

ETRUSCAN NUMERALS IN INDO-EUROPEAN PERSPECTIVE

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1. Introduction

As a demonstration of the non-Indo-European nature of the Etruscan language John Mallory, in his stimulating monograph entitled *In Search of the Indo-Europeans*, depicts the following comparisons between Etruscan and Indo-European in a diagram with a number of other items:¹

	Etruscan	Latin	Proto-Indo-European
1	<i>thu</i>	<i>unus</i>	* <i>oinos</i>
2	<i>zal</i>	<i>duo</i>	* <i>duwo</i>
3	<i>ci</i>	<i>tres</i>	* <i>ireyes</i>
4	<i>ša</i>	<i>quattuor</i>	* <i>k^wettwores</i>
5	<i>mach</i>	<i>quinque</i>	* <i>penk^we</i>
6	<i>huth</i>	<i>sex</i>	* <i>s(w)eks</i>

It is obvious from these comparisons that the Etruscan system of basic numerals is entirely unrelated to the Indo-European one. As a consequence, there is little hope for classifying Etruscan among the Indo-European languages, as the members of the language-family last mentioned happen to be closely related precisely with respect to their system of basic numerals (see figure 1).² One may wonder however, whether the identification of the Etruscan numerals in question is as certain as Mallory wants us to believe. Certainly, the given correspondences are fully in accordance with the opinion of the majority of the scholars in the field on the topic. Nevertheless, there are some nuances, which should not be neglected. So it is *communis opinio* among Etruscologists that the identification of *ša* and *huth* as "4" and "6",

¹ Mallory 1989: 89; cf. Cristofani 1981:88.

² Mallory 1989: 12f., fig. 3 and cf. 14, fig. 4 for the same numerals in other language groups.

	Irish	Welsh	Greek	Latin	Italian	Spanish	French	German	Dutch	Swedish
1	aon	un	hen	unus	uno	uno	un	ein	een	en
2	do	dau	duo	duo	due	dos	deux	zwei	twee	tva
3	tri	tri	treis	tres	tra	tres	trois	drei	tre	tre
4	ceathair	pedwar	tettares	quatuor	quattro	cuatro	quatre	vier	vier	fyra
5	cuig	pump	pente	quinque	cinque	cinco	cinq	fünf	vijf	fem
6	se	chwech	hex	sex	sei	seis	six	sechs	zes	sex
7	seacht	saith	hepta	septem	sette	sete	sept	sieben	zeven	sju
8	ocht	wyth	okto	octo	otto	ocho	huit	acht	acht	atta
9	naol	naw	ennea	novem	nove	nueva	neuf	neun	neen	nio
10	deich	deg	deka	decem	dieci	diez	dix	zehn	tien	tio
100	cead	cant	hekaton	centum	cento	ciento	cent	hundert	honderd	hundra
	Danish	Old English	Polish	Russian	Bengali	Persian	Lithuanian	Albanian	Armenian	Tocharian A
1	en	an	jeden	odin	ek	yak	vienas	një	mi	sas
2	to	twa	dwie	dva	dvi	do	du	dy	erku	wu
3	tre	thrie	trzy	tri	tri	se	trys	tre	erek'	tre
4	fire	feowre	cztery	chetyre	car	cahar	keturi	katër	cork'	stwar
5	fem	fit	piec	pyat	pac	panj	penkti	pesë	hing	pän
6	seks	siex	szesc	shesht	chay	shesh	sesi	glashtë	vec	sak
7	syv	seolon	siedem	sem	sat	haft	septyni	shtatë	ewt'n	spät
8	otte	eahta	osiem	vosem	al	hasht	astuoni	tetë	ut	okät
9	ni	nigon	dziwiec	devyat	nay	noh	devyni	nëntë	inn	nu
10	ti	tien	dziesięc	desyat	das	dah	dasimt	djetë	tasn	säk
100	hunderde	hund	sto	sto	sa	sad	simtas	qind	harw'r	kant

Fig. 1. List of numerals in various Indo-European languages (from Mallory 1989).

respectively, is extremely doubtful. There are indications namely, seriously taken into consideration by authorities like Massimo Pallottino and Mauro Cristofani, that the situation in this particular instance might just as well be reversed, which means that *huth* represents "4" and *ša* represents "6".³ As a consequence, it is just as obvious as the conclusion based upon the scheme rendered above that the picture can alter profoundly as a result of such mutations, because with *ša* at the position of "6" an Indo-European etymology for the word in question certainly comes into consideration. The same applies to the identification of *thu* and *zal*. Here also Indo-European etymologies lurk at the background as soon as the positions of these two numerals might turn out to be mutually interchangeable, at least if we are willing to realize that Greek *heis* "1" is traced back to an altogether different Indo-European root as Latin *unus*, viz. **sem-*.⁴ Having observed this, it seems worthwhile to determine the various degrees of certainty for the identification of the different Etruscan numerals under consideration. This task will be undertaken along two different lines of approach, first by reviewing the relevant evidence embedded in the corpus of Etruscan texts itself (= *internal evidence*) and secondly by exploring the possibility of establishing an etymological relationship with numerals in related languages (= *external evidence*). Furthermore, it will be assumed that if these two lines of approach happen to coincide the matter is most likely to be settled accordingly.

