SOUND-PATTERNS IN HOMER

DAVID W. PACKARD
University of California, Los Angeles

Ancient critics greatly admired Homer's skill in manipulating sound for expressive purposes. Dionysius of Halicarnassus calls Homer πολυφωνότατος ἁπάντων ποιητῶν and cites more than fifty hexameters for their sound. Similar statements can be found in other authors down to Eustathius.[1] Such opinions are often discounted by modern scholars as impressionistic or rejected altogether on the grounds that they were made many centuries after the poems had been composed, when the pronunciation of Greek had deviated from that of the Epic period. These difficulties, though real ones, do not allow us to neglect an aspect of Homeric technique stressed often by the ancients.[2]

If we consult two standard commentaries on Homer, Walter Leaf's on the *Iliad* and W. B. Stanford's on the *Odyssey*, we find little agreement on whether sound effects are deliberate or accidental.[3] Leaf states (on *Il.* 3.49): "In Greek poetry, unlike Latin, this phenomenon [alliteration] is sporadic and apparently accidental; some of the most

[1] *De Comp.* 16, p. 64 Usener-Radermacher. Cf. Dio Chrys. 12.69: ὥστε οὐκ ἦν αὐτῷ (sc. Ὁμήρῳ) ἀπορία φοβερῶν ὀνομάτων καὶ ἡδέων, ἐτὶ δὲ λείων καὶ τραχέων καὶ μυρίας ἄλλας ἐχόντων διαφορὰς ἔν τε τοῖς ἤχοις καὶ τοῖς διανοήμασιν. The Homeric scholia and especially Eustathius offer many examples: καί μοι δοκεῖ καὶ τὸν ἦχον μιμήσασθαι διὰ τῆς περὶ τὴν σύνθεσιν τῶν σημείων τραχύτητος (scholia BT to *Iliad* 13.798, cf. 2.210, 3.358, 7.252, 16.792, 17.263); πολλαχοῦ γὰρ ὁ ποιητὴς ἢ τραχύνει ἢ λεαίνει τὰς λέξεις καὶ τὴν αὐτῶν συνθήκην ἐπίτηδες ἀναλόγως τοῖς φραζομένοις πράγμασιν (Eustath. 145.31); καὶ γέμει ταύτης (sc. ὀνοματοποιΐας) ἡ ποίησις, ὡς πολλαχοῦ δειχθήσεται (Eustath. 32.5). See further, Eustath. 39.8–40.9 with the parallel passages cited in the edition of M. van der Valk (Leiden 1971).

[2] W. B. Stanford, "Greek Views on Euphony," *Hermathena* 61 (1943) 3–20, and *The Sound of Greek* (Berkeley 1967). For Dionysius' literary works see especially S. F. Bonner, *The Literary Treatises of Dionysius of Halicarnassus* (Cambridge 1939), and W. R. Roberts, *Dionysius of Halicarnassus on Literary Composition* (London 1910).

[3] W. Leaf (ed.), *The Iliad* (London 1900–1902²); W. B. Stanford (ed.), *The Odyssey of Homer* (London 1967²).

marked instances in Homer occur in places where no particular effect can well be aimed at." Stanford takes the opposite view, citing numerous Homeric verses for their supposed sound effects, and cautioning readers that unless they "sound every line (for the 'inner ear' at least) many very beautiful effects of euphony will be missed."[4]

Attempts have occasionally been made to employ statistical criteria in evaluating sound patterns. According to Dionysius, and he was not the first to think so, sigma is a disagreeable letter (ἄχαρι καὶ ἀηδές) and painful (λυπεῖ) if used to excess.[5] Lasos of Hermione wrote odes without sigmas, and Euripides was ridiculed by the comic poets for his alleged excessive use of sigma.[6] By counting the number of sigmas per line, J. A. Scott demonstrated that Euripides is not in fact much more sigmatic than Sophocles or Aeschylus and is less so than Aristophanes. Apparently unaware of Scott's work, O. J. Todd reached a similar conclusion and argued that sigmatic verses do not occur with special frequency in harsh contexts and that ancient concern with euphony has been much exaggerated. L. P. Wilkinson responded with a spirited attack on Todd's scepticism, but without offering any statistics of his own.[7] While sympathetic to Wilkinson's general viewpoint, I believe that a better statistical perspective cannot fail to put such speculation on a more secure foundation.

With this in mind, I have tabulated the frequency of various sounds in Homer. These statistics, printed in Tables 1 and 2, show how many verses in the *Iliad* or the *Odyssey* do not contain each sound, how many verses contain that sound exactly once, exactly twice, and so forth.[8]

[4] *Op. cit.* I, xxiii. See further his "Euphonic reasons for the choice of Homeric formulae?" *Hermathena* 108 (1969) 14–17.

[5] *De Comp.* 14, UR 54.

[6] For asigmatic odes: Athenaeus 455c–d; Schmid-Stählin, I, 1, 544 n. 11; G. A. Privitera, "L'asigmatismo di Laso e di Pindaro in Clearco Fr. 88 Wehrli," *RCCM* 6 (1964) 164–70. On comic ridicule of Euripidean sigmatism: Plato Comicus, *Heortae*, fr. 7 Meineke; Eubulus, *Dionysius*, frr. 2 & 3.

[7] J. A. Scott, "Sigmatism in Greek Dramatic Poetry," *AJP* 29 (1908) 69–77; O. J. Todd, "Sense and Sound in Classical Poetry," *CQ* 36 (1942) 29–39; L. P. Wilkinson, "Onomatopoeia and the Sceptics," *CQ* 36 (1942) 121–33.

[8] The counts are based on the Oxford edition of the *Iliad* by D. B. Munro and T. W. Allen, and the *Editio Helvetica* of the *Odyssey* by P. Von der Mühll. The statistics were compiled by computer from a text prepared originally by A. Q. Morton. This computer text contains some errors, but not enough to alter significantly the statistics. I have counted ξ and ψ as κς and πς, but ζ, perhaps arbitrarily, as a single sound. Nasal-

TABLE 1. SOUND DENSITIES IN THE *Iliad**

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
α	671	2214	3723	3676	2791	1565	714	235	71	19	2	1				
β	13127	2287	249	17	2											
γ	9774	4699	1044	155	9	1										
δ	4461	6291	3484	1164	243	36	3									
ε	296	1432	2956	3870	3420	2127	1037	393	115	25	9	2				
ζ	14546	1108	28													
η	4773	6065	3320	1171	299	48	6									
θ	8455	5455	1549	200	22	1										
ι	3143	5528	4286	2016	543	141	23	2								
κ	4342	6104	3669	1221	290	46	9	1								
λ	4852	5558	3364	1359	409	121	16	3								
μ	4395	6069	3668	1208	292	47	2	1								
ν	609	2258	4005	3905	2810	1421	497	146	27	4						
ο	1362	3366	4167	3417	2075	896	314	67	16	2						
π	4160	5752	3764	1545	375	73	13									
ρ	2739	5429	4691	2114	574	118	13	4								
σ	824	2585	3908	3918	2608	1236	450	126	23	3	1					
τ	1716	4220	4812	3012	1329	461	100	28	4							
υ	8152	5682	1591	240	17											
φ	10552	4386	692	46	5	1										
χ	9980	4607	965	122	7	1										
ω	6609	5727	2494	671	157	20	4									
αι	8004	5596	1734	305	39	4										
αυ	13520	2050	107	5												
ει	8932	5207	1339	193	10	1										
ευ	13055	2461	159	7												
οι	9227	4852	1340	226	33	2	2									
ου	10860	3897	826	82	17											
υι	15100	577	5													
ηι	13358	1966	333	23	1	1										
ηυ	15296	386														
ωι	13922	1552	200	7	1											
L	1	26	159	537	1345	2248	2980	2980	2397	1576	845	371	146	52	18	1
P	2197	4556	4671	2815	1008	362	66	4	1	2						
T	178	917	2402	3718	3793	2600	1338	515	177	40	4					
K	1357	3990	4974	3310	1479	451	103	17								
γ*K*	14999	677	6													

* See note 8.

