




## Research Article

# Mesoamerican mantic names as an etymological source of Mixtec vocabulary

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### Abstract

This article examines the word histories of 12 nouns (eight zoonyms, two other lifeform names, and two toponyms) in Mixtec, a shallow or emergent language family of Mesoamerica. It argues that these nouns—now morphologically opaque—are fused compounds that arose from the Mixtec vocabulary of the mantic count of 260 days, a temporal organization that was part of the common cultural heritage of pre-Hispanic Mesoamerican peoples. With the European colonization and persecution of Mesoamerican religious practices, the use of the mantic count was abandoned. It was at this time that the compounds would have been demotivated; that is, the internal morphological structure would have become inaccessible to speakers who could no longer relate it to the mantic cycle. This then enriched the lexicon, creating etymological pairs for the same, or similar, referents. It is suggested that the survival of the eight zoonyms may have to do with their use in the context of omens.

### Resumen

Este artículo examina las historias de doce sustantivos (ocho zónimos, otros dos nombres de formas de vida y dos topónimos) en mixteco, una familia lingüística emergente de Mesoamérica. Se sostiene que estos sustantivos, hoy morfológicamente opacos, son compuestos fusionados que surgieron del vocabulario mixteco de la cuenta mántica de 260 días, organización temporal que formaba parte del patrimonio cultural común de los pueblos prehispánicos mesoamericanos. Con la colonización europea y la persecución de las prácticas religiosas mesoamericanas se abandonó el uso de la cuenta mántica. Fue en este momento cuando los compuestos se habrían quedado desmotivados; es decir, la estructura morfológica interna se habría vuelto inaccesible para los hablantes que ya no podrían relacionarla con el ciclo mántico. Esto luego enriqueció el léxico creando pares etimológicos para referentes iguales o similares. Se plantea la hipótesis de que la supervivencia de los ocho zónimos puede tener que ver con su uso en el contexto de los agüeros.

**Keywords:** historical linguistics; etymology; zoonyms; Mixtec; Mixtecan; Oaxaca; 260-day calendar; tonalpohualli; mantics; omens

Mesoamerica is widely recognized as a locus of a set of unique and ancient shared cultural traditions. The domestication of some of the world's most important cultigens, primary urban generation, and the invention of writing occurred in this region. It is also an area of considerable linguistic diversity. Although European colonization and the creation of modern nation states have resulted in the widespread use of Spanish in the area, indigenous Mesoamerican languages continue to be spoken. These languages are rich sources of information about the linguistic and cultural history of Mesoamerica's past.

Typically, the diachronic linguistic study of Mesoamerica has focused on systematic patterns, such as the identification of language families or shared linguistic structures in relation to their geographical distribution (e.g., Campbell et al. 1986, Valiñas 2010). However, the individual histories of words, although tied closely to systematic analysis, offer another, complementary approach that addresses the issue of meaning across time. The study of word histories, or etymology, can shed light on cultural and historical forces that result in cul-de-sacs for analyses based on systematic regularity. These forces include phonosymbolic expressivity, language contact, and the impact of changing material culture and ideology.

This article examines the word histories of 12 nouns in Mixtec, a shallow (or emergent) language family of Mesoamerica. It argues that these nouns, now morphologically opaque, are fused compounds—what have been called

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“disguised compounds” (Sweet 1880)—that arose from the Mixtec vocabulary of the mantic count of 260 days, a temporal organization that was part of the common cultural heritage of pre-Hispanic Mesoamerican peoples. The process involved enriching the Mixtec lexicon at the expense of the internal morphological complexity of the mantic count vocabulary. However, it is also a reflection of the prior social use of the mantic count and its subsequent loss during European colonial rule.

The organization of the article is as follows. The first two sections after the introduction provide information about the data and context for the argument: the classification and relevant sources on Mixtec are described in the section titled “The Mixtec language,” and the structure and use of the composite mantic count are summarized in the section titled “The Mesoamerican 260-day mantic cycle.” The forms and morphophonology of the Mixtec vocabulary of the 260-day composite count appear in the extended section titled “The Mixtec count.” In the section that follows, the “Etymological criteria” used to argue that certain nouns originated in the mantic cycle are described. Then, the section titled “Proposed mantic name etyma for Mixtec vocabulary” discusses 12 nouns: eight zoonyms (corresponding to six animals), two other lifeforms, and two toponyms. A “Discussion” of the patterning of these etyma and their possible social origins follows. The article ends with the “Conclusions” section, which review the results and comments on the role of etymology in the linguistic study of Mesoamerican culture history.

