer, 335f.; Fraenkel 675) is just an ad hoc way to block *-rs-* voicing. The word is clearly *πῦρ* 'fire' plus suffixes */-wo-/*, *-so-/* (cf. Chantraine 1933: 123, 434f.; Furnée, 157; Lejeune, § 133 n. 5, considers this possibility). It is evident that *πυρός* differs from **orsá*, **korseús*, in one very important respect; there is a morpheme boundary (*/pur+sós+s/*) which can block Wackernagel's voicing/lengthening rule.

2.3. According to Chomsky and Halle (364) a rule can be expected to operate either only at morpheme boundaries or both internally and over morpheme boundaries. Ordinarily the application of a phonological rule is not blocked by the presence of a morpheme boundary, which follows from the fact that if a rule applied historically only internally and not across morpheme boundaries, it will not survive as a synchronic rule. Completely missing this point Hyman (196ff.) makes the very strong claim that a morpheme boundary can never block the application of a rule. This has been adequately refuted by Miller (1974a) and Dressler (1974). Consider some additional examples relevant to our present discussion. The compensatory lengthening rule responsible for alternations like N. sg. *μέλας* */melan+s/*: G sg. *μέλανος* 'black' was blocked by (derivational) morpheme boundaries, cf. *θέρμαν+σις* 'heating' (to *θερμαίνω* 'warm'), etc. (Lejeune, § 124). The Attic assimilation of *-rs-* to *-rr-* in comedy and inscriptions, e.g. *ἄρσην* → *ἄρρην* (after 378 B.C.), etc. (Meisterhans, § 35; Lupaş, 37f.), did not operate over morpheme boundaries, cf. *ρήτορ+σι* (dat. pl. of *ρήτωρ* 'public speaker'), *ἔ+σπαρ+σαι* (pf. mid. 2 sg. to *σπείρω* 'scatter'), *κάθαρσις* */kathar+ti+s/* 'purification' to *καθαίρω* 'purify', etc. (Schwyzer, 285; Lejeune, § 119). That assimilation could apply historically after *ti*-assimilation is clear from a word like *δέρρις* 'skin, leather covering' (to *δέρω* 'flay, skin; separate') which underwent the assimilation because it was semantically divorced from *δέρω* and consequently an 'unmotivated' word no longer perceived as a derivative in */ti/*. It contained no (synchronic) morpheme boundary to block the assimilation (contrast the corresponding technical term *δάρσις* 'separation of parts united by cellular tissue by tearing').

It is interesting that the morpheme boundary blocked Wackernagel's rule but not the Attic *-rs-* assimilation in *πυρσός* (Att. *πυρρός*), possibly because the connection with *πῦρ* was more transparent when Wackernagel's rule was applying. *Πυρσός* originally meant 'fiery, ruddy', but by 5th cent. Attic was generally 'yellowish-red, tawny' (e.g. of egg-yolks, urine, lions, oxen, horses) and a separate lexical item from *πῦρ* with no (synchronic) morpheme boundary to block the assimilation. This is particularly evident by contrast with *πυρσός* 'fire-brand, torch' and by the fact that the unmotivated name *Πύρρος* had already become *Πύρρος* in the 7/6th cent. (Meisterhans, 76).

The consideration that Wackernagel's rule did not operate over morpheme boundaries allows him to explain not only *πυρσός*, but also such *-Ls-* aorists as *κύρσας*, *ἐκέλσαμεν*, etc. (§ 3 below), none of which can be explained by Forbes. Of the two theories, Wackernagel's clearly has greater explanatory potential, and Forbes is duly refuted.