TABLE 2. SOUND DENSITIES IN THE *Odyssey*

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
α	536	1909	2840	2852	1942	1239	532	190	48	17	3	2				
β	10234	1703	166	7												
γ	7310	3819	850	125	6											
δ	3372	4940	2731	872	171	23	1									
ε	235	1039	2311	2988	2573	1718	782	324	109	25	6					
ζ	11216	863	31													
η	3250	4425	2929	1101	340	59	6									
θ	6280	4252	1315	238	25											
ι	2654	4565	3053	1382	370	81	4	1								
κ	3350	4681	2686	1046	293	48	6									
λ	3996	4182	2463	1057	312	83	11	4	2							
μ	3132	4691	2936	1077	215	50	8	1								
ν	438	1659	3053	3182	2110	1125	413	104	23	2	1					
ο	1234	2714	3209	2539	1442	675	236	53	8							
π	3432	4378	2811	1161	260	60	8									
ρ	2406	4518	3369	1424	349	40	4									
σ	657	2017	2999	2918	1939	946	469	129	34	2						
τ	1232	3253	3669	2435	1115	309	77	16	4							
υ	6212	4383	1277	214	23	1										
φ	8050	3446	565	48	1											
χ	8739	2885	441	41	4											
ω	5623	4424	1627	363	66	7										
αι	6109	4301	1360	299	32	6	3									
αυ	10204	1809	97													
ει	6500	4274	1158	165	13											
ευ	9842	2134	130	4												
οι	6553	4018	1268	229	38	4										
ου	8386	2954	666	96	8											
υι	11838	269	3													
ηι	10553	1303	227	27												
ηυ	11847	263														
ωι	10742	1185	175	8												
L	2	23	143	457	1086	1778	2279	2303	1844	1124	626	278	124	35	5	3
P	1789	3668	3528	1987	796	275	63	3	1							
T	118	702	1722	2728	2915	2230	1146	416	104	24	5					
K	1172	3396	3612	2414	1085	344	68	19								
γ*K*	11744	360	6													

According to Table 1, for example, 4160 lines of the *Iliad* contain no π, 5752 contain exactly one π, 3764 contain exactly two π's, but only thirteen verses have six π's.

Before turning to the text itself, I wish to make it clear that I do not claim that every line with an unusual accumulation of some letter must be expressive, or that every expressive verse must be statistically unique. In discussing sound in Latin poetry, Marouzeau makes some sensible remarks on this subject:

> L'effet des procédés phoniques est latent et pour ainsi dire facultatif; il n'est exploité que si les circonstances s'y prêtent; apparaît-il inutile ou déplacé, le sujet entendant néglige de l'interpréter ou même ne le perçoit pas.[9]

Let us begin with a verse cited by Leaf for its six π's:

ἐν πεδίῳ πεπόλιστο, πόλις μερόπων ἀνθρώπων (*Il.* 20.217)

According to Leaf, "The strongly-marked alliteration only shews how little stress can be laid upon any supposed design in such phenomena." From Table 1 we see that no Iliadic verse has more than 6 π's, so Leaf is correct about the "strongly-marked alliteration," though he is apparently unaware that twenty other verses in Homer also have six π's. Only one of these (13.158) receives his notice: "as usual a mere accident." Nine of these verses contain the word ἵππος "horse" and provide an opportunity of evoking the sound of galloping hoofs.

οὐρανὸν ἐς πολύχαλκον ἐπέπληγον πόδες ἵππων (*Il.* 5.504)

ὄφρ' ἐπὶ Βουπρασίου πολυπύρου βήσαμεν ἵππους (*Il.* 11.756)

ἵππους ἐς πόλεμον πεπληγέμεν. αὐτὰρ Ἀπόλλων (*Il.* 16.728)

ἦλθον· πλῆτο δὲ πᾶν πεδίον πεζῶν τε καὶ ἵππων (*Od.* 14.267)

The second verse contains nine labial stops. The only other verse with nine labials describes Deiphobus striding swiftly forward under his shield:

κοῦφα ποσὶ προβιβὰς καὶ ὑπασπίδια προποδίζων (*Il.* 13.158)

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ized gamma is kept apart (printed as γK). The counts for the vowels exclude diphthongs which are listed separately; but long and short α, ι, and υ are not distinguished. Statistics are also presented for classes of sounds: labials ($P = \pi, \beta, \phi$), dentals ($T = \tau, \delta, \theta$), gutturals ($K = \kappa, \gamma, \chi$), and liquids ($L = \lambda, \rho, \mu, \nu$). Throughout this paper the term "liquid" will include the nasals.

[9] J. Marouzeau, *Traité de stylistique latine* (Paris 1935) 33. For similar remarks, see Wilkinson (above, note 7), and his *Golden Latin Artistry* (Cambridge 1963).

Of twenty-one verses containing six π's, Leaf has cited two, passing over the most expressive.[10] Some might argue that the verse he does cite (20.217) contains deliberate sound play. The noun πόλις, as Eustathius notes,[11] is echoed in the verb πεπόλισο, and the final syllables of the formulaic μερόπων ἀνθρώπων rhyme. Moreover, the second and third words begin with the syllable πε. It is at least possible that we can observe here a delight in sound for sound's sake. It may be only our imagination, but if we choose to believe otherwise, we have the satisfaction of knowing that out of 15,000 verses in the *Iliad* only thirteen contain as many π's.

In his commentary on the *Odyssey*, Stanford often refers to alliteration, assonance, and euphony. His first such note (on 1.48–49) calls attention to alliteration of δ's. Since three δ's happen about once every fifteen lines in the *Odyssey*, the listener's awareness of the alliteration, if it exists at all, may be conditioned mainly by the echoes δαϊ- δαι- and δὴ δηθά:

ἀλλά μοι ἀμφ' Ὀδυσῆϊ δαΐφρονι δαίεται ἦτορ,
δυσμόρῳ, ὃς δὴ δηθὰ φίλων ἄπο πήματα πάσχει (*Od.* 1.48–9)

Another note calls attention to the "soft alliteration" of lambda:

αἰεὶ δὲ μαλακοῖσι καὶ αἰμυλίοισι λόγοισι (*Od.* 1.56)

Table 2 shows that this density of lambdas occurs about once every ten lines.[12] Most readers, I think, will find this verse expressive, but the reason is more complex than mere alliteration. It has only twelve consonants, including five liquids and only two unvoiced stops.

[10] Here as elsewhere I have counted double consonants as equivalent to two single consonants. This decision might be argued, especially in the case of sigma, but the alternative of ignoring gemmination is even less defensible. Another verse cited by Leaf to prove his contention that alliteration in Homer is accidental (18.288) has only 5 π's, which puts it in company with 73 Iliadic verses. Yet another line (3.50) has four π's (along with 375 other lines of the *Iliad*). The accidental nature of alliteration cannot be established by citing such verses.

[11] Eustathius calls it an ἐτυμολογικὸς τρόπος.

[12] The immediately following verse contains two λ's:

θέλγει ὅπως Ἰθάκης ἐπιλήσεται· αὐτὰρ Ὀδυσσεύς

Nearly one third of the verses in the *Odyssey* have two λ's, but one might claim that enjambement links the θέλγει closely with the previous line, and that the relevant question is: How many pairs of two lines have at least five λ's? I have not counted such pairs, but Table 1 suggests that there are many.