2. *Internal Evidence*

All numerals presented in the scheme above are found in one inscription, viz. on an ivory dice discovered during clandestine excavations in the neighborhood of Tuscana, for which reason the object in question became known as the Tuscana dice (TLE 197). They are distributed over the six sides of this ivory object in such a manner that *mach* appears opposite to *zal*, *thu* opposite to *huth* and *ci* opposite to *ša* (see figure 2). In the light of the parallels in the form of dices inscribed with dots to indicate the numbers, it is quite certain that the numerals we are dealing with are those from one to six.⁵ But how to determine the value of each numeral more in specific? To this aim there are at our disposal

³ Pallottino 1974: 216; Pallottino 1978: 454; Cristofani 1981: 91, 93; cf. Lejeune 1981: 241ff.

⁴ Meillet 1964: 409f.

⁵ Slotty 1937: 382f.; note that dices based on the pattern 1-1, 2-2, 3-3 and 4-4, 5-5, 6-6 are not relevant in the present connection.

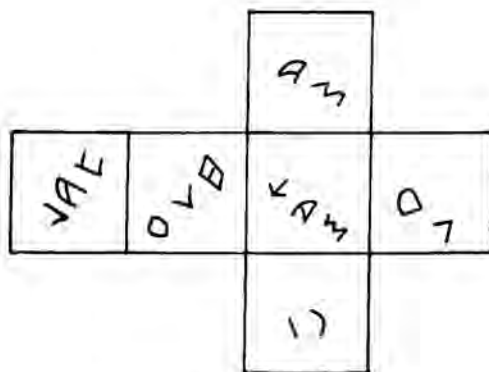


Fig. 2. Tuscana dice (TLE 197).

various indications from other Etruscan documents, which, as far as their relevance for our purpose is concerned, range from “decisive” to “indecisive”. Clearly decisive is the identification of *ci* as “3” on the basis of the correspondence of Etruscan *ci avil* to Phoenician *šnt šls III* “in year three” in the bilingual inscriptions on the Pyrgi gold tablets (TLE 874-5).⁶ Another convincing argument, though perhaps of a somewhat less irrefutable nature, is formed by the observation that the symbol $\wedge$ for the numeral “5” in Arabic script is also used as alphabet letter for the expression of /m/ in late Etruscan inscriptions from eastern Etruria and the Po-valley. This phenomenon namely, is only explicable if the one numeral on the Tuscana dice starting with /m/, viz. *mach*, means “5”.⁷ Yet another piece of valuable information is provided by indications of the day in a month in the liturgical text of the so-called Liber Linteus (TLE 1). The indications in question are characterized by a subtractive construction comparable to Latin *duo-de-viginti* and Greek *duōn deonta eikosi*, according to which one counts back from multiples of ten in order to produce the numerals 17-18-19, etc.⁸ In this construction then, which is easily recognizable by the subtractive element *-em* attached to the numeral first mentioned, only the numerals *ci-*, *esl-* (= variant spelling of *zal!*⁹) and *thu-* find their application.¹⁰ Conse-

⁶ Pallottino 1978: 445.

⁷ Cristofani 1981: 92; Rix 1985: 213; for an example from the Po-valley, see the Piacenza bronze liver (TLE 719). In an earlier contribution (Woudhuizen 1984-1985: 121, fig. 11) I have compared this sign to an apparent equivalent in the Sidetic script from Pamphylia in southwest Asia Minor, but the present evidence clearly bespeaks independent development rather than derivation. Therefore I feel compelled to withdraw the comparison in question.

⁸ Pallottino 1974: 216; Cristofani 1981: 91.

⁹ Pallottino 1974: 225ff. (= Vocabulary, s.v.); Lejeune 1981: 241ff.