3. Assimilation in the *s*-Aorist

3.1. In the *s*-aorist a liquid + *s* undergoes a compensatory lengthening process sort of like that in § 1 but without regard to the accent, e.g. /*(e+)stel+sa*/ (to *στέλλω* 'equip, send') → N. Aeol. *-στελλα-ντος*, Dor. (Cret.) *ἀπο-στηλανσας*, Att. Ion. *ἔστειλα* (cf. Lejeune, § 120). The status of this rule in Mycenaean is obscure. If *a-ke-ra₂-te* (PY Vn 493) is N. pl. m. of the aor. partic. of *ἀγείρω* 'gather, collect' (rejected by Morpurgo 1963: 8, but accepted by Chadwick 1973: 529, and Lejeune, § 121), the writing is obscure since *ra₂* is generally [rya] (Ruijgh, § 8; Lejeune, § 155). If we assume the N. Aeol. development, there is a possible explanation. Presumably the [rr] from /*r+s*/ was phonetically close enough to the [r'r'] (?) from /*r+y*/ to permit both to be written with the same sign. This argues strongly for the geminate [agérrantes] rather than the quantitatively shifted form [agérrantes] (see Addendum p. 170). Lejeune's metathesis of /*r+s*/ to **-sr-* (§ 121) is puzzling since otherwise no such metathesis is necessary. Moreover, it is in direct conflict with the metathesis he not unambiguously seems to be advocating for **khesr-* to **khers-* 'hand' (p. 126f.), missing the point that since *-VsR-* gives *-VRR-* with dialectal quantity shift to *-V̄R-* outside of N. Aeolic, Orchomenus, and Laconia (Wyatt 1973: 45), the underlying representation of dat. pl. *χερσί* would at some point have been /*kherr+sí*/ from which *χερσί* follows very naturally by cluster simplification. That **khesr-* did not pass immediately to **khēr-* (with **/khēr+sí/* underlying *χερσί* is evident from the synchronic shorten-

ing of *χειρ-* in *χερσί* in contrast with the lack of any shortening in *θηρσί* to *θήρ* 'wild beast' with historical and synchronic underlying long vowel. That is, the difference between *θηρσί* and *χερσί* can only be explained if *χειρ-* was **kherr-* at some point in the history of the dialects outside of N. Aeolic as well as in N. Aeolic.

3.2. It should be clear from § 2 that *s*-aspiration (or voicing) did not apply when the *s* was preceded by a liquid and that the aorist examples in § 3.1 are products of a generalization proper to the aorist, as noticed already by Solmsen (1888: 329–58). The generalization proceeded from cases like */e+krin+sa/* → *ἔκριννα* where this was the normal phonological development for all medial nasal + *s* sequences (cf. **ghans-ós* → *χανός* 'goose', gen. sg.). It is usually claimed that in Aeolic the generalization was of geminate consonants (*ἔστειλα* like *ἔκριννα*); outside of North Aeolic length was generalized (Dor. *ἔστηλα* like *ἔμηννα*, Att., Ion. *ἔστειλα* like *ἔμεινα* 'remained' from */e+men+sa/*). Compare Risch (1956: 430f.), who does not mention Solmsen's almost identical but more detailed account. More precisely, forms like *ἔκριννα* outside of N. Aeolic were a product of the same shift that changed *χανός* to *χᾶνός*, etc. Synchronically, of course, the rule is compensatory lengthening (see § 3.5 below).

3.3. It is significant that Homer has no aorists of the type **ἔκρινσα* (inf. *κένσαι* to *κεντέω* 'prick' is different; see below), while aorists with *-ls-*, *-rs-* abound. For example, from the rare verbal root **apo-wer-* 'sweep off' which has four attestations, all of which are from the *s*-aorist, Homer has *ἀπό-ερσε* (Il. 6.384) 'swept off', and two other forms; the fourth is from the 2nd cent. epic writer Nicander, obviously in imitation of Homer. The confinement of this verb to Homer and one epic writer is evidence of archaism.

From the verb *εἴλω* 'shut in' Homer has aor. 3 pl. *ἔλσαν* (Il. 11. 413) and inf. *ἔέλσαι* (Il. 21.295); cf. the participle *ἔλσαις* in Pindar. To *ῥρνμι* 'stir, move, rouse' there is fut. *ῥρσω* (Homer, Pindar, Sophocles) and many attested forms of the *s*-aorist: inf. *ῥρσαι*, partic. *ῥρσας*, impv. *ῥρσ(ε)ο*, ind. *ῥρσα*, *ῥρσε*, *ῥρσε*, etc. (Wackernagel 1888: 129; Veitch, 501f.). The verb is used mainly in epic and lyric poetry, seldom in tragedy, never in comedy or 'correct' prose (LSJ 1255). Similarly, the poetic verb *ἀραρίσκω* 'fit (together)' has many forms in *-rs-*: fut. (Ion.) *ἄρσω* (Hesych.), aor. *ἤρσα*, *ἄρσε*, impv. *ἄρσον*, partic. *ἄρσας*, etc. (Wackernagel 1888: 130; Veitch, 96; LSJ 234). Another verb which does not occur in comedy or Attic prose is *κύρω* 'meet (with), happen, obtain' which also has many *-rs-* forms: fut. *κύρσω* (Sophocles, Democritus), aor. *ἔκυρσα* (Aeschylus, Euripides; *ἐν-έκυρσε* Il. 13.145), partic. *κύρσας* (Il. 23.428), inf. *κῦρσαι* (Hesiod), etc. (Wackernagel 1888: 130;