Equally important, there are no consonant clashes to interrupt the flow. Stanford notes the triple rhyme in *-οισι*, and one might mention also the sound-echoes in the syllables *μαλ*, *μυλ*, *λακ*, *λογ*, *κοι*, *και*, and the three *αι*'s. Stanford's next note on euphony is motivated by the three *χ*'s and three *ω*'s in the formula *Ἀχαιῶν χαλκοχιτώνων* (*Od.* 1.286). This number of *χ*'s occurs in 40 Odyssean and over 100 Iliadic verses. It would be an interesting statistical problem to determine whether alliteration is more common in formulaic or non-formulaic passages, and whether it is most common within formulas or across formula boundaries. This particular alliterative noun-epithet group occurs elsewhere in a full-line formula which contains more *ω*'s than any other single verse:

Τρώων θ' ἱπποδάμων καὶ Ἀχαιῶν χαλκοχιτώνων (*Il.* 3.127)

Stanford notes the assonance and alliteration in this line:

κτήματα δ' αὐτὸς ἔχοις καὶ δώμασι σοῖσιν ἀνάσσοις (*Od.* 1.402)

The three *οι*'s (229 parallels) and eight *σ*'s (34 parallels) combine to make the verse moderately unusual. Stanford calls attention to a verse which has four *π*'s. So do 260 other lines in the *Odyssey*, though here the *π*'s are all word-initial, and a gnomic verse is a likely place to find deliberate sound-play:

παῦροι γάρ τοι παῖδες ὁμοῖοι πατρὶ πέλονται (*Od.* 2.276)

As an explanation for the harshness of the verses describing the Cyclops' cannibalism, Stanford cites the "ugly guttural sounds":

σὺν δὲ δύω μάρψας ὥς τε σκύλακας ποτὶ γαίῃ

κόπτ'· ἐκ δ' ἐγκέφαλος χαμάδις ῥέε, δεῦε δὲ γαῖαν (*Od.* 9.289–90)

There are three guttural sounds in the first, and five in the second verse. Table 2 shows that the first density occurs once every five lines, the second once every thirty-five lines. This concentration of gutturals is unusual but far from unique. A single line in the *Iliad* (11.351, quoted below) has nine gutturals. No one, I think, will deny the harsh sound of these verses, but the density of guttural sounds is not the entire explanation. A major factor, as Dionysius often tells us, is the distribution of consonant clashes: *νδ*, *ρψ*, *στ*, *σκ*, *σπ*, *πτ*, *κδ*, *γκ*, *σχ*, *σρ*.[13]

[13] Dionysius cites this passage at *De Comp.* 16, UR 66.

Stanford is of course aware of this mechanism, and he invokes it later in connection with the Siren's song (*Od.* 12.184–91) where "the consonants are carefully spaced between vowels to avoid harsh clashes." On the famous description of the stone of Sisyphus, Stanford mentions the alliteration of τ's, π's, and δ's:

αὖτις ἔπειτα πέδονδε κυλίνδετο λᾶας ἀναιδής (*Od.* 11.598)

Table 2 shows that, with the possible exception of δ, these concentrations are not unusual. Many other factors contribute to the expressiveness of this verse, including the meter.[14] I believe that the repeated cluster $\nu\delta\epsilon$ also plays a role. The sequence of nasal plus stop occurs in expressive English words like "thump," bump," "thunder," etc., and the first verse of Ennius' *Annales* seems to exploit the similar effect of the sequence *-umpu-* to imitate the dancing of the Muses on Olympus:[15]

Musae quae pedibus magn*um pu*lsatis Ol*ympu*m

Stanford notes "alliteration of κ for a disagreeable situation":

ἀλλ' ἀκέων κίνησε κάρη, κακὰ βυσσοδομεύων (*Od.* 17.465)

This density of κ occurs on the average only twice in each book of the *Odyssey*, but when Stanford makes the very same observation about a line with only three κ's (*Od.* 17.306), we wonder why he passes over in silence the other 1045 verses with this same number of κ's. This particular verse may be noteworthy for its sound, but the mere number of κ's is not unusual.

The relationship between sound and sense involves a complex interaction of many factors. Expressiveness is too often explained by "alliteration"—the repetition of the same sound—in cases where the mere fact of repetition is statistically not significant.[16] One use of statistics, however, is to call attention to those verses that really do have a unique density of a particular sound. While we cannot expect to identify expressive passages merely by counting letters, such counts

[14] A. M. Dale, "Greek Metric 1936–1957," *Lustrum* 2 (1957) 5–51, see p. 34.

[15] Compare the cluster $\nu\tau\alpha$ in *Il.* 23.116 cited below. The sceptic will have at hand the phrase ὄνδε δόμονδε which he will derisively translate as "thumping homeward."

[16] By way of illustration I have quibbled at a few minor points in Stanford's notes to the *Odyssey*; but I do not wish to leave the impression of serious disagreement with one of the few scholars who have given this topic the attention it deserves.

may draw our attention to unusual sound patterns.[17] It would require far too much space to print all the verses which contain unusual densities of each sound, and the following examples are chosen arbitrarily for their interest or curiosity. The interested reader can examine all of the passages for himself with the aid of Tables 3 and 4, which list the lines with the highest densities of each sound.

This verse contains more alphas than any other in the *Iliad*:

πολλὰ δ' ἄναντα κάταντα πάραντά τε δόχμιά τ' ἦλθον (*Il.* 23.116)

Even the sceptical Leaf admits that this verse "has attained a fame, perhaps beyond its merits, as an imitation of the sound of the stamping feet." The effect depends on more than the monotony of eleven alphas, but it is perhaps not coincidental that this famous verse was singled out as unique by our counts. Further verses with high densities are worth quoting:

πάντα κατὰ μοῖραν· ἀνά θ' ἱστία λευκὰ πέτασσαν (*Od.* 4.783)

πὰρ ποταμὸν κελάδοντα, παρὰ ῥοδανὸν δονακῆα (*Il.* 18.576)

According to Dionysius, long alpha is the best vowel, followed by η. Homer uses six η's in describing the fair Hippodamea:

τὴν περὶ κῆρι φίλησε πατὴρ καὶ πότνια μήτηρ (*Il.* 13.430)

One wonders whether it is coincidental that many of the verses with five or six η's deal with youth, beauty, and love-making (*Il.* 24.348, 19.176, 24.30, 3.401, 14.360). Thersites' insult to Agamemnon, however, is mentioned in a verse with a unique density of the diphthong ει, which is seldom distinguished in modern pronunciation from η.[18]

νεικείειν βασιλῆας ὀνειδείοις ἐπέεσσιν (*Il.* 2.277)

Andromache repeats the diphthong αι five times in one verse as she wails for Hector:

αἰόλαι εὐλαὶ ἔδονται, ἐπεί κε κύνες κορέσωνται (*Il.* 22.509)

[17] A number of such verses are collected by A. Shewan, "Alliteration and Assonance in Homer," *CP* 20 (1925) 193–209.

[18] One ought to distinguish between true and "spurious" ει in Homeric pronunciation, but the sounds fell together before the Classical period. I have not distinguished the two in my counts, so that ει includes ε̄, ει, and εϊ. See W. S. Allen, *Vox Graeca* (Cambridge 1968) 67–68. A phonologist might argue, moreover, that η itself represents more than one sound in Homeric pronunciation, since certain early Ionic inscriptions reserve that letter for original long α.

TABLE 3. UNUSUAL SOUND DENSITIES IN THE *Iliad*

α (9×) 2.14, 31, 68, 777, 5.621, 7.130, 8.441, 10.289, 13.510, 14.447, 517, 15.713, 17.187, 18.576, 19.93, 21.51, 500, 22.120, 328 (10×) 2.362, 13.740 (11×) 23.116

β (3×) 1.438, 5.394, 6.22, 10,375, 11.380, 475, 657, 809, 13.156, 251, 371, 15.307, 16.660, 751, 17.118, 21.448, 24.81 (4×) 4.492, 8.249

γ (4×) 5.815, 9.108, 338, 422, 13.825, 21.439, 23.294, 300, 894 (5×) 24.396

γK (2×) 4.529, 11.503, 13.574, 15.159, 19.152, 387

δ (5×) 4.411, 5.225, 238, 251, 281, 519, 548, 617, 837, 846, 6.99, 7.163, 168, 475, 8.138, 167, 10.109, 260, 340, 446, 11.312, 333, 449, 13.442, 16.234, 522, 17.130, 19.310, 22.379, 23.290, 499, 679, 688, 812, 851, 24.230 (6×) 10.100, 150, 476

ε (9×) 2.257, 789, 4.127, 5.606, 6.419, 515, 8.223, 286, 9.456, 10.43, 395, 11.6, 14.125, 437, 15.198, 16.110, 17.204, 470, 18.176, 469, 21.96, 543, 22.353, 23.410, 851 (10×) 1.212, 4.247, 8.401, 9.619, 12.222, 21.217, 407, 23.672, 24.229 (11×) 8.454, 10.85