¹⁰ Slotty 1937: 389; Vetter 1962: 139ff.; Cristofani 1981: 91; Lejeune 1981:

quently, as *ci* means “3”, only *zal* and *thu* can come into consideration for the remaining primary numerals “1” and “2”! Similarly, it likewise follows that *ša* and *huth* do not belong to the primary numerals 1-3, and for this reason can only come into consideration for the numerals “4” and “6”, if we recall that *mach* means “5”. Unfortunately however, this line of division between the primary numerals 1-3 and the non-primary numerals 4-6 only enables us to diminish the number of possibilities for the as yet unidentified numerals *thu*, *zal*, *ša* and *huth* by splitting them up into two distinct groups in which two alternatives are valid for each couple: it does not pin them down to any number more in specific (see figure 3).

	primary		non-primary	
fixed	3	<i>ci</i>	<i>mach</i>	5
unfixed	1	<i>thu</i>	<i>huth</i>	4
	2	<i>zal</i>	<i>ša</i>	6

Fig. 3. Actual state of affairs in the identification of the numerals on the dice according to internal evidence.

In order to accomplish the latter task numerous arguments have been put forward, but none of these can be considered decisive as long as each indication favouring one solution is counterbalanced by another pointing in the opposite direction. So there have been two attempts to pinpoint the couple *ša* and *huth* to the numbers “4” and “6” more in specific, which both have taken statistics as their starting-point. The first approach proceeded from the observation that c. 75% of the dices inscribed with dots adheres to the principle that the sum of the ciphers on opposite sides is 7. This leads to the conclusion that *ša*, opposite to *ci* “3”, most likely renders “4”—an opinion, which, as we have seen above, seems favourable to the majority of the scholars in Etruscology.¹¹

241ff. As observed by Pfiffig 1969: 124 this point is further stressed by parallels in Arabic script, showing examples of subtraction up to three (viz. LIIX and XXIIIX).

¹¹ Slotty 1937: 382f.; cf. Krogmann 1958: 150ff., who, however, in contrast to Slotty, based his survey of the various types of dices on secondary literature instead of autopsy. For this reason the evidence presented by Slotty is preferable. Although Slotty's careful epigraphical case-study deserves praise, his transposition of obser-

The second approach on the other hand, based itself on a frequency-analysis of the numerals 4, 5 and 6 in various languages, pointing out that as a rule the numeral "6" is significantly less current than the numeral "4". Translated into terms of Etruscan this means that *ša*, with only three occurrences in sum (against *huth* with as much as ten occurrences in sum), should rather be expected to represent the numeral "6".¹² Ergo: the matter must remain unsettled for the time being for lack of compelling evidence.

As far as the possibilities to identify the remaining couple of unfixed numerals more in specific are concerned the situation seems somewhat more complex. It has already been indicated above that *communis opinio* among Etruscologists wants to have it that *thu* means "1" and *zal* means "2". This opinion is primarily based upon the fact that *zal*, just like the numerals with definite plural meaning like *ci*, *mach* and *ša*, once occurs in combination with a word characterized by the plural morpheme *-r*.¹³ At the same time however, it is neglected that the strength of this reasoning is undermined to a great deal by the fact that *thu*, in derived form characterized by an additional element *-ch*, is also once directly associated with an, for its ending in *-r*, apparently plural notion.¹⁴ Other indications adduced in defence of the same solution to the problem stem from the text of the Liber Linteus. As mentioned earlier, this liturgical text contains calendar dates characterized by a subtractive device in counting in order to produce the numerals 17-18-19, etc. It is observed then, that *ciem.cealchuz*, which certainly means "27", is followed by *eslem.cealchus* and *thunem.cial[chus]*, which sequence

variations concerning dices inscribed with dots to the one inscribed with alphabet letters fails to do justice to the fact that the most elaborate numeral in dots (six) by no means needs to be the most elaborate numeral in alphabetic writing, for which, apart from *mach*, *huth* and *zal* also come into consideration. Preference for the present option clearly speaks from Pallottino 1974: 216 (translation of *huthi's zathrumis* as "on the twenty sixth [day]"), 225ff. (= Vocabulary, s.v.); Cristofani 1981: 93 (*ša* "4"?; *huth* "6"?; against honest account of both possibilities on p. 91); Pfiffig 1969: 123. Only Lejeune 1981: 241ff. refuses to show any preference at all and truly leaves the matter undecided.

¹² Mańczak 1983: 103ff.

¹³ Krogmann 1958: 154; Rix 1985: 223. Cf. Cristofani 1981: 59; Slotty 1937: 381 (who includes *huth* also on account of the combination *hut.naper* from the text on the cippus of Perugia, TLE 570).