Veitch, 402f.). The verb is definitely archaic and poetic. The more 'modern' prose form is *κρέω*, with an aorist *ἐκύρησα*, already in Homer (Epigr. 6.6 *κυρήσαι*) and Hesiod (Op. 755 *κυρήσας*). The verb *κέλλω* (Att. *ὀκέλλω*) 'drive on, run ashore' appears in the aor. inf. in Od. 10.511 *νῆα . . . κέσαι* 'run a ship to land', and in the aor. 1pl. in Od. 9.546 *νῆα . . . ἐκέλαμεν* 'we ran our ship aground, beached our ship'. The aorist of Att. *ὀκέλλω* is *ὄκειλα* (Thuc. 4.11, etc.) with the length generalization (cf. Debrunner, 26). To *φύρω* 'mix; spoil, defile' Homer has aor. 1 sg. subj. *φύρω* (Od. 18.21). Later the aorist of *φύρω* is *ἔφυρα* with the generalization completed.

3.4. There can be little doubt that the aorist forms in *-Ls-* are residual and archaic (cf. Chantraine 1958: 172f.). Only isolated residues survive into Attic prose.

A particularly interesting example is *κείρω* 'cut short, shear' (mid. 'cut one's hair') to which Homer has an active aorist *ἀπό . . . ἔκερσεν* (Il. 13.546 plus six more examples like it), but in the middle the generalization has already taken place, cf. aor. mid. inf. *κείρασθαι* (Od. 4.198, Il. 23.46), 3 sg. aor. mid. *ἀπεκείρατο* (Il. 23.141). It can scarcely be accidental that this verb is generally used in the middle and that precisely where the verb is most commonly used is where the length generalization was completed fairly early, but in the less used aorist active the generalization was not yet completed (*ἔκειρα* 4 ×; cf. 3 pl. *κατέκειραν* Od. 23.356 'wasted') (cf. Debrunner, 27). Later, of course, the generalization is completed and the aorist active is only *ἔκειρα* in Attic. There is thus no reason to assume an ad hoc **έ-kers-sa* (Forbes, 237, 269) or **έ-kert-sa* (a 'possibility' mentioned by Frisk and Chantraine) which would end up later as *ἔκερσα* (cf. aor. subj. 3 sg. act. *τέρρη* Theocritus 22.63 to *τέρσομαι* 'dry up'; see § 3.6 below). The present *κείρω* goes back to **ker-yō* as traditionally assumed (cf. Schwyzer, 715; Frisk 1.810). Forbes' **kersō* is simply wrong because *-rs-* outside of the aorist remains intact. The unenlarged root **ker-* also occurs in aor. pass. *έ-κάρ-ην*, etc. The development of *ἀκερσεκόμης* (Il. 20.39) to *ἀκειρεκόμης, -ας* (Pindar+) 'ever-young' is exactly what we expect since the first element of the compound is an aorist. Chantraine (510) says it is a desiderative stem **ker-se/o-*. More likely, Schwyzer (442) is correct that it is the aorist (*έ*)*κερσε*: *ἀκερσεκόμης* is clearly 'one who has not cut (/a # *ker+se*/) his hair (*κόμη*)', not 'who does not want his hair cut'; *περσέ-πολις* is 'one who has destroyed cities', not 'who wants to destroy cities'; and Boeot. *Ὀρσέ-λαος* is he 'who has roused the people', hardly 'who wants to rouse the people'.²⁾

3.5. Forms like *ἔστελσεν · ἔστειλεν* 'sent' (Hesych.), *ἔφερσεν · ἐκύησεν* 'bore in the womb' (Hesych.) [manifestly late because *φέρω* 'bear' always had a suppletive aorist *ἦνεγκον*], *φθέρσας* (Lycophron

²⁾ Normally I expect compounds to be conservative (cf. OV compounds in English long after the shift to SVO surface order), and *Ὀρσέ-λαος* is therefore a predictable archaism. That *ἀκερσεκόμης* underwent the aorist rule is ultimately, I assume, due to analogy with the corresponding change in the aorist itself.

