

‘WHICH THE GREEKS CALL ...’: THE RHETORIC OF CODE-SWITCHING IN *DE ARCHITECTURA* 3.1

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Introduction

In the first chapter of *De architectura* book 3, Vitruvius famously expounds upon the theory of proportionality, ultimately crafting the analogy of the human body as a composition of ideal ratios. In this exposition, the architect repeatedly makes use of technical jargon, implementing terms found nowhere else within the Latin literary corpus. Amidst this series of rare Latin vocabulary, however, Vitruvius also includes a striking twenty-seven Greek borrowings—of which twelve are novel terms not found in the corpus before this passage, and seven are terms not found again. While many of these Grecisms¹ are explicated by Vitruvius through the use of subordinate clauses or apposition, the very existence of Latin equivalents and the resultant redundancy of terms renders Vitruvius’ linguistic vacillation strictly unnecessary and rather obfuscating in effect. After all, why borrow a term that requires definition when a corollary already exists within one’s primary, ‘matrix’ language? Likewise, once one has committed to adopting a second language of technical vocabulary, why bother translating? Other, similar lexical borrowings are evident throughout *De architectura*,² yet the opening of book 3 offers a unique opportunity to analyze Vitruvius’ method of code-switching in close detail, revealing how the author uses the

I am indebted to all the organizers and participants of the *homo bene figuratus* conference, who, individually and collectively, contributed excellent feedback on this project. Special thanks are owed to Stephen Wheeler and to Cynthia Damon, each of whom have prompted me to examine more rigorously the theoretical foundations and justification of code-switching within ancient texts. A final and sincere thank you is also owed to the reviewers of this paper, whose insights have clearly refined the argumentation.

1. A note on terminology used throughout this paper: both ‘code-switch’ and ‘Grecism’ may be used to refer to a borrowed term (as argued by Mayer [1999]), but there remains a subtle distinction between the terms, as the former emphasizes procedure while the latter emphasizes only difference in language base. For this discussion, where I will use both words, it should be assumed that all Grecisms are code-switches (though, naturally, not all code-switches are Grecisms).

2. Emilio Bosazzi (2000) has produced a very useful index of the Grecisms used by Vitruvius, sorted into categories based on usage history (e.g., neologisms, or previously rendered forms) and subject matter (e.g., architectural terms, astronomical terms, medical terms, et cetera). By his account, there are over four-hundred Greek borrowings in *De architectura*, of which over sixty percent are either vocabulary introduced into the Latin lexicon by Vitruvius for the first time or are previously borrowed words with new semantic meanings (such as *coruus* as a type of battering ram, rather than a type of raptor). This index, though a helpful resource for inquiries into Vitruvian Grecisms, offers very little interpretation of the words themselves.

technique to draw attention both to the technicality of his art and to the Greek tradition evoked by these words.

In this paper, I will begin with a brief account of the history of sociolinguistic code-switching with respect to classical literature, coupled with an explanation of why this theoretical method is an appropriate and effective lens for analyzing aspects of Vitruvius' literary objectives. Next, I will relate the findings of previous scholars in their studies of Vitruvius' use of the Greek language, which generally present Vitruvius' Greek terms as clarificatory or *ad hoc* substitutions when Latin is lacking, rather than as a rhetorical gesture carefully calculated by the treatise's architect. Finally, I will turn to *De architectura* 3.1 and analyze the Grecisms of this key passage, offering a tabulation of the lexical histories and frequency of use of each code-switch in order to assess the ramifications of Vitruvius' implementation of Greek technical language set in parallel with his own native tongue. Vitruvius' inclusion of Greek terminology creates a delicate balance between the languages; his code-switching effectively emphasizes the overall point of this passage and accomplishes a kind of linguistic symmetry—a literary and poetic proof of his own theoretical approach to proportionality.³

Part I: Code-switching Methodology and Classics

In the application of code-switching theory to both ancient and modern corpora, any act of incorporating a unit—whether that unit is a single word or phrase, clause, sentence, adfix, or paragraph—from a secondary language, dialect, or linguistic register into the author's or speaker's primary ('matrix') language may be classified as an act of code-switching.⁴ Code-switching may be performed by bilinguals of various capabilities, or even by monolinguals; but it typically occurs within limited parameters, and rarely affects the vocabulary, morphology, or syntax of the matrix language.⁵ It may be performed actively

3. In fact, the fluidity with which Vitruvius can approach both languages in his use of technical jargon complements the looseness with which he relates the very concept of proportionality throughout his text (the truest execution of which is impossible outside of theoretical schematics and designs). See Riggsby (2016).

4. There are, however, probabilities of code-switching that determine what units are most likely to cross linguistic barriers. For example, a noun is the most common of all grammar units borrowed across languages, whereas conjunctions (and other functional words) are rarely transported across language barriers (Field [2002]).