### The Mixtec language

Mixtec is spoken in the region called the “Mixteca,” today located in the western portion of the Mexican state of Oaxaca and in adjacent areas in the states of Guerrero and Puebla. It is also spoken by Mixtec migrant families and communities in urban and agricultural zones both in Mexico and the United States. Official estimates place the number of Mixtec speakers at over 500,000 (Instituto Nacional de Estadística y Geografía 2020). Mixtec, along with the closely related Cuicatec language and more distant Triqui language, has been grouped into the Mixtecan language family, one of the branches of the hypothesized Otomanguan language family. The relation of Amuzgo to Mixtecan has been a source of debate and deserves further study (Longacre 1964, 1966, Longacre and Millon 1961, Swadesh 1964), but in recent published classifications, Amuzgo forms a node with Mixtecan within Otomanguan (Campbell 1997:158; Kaufman 1990:93–94).

Unlike Cuicatec, Triqui, and Amuzgo, there exists considerable diatopic diversity within Mixtec. Linguistic variation between communities can be significant enough to render varieties of Mixtec mutually unintelligible. For this reason, as well as for structural differences, some linguists refer to different Mixtec languages. However, these claims, often intuitive, have met with opposition from Mixtec organizations and activists that perceive political consequences to this terminology (e.g., Ve’e Tu’un Savi 2007:26). For such reasons, the Mexican National Institute of Indigenous Languages

refers to Mixtec as a “language grouping” composed of “language variants” (Instituto Nacional de Lenguas Indígenas 2009). In this article, a similar neutral terminology is used: Mixtec is called an “emergent language family” composed of language “varieties.” Mixtec varieties are specified by the primary community in which it is spoken. Consequently, the Mixtec variety spoken in the community of Santa María Peñoles is called Peñoles Mixtec here. The locations of the principal speech communities of the Mixtec varieties mentioned in this article appear in Figure 1.

The linguistic diversity of Mixtec is sufficient to make the reconstruction of “proto-Mixtec,” the immediate ancestor of all Mixtec varieties, not only feasible but also useful to explain the relationships among varieties and their diachronic developments. The current understanding of proto-Mixtec appears in the reconstructions of Kathryn Josserand (1983), Michael Dürr (1987), and Michael Swanton (Swanton 2021; Swanton and Mendoza Ruiz 2021). Josserand divides the Mixteca into several dialect areas. Although her classification needs revision, Josserand’s dialect areas are helpful and are used in this article.

Mixtec possesses one of the oldest and most extraordinary written traditions native to the Americas. Prior to the European invasion and in the decades that followed, the Mixtec people registered information with a pictographic writing system that structured linguistic units with conventionalized iconography. The most magnificent attestations of this pre-Hispanic writing system are the surviving deerskin screenfolds, called *codices*, in which the Mixtec nobility recorded their stories of creation and dynasty (Jansen and Pérez Jiménez 2011; Smith 1973a). Under Spanish colonial rule, Dominican friars promoted Mixtec alphabetic writing in the sixteenth century. These efforts involved the creation of a valuable dictionary (Alvarado 1593) and grammar (Reyes 1593) as well as multiple religious texts, both printed and handwritten. Speakers of Mixtec quickly appropriated this new writing for their own purposes. They produced abundant administrative texts during Spanish colonial rule. Several hundred of these texts survive to this day (Swanton, ed 2021; Terraciano 2001). At the turn of the twentieth century, Mixtec intellectuals began to produce individualistic literary works, such as poetry and even the translation of a novel (Jansen and Pérez Jiménez 2009; Swanton and Guerrero López 2023). Mixtec speakers continue to produce written alphabetic materials in their language. This writing tradition, reaching back centuries, provides valuable data for understanding how Mixtec has changed across time, and it is an important resource for the reconstruction of proto-Mixtec. This article makes use of multiple early written sources in Mixtec.