¹⁴ Torp 1905: 17 showing a clear instance of circular reasoning in connection with the combination *thuch.ichutevr* from the text on the discus of Magliano (TLE 359): "Now *thu* being 'one', the *-r* of *ichutevr* cannot be the plural termination, but must be a derivative." In fact however, the second element of the word *ichutevr* is difficult to separate from *tivr* in the expression *tivrs:šas* in the "age-formula" of a funeral inscription from Tuscan (TLE 181), which in its turn is generally accepted as decisive proof for the plural nature of the numeral *ša* (see preceding note).

suggests regular counting from "27" to "28" and "29".¹⁵ Furthermore, the order of the numerals in an expression like *zuthēva.zall/ēšic.ci.halchza.thu.ēšic.zal* (X, 20f.) is highly suggestive of an explanation along the lines of "two or three" and "one or two".¹⁶ In combination, these two arguments seem quite impressive. But in reality we do not have any specific knowledge on the composition of the Etruscan religious calendar: the given sequence of dates is interrupted by other composite numerals (*eslem.zathrum* between *ciem.cealchuz* and *eslem.cealchus:huthiś.zathrumiś* "24" between *eslem.cealchus* and *thunem.cial[chus]*) and might for this reason be as fortuitous as the sequence of the numerals *sal-thuvas-ci* in the longer Etruscan version of the text on the Pyrgi gold tablets.¹⁷ Similarly, we do not know the exact meaning of the word *ēšic* from the cited expression, not to mention that of the entire context in which the passage stands. Nevertheless, for lack of alternative solutions, the given interpretation deserves credit as a plausible piece of evidence relevant to the subject. The same however, applies in no lesser degree to information deducible from the text of the Magliano disc (TLE 359), which is generally omitted from discussions on Etruscan numerals. In this text the word *chimth* is preceded by an entry *ez* in the first paragraph, dedicated to the god Cautha, *tu* in the second paragraph, dedicated to the goddess Aisera, and *cialath* in the third paragraph, dedicated to the god Mariś.¹⁸ As the last mentioned form *cialath* is obviously a derivative of the numeral *ci*- "3", it apparently follows from their identical position in the structure of the text that *ez* and *tu* are numerals, too.¹⁹ If so, interpretation of *ez* as "1" and *tu* as "2" seems practically unavoidable! Unfortunately, this outcome is incompatible with the previous one based upon the text of the Liber Linteus, so that once again we will have to content ourselves with the unsatisfactory verdict: *non liquet*.

Discomforting as the preceding synopsis of the relevant evidence for the identification of the numerals *thu* and *zal* may seem, there still

¹⁵ In TLE 1,x,2; xi,12; xi,17, see Vetter 1962: 139ff. and cf. Pfiffig 1969: 125.

¹⁶ Vetter 1962: 135; cf. Pfiffig 1969: 126.

¹⁷ In TLE 1,xi,8; xi,15. For a detailed discussion of the bilingual inscriptions on the Pyrgi gold tablets, see Best & Woudhuizen 1989: 153-179 and note that in the light of the parallels *sal* is rather to be interpreted as a numeral indicating the day in a month (even though the Phoenician version of the text is not decisive in this respect) than as a combination of conjunction and enclitic pronoun.

¹⁸ Woudhuizen (forthcoming) discusses the text of the Magliano disc at length in Chapter III, § 3; here it is also pointed out that the word transliterated in the editions of the text as *†tīu* in reality reads *tu*, no sign being written in the space between *t* and *u* because of a hard bubble on the surface of the leaden disc at that particular spot.

¹⁹ Torp 1905: 13f.; formation consisting of the adjectival suffix *-ali-* in combination with the locative ending *-th*.

can be drawn at least one positive conclusion if we allow ourselves the luxury of setting a more modest aim. Both categories of information do not appear to be mutually exclusive namely, insofar as the distinction between basic and composite forms of the numerals in question is concerned. So the coexistence of a basic form *ez* (first paragraph of the text on the Magliano disc) and complex form *zal*, *sal* or *esl*- (Tuscan dice, Pyrgi bilingue and Liber Linteus, respectively) for the one numeral is perfectly matched by the coexistence of a basic form *thu* or *tu* (Tuscan dice, Liber Linteus and second paragraph of the text on the Magliano disc) and complex form *thun* (Liber Linteus, cf. fifth paragraph of the text on the Magliano disc) for the other numeral. Is it then, in the light of this evidence too speculative to assume that we are in fact dealing here with altogether different sets for two types of numerals, the one cardinal and the other ordinal? If so, this inference leads up to the following paradigm concerning the primary numerals:²⁰

	cardinal	ordinal
1	<i>ez</i>	<i>zal, sal, esl-</i>
2	<i>thu(va-), tu</i>	<i>thun(-)</i>
3	<i>ci</i>	<i>cial-</i>

3. External Evidence

As hinted at in the introduction (see § 1, above), another category of evidence relevant for the determination of the meaning of the Etruscan