5. In this respect, code-switching is distinct from the phenomenon of 'language interference', where grammar or syntax of a secondary language is compromised by rules of the first, or vice versa. Whereas language borrowing can be performed from a position of relative ignorance, language interference is not, and reveals bilingual capacity by subtle errors (Adams [2003], 27f.). There are of course other terms used to describe similar phenomena, some of which overlap. The psycholinguist Grosjean, for example, used the phrase 'language borrowing' to describe the deliberate actions of monolinguals, which he contrasts with the more spontaneous 'speech borrowing', or 'nonce borrowing' (see Field [2002]).

within spoken dialogue, within recorded speech, or written narrative, and may be introduced by phrases that mark the code-switch itself as foreign. Phrases such as *quem Graeci dicunt*, as seen here in Vitruvius, are known as linguistic flagging, and flagging phrases of this sort may or may not include translations or paraphrases in the matrix language. Additionally, code-switching may constitute a singular event or a lengthier process, and in the latter case may lead to what is commonly known as the creation of a ‘loan word’. Code-switching is thus a very broad, encompassing term, as it does not designate the identity of the speaker as a bilingual or monolingual, nor does it designate the type of linguistic unit borrowed by the speaker.

Eleanor Dickey, in her insightful study on the use of Latin code-switches and loan words in Greek literature, has offered the following framework: all cases where Latin morphology is maintained within the Greek matrix are instances of code-switching, but Latin–Greek code-switches may be found also that do not retain their original morphology. The choice of scripts is similarly diagnostic, but not independently conclusive (and, as is the case in the passage to be analyzed here, can be entirely obfuscated by manuscript transmission history). Rather, Dickey argues, word usage history is to be preferred as a guide for determining whether a borrowing is a code-switch or a loan word.⁶

Until very recently, code-switching had been almost exclusively studied within contexts of contemporary societies and spoken language communities. The nuance of tones, gestures, pronunciation, facial expressions, or even pauses that can indicate the innate foreignness of a particular lexical borrowing—and, indeed, the responses from an audience member that mark mutual comprehension or misunderstanding—were long considered absent in written texts; and the texts themselves were assumed to be further skewed by formal considerations, such as genre, meter, or verse. Literary texts were thus viewed as untrustworthy witnesses to code-switching.

A special edition of the journal *Language and Literature* published in 2015, however, has problematized both of these assumptions, and urges the inclusion of literary code-switching within linguistic studies. The very diagnostics used to evaluate code-switching within conversational contexts are subjective and open to interpretation by the analyst, just as the reading of a text is. Furthermore, the narrative of a text may provide additional information that could be drawn from the observation of a live conversation, including descriptions of gestures or tone or expression. As the editors Penelope Gardner-Chloros and Daniel Weston remark: ‘The conventions and constraints of speaking and writing may be different, but the broad semiotic consequences of setting up contrasts by alternating languages are common to both.’⁷

6. Dickey (2018).

7. Gardner-Chloros and Weston (2015a), 189.

This recent rebuttal allows code-switching theories to be applied to a broader scope of language, both in medium and in time. J.N. Adams had argued for much the same when he claimed that evidence of written bilingualism, while not the equivalent of recorded transcripts of conversations, can nevertheless be used in lieu of spoken artifacts as the basis for analysis. Indeed, the field of Classics has played an interesting role in furthering the application of code-switching principles to texts. Left with a corpus lacking living native speakers, many classicists have been using terms such as ‘code-switching’ or ‘diglossia’ to describe ancient authors and their literatures despite the objections and concerns of modern sociolinguists. This tendency has been somewhat double-edged, leading on the one hand to some ‘linguistic studies’ of classical authors that were not necessarily well-supported by sociolinguistic apparatus, but, on the more positive end, to the development of a literary application of code-switching theory and terminology. J.N. Adams, Frederique Biville, Bruno Rochette, and Alex Mullen have been of critical import in the development of the latter, as has been recognized by Gardner-Chloros and Weston themselves.⁸

Adams noted that there are unique caveats to the classical corpus. First, with the exception of graffiti, the texts that survive of the ancient world are predominantly remnants of the elite few who were either literate or moneyed enough to pay for amanuenses or engravers. Second, because much of our classical literature is itself ‘classicizing’, the language used within texts does not necessarily reflect the spoken language of its composers.⁹ Third, modern scholars can evaluate ancient bilingual competence only through an author’s positive performance in a secondary language (i.e., language production, as in an authors’ written records); we are unable, however, to judge the same author’s ability to translate a secondary language into their native tongue, as occurs in listening and reading.¹⁰

Code-switching is reflective of social and hierarchical tendencies either explicit or implicitly understood in the community of speakers (or writers). Carol Myers-Scotton’s ‘Markedness Model’ makes this aspect clear. She has argued that bilinguals typically code-switch to favor either a language of higher or lower register, and thus their language choice serves to further their purpose in communicating; by extension, code-switches occur more often

8. Gardner-Chloros and Weston (2015a) and (2015b).

9. Thus, Greek authors, especially those of the Second Sophistic, preferred Atticized Greek, even after *koiné* had spread throughout the Mediterranean. Replicating Homeric or Platonic Greek is effectively analogous to a modern English speaker opting to write in the style of Shakespeare, or even Chaucer, rather than a contemporary author.