Much of the published lexicographical work on modern Mixtec is to be credited to linguists of the Summer Institute of Linguistics (e.g., Erickson de Hollenbach 2017, Williams 2017). There are also locally produced publications with valuable lexical data on Mixtec (e.g., Casiano Franco 2008, Santiago López 2008). In addition to these sources, this article makes use of original, previously unpublished data that Mixtec speakers have provided to the author. As a result, there is unevenness in the phonological precision



**Figure 1.** Map of localities mentioned in text (Map: Enrique Montes Hernández).

of the different Mixtec varieties included in this study. Some varieties, such as Alcozauca and Nuxáa, have received in-depth phonological descriptions (McKendry 2013; Mendoza Ruiz, in preparation), whereas other varieties have almost no prior study. These descriptive differences are most apparent in the treatment of tone, which is contrastive in all Mixtec varieties. When tone is known, high tone is indicated with an acute accent (*á*), mid tone with a macron (*ā*), and low tone with a grave accent (*à*). Unassociated tones that provoke

sandhi are indicated in parentheses in superscript. Certain varieties permit unspecified tones on certain mora; these tones are not marked. However, when tone is not known at all, no tone marking appears.

### The Mesoamerican 260-day mantic cycle

Like other cultures from around the world, Mesoamerican peoples have made use of the mantic arts to interpret

randomly generated, but culturally determined, signs to explain and foresee the outcomes of activities. The most important of these arts in Mesoamerica was hemerology, a method of divination that interprets the inherent favorable or unfavorable values of days and connects these with the success or failure of actions. At the time of the European invasion, multiple hemerologia were used in Mesoamerica to discover the inclinations of newborns, learn the character of marriages, and know the favorable days for travel or offerings, among other things (Doesburg and Oudijk 2022).

The basis for Mesoamerican hemerology was a 260-day cycle known to Nahuatl speakers as the *tonalpohualli*—literally, the “day count.” This was a cycle in which each day is assigned one *trecena* position and one *veintena* position. The *trecena* cycle consisted of 13 ordered positions, and the *veintena* cycle of 20 ordered positions. With the passage of one day to the next, both cycles advanced one position. This results in a composite cycle of 260 unique permutations, each with its own hemerological attributes. The various hemerologia emerged from subdivisions, usually regular, of this 260-day cycle; for example, four subdivisions of 65 days, five subdivisions of 52 days, or 20 subdivisions of 13 days. Although the origin of the 260-day cycle is enigmatic, it is attested in archaeological contexts dating to Mesoamerica’s formative period, as early as 300–200 BC (Stuart et al. 2022).<sup>1</sup>

The process of naming days opened the door to other uses of the cycle. The correlation of the mantic day count with the solar year as another cycle permitted assigning names to years based on the day on which the year began. Consequently, dates composed of both year and day could be recorded. The naming process also applied to persons, who were, in principle, identified according to their day of birth. Each person had a mantic name, which likewise had its values and could be used in a hemerologion to determine, for example, the person’s potential relationship with a spouse. This naming process extended to superhuman or “other than human” forces, such as divinities. Consequently, the great civilizing divinity (Lord 9-Wind) known through the Mixtec screenfold codices, who was associated with writing and whirlwinds and who distributed the water in the Mixteca, bore the mantic name corresponding to the ninth *trecena* position and the second *veintena* one. How such mantic names for sacred beings came about is unclear, but they were doubtlessly endowed with rich meaning and symbolism.

Mantic names from the 260-day cycle could also be applied to generic entities—such as bees, digging sticks, century plants, and knives—when they are addressed, for example, in ritual contexts. The most important source for such use is the 1629 *Tratado de las supersticiones y costumbres gentílicas que oy biven entre los indios naturales desta Nueva España* of Hernando Ruíz de Alarcón, most directly known through a manuscript in the Biblioteca Nacional de Antropología e Historia in Mexico City (Andrews and Hassig 1984). This work carefully records contemporary Nahuatl incantations, or “*conjuros*,” for healing, hunting, divination, and other rituals from localities in the states of Morelos, Puebla, and