²⁰ The opposition between cardinal and ordinal numbers is cogently applied in the text on the leaden discus of Magliano, where the ordinals *sal* and *thun* occur in the final paragraph dedicated to the god Tin, see Woudhuizen (forthcoming) *loc. cit.* During the course of time however, this opposition appears to become less pronounced, as indicated by the enlistment of ordinal *zal* among otherwise cardinal forms on the Tuscan dice itself. So the distinction between cardinals and ordinals among the numerals used in connection with the indications of the magistracies, held by the deceased person during his lifetime, in more recent funeral inscriptions happens to be less clear-cut. Starting from Vetter's observation (1962:137f.) that the words *zilcti.purtšvavcti* from TLE 325 are both in the locative in *-ti* and therefore grammatically associated, it might very well be defended that the ordinal *thunz* in TLE 324 has preserved its original function. For, when placed in its entire context, it naturally follows from the sequence *zilachnu ciz* ²*zilcti.purtšvavcti* that the commemorated owner of the tomb died when still in office as *zilc- purtšvavc-* after having reached three times to the zilathship, in other words: that the root *purtš-* serves as a specification of a certain type of zilath(ship)! As a consequence, the phrase *zilch-nu:cezpz:purtšvana:thunz* can reasonably be translated: "held the zilathship eight times, the time as prytane". With respect to the ordinal *esl-* on the other hand, such a position is more difficult to maintain, as it occurs in instances with only a single titular expression (TLE 136, 169) or ones in which the relationship between the roots *zilc-* and *purtš-* is doubtful for the presence of interposed magistracies (TLE 171).

numerals from "1" to "6" is formed by their etymological relationship to counterparts in possibly related languages. Now, historical sources supply ample evidence for the eastern Mediterranean provenance of the Tyrrhenians (as the Etruscans are called by Greek authors) and therefore modern scholarship has primarily directed its attention to the non-Greek languages in the Aegean and western Asia Minor in its attempts to acquire comparative material. The validity of this methodologically sound approach has subsequently received astonishing confirmation in the form of inscriptions in the Tyrrhenian language on a funeral monument from present-day Kaminia in Lemnos, the so-called Lemnos stele. In these inscriptions the formula indicating the age of the deceased person, running as follows: *avis sialchv(e)is maras(-)m avis*, could only be identified as such owing to its almost exact correspondence to the Etruscan "age-formula" *avils machs sealchls-c* "(at the age) of ... ty five years".²¹ As a result of this identification then, irrefutable comparative evidence for the numeral root *še-* (obviously nothing but the basic numeral *ša* in graphic variation resulting from its combination with the element *-lchl* for the indication of multiples of ten) has been established in the form of Lemnian *si-*. But, as the interpretation of Lemnian in this respect depends on our knowledge of Etruscan, it does not present us any clue whatsoever for a choice between the two possible options (viz. "4" and "6") for the numeral in question. As a matter of fact, such a clue is rather springing from a different source, viz. substrate influences in Attic Greek, ascribable to Pelasgian population groups which, according to the literary sources, once inhabited the Attic promontory before they were expelled to the island Lemnos and the north Aegean region. And it does not concern the numeral *ša*, but its companion in the couple for the numerals "4" and "6", viz. *huth*. The latter form is generally compared to the root of the prehellenic place name *Huttēnia*, which, as a covering name for the townships Marathon, Oinoe, Probalinthos and Trikorynthos, is translated already in Antiquity by Greek *Tetrapolis*.²² From this equation it evidently follows that the related Etruscan numeral means "4". This particular inference can even be further substantiated if we are willing to take the forms of multiples of ten into consideration. As noted earlier, these include a derivative of the numeral *ša*, viz. *sealchl*. On the

²¹Brandenstein PW: 1925f.; cf. Rix 1968: 215 and Best & Woudhuizen 1989: 143, 159.

²²Etymology first proposed by Karl Ostir in 1921 and accepted by Paul Kretschmer, Wilhelm Brandenstein, Fritz Schachermeyr, Hans Krahe, etc.; for the composition of Attic *Tetrapolis*, see Krogmann 1958: 155. Note in this connection that the Pelasgians of Herod. VI, 137 are referred to as Tyrrhenians by Thuc. IV, 109.

other hand, up till the present day a similar derivative is not attested for the numeral *huth*. Even though it must be admitted that arguments *ex silentio* have often turned out to be notoriously unreliable, it nevertheless seems permissible to assume that the indication of ten in question is likely to be based on a root which is altogether unrepresented among the basic numerals.²³ If this be considered a plausible suggestion, the form *muvalchl* clearly recommends itself as a substitute for the missing **huthalchl*. Having observed this, it subsequently is significant that "60", as one of the two possible meanings of the word in question, is definitely ruled out on account of the etymological relationship of its root *muva-* to Luwian *mauwa-*, meaning "4".²⁴ As a consequence, *sealchl* undoubtedly indicates "60" and the preceding identification of *huth* as "4" receives indirect confirmation.