10. Adams (2003), 13f., in fact, concludes that the ‘extent and quality of elite Roman bilingualism ... cannot be determined’, because, on the one hand, the basis of comparison is not preserved and, on the other, because knowledge of Greek was a marker of status, and, as such, was prone to being exaggerated either way, whether to the credit or mockery of the alleged bilingual individual. Such exaggeration occurs, for example, in Lucilius’ second book of *Satires*, where the satirist hilariously presents the court case of Albucius and Scaevola as a battle of philhellenism, with knowledge of the Greek language wielded like weapons (Persyn [2019]).

within well-integrated communities and with trusted audiences.¹¹ According to this theory, then, code-switching is leveraged to bridge social gaps or to implement social hierarchies and can be considered to reflect dynamics of power. In places where a second language is part of a colonial apparatus, the language of a conqueror typically becomes the ‘higher,’ ‘preferred’ language for politics, elite literature, and written records.

In this respect, the Roman Empire is somewhat distinct, retaining Latin as the primary language in the western half of the Empire, while allowing Greek to remain the lingua franca of the eastern provinces in both speech and written records.¹² And Latin literature, as Denis Feeney has convincingly demonstrated, was explicitly and implicitly modelled on Greek precedents, with early Roman poets emulating and claiming to have surpassed or re-embodied their Greek forebears (even as Greek, Latin, and Italic languages such as Oscan continued to coexist and serve as identity markers of various forms of prestige and utility).¹³ Ennius, for example, gained the reputation—however facetiously it was first offered by the satirist Lucilius—as a ‘second Homer’; this same poet, according to Aulus Gellius, likewise boasted of having *tria corda* (Gell. 17.17.1), thus grounding his identity in his linguistic facilities in Greek, Latin, and Oscan.¹⁴ Both epigraphic and literary evidence thus reveal a remarkably complex, multi-lingual reality: under the aegis of the Roman Empire, Latin and Greek coexisted,¹⁵ but bi- and multilingual phenomena persisted, used to declare allegiance from below, proclaim power from above, and embed elite literature within a transcultural tradition of *aemulatio*.

Code-switching, therefore, is a double-edged device in communication, useful both for including and excluding, and potentially polemic in its outcome or even colonizing in its purpose. The borrowing of one language into the nexus of another is not a neutral act. When an author elects to code-switch, two groups are inevitably formed: the subset of readers who recognize and comprehend the term, and those who do not. It is this dynamic that is particularly illuminating with respect to Vitruvius—for code-switching stands not only to offer insight into the author’s linguistic capacity (his technical learning), but also his communicative gestures with respect to his audience (his rhetorical genius). The project of *De architectura* is particularly suited to sociolinguistic analysis entirely because the author positions himself as an expert versed in the culture and technical expertise

11. Myers-Scotton (1993) and (1998).

12. Jorma Kaimio’s seminal work on this subject (1979) remains an excellent study. Frederique Biville and Bruno Rochette have also contributed vastly to the study of bilingualism in the ancient world, the power dynamics reflected by what patterns may be observed, and the apparatus of language use represented in the ancient epigraphical corpora; see, for example, Biville (2002); Rochette (2010) and (2011).

13. Feeney (2016); see also Wallace-Hadrill (2013). Siobhan McElduff (2013) has also contributed helpfully to our understanding of the attitude of one-upmanship that forms the foundation for many ancient Latin translation projects, and Claudia Moatti’s related work (2015) likewise remains seminal.

14. Glauthier (2020).

15. Despite Latin’s supplanting of the native languages of the Italian peninsula (Penney [1988]).

of his target language and orients his project around communicating this knowledge to a learned audience. Analyzing the code-switching of Vitruvius throughout his treatise underscores the means by which he conveys his art, experience, and discipline to his Latin-speaking audience; it also reveals how he constructs a living relationship between the languages and cultures in a time of immense cultural and scholarly exchange. With his use of bilingual code-switches, Vitruvius can activate the long history of the very knowledge he is conveying while at the same time engaging with a means of communication that develops novel relationships between the languages, between his audience members, and between author and subject. Code-switching, as a communicative and rhetorical act that reflects mutual linguistic and intellectual exchange, empowers and emphasizes Vitruvius' goals in this passage and throughout the text.

Part II: Code-switching in Vitruvius

Past studies of Vitruvius' use of the Greek language have well established the breadth and nuance of his linguistic capacity; but his purpose, and the achieved effect, of his code-switching has received less attention. This is, perhaps, in part due to the genre in which Vitruvius composes. *De architectura*, as a kind of manual, is often treated not as a literary creation but rather as a mere technical work. Vitruvius' code-switches, by extension, have been assessed for their accuracy and precision, rather than as a stylistic device with sociological functioning.¹⁶

Thus, the semantic-centric studies of both Otto Lendle and Mark Schiefsky have ably demonstrated Vitruvius' intellectual debt to his Greek models—specifically his remarkable ability to transfer both Greek technology and the accompanying terminology—but focus their analyses on Vitruvius' capabilities as a translator of Greek into Latin, rather than as an author inserting Greek *qua* Greek into a Latin nexus.¹⁷ Both of these studies successfully relate key elements of Vitruvius' retrospective relationship with the Greeks, but overlook the role that his bilingualism plays in his prospective posturing toward his Roman audience.