ζ (2×) 2.303, 4.166, 5.440, 757, 872, 889, 6.38, 7.95, 239, 8.141, 250, 443, 11.150, 544, 846, 13.281, 14.4, 181, 17.221, 440, 566, 18.519, 19.406, 21.570, 23.130, 225, 24.245, 270

η (5×) 1.400, 2.15, 32, 69, 144, 156, 219, 260, 313, 327, 363, 547, 3.175, 201, 401, 4.8, 5.114, 282, 389, 908, 6.212, 251, 8.91, 447, 10.134, 293, 11.45, 13.202, 322, 15.14, 25, 16.175, 18.396, 19.98, 334, 20.94, 200, 306, 431, 21.288, 578, 22.239, 247, 419, 23.432, 24.30, 348, 408 (6×) 9.133, 275, 13.430, 14.360, 19.176, 21.111

θ (4×) 1.274, 2.382, 6.143, 465, 7.282, 293, 9.637, 10.67, 11.715, 13.699, 14.169, 493, 15.124, 322, 16.255, 540, 18.167, 381, 20.429, 23.763, 774, 24.646 (5×) 23.770

ι (6×) 1.189, 4.46, 5.219, 326, 526, 9.113, 357, 11.186, 623, 846, 14.165, 290, 15.158, 439, 712, 18.58, 118, 439, 19.141, 174, 263, 24.143, 472 (7×) 15.597, 19.268

κ (5×) 1.139, 606, 2.729, 3.18, 41, 138, 4.110, 5.67, 6.78, 322, 356, 7.139, 8.153, 9.11, 379, 10.257, 261, 335, 472, 11.33, 53, 164, 285, 14.126, 291, 15.424, 485, 700, 16.111, 654, 17.187, 18.309, 456, 487, 19.290, 332, 414, 20.227, 397, 475, 21.66, 22.323, 349, 23.58, 412, 24.370 (6×) 3.354, 4.339, 10.459, 11.351, 14.472, 15.498, 16.730, 21.484, 23.851 (7×) 4.109

λ (6×) 2.804, 9.553, 585, 678, 11.782, 12.274, 13.709, 14.84, 18.534, 553, 19.139, 200, 22.258, 23.607, 844, 24.46 (7×) 2.241, 16.142, 19.389

μ (5×) 1.103, 335, 3.397, 414, 4.38, 6.84, 120, 444, 488, 7.3, 76, 8.78, 9.355, 412, 619, 10.91, 205, 11.57, 502, 12.88, 13.80, 269, 337, 579, 14.85, 375, 15.105, 115, 16.194, 529, 813, 18.79, 156, 19.153, 213, 20.159, 442, 468, 22.13, 123, 243, 23.63, 585, 814, 24.73, 687, 773 (6×) 13.297, 469 (7×) 785

ν (8×) 1.506, 3.439, 4.181, 336, 368, 6.202, 292, 7.329, 8.186, 278, 10.221, 11.188, 203, 12.142, 13.628, 14.134, 155, 362, 15.29, 16.789, 18.111, 186, 483, 19.8, 21.266, 22.382, 23.295 (9×) 2.397, 14.233, 16.454, 491

ο (8×) 2.325, 605, 4.395, 5.162, 276, 831, 6.498, 13.440, 14.396, 15.534, 16.669, 17.428, 19.404, 21.602, 22.221, 24.670 (9×) 13.615, 16.604

π (5×) 1.422, 2.104, 312, 3.265, 299, 4.229, 297, 5.195, 288, 315, 408, 6.307, 412, 505, 7.88, 481, 8.41, 411, 9.252, 438, 506, 10.72, 464, 513, 568, 11.151, 152, 157, 323, 579,

724, 12.249, 386, 13.385, 412, 592, 14.307, 15.280, 372, 680, 16.113, 395, 671, 681, 744, 17.243, 349, 432, 18.288, 342, 452, 19.227, 363, 404, 20.5, 250, 340, 401, 21.269, 452, 22.197, 198, 467, 23.133, 238, 291, 351, 453, 475, 480, 504, 24.286, 792 (6×) 5.504, 11.179, 756, 760, 13.158, 15.185, 16.728, 17.406, 18.280, 20.217, 22.138, 23.487, 782

ρ (6×) 3.64, 12.302, 13.131, 188, 14.292, 15.152, 16.215, 579, 18.3, 611, 22.112, 23.741, 893 (7×) 11.31, 12.33, 18.477, 21.405

σ (8×) 3.63, 4.212, 530, 5.177, 6.65, 506, 8.97, 9.73, 508, 657, 10.324, 576, 13.497, 15.263, 17.283, 18.66, 19.141, 265, 20.284, 21.116, 23.727, 24.238, 387 (9×) 1.83, 10.455, 11.565 (10×) 14.94

τ (7×) 1.70, 467, 478, 2.430, 4.168, 243, 5.402, 901, 7.319, 8.69, 283, 9.559, 630, 11.755, 16.163, 457, 675, 17.472, 732, 18.70, 485, 21.585, 22.30, 209, 307, 23.267, 414, 712 (8×) 4.340, 13.20, 15.621, 23.403

υ (4×) 4.423, 5.67, 8.369, 374, 411, 10.315, 11.635, 12.327, 14.253, 16.540, 622, 18.289, 320, 375, 19.363, 22.46, 24.778

φ (3×) 1.45, 511, 578, 2.251, 628, 700, 767, 3.424, 4.104, 5.258, 743, 6.162, 9.423, 560, 10.30, 127, 257, 416, 11.40, 41, 305, 350, 12.221, 13.527, 805, 14.123, 15.153, 310, 669, 16.313, 667, 842, 17.118, 268, 312, 18.114, 254, 538, 19.383, 21.330, 367, 378, 542, 22.316, 23.170, 343 (4×) 7.280, 10.261, 552, 18.205, 21.101 (5×) 2.363

χ (3×) 1.371, 2.47, 163, 187, 235, 437, 730, 823, 3.29, 127, 131, 251, 275, 363, 4.154, 199, 269, 419, 511, 526, 5.302, 494, 582, 696, 860, 6.44, 103, 319, 320, 405, 408, 454, 7.188, 220, 255, 264, 275, 444, 8.71, 221, 248, 321, 347, 494, 495, 10.31, 135, 136, 287, 367, 461, 565, 11.211, 351, 488, 513, 621, 774, 12.81, 100, 396, 13.181, 272, 578, 595, 747, 749, 14.12, 148, 385, 420, 15.56, 361, 369, 482, 16.79, 118, 248, 318, 344, 426, 505, 520, 801, 17.296, 310, 358, 414, 18.2, 24, 33, 75, 105, 231, 354, 533, 594, 19.222, 254, 424, 20.139, 163, 262, 272, 273, 285, 363, 416, 474, 480, 21.72, 139, 181, 259, 393, 403, 22.96, 23.423, 575, 803, 24.225, 478 (4×) 1.450, 4.533, 12.352, 17.450, 604, 22.322, 24.304 (5×) 9.86

ω (5×) 1.339, 2.804, 3.36, 5.442, 7.275, 8.523, 10.408, 11.220, 703, 12.277, 287, 13.6, 342, 14.233, 15.320, 16.633, 20.352, 23.633, 24.528, 698 (6×) 3.127, 131, 251, 8.71

αι (5×) 5.502, 18.42, 21.350, 22.509

αυ (3×) 1.133, 9.135, 277, 13.642, 18.481

ει (4×) 3.376, 4.377, 400, 9.345, 10.31, 96, 238, 17.296, 19.142, 24.433 (5×) 2.277

ευ (3×) 9.478, 663, 18.192, 23.15, 69, 474, 24.675

ηι (3×) 1.205, 300, 329, 369, 2.395, 6.210, 7.241, 9.556, 10.74, 12.48, 13.267, 314, 590, 15.46, 624, 17.242, 18.571, 19.282, 331, 20.245, 21.239, 557, 22.64 (4×) 8.24 (5×) 9.654