But what about the inclusion of Luwian *mauwa-* into our comparanda for Etruscan numerals? As a matter of fact, with this comparison the range of our etymological investigation definitely is extended to the Indo-European languages of southwest Anatolia (note in this connection that Luwian *mauwa-* is considered related to Mycenaean Greek *mewijo* > Classical Greek *meiōn*, originating from PIE **mei-*)²⁵ and one might legitimately ask how this relates to the Tyrrheno-Pelasgian correlations mentioned earlier. For Pelasgian is generally ranked among the substrate languages of non-Indo-European nature and, even in case the latter opinion is not uncontestable, certainly must be considered as a separate entity.²⁶ In order to neutralize the effect of this objection, it may perhaps suffice for our present purposes to point out that Pelasgian at least shows signs of close interaction with Indo-European languages more in general and the Anatolian branch of Indo-European languages in particular. So the root *si-* of the form for the multiple of ten from the "age-formula" in the Lemnos stele, *sialchv(e)is*, is fully in accordance with an etymology from PIE **s(w)eks* if, at least, we are not mistaken in our identification of this numeral as "60". Furthermore, it deserves

²³ But note that the argument is complicated by the fact that a form for "50" is not yet recorded: this also might turn out to be based on a root independent of the one for "5".

²⁴ Hamp 1958: 311f.

²⁵ Carruba 1979: 195 (citing the opinion of Heubeck, which is not followed by the author himself); Pokorný 1959: s.v.

²⁶ In defence of the Indo-European nature of Pelasgian it is often pointed out that typical Pelasgian place names like Gortyn, Gyrtone, Cortona and Pyrgiotissa, Pergamon, Pyrgi are based on PIE roots, see Eisler 1939: 449 (compares Hittite *gur-ta-*, Slavonic *-grad*, etc., for the root of the series first mentioned) and cf. Furnée 1972: 64f. (relates Celtic *-briga*, German *-burg*, etc., as comparative evidence for the root mentioned secondly).

our attention in this connection that the place name *huttēnia* in graphic variant *hutēnna* is paralleled for Lycia in southwest Asia Minor, where Luwian dialects are recorded up to the time of the Hellenistic period.²⁷ So far, so good: but can the extension of our etymological investigation to the Indo-European languages of southwest Asia Minor contribute to our understanding of odd forms like Etruscan *ci* "3" and *mach* "5"? This is, of course, a crucial question, because, as has been shown above, these two numerals are the ones certainly identified on the basis of internal evidence only. Such being the case, it is interesting to observe that the semantic opposition between the numeral *mach* "5" and the obviously related lexical item *mech* "league, assembly" in Etruscan is closely paralleled in the Anatolian languages by the semantic opposition between PIE **penkʷe* "5" and its Hittite derivative *panku-* "assembly".²⁸ But what is even more significant than this is the fact that the Luwian equivalent of Hittite *panku-* is traced back to a common Anatolian root **mek-* (cf. Hittite *mekki-* "numerous" < PIE **meǵ(h)-*), a derivation of which still survives in Lycian texts from the Classical period as *miñti* "assembly, league".²⁹ Is it then, in the light of this evidence too far-fetched to assume etymological relationship between Etruscan *mech* and the common Anatolian root just mentioned in its typical Luwian application? At any rate, if due attention is paid to the IE Anatolian type of evidence, there can, from a semantic point of view, be raised no fundamental objection against the Indo-European nature of the pair of numerals *mach* "5" and *muva-* "4", which take the meanings "numerous" and "less" as their starting-point.³⁰ Similarly, the possibilities of tracing the origins of the numeral *ci* are by no means as hopeless as it appears at first sight. In order to substantiate this statement, we first of all have to turn our attention once again to evidence emanating from Etruscan texts themselves. As has been shown in the preceding section (see § 2, above), indications from

²⁷ Fick 1905: 129. Considering the possible IE nature of Pelasgian (see note 26, above), it seems not far-fetched to connect the typical Pelasgian root *hut(t)-* or *hut(h)-* for the numeral "4" with PIE **kʷetwores*, provided that the **k > h* phonetic development, implied by this relationship, can be accounted for. On the analogy of the possible correspondence of the Pelasgian MN *Holaïos* to Greek *Kolaïos* and the appearance of the Italic geographic name *Kampanos* in the form of *Hampanos* under Etruscan influence (see Best & Woudhuizen 1989: 150), accommodation of the given prerequisite seems not at all impossible. Nevertheless, we will not insist on this relationship for the hypothetical nature of the parallels adduced.