Truly, the most in-depth study of Vitruvius' Greek to date has been that of Louis Callebat, who, in a short review of Vitruvius' formulaic Grecisms, examines patterns that emerge when Vitruvius utilizes a phrase such as *quod Graece dicitur* or *Graeci appellant*.¹⁸ Callebat argued that the Roman author used the Greek language for three definitive purposes: first, to offer an explication of a

16. It is thus significant that Vitruvius, despite his status as an author of an intact work from the Augustan age, is more or less absent from recent scholarship on Greco-Latin bilingualism, with both J.N. Adams (2003) and Gregory Hutchinson (2013) deferring to previous studies of Vitruvius' use of Greek.

17. Lendle (1992) regards Vitruvius as a translator, an *Übersetzer*, of Greek, while Schiefsky (2005) is primarily concerned with the overall inconsistency of Vitruvius' methodology of introducing ballistic terminology.

18. See especially Callebat (2013).

Latin term; second, to make a Latin paraphrase equivalent to a Greek term; and third, to define typological terms and their hyponyms. These close linkages between the languages, he argues, anchor Vitruvius' Latin project within a Hellenistic terminological framework and manifest Vitruvius' program of appropriating Greek language and culture. For Callebat, Vitruvius borrows Greek terms in order to elevate his Latin text: the Grecisms are essentially hierarchical props that Vitruvius utilizes periodically to support his endeavor. Callebat's study, however, does not examine what Vitruvius' code-switches can accomplish in his communication with his immediate, Roman audience, nor does his study truly recognize the dynamic linguistic hybridity that results from Vitruvius' enmeshing of Greek terms. The Grecisms here are not merely supports borrowed from Greek edifices: they are integral embellishments used to construct a new technological relationship between the languages of Vitruvius' own lived experience and professional contexts, as well as those of his learned audience.

In her recent work on technical ekphrasis, Courtney Roby provides an excellent encapsulation of the general scholarly consensus on Vitruvius' Grecisms:

[Vitruvius] assumes an audience with some tolerance for untranslated Greek technical terminology, though he usually provides an explanation of the component's structure or function so as not to leave the reader completely in the dark ... The question still remains what exactly is intended by this translation; it is likely, as Schiefsky argues, that passages using formulae structured this way are 'best interpreted not as attempts to clarify the meaning of Greek terminology in Latin, but rather as effort to make the reference of the *Latin* phrase in question clear and unambiguous by giving the precise Greek equivalent.'¹⁹

For both Roby and Schiefsky, translation is the focal point of Vitruvius' Greek borrowing, and clarity is the overarching purpose for the integration of code-switches—hence Roby's allusion to Vitruvius' audience having 'some tolerance' for Greek inclusions.²⁰ Yet they diverge in the direction of clarification: for Schiefsky, Greek can be invoked in order to clarify Latin for a Roman audience; for Roby, the incorporated Greek needs an explanation in order to avoid benighting the reader altogether. In both cases, the translation-approach to Vitruvius' Greek only leads to further questions. What readers (Roman *or* Greek) will know the 'precise Greek equivalent' of so technical a treatise? Since Vitruvius situates himself as an expert on Greek texts,²¹ does he then write only to an

19. Roby (2016), 82, italics original.

20. As one might tolerate unwanted raisins in a disappointing oatmeal cookie.

21. The preface to book 7, for example, provides a lengthy list of Vitruvius' perceived Greek forebears, which includes architects alongside philosophers and literary figures. Vitruvius crafts a similar list of experts in book 1, concluding this opening passage with an appeal to Caesar and a seemingly disingenuous request for patience with his own lack of literary style. The disingenuity, I would argue, is revealed in the phrasing that follows: *namque non uti summus philosophus nec rhetor disertus nec*

audience that has undergone similar preparation? And if this is so, how, exactly, do the Greek terms illuminate the text at all, as Schiefsky argues; or why incorporate Greek that simply must be ‘tolerated’ or glossed, if its only effect is to add a confusing layer of jargon?

If the idealized, elite *literati* who composed Vitruvius’ target audience were familiar enough with both architectural technologies and their attendant Greek lexicon to comprehend these code-switches intuitively or with the minor glosses provided, semantic and pragmatic clarifications are not sufficient motivations for the artful precision of Vitruvius’ marked use of both Greek and Latin in his treatise. In other words, either his audience knew Greek to such a degree as not to require glosses of niche terms, or they recognized the native Latin terminology sufficiently well so as to not require the Greek additions: they are not mutually necessary, but rather technically superfluous.²² This in turn means that the inclusion of Grecisms here is not an act of elucidation, but rather a linguistic act with a rhetorical purpose—it is a poetic choice, rather than a pragmatic one. Because code-switching functions as a communicative device that can either define boundaries between or create new fusions among writers and audiences, Vitruvius can utilize code-switches to support his goals and position himself not simply as a Latin translator of Greek technicalities, but as an erudite medium developing a relationship between two cultures, transplanting Greek concepts into a receptive Latin framework that reciprocally offers paradigms of experience and learning.