1402) for *φθείρας* 'having ruined', inf. *διέρσαι* (Hippocrates, Art. 11, etc.) beside usual Att. *διείραι* to *διείρω* 'pass, draw thru', *ἔτερσεν* · *ἐφόβησεν* 'put to flight' (Hesych.), etc. (Solmsen, 355) provide evidence for the underlying representation of aorists like *ἔφθειρα* as /e+phther+sa/ (cf. Miller 1972: 53; 1974b; Sommerstein, 24). In other words, the (synchronic) rule is not simply lengthening of the vowel in /phther-/ but deletion of *s* with compensatory lengthening. This is not surprising since the *s* is otherwise fully recoverable synchronically from forms like *ἐφίλησα* to *φιλέω* 'love'. By continuing to posit underlying /e+phther+sa/ for *ἔφθειρα* we are predicting that by failure to apply the compensatory lengthening rule the underlying *s* can (re)surface at any time, which is exactly what we have in Hesychius' *ἔστελσεν*, *ἔφερσεν*, the inf. *διέρσαι*, the partic. *φθέρσας*, etc.

3.6. The generalization of lengthening that took place in the aorist was not simply a 'blind' generalization of length. It was sensitive to the underlying representation rather than the surface form. For instance, an aorist like *ἔπερσα* to *πέρθω* 'sack' did not become **ἔπειρα* just because it was an *-r+s-* sequence in the aorist. There is a rule that deletes a dental before *s*, cf. dat. pl. *ποσί* /pod+ sí/ to *ποδ-* 'foot' (in Homer the rule was assimilation rather than deletion, yielding *ποσσί*, but in cases like *ἔπερσα* /e+perth+sa/ there was cluster simplification). The compensatory lengthening rule in the *s*-aorist was clearly structured earlier in the grammar than dental deletion. That is, dental deletion fails to 'feed' compensatory lengthening, so that aorists like *ἔπερσα* to *πέρθω* remain; cf. also *ἤμερσα* to *ἀμέρδω* 'deprive', *ἤρσα* to *ἄρδω* 'water, give drink to', inf. *τέρσαι* /ters+sai/ to *τέρσ-ομαι* 'become dry', etc. (cf. Solmsen, 356).

3.7. It is important to discuss in what ways the theory presented here differs from other seemingly related theories. Solmsen (352–58) proposed that presents in **-ye/o-* make lengthened aorists and that where *-Ls-* remains in the aorist in Homer it is because the present is not a **-ye/o-* formation. This is certainly true when we consider *δρῶμι* : *ᾠρσα*, *ἀραρίσκω* : *ἤρσα* vs. *καθαίρω* : *ἐκάθηρα*, *ἀγγέλλω* : *ἡγγεῖλα*, *στέλλω* : *ἔστειλα*, etc., but then there are *κύρω* : *ἔκυρσα*, *φύρω* : *ἔφυρσα*, *κείρω* : *ἔκερσα*, *εἴλω* : *ἔλσα*, *κέλλω* : *ἔκελσα* with **-ye/o-* presents. Moreover, it is easy to see how *φαίνω* : *ἔφηνα* could influence *καθαίρω* : **ἐκάθαρσα*, but less easy to understand the influence of *τείνω* : *ἔτεινα* 'stretch' on *στέλλω* : **ἔστελσα*. Lest there

be any misunderstanding, I do think Solmsen was right that this was the motivation for the generalization, and certainly the first aorists to adopt the generalization were those whose presents most resembled the nasal-stem verbs. Solmsen is surely also correct that the reason there is no sign of changing $\bar{\omega}\rho\sigma\alpha$ and $\bar{\eta}\rho\sigma\alpha$ is because their presents are so radically different. Whereas the notion of generalization within a category provides for the theoretical possibility of residues (forms to which the newly generalized rule has not yet applied), to some extent Solmsen provides the rationale for **particular** residues.