Guerrero. In these incantations, objects and lifeforms are personified and addressed through metaphorical names, which Ruíz de Alarcón explains are called *nahualtocaitl*, a “secret name or name that sorcerers use” (“*nombre arreboçado, o nombre de que vsan los hechiceros*”; Andrews and Hassig 1984:124).<sup>2</sup> The *Tratado* shows that these *nahualtocaitl* could draw from different lexical resources of the language. For example, when addressing bees, the speaker of the incantation calls them *notlâhuan* ‘my uncles,’ a kinship term. However, such vocatives could also be taken from the mantic day names. For example, the century plant (*Agave americana*) is called *chicuetecpacihuatzin*, ‘Lady 8-Flint,’ a mantic day name in Nahuatl that combines the eighth *trecena* position with the eighteenth *veintena* one (Andrews and Hassig 1984:122). Twenty-five different mantic day names appear in the incantations that Ruíz de Alarcón recorded, most of which have been identified as *nahualtocaitl*. As was the case for the mantic names of divinities, the origin of these vocatives for generic entities is unclear. In some cases, the entity shares the name with a divinity. For example, the term for a knife is the Nahuatl mantic day name *cetecpatl* ‘1-Flint,’ a combination of the first *trecena* position with the eighteenth *veintena* one. This is also the name of the Mexica divinity Huitzilopochtli (Andrews and Hassig 1984:128, 221). On the other hand, the name for the century plant appears to have no association with any divinity. As the patient reader will see, a similar use of the mantic day names as vocatives or ritual names for generic lifeforms appears to be behind some of the etyma described in this article.

### The Mixtec count

Although the divinatory 260-day cycle is still practiced in certain Zapotec communities (Oudijk and Doesburg 2021), it appears to have been lost in present-day Mixtec ones. However, a handful of fossilized mantic names do still appear in certain specific contexts. In Guerrero, the day names *Kama’a* or *Kamao* and *Kaviyo* or *Kavi* have been attested in ritual contexts and stories at the end of the twentieth and beginning of the twenty-first centuries. As the reader will see in this section, these forms correspond to the names 1-Death and 1-Reed, respectively, and refer to the sun and the moon.<sup>3</sup> A mythical deer appears in a story of creation known in various regions of the Mixteca (Bartolomé 2021). In certain communities, the name of this deer occurs in a vocative context in this story. In Santa María Peñoles, in the eastern Mixteca Alta, this vocative form is *Xikuee* (p.c. Elodia Ramírez Pérez), which is 10-, 11- or 13-Deer. In Santiago Tilantongo and the neighboring San Juan Diuxi, a “mythical deer” *Xakuee*, or 7-Deer, is invoked, presumably in another version of this story (Kuiper and Oram 1991:227). In yet another version, the Tacuate story *Xinda’vi* from Santa María Zacatepec on the Mixtec coast, a double name is called: *Chakuaa* and *Nakuaa*, that is 7-Deer and 8-Deer (p.c. Domingo Cruz Salvador, cf. Doesburg 2022:69, 81).<sup>4</sup> Last, in a different foundational story from San Martín Peras, in the southern

Mixteca Baja, a legendary figure is named *Nāvāko*, or 8-Flower (p.c. Iní Gabriel Mendoza).

Nevertheless, the productive use of these names in the Mixteca appears to have ended about three centuries ago. The mantic day names were retained as cognomina alongside baptismal names even into the early eighteenth century, although this use was in decline already in the second half of the previous century (Terraciano 2001:154). Day names however were of great importance to the Mixtec in the sixteenth century, perhaps even more than for the Nahuatl, and they appear prominently both in pictographic and early alphabetic sources.<sup>5</sup>

The day names are represented in pictographic sources through compound glyphs in which the trecena positions were indicated by an equivalent number of circles, whereas the veintena positions were represented through a series of logographs that essentially coincide with those used in central Mexico. For this reason, these logographs are often translated into English or Spanish from their Nahuatl name. However, the early alphabetic sources in Mixtec reveal that the veintena position stems have distinct, often opaque, forms in this language that do not correspond to the Nahuatl words or their translations. Likewise, the trecena position stems do not correspond directly to the Mixtec cardinal numbers. Careful philological spadework has therefore been necessary to uncover the pronunciation and linguistic structure of the Mixtec day names. This has been made possible thanks to a small set of manuscripts that allow Mixtec alphabetic representations to be matched either with translations into other languages or with their corresponding forms in Mixtec pictography (Table 1).