οι (4×) 1.272, 344, 2.796, 3.164, 190, 308, 4.18, 63, 146, 5.304, 474, 484, 6.227, 248, 250, 358, 421, 8.205, 9.586, 642, 10.437, 477, 11.24, 75, 408, 12.449, 13.525, 710, 15.699, 20.287, 21.371, 428, 23.498 (5×) 6.177, 23.459 (6×) 5.222, 8.106

ου (4×) 1.115, 154, 5.341, 8.404, 418, 9.316, 10.311, 398, 415, 436, 550, 11.406, 756, 13.284, 761, 14.84, 20.205

υι (2×) 2.666, 5.631, 13.171, 663, 17.524

TABLE 3. *Continued*

ωι (3×) 3.384, 4.258, 5.325, 9.598, 11.608, 17.677, 22.72 (4×) 23.265

P (6×) 4.108, 219, 297, 5.195, 315, 504, 6.125, 355, 8.41, 67, 249 9.506, 10.26, 72, 513, 535, 11.85, 109, 151, 179, 353, 402, 12.249, 386, 13.300, 521, 527, 806, 807, 14.217, 15.185, 280, 307, 319, 355, 547, 608, 647, 16.20, 609, 671, 681, 728, 744, 778, 812, 842, 17.243, 406, 18.280, 414, 20.217, 340, 22.137, 138, 197, 23.127, 133, 251, 453, 487, 613, 782, 24.286, 459, 645 (7×) 3.265, 10.568, 11.760, 19.404 (8×) 17.118 (9×) 11.756, 13.158

T (9×) 1.468, 544, 602, 2.431, 4.243, 340, 5.78, 158, 443, 7.163, 320, 9.88, 519, 10.263, 383, 11.182, 313, 761, 13.20, 52, 683, 14.193, 342, 15.628, 16.163, 475, 605, 17.201, 732, 18.230, 21.20, 22.365, 450, 23.56, 116, 269, 290, 679, 24.181, 665 (10×) 7.475, 13.29, 15.189, 21.177

K (7×) 2.377, 437, 3.354, 4.43, 109, 533, 6.504, 8.153, 10.135, 12.125, 14.12, 126, 420, 15.482, 498, 17.623, 19.332 (9×) 11.351

L (12×) 1.103, 141, 217, 435, 465, 2.36, 343, 402, 428, 529, 639, 674, 798, 804, 3.22, 103, 439, 4.102, 120, 229, 239, 332, 368, 425, 447, 472, 5.28, 38, 94, 197, 339, 639, 660, 664, 678, 6.33, 151, 179, 207, 249, 264, 7.152, 481, 8.61, 78, 188, 202, 252, 256, 274, 486, 9.186, 327, 364, 365, 412, 423, 514, 531, 541, 574, 585, 672, 10.3, 123, 216, 338, 442, 549, 11.68, 99, 188, 203, 303, 538, 572, 717, 786, 828, 12.116, 136, 412, 13.226, 237, 269, 272, 689, 799, 830, 14.85, 97, 369, 375, 411, 441, 15.302, 375, 380, 400, 533, 623, 714, 16.38, 240, 481, 492, 603, 633, 735, 775, 17.67, 269, 280, 383, 405, 413, 438, 18.186, 432, 454, 19.35, 108, 20.21, 47, 468, 21.40, 47, 188, 202, 259, 22.406, 23.78, 84, 418, 864, 865, 873, 887, 24.9, 46, 245, 316, 324, 664, 679, 753 (13×) 1.442, 498, 2.21, 241, 414, 420, 605, 3.81, 393, 432, 4.445, 5.753, 889, 6.187, 371, 7.36, 162, 8.96, 453, 9.602, 700, 10.18, 28, 11.475, 502, 12.33, 344, 357, 13.579, 14.362, 15.588, 16.124, 336, 454, 647, 17.365, 403, 703, 18.111, 129, 288, 480, 600, 19.8, 20.142, 21.100, 176, 305, 22.493, 23.110, 399, 479 (14×) 1.287, 506, 3.307, 5.831, 6.488, 8.186, 11.187, 202, 469, 12.152, 13.472, 14.134, 15.715, 16.220, 491, 17.721, 21.405, 24.568 (15×) 7.329

Cratylus would have rejoiced to learn that the highest concentration of liquid letters in the *Iliad* accompanies a mention of the fair-flowing river Scamander:

τῶν νῦν αἷμα κελαινὸν ἐΰρροον ἀμφὶ Σκάμανδρον (*Il.* 7.329)

By a remarkable coincidence Hesiod never uses more liquids than in this riverine verse:

Στρυμόνα Μαίανδρόν τε καὶ Ἴστρον καλλιρέεθρον (*Theog.* 339)

Another mournful liquid-laden line:

μοῖραν δ' οὔ τινά φημι πεφυγμένον ἔμμεναι ἀνδρῶν (*Il.* 6.488)

TABLE 4. UNUSUAL SOUND DENSITIES IN THE *Odyssey*

α (9×) 3.222, 242, 307, 457, 4.114, 5.136, 162, 6.175, 7.94, 257, 8.92, 15.369, 16.109, 19.18, 20.319, 370, 23.336 (10×) 7.170, 9.109, 16.93 (11×) 4.783, 8.54

β (3×) 1.360, 12.77, 423, 13.246, 17.490, 21.354, 22.403

γ (4×) 3.227, 232, 4.200, 292, 11.498, 20.6

γK (2×) 7.120, 8.261, 351, 15.458, 19.438, 21.433

δ (5×) 1.428, 3.41, 181, 4.129, 437, 5.100, 7.264, 8.60, 64, 296, 483, 9.210, 12.104, 15.150, 388, 412, 429, 18.323, 19.227, 23.208, 24.177, 276, 493 (6×) 20.353

ε (9×) 2.187, 3.28, 158, 159, 4.178, 5.314, 9.386, 10.393, 11.20, 367, 12.34, 90, 15.378, 16.440, 444, 17.229, 18.82, 19.62, 176, 487, 22.17, 144, 23.199, 335, 24.481 (10×) 4.274, 7.220, 256, 19.99, 21.69, 337

η (5×) 1.114, 118, 2.150, 313, 405, 416, 3.12, 29, 82, 343, 383, 4.45, 430, 575, 5.467, 7.37, 84, 140, 269, 8.244, 9.169, 367, 559, 10.186, 279, 11.254, 422, 601, 12.3, 27, 86, 125, 226, 13.186, 210, 14.202, 216, 239, 15.36, 233, 16.303, 17.46, 170, 252, 360, 18.346, 19.571, 20.131, 162, 284, 340, 345, 21.51, 103, 284, 22.202, 23.149, 371, 24.541, (6×) 5.239, 14.330, 16.33, 462, 19.192, 299

θ (4×) 1.119, 2.262, 329, 3.336, 4.299, 564, 5.73, 110, 133, 195, 7.52, 251, 338, 9.107, 10.152, 154, 228, 353, 12.155, 13.65, 370, 14.125, 19.364, 22.157, 24.64

ι (6×) 4.632, 7.67, 13.144, 23.362 (7×) 9.186

κ (6×) 9.329, 10.213, 11.111, 16.288, 19.7, 21.131

λ (6×) 4.230, 698, 7.60, 9.23, 55, 378, 10.421, 11.42, 596, 15.401, 18.401 (7×) 4.472, 9.469, 12.108, 21.327 (8×) 5.71, 14.68

μ (6×) 10.50, 177, 15.15, 16.237, 17.46, 23.127, 355, 24.396 (7×) 11.210

ν (8×) 2.124, 281, 4.182, 6.163, 10.527, 11.147, 12.183, 14.193, 15.77, 94, 500, 532, 542, 16.417, 19.169, 408, 440, 20.95, 135, 22.179, 23.147, 363, 24.507 (9×) 9.232, 10.123 (10×) 16.254