At the core of all language borrowing is a negotiation of power between the borrowed terminology and the nexus language, as well as the crafting of a relationship of mutual bilingual knowledge (or its lack) between the author and audience. A close analysis of *De architectura* 3.1 will reveal how Vitruvius’ code-switching enables the author not only to be precise in his language, but rhetorically balanced in a way that complements the overall purpose of this passage: to reveal that proportion is necessary for the creation of all forms of art, physical and literary, and that such balance renders the whole not only more beautiful, but also more easily comprehensible. This effect, in turn, represents Vitruvius’ broader vision for the integration of Greek knowledge within the Roman world: not merely as an appropriation of knowledge originally belonging to another culture, but an integration of a living tradition into a Roman framework, wherein a novel hybrid can be developed and perfected in the creation of a new discipline altogether.

grammaticus summis rationibus artis exercitatus, sed ut architectus his litteris inbutus haec nisis sum scribere (‘For not as the greatest philosopher, nor as an eloquent orator, nor as a grammarian disciplined in the greatest grammatical skills, but as an architect trained in literature I rely on these things to write’, 1.1.18)—an ‘architect trained in literature’ would, indeed, aptly describe the figure Vitruvius aims to cut, and is hardly a humble aspiration (*pace* Mayer [2005]).

22. For a modern example: if you are not sure what an ‘adze’ is, my French parenthetical reference that I mean an ‘*herminette*’ will probably not enlighten you to the form or type of tool to which I refer.

Table 1. Unassimilated Grecisms in Vitruvius 3.1 (in order of occurrence)

	Frequency in:				Vitruvius' proposed Latin equivalent
	classical Greek corpus (total)	classical Latin corpus (total)	of which: pre-Vitruvian Latin corpus	of which: Vitruvius	
ἀναλογία	2,332	328	75	1	proportio
τέλε(ι)ον	11,800	2	0	1	perfectus
μονάδες	5,668	95	0	1	singularis
δίμοιρον*	93	1	0	1	besem
πεντέμοιρον	0	1	0	1	quintarium
ἔφεκτον	6	1	0	1	supra sex adiecto asse
ἐπίτριτος	693	152	0	1	tertiarium alterum
ἡμιόλιος	862	36	0	1	sesquialter
ἐπίδίμοιρον	3	1	0	1	bes alterum
ἐπίπεμπτον	47	1	0	1	quintarium
διπλασίωνα	2,782	12	0	1	duodecim

*Rose's Teubner edition (1899) makes a drastic intervention at this point in the text, removing the better part of *De architectura* 3.1.6 on the grounds that it is a later interpolation or gloss. This alteration would remove eight Grecisms from the text (δίμοιρον, πεντέμοιρον, ἔφεκτον, ἐπίτριτος, ἡμιόλιος, ἐπίδίμοιρον, ἐπίπεμπτον, and διπλάσιον). Rose's suspicion is neither supported by the manuscript transmission history—in which this passage is well-attested—nor is his deletion retained by the subsequent editions of Krohn (1912) and Gros (1990).

Part III: Code-switching in *De architectura* 3.1

Within the nine subsections of *De Architectura* 3.1, there are twenty-seven instances of code-switching that utilize a total of twenty-two discrete Greek terms; nineteen of these are found only in this passage, while three recur elsewhere in the text. Vitruvian editors have rendered these respectively as eleven Greek-scripted terms, balanced alongside a further eleven Latinized, but nevertheless recognizably Greek, borrowings.

Tables 1 and 2 provide a list of these Grecisms, their respective frequencies in both the ancient Greek and Latin corpora,²³ and (where applicable) the Latin equivalents provided by Vitruvius. The Greek script of the eleven terms in

23. These frequencies are approximations. Uncertainty is due both to the state of attrition from the Greek and Latin corpora (from which we cannot determine how much material has been lost), and to the myriad foibles of digital and traditional search tools, dictionaries, and concordances. I have drawn my figures from cross-referencing *TLG*, *TLL*, *Brepols Online Latin Databases A and B*, and online corpus tools such as the *Packard Humanities Institute*, *Perseus*, and *Logeion*. As many of these tools include works that far post-date classical antiquity, I have used 500 C.E. as a cut-off point for source material.