²⁸ Cf. Carruba 1979: 195.

²⁹ Laroche 1963: 78, where common Anatolian **mek-* is assumed to be conserved in Hittite (viz. *mekki-*), but to have developed in Luwian into **mai-*, actually attested in adjectival derivation *mayašši-* and nominal derivation *miā(n)ti-* > Lycian *miñti*.

³⁰ Carruba 1979: loc. cit.

internal evidence enable us to bring about a distinction between cardinal *ci* and ordinal *cial-*. If we further recall that the root of the numeral in question is subject to *eli*-oscillation in its derived form for the indication of multiples of ten (cf. *cialchus* alongside *cealchus*), it next becomes extremely tempting to consider the word *creals*, which occurs in a context specifying the magistracies held by the deceased person of a funeral inscription from Tarquinia, as a formation based on essentially the same root. According to this line of approach the element -s at the end of this word corresponds to the suffix -z(i) or -sī for the meaning “(x) times”, which as a rule is attached to numerals used in the context of enumerations of honorary titles in funeral inscriptions (compare *ciz(i)*, *eslz*, *thunz*, etc., and note that the two examples last mentioned concern ordinal forms as well).³¹ But the principal gain of this analysis consists of the opportunities which are created to reconstruct *ci* “3” as a simplification of original **cri* by loss of medial -r-. For from this point onwards etymological relationship to the IE languages of southwest Asia Minor can easily provide us the indispensable working tool for bridging the remaining gap between the reconstructed Etruscan form **cri* and common Indo-European counterparts starting with the consonant *t* instead of *c*. This working tool is, of course, to be found in Lycian texts, where forms starting with a *t* in one set of inscriptions happen to be written with initial *c* in another set of inscriptions, like in case of the correspondence of Lycian B *tbi* to *cbi* in Lycian A or, even more relevant for our present purposes, the correspondence of the MN *trzzubi* in TL 111 to *crzzubi* in TL 83.³² With the help of this Lycian *c/t*-consonant shift then, etymological relationship of Etruscan *ci* (*cia-* or *cea-* in derivations) < **cri* (*crea-* in actually attested derivation) to Luwian *t(a)ria-* < PIE **treyes* is easily established.³³

What remains is the task to trace comparable forms for the couple

³¹ TLE 131, 3-4: *creals.tarchnalth.spu⁴reni.lucairce* “the third time (or: three times) he was municipal priest-king at Tarquinia”, with *lucairce* as a verbal derivation (-ce, ending of the 3rd person sing. of the past tense) of the honorary title *lucumo* (= Etr. equivalent of Roman *pontifex maximus* and Athenian *archōn basileus*) and *spureni* as an apposition to this title in the light of the parallels (cf. the combination of *spurana* with derivations of the title *maru-* “priest” in TLE 165, 233). For numeral adverbs in -z(i), etc., see Pallottino 1974: 216; Cristofani 1981: 93.

³² Laroche 1967: 47; Carruba 1979: 201, note 11.

³³ It is interesting to note in this connection that a phonetic development comparable to the Lycian *c/t*-consonant shift is attested for Etruscan documents themselves in form of a *ch/th*-consonant shift, for which the doublet *mechlum/methlum* “league” (TLE 233, 99) and the relationship of *mlach* “good, beautiful” to the root of the verbal form *mlathce* (TLE 359) bear witness.

thu and *zal*, which, according to the preceding section (see § 2, above), both come into consideration for the numbers "1" and "2". Of this couple then, the numeral last mentioned is, in its writing variant *esl-* from the calendar dates of the Liber Linteus, most closely paralleled by Lydian *isl-*. The latter word is likewise used as indication of the day in a month in the dating-formula of the Lydian-Aramaic bilingual inscription from the Sardinian necropolis. But, as its meaning is not fixed as well, it is of little help in our attempts to determine the meaning of Etruscan *zal* more in specific.³⁴ Much more useful in this connection are the etymological backgrounds of the numeral *thu*. As observed in the preceding section, its derivation *thun*, characterized by an additional element *-n*, belongs to the realm of the ordinal numbers. Consequently, the additional element in question no longer constitutes a serious obstacle to possible Indo-European correlations.³⁵ On the contrary, one is tempted to add, as soon as the IE Anatolian languages are taken into consideration. In Hittite namely, ordinal numerals are characterized precisely by a suffix *-an(n)a*, which, in case of the primary numeral *dā-* "2", even occurs in the form of single *-n*, viz. *dān* "second", thus presenting the closest comparable evidence for Etruscan *thun*.³⁶ For this reason then, cardinal *thu* or *tu*, which, as noticed in the preceding section, even appears in lengthened spelling variant *thuva-* in the longer Etruscan version of the text on the Pyrgi gold tablets, may safely be compared to Luwian *tuwa-* "2" (< PIE **duwo*) and, though somewhat more remotely, to Lycian *tbi* or *cbi*, *ibid.*, from which it evidently follows that it must be interpreted accordingly.³⁷ Having established this, it subsequently becomes unavoidable to assign the only remaining possible meaning, viz. "1" or "first", to cardinal *ez* and ordinal *zal*, *sal* or *esl-*, respectively. Hence, this numeral, too, is likely to originate from a PIE root, viz. **sem-*.