Lejeune (§ 120) points out that a theory which is founded on analogy in the aorist can hardly explain forms like $\kappa\omicron\upsilon\rho\epsilon\acute{\upsilon}\varsigma$ 'barber' [his own example, $\delta\epsilon\iota\rho\acute{\alpha}\varsigma$ 'ridge', is an unfortunate choice; see § 1.2 above]. This is to some extent correct, altho we cannot exclude a change in which a rule begins in one category and is generalized elsewhere. In the cases discussed in § 1, however, this would not work since there is no synchronic boundary between *r* and *s* in $*kors\acute{\alpha}$, $*(w)ors\acute{\epsilon}(y)\bar{\omega}$, $*ors\acute{\alpha}$. As we indicated above, the rule operating in these forms was blocked by a boundary (cf. [pur+sós]); since the *s*-aorist has a clear boundary between the resonant and the *s*, this can hardly be the same rule. Moreover, the aorist rule is in no way constrained by the accent conditions that play a role in $\kappa\omicron\upsilon\rho\epsilon\acute{\upsilon}\varsigma$, etc. Lejeune's mistake is assuming that all assimilation or lengthening processes involving a liquid + *s* are necessarily identical or generically related. What we are dealing with in the aorist is not just analogy or a generalization along a boundary, but a category-specific rule of the sort discussed in Miller 1973 (esp. § 4). That this is a rule and not simply surface analogy is clear from the fact that (1) its exceptions were gradually eliminated and (2) it was structured earlier in the grammar than dental deletion (§ 3.6) (since analogy operates on surface forms, there is no way it can be structured with reference to other rules). To illustrate the category-bound character of this rule contrast aor. $\acute{\epsilon}\varphi\theta\epsilon\iota\omega\alpha$ /e+phther+s+a/ 'destroyed' with fut. $\delta\iota\alpha\varphi\theta\acute{\epsilon}\rho\sigma\epsilon\iota$ /dia+phther+s+ei/ (Il. 13.625), pf. mid. 2 sg. $\acute{\epsilon}\varphi\theta\alpha\rho\text{-}\sigma\alpha\iota$, etc. (Wackernagel 1888: 131; Lejeune, § 119).

Conclusion

Where no boundary separated the liquid and *s* the *-Ls-* sequence underwent voicing when a subsequent syllable was accented; otherwise *-Ls-* remained intact. Over a boundary *-L+s-* remained except in the aorist

where the compensatory lengthening rule originally affecting nasal +s sequences was generalized to include any resonant +s. The solutions proposed by Wackernagel and Solmsen, both in 1888, were therefore in the main correct. They did not have at their disposal the theoretical concepts of synchronic rules, rule generalization, or boundaries. This powerful machinery has enabled us to make some refinements on their solutions but, more importantly, recent theoretical considerations have proven, once again, that there is no substitute for the insight of scholars like Wackernagel and Solmsen.

Addendum

Since writing this article I notice that Martín Ruipérez ('Le dialecte mycénien', *Acta Mycenaea* 5 (= *Minos* 11): 1.136–69; esp. 161ff. [1972]) has arrived at the same conclusion on the Mycenaean reflex of /R+s/ (§3.1). The convergence is welcome. The recent paper by S. R. Slings ('The etymology of *BOYAIOMAI* and *OΦEIAΩ*', *Mnemosyne* 28.1–16 [1975]) refuses to admit *-VRR-* as a possible antecedent to *-VR-* for no other reason than its implausibility. His complicated account of the variability in Orchomenus misses the point that generically different assimilation rules may give distinct outputs, as is affirmed in the recent paper by A. Malikouti-Drachman ('Derived long mid-vowels in Greek: a controversial rule', *Die Sprache* 21.135–56 [1975]) who also disputes the quantity shift. I agree completely that the various assimilation and lengthening rules originate in different processes and to some extent maintain different properties, but for reasons discussed in this paper I would discard *-Ls-* and retain assimilation and dialectal quantity shift for *-VsR-*. The shift may have begun with *-VyyV-/VwwV-* (such a quantity exchange occurs in Pāli) and been generalized to *-VRRV-*.