Table 2. Latinized Grecisms in Vitruvius 3.1 (in order of occurrence)

	Frequency in:				Greek basis
	classical Greek corpus (total)	classical Latin corpus (total)	of which: pre-Vitruvian Latin corpus	of which: Vitruvius	
symmetriā, symmetriārum, symmetriā, symmetriīs	1,336	91	1	84	συμμετρία
architectī	397	223	22	47	ἀρχιτέκτων
circinī(que)	741	63	1	31	καρκίνος/Κίρκινος*
schema	15,976	358	10	9	σχῆμα
Platonī	7,821	909	155	5	Πλάτων
mathematicī	1,793	297	21	13	μαθηματικός
scapī	953 [†]	61	4	38	σκάπος/σκήπτρον
drachma	3,200	361	65	2	δραχμή
obolōs, obolōrum	1,303	201	3	2	ὀβολός
dichalca	3	1	0	1	δίχαλκον
trichalca	1	1	0	1	τρίχαλκον

*The relationship of *circinus* to Greek is debated. The term, which Vitruvius uses to specify a type of compass with two clamps, may be innate to Latin, derived from *circus* (Bannier [1906–1912] s.v. *circinus*), but ancient etymology at least supports a link between *circinus* and Κίρκινος, a descendent of Daedalus (Servius *ad Aen.* 6.14), or to καρκίνος, a proximate Greek term that also means ‘crab’ (e.g., Sextus Empiricus’ κυκλογραφούντος καρκίνου, *Math.* 10.54).

[†]There are no forms of the Doric σκάπος in the ancient Greek corpus before 500 C.E., so this frequency is that of the related form σκήπτρον. Given this rarity, *scapus* may be a derivative shared by Greek and Latin, rather than a code-switch; alternatively, it may be an aural borrowing, given the proximity of Doric Greek to Latin-speaking regions.

Table 1 is an editorial intervention, since the manuscript tradition preserves all of these words in Roman letters.²⁴ However, the editors' intervention achieves one very useful effect: the script underscores the unassimilated Greek endings that are given by the manuscripts (such as *teleon*, with the morphology of the Greek accusative). Thus, the first table gives Greek code-switches that we may consider unassimilated, as they do not utilize Latin case endings (see Dickey's essential justification above). Each of the terms in the second table is Latinized, by contrast, and several are provided by Vitruvius in oblique cases, demonstrating their incorporation into the Latin morphological matrix.

The terms of both tables are listed as they appear in the edited (Loeb) text of *De architectura* 3.1, in order to preserve these morphological distinctions and to highlight where Vitruvius supplies a Latin equivalent (Table 1), and where he leaves it implied (Table 2).

The range of terms here is surprising. Vitruvius borrows both nouns and adjectives;²⁵ there are both neologisms and terms with attested history within the surviving Latin corpus that predates Vitruvius; and the words themselves can be grouped into categories that are both deeply specific (such as the series of fractional terms) and more broadly descriptive (such as τέλε(ι)ον and ἀναλογία). This is a rich variety, and one that occurs within a very compressed sequence.

But several patterns immediately become clear from these tables. First, all of the code-switches given in Table 1 are used only one time apiece within *De architectura*, whereas seven of the eleven Latinized Grecisms (Table 2) recur elsewhere in his text.²⁶ Second, while Vitruvius is the first extant author to utilize many of the Grecisms that belong to both tables, all but one of his unassimilated (Greek-scripted) terms are first found here in *De architectura*, and all of these unassimilated forms are provided with Latin equivalents.²⁷ This indicates that Vitruvius is not just utilizing technical terms for which there is no equivalent: these are not loan-words necessary in the Latin language or terms of art without corollary for practitioners of Roman architecture.

Vitruvius implements a bevy of diverse phrases in defining these unassimilated terms. Nine of the eleven Grecisms in Table 1 are introduced within subordinate relative clauses that incorporate linguistic marking (of which seven include

24. Rose (1899), Krohn (1912), and Gros (1990) are united across their critical editions in this intervention, though Granger (1931) in his Loeb offers these terms in Roman letters. As Rowland, Howe, and Dewar (1999), 20, note, Vitruvius' choices for translating, transliterating, and retaining Greek orthography and spelling vary vastly throughout the corpus, 'reflect[ing] the eternal dilemma of any writer who works between two languages'. Apparently, the dilemma persists.

25. All of the Latinized words in this passage are nouns, a consistent feature that adheres to patterns of linguistic assimilation-probability outlined by Field (2002). On the other hand, many of the unassimilated, Greek-scripted borrowings are either adjectives or substantivized adjectives.

26. Note that both instances of *drachma* and *obolos* in Vitruvius' work belong to this passage (3.1).

27. *analogia*, the exception, is borrowed with relative frequency into Latin: there are over three-hundred uses of the term from antiquity, almost one-hundred fifty of which are found in the Varronian corpus alone.

either active or passive forms of the verb *dico*, one *appello*, and one *uocito*). The remaining two code-switches, ἔφεκτον and διπλασίωνα, though not introduced within a linguistically marked phrase, are nevertheless embedded within surrounding syntax that implies equivalence or apposition, and the meaning of neither is left unclear.²⁸