³⁴ Lyd. no. 1; according to the detailed analysis of this text by Kahle & Sommer 1927, *isl-* corresponds to the indication of the day in a month in the Aramaic version, which is "5", but does not necessarily indicate exactly the same number, because we do not know "wie weit sich *Marhešyān* [= Aramaic month name] und *Bakillis* [= Lydian month name] inhaltlich decken" (p. 25-28); cf. Woudhuizen 1990: *passim*.

³⁵ Argument first put forward by Pauli, who is followed in this respect by Slotty 1937: 399 and Vetter 1962: 134-135.

³⁶ Friedrich 1974: 71f.; cf. also the correspondence in formation between Etruscan *cianil* from the combination *cianil puia* "third wife" (TLE 189) and Hittite *LU^{triyanalli-}*.

³⁷ Laroche 1960: 206.

4. Conclusion

The preceding discussion of internal and external evidence relating to the identification of the Etruscan numerals from "1" to "6" evidently leads to the conclusion that the information supplied by both categories of evidence is compatible in every respect. So *ci* and *mach*, most certainly identified on the basis of internal evidence alone, could be clarified with the help of peculiarities typical for the Indo-European languages of southwest Asia Minor. In addition, etymological correspondences for *huth* and *thu*, which could only be loosely assigned to separate groups in which only two possible meanings were valid on the basis of internal evidence, indicated straightforward identifications falling within the limits set by the internal evidence just mentioned. The meaning of *ša* and *zal*, for which no additional information is provided by either internal or external evidence, is a mere function of the preceding identifications for their assignment to the groups mentioned. Finally, it deserves attention that the plausibility of the resulting identifications is not seriously challenged by evidence provided by dices inscribed with dots to indicate the numbers, as there is one dice presently in the Villa Giulia collection (nr. 13.350) which may serve as an analogy case for the distribution pattern of the numerals over the different sides thus reconstructed (viz.: 6 opposite to 3, 5 opposite to 1 and 4 opposite to 2).³⁸

In sum, these results cannot but lead up to a reversal of the *communis opinio* among present-day Etruscologists concerning the nature of the Etruscan system of basic numerals. Instead of being clearly non-Indo-European, this now turns out to be basically related to the one of the Indo-European languages of southwest Asia Minor.³⁹

	Etruscan	IE Anatolian	Proto-Indo-European
1	<i>zal</i>	<i>isl-</i>	* <i>sem-</i>
2	<i>thu</i>	<i>tuwa-</i>	* <i>dwi-</i>
3	<i>ci</i> (< * <i>cri</i>)	<i>t(a)ria-</i>	* <i>tri-</i>
4	<i>huth, muva</i>	<i>mauwa-</i>	* <i>mei-</i>
5	<i>mach</i>	* <i>mekki-</i>	* <i>meǵ(h)-</i>
6	<i>ša</i>	<i>si-</i>	* <i>sweks</i>

³⁸ Slotty 1937: 383f.

³⁹ PIE roots based on Meillet 1964: 409ff. and Pokorny 1959: s.v.

According to Herodotos I, 94 the Lydians had invented the game of dice during a severe famine in order to distract their attention from the nasty feeling in their stomachs. It did not help them to forget about food altogether, so after 18 years it was decided that half of the Lydian population should leave to find themselves new homes. Under the leadership of one of the two sons of the Lydian king, *Tursēnos*, they settled in the territory of the Umbrians in Italy and were henceforward called Tyrrhenians after their leader. According to the archaeological record, the earliest dices are found in the princely tombs of Barberini at Praeneste (20 pieces) and of Regolini-Galassi at Caere (5 pieces), all stemming from the 7th century BC.⁴⁰ Is it riskier than gambling to assume that there might be a connection between these two categories of evidence? To present-day Etruscologists it no doubt will appear to be so. But then, what are the merits of the opinion of those who cannot count to three in a language which happens to be the subject of their specialization?

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