ο (8×) 6.183, 294, 7.131, 8.65, 494, 12.419, 14.309, 17.292

π (6×) 1.183, 5.263, 12.381, 14.267, 17.436, 19.553, 22.280, 24.119

ρ (6×) 3.482, 7.90, 11.483, 22.333

σ (8×) 1.402, 2.415, 3.98, 4.48, 241, 328, 501, 582, 844, 845, 5.269, 6.149, 9.300, 324, 10.268, 329, 506, 528, 11.431, 13.213, 14.22, 16.82, 17.87, 299, 449, 18.394, 20.92, 21.137, 164, 225, 409, 22.74, 23.239, 24.30 (9×) 7.163, 10.45

τ (7×) 1.152, 2.123, 8.61, 546, 11.77, 80, 308, 16.353, 17.463, 18.315, 416, 20.116, 324, 22.78, 134, 23.325 (8×) 2.89, 4.392, 5.262, 9.14

υ (4×) 1.55, 4.153, 5.319, 388, 7.90, 121, 289, 8.531, 9.74, 99, 286, 463, 10.353, 357, 548, 12.104, 183, 406, 14.304, 15.7, 18.105, 407, 22.195 (5×) 21.171

φ (3×) 1.261, 2.35, 290, 329, 349, 361, 379, 4.133, 150, 289, 402, 5.135, 230, 493, 6.6, 199, 7.256, 8.201, 373, 9.204, 389, 476, 10.302, 543, 11.22, 319, 12.74, 210, 13.108, 399, 14.355, 505, 15.462, 16.15, 145, 174, 17.39, 262, 19.417, 446, 21.431, 22.112, 492, 23.17, 52, 144, 335, 24.242 (4×) 8.267

TABLE 4. *Continued*

χ (3×) 1.99, 104, 121, 136, 286, 2.10, 3.112, 437, 445, 446, 4.52, 202, 5.229, 7.172, 8.332, 9.71, 221, 295, 372, 10.368, 11.575, 14.478, 15.7, 60, 135, 448, 551, 16.35, 444, 17.91, 18.156, 194, 396, 19.4, 34, 438, 20.127, 271, 21.433, 22.95, 24.78 (4×) 3.433, 4.496, 19.448, 23.294

ω (4×) 1.3, 167, 202, 3.436, 4.20, 62, 148, 350, 377, 442, 589, 5.32, 121, 282, 448, 6.5, 7.247, 8.29, 500, 9.106, 415, 502, 10.123, 546, 11.216. 379, 470, 551, 567, 605, 12.67, 158, 213, 321, 396, 13.123, 179, 228, 266, 15.260, 381, 509, 17.76, 141, 18.409, 19.195, 285, 287, 351, 20.100, 371, 21.123, 152, 209, 210, 340, 22.75, 103, 114, 351, 23.248, 348, 24.18, 219, 268, 272 (5×) 6.119, 9.521, 13.200, 14.72, 17.587, 19.412, 23.147

αι (5×) 2.311, 4.720, 6.96, 7.115, 11.589, 21.251 (6×) 7.116, 11.590, 15.323

ει (4×) 1.37, 162, 4.697, 5.139, 6.144, 9.457, 12.78, 17.185, 277, 20.362, 23.77, 24.114, 281

ευ (3×) 2.426, 8.112, 15.291, 24.257

ηι (3×) 3.61, 365, 5.307, 8.445, 10.23, 272, 332, 534, 11.43, 47, 325, 633, 12.41, 186, 211, 13.251, 289, 408, 14.533, 15.258, 420, 16.158, 19.577, 21.75, 22.184, 23.186, 24.286

οι (4×) 1.313, 2.54, 254, 276, 340, 3.325, 370, 4.197, 409, 6.180, 8.110, 479, 575, 9.91, 107, 133, 11.182, 293, 12.341, 13.42, 306, 14.119, 225, 394, 15.105, 16.38, 17.69, 421, 485, 19.77, 560, 20.34, 22.11, 106, 455, 24.64, 379, 401 (5×) 14.53, 17.363, 18.112, 19.196

ου (4×) 4.433, 5.212, 6.192, 16.437, 21.108, 425, 22.39, 24.246

υι (2×) 5.337, 353, 24.515

ωι (3×) 4.71, 226, 654, 8.483, 10.235, 19.483, 20.69, 297

P (7×) 6.57, 8.373, 23.309 (8×) 2.398

T (9×) 1.23, 152, 225, 2.368, 374, 4.392, 437, 644, 7.238, 8.296, 9.14, 10.142, 306, 11.366, 463, 16.479, 17.463, 18.212, 315, 19.425, 20.333, 21.231, 333, 23.325 (10×) 2.89, 356, 8.61, 18.323, 22.220

K (7×) 1.99, 121, 4.175, 502, 754, 5.311, 8.106, 329, 9.47, 477, 11.111, 12.173, 14.184, 15.551, 19.241, 539, 20.6, 127, 24.250

L (12×) 1.166, 210, 422, 2.21, 93, 281, 290, 325, 3.1, 85, 151, 264, 318, 462, 4.9, 97, 115, 146, 154, 210, 495, 511, 661, 786, 791, 843, 5.6, 478, 7.18, 64, 253, 8.34, 93, 155, 221, 283, 431, 532, 9.45, 53, 57, 80, 82, 164, 172, 320, 378, 382, 388, 429, 546, 10.50, 87, 242, 393, 423, 11.2, 29, 210, 216, 220, 286, 400, 407, 470, 522, 530, 551, 12.5, 46, 65, 183, 275, 298, 365, 13.90, 373, 14.5, 43, 122, 314, 422, 430, 529, 15.126, 226, 370, 497, 503, 16.26, 237, 261, 473, 17.112, 116, 190, 354, 493, 581, 18.53, 55, 167, 292, 301, 305, 19.2, 52, 117, 20.76, 21.39, 150, 327, 360, 22.47, 172, 208, 369, 23.38, 311, 24.18, 25, 79, 127, 334 (13×) 1.1, 2.156, 288, 334, 4.282, 587, 5.71, 234, 361, 9.217, 470, 10.28, 85, 299, 421, 523, 527, 11.31, 326, 447, 12.276, 13.266, 15.494, 521, 545, 16.147, 19.94, 175, 440, 21.70, 125, 22.179, 23.138, 303, 363 (14×) 1.151, 3.400, 16.29, 24.128, 507 (15×) 4.230, 9.232, 10.123

Only eight verses in the *Odyssey* have more liquid letters than the opening line:

ἄνδρα μοι ἔννεπε, Μοῦσα, πολύτροπον, ὃς μάλα πολλὰ (*Od.* 1.1)

Seven λ's, the softest semi-vowel according to Dionysius, are packed into a line in which Thersites states ironically that Achilles has not been harsh with Agamemnon:

ἀλλὰ μάλ' οὐκ Ἀχιλῆϊ χόλος φρεσίν, ἀλλὰ μεθήμων· (*Il.* 2.241)

The remaining letters are harsher than the vowels and semivowels, according to Dionysius. A Trojan strikes a companion of Odysseus with four β's:

βεβλήκει βουβῶνα, νέκυν ἑτέρωσ' ἐρύοντα (*Il.* 4.492)

Since βουβῶν is a *hapax* one might suspect that its use here was suggested by its sound.

Dental sounds are more common than labials. The highest concentration is ten:

γηθοσύνῃ δὲ θάλασσα διίστατο· τοὶ δὲ πέτοντο (*Il.* 13.29)

The highest density of τ is eight:

κύματά τε τροφόεντα, τά τε προσερεύγεται αὐτήν (*Il.* 15.621)

As Odysseus prays to Athena for swiftness in the footrace he uses more θ's than any other line in Homer:

κλῦθι, θεά, ἀγαθή μοι ἐπίρροθος ἐλθὲ ποδοῖιν (*Il.* 23.770)

It is best to suppress the thought that the five θ's are meant to call to mind the verb θέω "run."