Furthermore, the frequencies of Vitruvius' Grecisms vary greatly in both languages: some terms are ubiquitous in Greek, but rare in Latin; for others, the opposite is true. The Greek adjective τέλε(ι)ον is found approximately eleven thousand and eight-hundred times in the Greek corpus, but only twice in Latin, making this a common Greek term, but a rare code-switch. For *architectus* the opposite is the case—a relatively uncommon Greek term but a frequent code-switch—with fewer than four-hundred instances in classical Greek, yet borrowed more than two-hundred times by the Romans (and Vitruvius constitutes approximately ten percent of these usages).²⁹ Still more striking, πεντέμοιρον does not occur elsewhere in either language and may even be a Vitruvian invention.³⁰ This diversity of lemmatic frequency is not based on subject matter alone, as demonstrated by the term ἐπίτριτος, a precise ratio that, despite its obscurity, is found nearly seven-hundred times in classical Greek, and more than one-hundred and fifty times in Latin.³¹

While both the Latinized words and the unassimilated terms represent instances of Vitruvian code-switching, Tables 1 and 2 make clear that all the unassimilated terms are vanishingly rare in the Latin corpus, with all but *analogia*

28. The marked consistency and delicate patterning of *De architectura* 3.1 becomes apparent when one contrasts this passage with what follows. In the sentence immediately subsequent, as Vitruvius enumerates the types of temple facades, he not only uses a phrase-long code-switch (*quod Graece ναὸς ἐν παράστασιν dicitur*, 'which in Greek is called: a temple in pilasters', 3.2), but also provides a list of Greek terms without definition (*prostylos, amphiprostylos, peripteros, pseudodipteros, <dipteros>, hypaethros*). This dramatically divergent manner of code-switching offers a *uariatio* that accentuates his prose style.

29. This does not include the unassimilated borrowing of the Greek term, *architectōn*, which is also in evidence in Latin literature from before Vitruvius' time and is likewise found elsewhere in *De architectura*.

30. Likewise, ἐπιδίμοιρον (though formed logically according to the same linguistic patterns as the other ratios) occurs only three times in the Greek corpus, in the works of Clement of Alexandria and Vettius Valens, both active much later than Vitruvius. Neither πεντέμοιρον nor ἐπιδίμοιρον is found elsewhere in Latin literature. We thus have no evidence of Vitruvius' sources for these terms.

31. Among these borrowings is Aulus Gellius, who describes this term, and *hemiolios*, as 'lacking Latin equivalents' (*uocabula in lingua Latina non habent*, NA 18.14). Vitruvius, however, does manage to supply each with a Latin equivalent (or paraphrase); strikingly, however, Vitruvius' Latin terms (*sesquialter* and *tertium alterum*) are themselves less commonly utilized in Roman literature than the Grecisms *epitritos* and *hemiolios*, thus vindicating Gellius' observation. Vitruvius does make a similar observation to that of Gellius, however, in book 5 of *De architectura* when writing about musical notation: *harmonice autem est musica litteratura obscura et difficilis, maxime quidem quibus graecae litterae non sunt notae. quam si uolumus explicare, necesse est etiam graecis uerbis uti, quod nonnulla eorum latinas non habent appellationes* ('Harmonics, moreover, is a musical notation that is obscure and challenging, especially for those to whom Greek letters are not known. If we wish to explain this, it is necessary also to use Greek words, because some of them do not have Latin terminologies', 5.4.1).

found first in Vitruvius. Logically, then, these Grecisms are far less likely to have been comprehensible to a Roman reader. And, indeed, Vitruvius supplies the Latin equivalent for all these terms, while he only explicates *obolos*, *dichalca*, and *trichalca* of the Latinized terms (and he only explicates these terms with one another, using Greek to explain Greek). In other words, the unassimilated Grecisms are not only more challenging for a Roman reader, but Vitruvius marks them as such.

But the difficulty of these terms is belied by the casual nature of his linguistic markers: *dico*, *appello*, and *uocito* all emphasize the act of speaking,³² and the present tense of all his verbs gives the connotation of contemporaneity: taken together, one is given the impression of conversation or colloquy, as if Vitruvius is actively participating in a dialogue rather than an exegetical digression. In the same fashion, the somewhat vague citation of ‘the Greeks’ functions to create the impression of greater knowledge on Vitruvius’ part. This type of code-switching suggests a different kind of learning on Vitruvius’ part than scholarly name-dropping, as he refers to the intellectual authority of Plato; the imprecision of a phrase such as ‘which Greeks call ...’ implies a working knowledge, and rhetorically endows Vitruvius with a set of Greek interlocutors other than those famous authors he cites elsewhere. The code-switching evidenced by this passage imbues Vitruvius with the authority to cite not only the academic sources that he has read, but also the hypothetical lay architect that he has known. He can *write* as the Greeks *speak*, and he can provide not only explication of architecture, but of the accompanying jargon in two separate languages.

But while Vitruvius is consistent in providing all his novel, unassimilated Grecisms with Latin equivalents, he does not provide every Latin ratio with a Greek one. In the sequence of ratios describing the subdivisions that make six the perfect number, Vitruvius is sparing in his use of Greek. Out of a series of six relatively uncommon Latin terms, only two are relativized and explicated with Greek code-switches—*besem* (attested only seven times in antiquity) and *quintarium* (found a mere eleven times). Yet as the passage continues, his code-switching increases: though only two of the first six ratios have Greek parallels given, all of the remaining six ratios receive attendant terms in Greek. Rather than utilizing Greek to rationalize his entire theory of proportion, then, Vitruvius includes enough to challenge his reader.