References

- Adams, Douglas. 1972. Sonorant clusters in Ionic and the ordering of rules. Papers from the eighth regional meeting of the Chicago Linguistic Society, 405–15.
- BB: Beiträge zur Kunde der indogermanischen Sprachen.
- Beekes, R. S. P. 1969. The development of the Proto-Indo-European laryngeals in Greek. The Hague: Mouton.
- 1972. The nominative of the hysterodynamic noun-inflection. *KZ* 86.30–63.
- Benveniste, Emile. 1935. *Origines de la formation des noms en indo-européen*. Paris: Adrien-Maisonneuve. Reprinted 1962.
- 1966. *Titres et noms propres en iranien ancien*. Paris: Klincksieck.
- 1969. *Le vocabulaire des institutions indo-européennes*. Paris: Minuit.
- Brugman(n), Karl, and Berthold Delbrück. 1897–1916. *Grundriß der vergleichenden Grammatik der indogermanischen Sprachen*.² Straßburg: Trübner.
- Chadwick, John. 1973. *Documents in Mycenaean Greek*.² Cambridge: University Press.

- Chantraine, Pierre. 1933. *La formation des noms en grec ancien*. Paris: Klincksieck. Reprinted 1968.
- 1958. *Grammaire homérique 1: phonétique et morphologie*. Paris: Klincksieck.
- [cited without date =] 1968-. *Dictionnaire étymologique de la langue grecque*. Paris: Klincksieck.
- Chomsky, Noam, and Morris Halle. 1968. *The sound pattern of English*. New York: Harper and Row.
- Cowgill, Warren. 1965. Evidence in Greek. In *Winter 1965*: 142–80.
- 1969. On resonant clusters in ancient Greek. Presented at the annual LSA meeting, December, San Francisco (Meeting Handbook # 15).
- Debrunner, Albert. 1927. *ἔκελσα — ἡγγειλα* bei Homer. *Glotta* 15.25–28.
- De Vries, Jan. 1962. *Altnordisches etymologisches Wörterbuch*.³ Leiden: Brill.
- Dressler, Wolfgang. 1974. Begrenzen Morphemfugen die Domäne phonologischer Prozesse? *Festschrift Issatschenko*. To appear.
- Ernout, Alfred, and Antoine Meillet. 1959. *Dictionnaire étymologique de la langue latine*.⁴ Paris: Klincksieck.
- Forbes, Kathleen. 1958. Medial intervocalic *-rs-*, *-ls-* in Greek. *Glotta* 36. 235–72.
- Fraenkel, Ernst. 1962–65. *Litauisches etymologisches Wörterbuch*. 2 vols. (continuous pagination). Heidelberg: Winter.
- Frisk, Hjalmar. 1960–72. *Griechisches etymologisches Wörterbuch*. 3 vols. Heidelberg: Winter.
- Froehde, F. 1894. Zur homerischen Wortforschung. *BB* 20.185–228.
- Furnée, Edzard J. 1972. Die wichtigsten konsonantischen Erscheinungen des Vorgriechischen. *The Hague (Janua Linguarum, ser. pract. 150)*: Mouton.
- Hamp, Eric P. 1965. Evidence in Albanian. In *Winter 1965*: 123–41.
- Hyman, Larry M. 1975. *Phonology theory and analysis*. New York: Holt.
- Kiparsky, Paul. 1967. Sonorant clusters in Greek. *Lg.* 43.619–35.
- Kretschmer, Paul. 1892. *Indogermanische Accent- und Lautstudien*. *KZ* 31. 325–472.
- Kuryłowicz, Jerzy. 1956. *L'apophonie en indo-européen*. Wrocław: Nauk.
- 1968. *Indogermanische Grammatik 2: Akzent/Ablaut*. Heidelberg: Winter
- KZ: Zeitschrift für vergleichende Sprachforschung*.
- Lejeune, Michel. 1972. *Phonétique historique du mycénien et du grec ancien*. Paris: Klincksieck.
- LSJ: Liddell, Henry G., and Robert Scott. 1940. *A Greek-English lexicon*.⁹ Revised by Henry S. Jones. Oxford: Clarendon.
- Lupaş, Liana. 1972. *Phonologie du grec attique*. The Hague: Mouton.
- Mayrhofer, Manfred. 1956-. *Kurzgefaßtes etymologisches Wörterbuch des Altindischen*. 3 vols. Heidelberg: Winter.
- Meillet, Antoine, and Joseph Vendryes. 1963. *Traité de grammaire comparée des langues classiques*.³ Paris: Champion.
- Meisterhans, Konrad. 1888. *Grammatik der attischen Inschriften*.² Berlin: Weidmann.
- Merlingen, Weriänd. 1958. *Indogermanisch X. Die Sprache* 4.39–73.