Lines with many guttural sounds can seem especially harsh. Agamemnon rebukes Odysseus with six κ's in one verse:

καὶ σύ, κακοῖσι δόλοισι κεκασμένε, κερδαλεόφρον (*Il.* 4.339)

Seven κ's appear in Hesiod's description of strife:

καὶ κεραμεὺς κεραμεῖ κοτεεῖ καὶ τέκτονι τέκτων (*Erga* 25)

Tiresias employs seven guttural consonants in his prophesy of Odysseus' evil homecoming:

καί κεν ἔτ' εἰς Ἰθάκην κακά περ πάσχοντες ἵκοισθε (*Od.* 11.111)

Nine gutturals occur in one line:

ἄκρην κὰκ κόρυθα· πλάγχθη δ' ἀπὸ χαλκόφι χαλκός (*Il.* 11.351)

Surely no two words in Greek contain more gutturals than Hesiod's κόκκυξ κοκκύζει (*Erga* 486).

We now come to sigma, the letter most often cited by ancients and moderns in their discussions of cacophony. The highest concentration of sigmas, ten of them, occurs in a rebuke by Odysseus to Agamemnon:[19]

τοσσοίδ' ὅσσοισιν σὺ μετ' Ἀργείοισιν ἀνάσσεις (*Il.* 14.94)

Anyone who argues that sigmatism in Homer is limited to harsh contexts will have difficulty explaining why eight sigmas accompany Telemachus into the bathtub at Sparta:[20]

ἕς ῥ' ἀσαμίνθους βάντες ἐϋξέστας λούσαντο (*Od.* 4.48)

or why Odysseus chooses to employ eight of them in his opening line to Nausikaa:

γουνοῦμαί σε, ἄνασσα· θεός νύ τις ἢ βροτός ἐσσι; (*Od.*6.149)

CONSONANT CLUSTERS AT WORD-BOUNDARIES

Consonant clusters within words underwent various developments.[21] Clusters modified within a single word might nonetheless occur at the juncture between two words,[22] and might impede the smooth flow of the verse. Dionysius at any rate thought so. His analysis of passages written in the "austere" and in the "smooth" style consists largely of remarks on consonant clashes at word-boundaries.[23] I have

[19] On sigmatism in Homer, see J. A. Scott, "Effect of Sigmatism as shown in Homer," *AJP* 30 (1909) 72–77.

[20] Might the clusters σρα, σβα, κσε, σλου express splashing water? Compare the clusters in English words like "splash," "slosh," "spatter."

[21] For rare clusters within words, see G. P. Shipp, "Unusual Sound Combinations in the Greek Vocabulary," *Antichthon* 1 (1967) 1–11.

[22] In some cases, the clash might be softened in pronunciation by assimilation. For assimilation of final ν, see W. S. Allen, *Vox Graeca* (Cambridge 1968) 31–32.

[23] *De Comp.* 22–23, *Demosth.* 43, UR 224–25. The Romans were equally sensitive to such clashes, both in theory and practice. See the full discussion by Marouzeau, cited above in note 9, especially pp. 35–37.

tabulated the consonant clusters which occur in Homer. In a few cases one might suspect a deliberate attempt at expressiveness. Only eight clusters of four consonants occur in the *Iliad*: *ξ-πρ*, *ξ-τρ*, *ξ-κτ*, *ξ-δμ*, *ν-στρ*, *ψ-κλ*, *ρ-στρ*, *σ-στρ*. Let us look at some of the verses. Ajax kicks with his foot at a corpse as he draws out his spear:

αὐτὰρ ὁ λὰξ προσβὰς ἐκ νεκροῦ χάλκεον ἔγχος (*Il.* 5.620)

The Greeks are being slaughtered indiscriminately:

ὡς ἐπιμὶξ κτείνονται, ἀϋτὴ δ' οὐρανὸν ἵκει (*Il.* 14.60)

In the next example, the cluster *ξδμ* perhaps marks the point at which the rapid movement of the previous verse is slowed emphatically. Zeus is pursuing Sleep on Olympos when night rescues him:

ζήτει· καί κέ μ' ἄϊστον ἀπ' αἰθέρος ἔμβαλε πόντῳ

εἰ μὴ Νὺξ δμήτειρα θεῶν ἐσάωσε καὶ ἀνδρῶν· (*Il.* 14.258–59)

Unusual sequences of three consonants occur in expressive contexts. Agamemnon prays that many Trojans may bite the dust:

πρηνέες ἐν κονίῃσιν ὀδὰξ λαζοίατο γαῖαν (*Il.* 2.418)

Nestor wakes the sleeping Diomedes with a kick in the *Doloneia*:

λὰξ ποδὶ κινήσας, ὄτρυνέ τε νείκεσέ τ' ἄντην (*Il.* 10.158)

Ajax' helmet echoes as it is struck by weapons:

πήληξ βαλλομένη καναχὴν ἔχε, βάλλετο δ' αἰεὶ (*Il.* 16.105)

At the funeral games for Patroklos, Meriones hits the dove with his arrow, and its *θυμός* flits away:

ὠκὺς δ' ἐκ μελέων θυμὸς πτάτο, τῆλε δ' ἀπ' αὐτοῦ (*Il.* 23.880)

In the *Odyssey*, Eurylochus persuades his companions to slaughter the cattle of the Sun, by arguing that the prospect of drowning is better than starvation:

βούλομ' ἅπαξ πρὸς κῦμα χανὼν ἀπὸ θυμὸν ὀλέσσαι (*Od.* 12.350)

Some of the above examples may seem effective, but it is not my impression that the majority of verses containing unusual clusters are more expressive than the average Homeric line.[24]

Vowels as well as consonants can be placed in unusual juxtapositions. In his analysis of Homer's description of Sisyphus rolling his stone up the hill in the underworld (*Od.* 11.596) Dionysius notes the expressive hiatus in the phrase λᾶαν ἄνω ὤθεσκε.[25] Etymologically this hiatus may conceal an original digamma *Fώθεσκε, but the phonetic status of digamma in the final stage of the composition of the poems is too uncertain to refute Dionysius. In any case, it is pleasant to imagine that Vergil had this Odyssean verse in mind when he used hiatus for a similar effect:

ter sunt conati imponere Pelio Ossam (*Georg.* 1.281)

Such a collocation of two ω's at a word boundary occurs in only six phrases in the entire *Odyssey*, only one of which is not weakened by epic correption or iota (subscript). The one exception occurs in a vehement speech by Telemachus:

πειρήσω ὥς κ' ὔμμι κακὰς ἐπὶ κῆρας ἰήλω (*Od.* 2.316)

Hiatus of η is much more common; Dionysius seems not to find it offensive since he cites the following line for its euphony:

Ἀρτέμιδι ἰκέλη ἠὲ χρυσέῃ Ἀφροδίτῃ (*Od.* 17.37)

A FORMULA FOR RECOGNIZING SMOOTH AND HARSH VERSES

Dionysius is explicit about the mechanisms Homer uses to make smooth verses. The poet uses (a) the best vowels, (b) the softest semivowels, (c) does not clutter the syllables with stops, (d) does not

[24] It is a separate question whether certain clusters were favored or avoided. In order to decide this question we must have an hypothesis that predicts how often such clashes would occur randomly if the poet gave no thought to them. I have not yet made a systematic investigation.

[25] *De Comp.* 20, UR 90–91. Demetrius, *De Eloc.* 72, and Eustathius make similar observations about this phrase. Alexander Pope imitated the effect in his translation of this line: "Up the high hill he heaves a huge round stone." Pope cites Dionysius in his long note on this passage. Cf. the preface to Pope's *Iliad*, "[Dionysius] has pointed out many of our author's beauties in this kind," and *Essay on Criticism* 665–66, "See Dionysius Homer's thoughts refine, and call new beauties forth from every line."

juxtapose sounds which are hard to pronounce.[26] Since he tells us which sounds he judges most euphonious, we could assign a numerical harshness factor to each letter and thereby calculate the "Dionysian" harshness of a verse. Let it be said at once that it would be simplistic to assign a single numerical value to the sound of a line, which of course has many independent components. Purely as an experiment, however, I have assigned a harshness of 1.5 for aspirated stops, 2.0 for voiced stops, 2.5 for unvoiced unaspirated stops, and 3.0 for sigma. Liquids receive negative harshness values: −1.5 for λ, −1.25 for ν and μ, −1.0 for ρ. The vowels are rated −1.0 for η, −0.5 for ω, 0.5 for υ, 1.0 for ι, and zero for α, ε, ο, and all diphthongs. Dionysius clearly finds clusters harsher than isolated consonants, so we assign an extra harshness of two for each cluster (but one for mute + liquid).[27] The final harshness factor is this sum times ten divided by the number of sounds in the line. As a demonstration of how this formula works, here is the song of the Sirens (*Od.* 12.184 ff.). Beside each verse, the harshness factor is printed.