The reconstruction of Mixtec day names reaches back almost a century to a short chapter in Alfonso Caso's pioneering study *Las estelas zapotecas*, which provides a list of divinities and lords with Mixtec names that appear in the sixteenth-century *Relaciones Geográficas* (Caso 1928:70–73). This list includes a few mantic day names that have translations into Spanish or Nahuatl. An important breakthrough came with Wigberto Jiménez Moreno's (1940) Mixtec chronological study in the 1940 commentary on the *Codex Yanhuítlán*. This study provides an analysis of the Mixtec day names that represented years in the *Codex Sierra* (Jiménez Moreno 1940:70, 75). In the 1950s, several important discoveries were published. Barbro Dahlgren de Jordán, in her 1954 book *La mixteca*, added significantly to this growing corpus by analyzing the day names that accompany pictographic representations in the *Lienzo de Nativitas*, a document kept in its ancestral village that she had copied in 1941 (Dahlgren de Jordán 1954:366–370). Two years after the publication of Dahlgren de Jordán's book, Caso synthesized the previously published sources and added the glosses that appeared in the *Mapa de Xochitepec* and *Mixteco Post-Cortesiano No. 36* (Caso 1954:489, Tables I and II). However, only one of the glosses appearing in these latter two documents has a corresponding glyphic representation (*namaho*, 8-Death). Three years later, Caso (1959) observed a correspondence between an entry for the word "sun" in the *Vocabulario de la lengua misteca* of 1593 (*caa maha*) and the pictographic day name of the personified sun in various

Mixtec codices (1-Death).<sup>6</sup> This permitted another correspondence between alphabetic and glyphic representations of a single day name (Caso 1959:40–41).

After these pioneering discoveries in the 1950s, a second productive period of investigation into the Mixtec mantic vocabulary yielded several advances in the 1970s. The discoveries of this decade were largely thanks to the study of two pictographic manuscripts with extensive glossing in Mixtec: Mary Elizabeth Smith (1973b) published the first analysis of the glosses of the *Codex Muro*, and Viola König (1979)—drawing on Smith's previous work—produced the first published analysis of the glosses in the *Codex Egerton*. In 1979, Smith noticed that the second male ruler in the *Codex of Tecomaxtlahuaca* was identified with a gloss of his mantic name both in Nahuatl and Mixtec (*Chicomestuchitl* and *Xahuaco*, respectively; Smith 1979:40). Consequently, by the end of the decade, almost 80 new transliterated or translated Mixtec mantic day names were published. The decade also saw important syntheses of these findings. Both Smith (1973a:23–27) and Caso (1977–1979, Tome I:163–164) synthesized Dahlgren de Jordán's and Caso's earlier mantic trecena stem and veintena stem inventories into two tables. Smith's tables, which included data from her unpublished work on the *Codex Egerton*, have, in particular, served as the basis for other published inventories of the day names (e.g., Jansen 1994:49, Terraciano 2001:152).

Since that time, the overall composition and basic stems of the Mixtec mantic day names have been understood. Because the glosses in the *Codices Muro* and *Egerton* are difficult to read, their study has been revisited several times, which, despite redundancy, has resulted in some improvements in the transcriptions and produced valuable insights.<sup>7</sup> For example, Manuel Hermann Lejarazu (2003) in his commentary on the *Codex Muro* observes that the first and third trecena position stems (unlike the second and twelfth) bear circumflex accents. He insightfully suggests that such diacritics indicate vowel nasality (2003:78–79).

Since the 1970s, only a few new examples of transliterated or translated Mixtec day names have been identified. In her study of the *Lienzo Selser II* from the Coixtlahuaca Basin, König (1984) notes that a damaged Mixtec gloss alongside a border topogram on this document (the Cave of 7-Movement) includes an alphabetic rendering of the seventeenth position veintena stem, Movement (1984:258, n22; see Doesburg, *In press* for an updated analysis of this document in a broader, regional context). Later, Smith (in Smith and Parmenter 1991:62) observes that two legible glosses of Mixtec mantic day names in black ink on the reverse of the *Codex Tulane* are connected by lines to the names of two lords with these same names represented pictographically on the obverse. This provided two more examples of transliterated day names. In 2007, Michel Oudijk and Sebastián van Doesburg published a photograph and study of the lost *Pintura de Tilantongo*, in which two day names are represented both alphabetically and pictographically (Oudijk and Doesburg 2007). Recently, an additional important source for such transliterations has been located, the *Memoria de Teposcolula*, which is currently under investigation by Sebastián van Doesburg. This alphabetic text in Mixtec includes readings of certain