- Miller, D. Gary. 1972. A case for derivational history in Greek. *Papers in linguistics* 5.46–72.
- 1973. On the motivation of phonological change. In Braj Kachru, et al., eds., *Issues in linguistics: papers in honor of Henry and Renée Kahane*, 686–718. Urbana: University of Illinois.
- 1974a. Some problems in formulating aspiration and deaspiration rules in ancient Greek. *Glossa* 8.211–32.
- 1974b. Glide deletion, contraction, Attic reversion, and related problems of ancient Greek phonology. *Die Sprache*. To appear.
- Morpurgo (Davies), Anna. 1963. *Mycenaeae graecitatis lexicon*. Rome: Ateneo.
- O'Neil, J. L. 1969. The treatment of vocalic *R* and *L* in Greek. *Glotta* 47. 8–46.
- Persson, Per. 1893. *Etymologisches*. BB 19.257–83.
- Risch, Ernst. 1956. Zur Vorgeschichte der sigmatischen Aoriste im Griechischen. In Margarete Woltner and Herbert Bräuer, eds., *Festschrift für Max Vasmer zum 70. Geburtstag*, 424–31. Wiesbaden: Harrassowitz.
- Ruijgh, Cornelis J. 1967. *Etudes sur la grammaire et le vocabulaire du grec mycénien*. Amsterdam: Hakkert.
- Schw.: see Schwyzer 1923.
- Schwyzer, Eduard. 1923. *Dialectorum graecarum exempla epigraphica potiora*. Leipzig: Hirzel. 3rd ed., 1960 (Hildesheim: Olm).
- 1939. *Griechische Grammatik*. vol. 1. Munich: Beck.
- Seebold, Elmar. 1970. *Vergleichendes und etymologisches Wörterbuch der germanischen starken Verben*. The Hague: Mouton.
- Shipp, G. P. 1972. *Studies in the language of Homer*.² Cambridge: University press.
- Solmsen, Felix. 1888. Sigma in Verbindung mit Nasalen und Liquiden im Griechischen. *KZ* 29.59–124 (triggered Wackernagel 1888); *KZ* 29.329–358 (= a rejoinder to Wackernagel 1888).
- Sommerstein, Alan. 1973. *The sound pattern of ancient Greek*. Oxford: Blackwell.
- Specht, Franz. 1939a. Sprachliches zur Urheimat der Indogermanen. *KZ* 66. 1–74.
- 1939b. Griechische Miszellen. *KZ* 66. 197–221.
- 1947. *Der Ursprung der indogermanischen Deklination*. Göttingen: Vandenhoeck und Ruprecht.
- Veitch, William. 1887. *Greek verbs irregular and defective*. Oxford. Reprinted 1967, Hildesheim: Georg Olms.
- Wackernagel, Jacob. 1888. *Miscellen zur griechischen Grammatik* 12: Über die Behandlung von *s* in Verbindung mit *r*, *l*, *n*, *m*. *KZ* 29.124–37 (= a rejoinder to Solmsen 1888: 59–124) [= Wackernagel 1969: 627–40].
- 1916. *Sprachliche Untersuchungen zu Homer*. Göttingen: Vandenhoeck und Ruprecht.
- 1969. *Kleine Schriften*. 2 vols. Göttingen: Vandenhoeck und Ruprecht.
- Winter, Werner, ed. 1965. *Evidence for laryngeals*.³ The Hague: Mouton.
- Wyatt, William F. 1973. The Aeolic substrate in the Peloponnese. *American Journal of Philology* 94.37–46.