δεῦρ' ἄγ' ἰών, πολύαιν' Ὀδυσεῦ, μέγα κῦδος Ἀχαιῶν,	5.6
νῆα κατάστησον, ἵνα νωϊτέρην ὄπ' ἀκούσῃς.	6.0
οὐ γάρ πώ τις τῇδε παρήλασε νηὶ μελαίνῃ,	4.9
πρίν γ' ἡμέων μελίγηρυν ἀπὸ στομάτων ὄπ' ἀκοῦσαι,	5.3
ἀλλ' ὅ γε τερψάμενος νεῖται καὶ πλείονα εἰδώς.	7.1
ἴδμεν γάρ τοι πάνθ' ὅσ' ἐνὶ Τροίῃ εὐρείῃ	7.0
Ἀργεῖοι Τρῶές τε θεῶν ἰότητι μόγησαν·	6.8
ἴδμεν δ' ὅσσα γένηται ἐπὶ χθονὶ πουλυβοτείρῃ.	8.8

Here, for comparison, is the Cyclops devouring the companions of Odysseus (*Od.* 9.289 ff.):

σὺν δὲ δύω μάρψας ὥς τε σκύλακας ποτὶ γαίῃ	14.0
κόπτ'· ἐκ δ' ἐγκέφαλος χαμάδις ῥέε, δεῦε δὲ γαῖαν.	11.3
τοὺς δὲ διὰ μελεϊστὶ ταμὼν ὁπλίσσατο δόρπον·	10.1
ἤσθιε δ' ὥς τε λέων ὀρεσίτροφος, οὐδ' ἀπέλειπεν,	7.6
ἔγκατά τε σάρκας τε καὶ ὀστέα μυελόεντα.	11.4

[26] *De Comp.* 16, UR 64.

[27] Dionysius (*De Comp.* 14, UR 52–57) ranks the letters, though he does not, of course, assign explicit numerical values. The numbers I have assigned are arbitrary but preserve his ranking. Clusters could undoubtedly be classified according to harshness, perhaps with higher values for those not allowed within words (as hinted by Dionysius, *Demosth.* 43, UR 225).

So far we have taken the single verse as the unit of measure. If we compute the harshness of groups of five lines, the Sirens score 29, the Cyclops 54. As a matter of curiosity we may apply this primitive measure of harshness to the entire first book of the *Iliad*. Four passages (of five lines) have a cumulative harshness of at least 50 (1.104–8, 239–43, 579–83, 606–10). The first occurs in Agamemnon's speech attacking Calchas, the second in Achilles' great oath not to fight. In both cases, the context is undeniably harsh. The other two passages involve Hephaistos and present no obvious occasion for harshness. The two smoothest passages (1.114–18, 496–500) occur when Agamemnon agrees to return Chryseis and when Thetis comes as a suppliant to Zeus. Only slightly less smooth passages describe Athena's intervention to calm Achilles (1.192–96) and Nestor's call for reconciliation (1.259–63).

It sometimes happens that a very harsh passage is juxtaposed with a very smooth passage in an effective manner.[28] The sound patterns of Agamemnon's first speech parallel closely the development of his thought. His attack on Calchas contains the harshest five lines in the entire book (1.104 ff.), but when he offers to return the girl for the safety of the Greeks (1.114 ff.) his words are nearly the smoothest in the book. A harsh verse is followed by a smooth verse at the moment when Athena arrives to dissuade Achilles from killing Agamemnon (1.194–95). Similarly, Thersites finishes his speech in fairly smooth verses, but Odysseus rises with sudden harshness:

> ὣς φάτο νεικείων Ἀγαμέμνονα, ποιμένα λαῶν,
> Θερσίτης· τῷ δ' ὦκα παρίστατο δῖος Ὀδυσσεύς (*Il.* 2.243–44)

The ratio of liquids to other consonants is 10:6 for the first verse, and 2:17 for the second. The first two lines of the *Iliad* are very smooth with only the cluster λγ; but the third line is one of the harshest in the book with six clusters.

Finally, it may be of interest to print examples of the smoothest and harshest individual verses. The harshness factor is given beside each verse in square brackets:

[28] It is a separate question how often such juxtapositions might be expected to occur by chance. This is not the place to discuss the related statistical problems.

ὤ μοι, ἀναιδείην ἐπιειμένε, κερδαλεόφρον (*Il.* 1.149) [0.7]
δαιμονίη, αἰεὶ μὲν ὄϊεαι, οὐδέ σε λήθω (*Il.* 1.561) [0.6]
μητρὶ φίλῃ ἐπὶ ἦρα φέρων, λευκωλένῳ Ἥρῃ (*Il.* 1.572) [0.1]
Μουσάων θ', αἳ ἄειδον ἀμειβόμεναι ὀπὶ καλῇ (*Il.* 1.604) [2.4]
Κάλχαντα πρώτιστα κάκ' ὀσσόμενος προσέειπε (*Il.* 1.105) [12.3]
ἆψ δ' ἐς κουλεὸν ὦσε μέγα ξίφος, οὐδ' ἀπίθησε (*Il.* 1.220) [12.8]
θνῄσκοντες πίπτωσι· σὺ δ' ἔνδοθι θυμὸν ἀμύξεις (*Il.* 1.243) [13.7]
καὶ τότ' ἔπειτά τοι εἶμι Διὸς ποτὶ χαλκοβατὲς δῶ (*Il.* 1.426) [12.6]
οἱ δ' ἱστὸν στήσαντ' ἀνά θ' ἱστία λευκὰ πέτασσαν (*Il.* 1.480) [13.3]
αὐτοὶ δὲ σκίδναντο κατὰ κλισίας τε νέας τε (*Il.* 1.487) [13.6]

Some of these verses occur in contexts where the sound might be imagined to reinforce the sense, but some clearly do not. It would be a mistake to believe that this formula possesses any scientific validity, but it is remarkable that the passages selected by the formula often coincide with harsh and smooth points in the narrative.

It might be thought that an oral poet, composing by means of traditional formulas, would not have the freedom to accommodate sound to sense, but this is clearly not the opinion of A. B. Lord, the foremost exponent of oral theory:

> In order to understand why one phrase was used and not another, we have had to note not only its meaning, length, and rhythmic content, but also its sounds, and the sound patterns formed by what precedes and follows it.[29]

FURTHER PROBLEMS

The observations I have made in this paper by no means exhaust the possible range of quantitative study of Homeric sound. I have avoided any complex statistical analysis, but many problems await solution. Most obvious is the question of whether the distribution of sound is approximately random.[30]

[29] A. B. Lord, *The Singer of Tales* (Harvard 1960) 53; cf. "The Role of Sound Patterns in Serbo-Croatian Epic," *For Roman Jakobson* (The Hague 1956) 301–305.

[30] With the aid of the Poisson distribution we can predict how many verses might be expected to have each number of each letter if the letters were chosen completely randomly. In fact, the Poisson formula predicts fairly well many of the observed frequencies in Table 1, except that the predictions for the highest densities are almost all too high. This problem will require a fuller treatment.

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Another possible experiment would be to ask a group of modern readers (both those who know Greek and those who do not) to rank various passages for harshness. If the rankings were consistent one could apply various statistical tests to determine which phonological phenomena (letter densities, clusters, etc.) correlate with the judgment of harshness. Such an experiment would of course measure modern reaction to modern pronunciation, but it would not be without some interest. Moreover, on the basis of acoustical phonetics one might be able to assess the sound spectrum of various letters and clusters according to the ancient pronunciation.

Finally, it will be of interest to compare Homeric sounds with those of later hexameter poets.