His code-switching is therefore not necessary, but selective. And to make things more complicated, the selectivity is not based on the rareness of the Greek term itself. For example, the Latin-scripted *scapi*, though a highly unusual term in Greek, is provided in the text without any accompanying paraphrase or definition. Conversely, ἀνολογία, ἐπιδομοιον, and πεντέμοιον are

32. While individually these verbs may be encountered elsewhere in technical writing to introduce unmarked paraphrases and quotations (as one may encounter in Cicero or Varro), the stacking of three distinct verbs of speaking has a collective effect that is marked and is indicative of vocality rather than of writing or recording.

each provided with Latin equivalents, despite the fact that ἀναλογία is far less obscure than the other two forms, since it is found over one hundred times in the works of Varro alone. Yet Vitruvius equates Latin words with all three of these terms as if they are equally known, or equally unknown, quantities. The parallel treatment of both common and obscure Grecisms makes the theory that these Greek terms are borrowed to elucidate Latin seem less probable—if anything, the language roles seem reversed, with Latin cast as the language that must elucidate these obscure Greek terms.

In fact, throughout the entire passage of *De architectura* 3.1, a reader could skip over the Greek terms without losing the sense of the passage or the thread of his argument. Vitruvius introduces these terms and proceeds to demystify roughly half of them for his audience, but leaves the other terms unclear. These Grecisms thus prove Vitruvius' own vast vocabulary and signal his linguistic and technical mastery, which are informed by both the literary tradition (as with words such as ἀναλογία) as well as practical expertise (such as proportional terminology); the Grecisms likewise reward his educated audience members by creating an inner circle of cross-linguistic comprehension that can be implemented by his readers in turn to mark their own attainment of curated knowledge. With careful reading of the treatise, Vitruvius' audience gains not only knowledge of architecture, but also of the Greek language and its potential applications within the broader Latin literary, and Roman political, milieu.

In so doing, the author not only creates a marriage between the terminological systems of the two languages, but makes himself the officiator of that union. Indeed, such linguistic integration subtly reveals the interconnectedness of Vitruvius' Greek models and his Roman audience, which are coterminous yet notably distinct even in the very terminology he uses to explicate the former to the latter. As Marden Nichols has persuasively argued, 'In his approach to texts as well as objects, Vitruvius suggests that Romanness is a dynamic concept ... If transferred passages and objects lose their otherness, Roman culture loses its self-definition as variegated and appropriative.'³³ Her terms—'variegated' and 'appropriative'—aptly summarize the nature, too, of the code-switches found in this passage of *De architectura*. Just as Vitruvius' own project is a mixture of both recherché theories of the humanities and in-depth analysis of the aesthetics and function of architecture, so too is his use of language a union of art with purpose, of Greek culture and Roman practice.

Conclusion

Vitruvius' code-switching functions not simply for the sake of appropriating Greek knowledge in order to elucidate meaning, but rather to effect rhetorical

33. Nichols (2017), 26. See also the discussions of Wallace-Hadrill (2008) on how Vitruvius frames the integration of Greek and Roman cultures while simultaneously positioning himself to be an authoritative arbiter and teacher of their merging.

balance and splendor in a way that requires not only deep linguistic comprehension to create, but an equal knowledge to appreciate. Sociolinguistically, Vitruvius behaves as one would expect, explicating certain terms for his audience but leaving others as ciphers to be understood only by a select few.³⁴ This is not preferential use of a language, nor is it merely linguistic (and by extension, cultural) appropriation, nor is Vitruvius simply showing off his know-how, though there are certainly elements of all these aspects to be found in this passage and in the remainder of *De architectura*.

The Greek code-switching of *De architectura* proves Vitruvius' erudition, assumes and even elevates his audience's comprehension of Greek terminology through his precise linguistic marking; but the impact of his use of the Greek language transcends the imparting of a few miscellaneous items of technical vocabulary. Vitruvius' use of code-switches exceeds the limits of either language and reflects the balancing act performed by the author throughout his treatise as a whole. His rhetorical and linguistic analogies maintain a proportionality between the parts (the Greek code-switches) and the whole (the Latin matrix), and therefore illuminate not only the information he is seeking to impart in his work, but also the political and cultural ramifications of such knowledge dissemination. By alternating between Greek and Latin languages, Vitruvius invites his readers not only to comprehend the interrelatedness of Greek and Roman terminologies, but also to juxtapose their traditions of knowledge—all while modeling how to integrate Greek culture still more intrinsically into Roman daily life and literature.

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34. That the opening code-switch is ἀναλογία, a word particularly familiar to the heir of Julius Caesar, further emphasizes this function of crossing linguistic boundaries in order to form an intimate circle of communication.