**Table 1.** Documents with transliterated or translated mantic day names.

Document Code	Document	Original Provenience	Location	Description
RG-A RG-P RG-T RG-M	<i>Relaciones Geográficas</i> of Acatlan, Petlaltzingo, Tilantongo, and Mitlatongo	Acatlan, Petlaltzingo, Tilantongo, and Mitlatongo	Real Academia de la Historia, Madrid	A series of Spanish-language texts that do not include pictographic representations. However, these four <i>Relaciones</i> include seven mantic day names of persons that have been translated either into Spanish or Nahuatl.
CS	<i>Codex Sierra</i>	Santa Catarina Tejupan	Biblioteca Lafragua, Puebla	An account book from Tejupan that includes 10 names of years with the corresponding pictographic representation.
LN	<i>Lienzo de Nativitas</i>	Santa María Nativitas	Santa María Nativitas, Oaxaca	A <i>lienzo</i> (cotton cloth) that depicts a double genealogy of lords and ladies with pictographic representations of their mantic day names, which are also alphabetically glossed. There are 44 such paired names.
MP	<i>Mixteco Post-Cortesiano</i> No. 36.	San Pedro Atoyac	Biblioteca Nacional de Antropología e Historia, Mexico City	A map on paper. Although the document contains numerous day names written alphabetically in Mixtec, only one lord depicted in the center of the document has his day name represented pictographically and alphabetically
VM	<i>Vocabulario en lengua misteca</i>	Teposcolula-Tamazulapan	See Swanton 2021 for the location of the examples of this printed book	The entry for “Sol, planeta” gives the mantic name for the sun, which corresponds to the name of the personified sun in multiple codices.
CM	<i>Codex Muro</i> (also known as <i>Codex Nunaha</i> )	San Pedro Coxcaltepec	Biblioteca Nacional de Antropología e Historia, Mexico City	A codex that includes extensive alphabetic glosses in Mixtec of figures with pictographic representations of mantic names. There are 25 such names, several of which are difficult to read.
CE	<i>Codex Egerton 2895</i> (also known as <i>Codex Sánchez Solís</i> and <i>Codex Nuu Nñaña</i> )	Unclear, almost certainly the Mixteca Baja.	British Museum, London	A codex that has a large number of mantic day names of lords and ladies (approximately 52) that have been glossed alphabetically in Mixtec. However, many are quite difficult to read. Furthermore, some of the corresponding pictographic glyphs have been mutilated.
CTC	<i>Codex of Tecomaxtlahuaca</i>	Tecomaxtlahuaca	Archivo General de la Nación, Mexico City	A dynasty of eight lords from Tecomaxtlahuaca painted on <i>amate</i> paper.
CTL	<i>Codex Tulane</i>	Mixteca Baja	Tulane University, New Orleans	A roll made of animal skin on which two dynasties are depicted, one of which has been identified as being from Acatlan.
LS	<i>Lienzo Seler II</i>	Coixtlahuaca	Humboldt Forum, Berlin	A cloth <i>lienzo</i> that depicts a complex set of historical scenes and dynastic registers within a cartographical arrangement. Boundaries are glossed in three

(Continued)

Table 1. (Continued.)

Document Code	Document	Original Provenience	Location	Description
PT	<i>Pintura de Tilantongo</i>	Tilantongo	Whereabouts unknown	languages (Mixtec, Nahuatl, and Chocho). A pictographic document with an accompanying alphabetic text in Nahuatl on European paper; known from a photograph in the library at the Universidad de las Américas, Puebla.

scenes from the Mixtec codices and therefore indirectly provides alphabetic versions of mantic names represented pictographically. Since the study of this latter document is still a work in progress, it is not included in this article.

This cumulative investigation has revealed that Mixtec day names are dithematic compounds in which the first stem indicates the trecena position and a second indicates the veintena position. In the remainder of this section, the forms for the trecena position stems and the veintena position stems are described. The section concludes with a description of the prosodic structure of the day name compounds.

#### The Mixtec trecena position stems

The first component of the Mixtec day names is a stem that indicates the trecena position. The stems of the 13 positions can be understood to be generally unimoraic counterparts of the corresponding bimoraic cardinal numbers (Table 2).<sup>8</sup> If the cardinal number is disyllabic, the final syllable is retained.<sup>9</sup> This is the case for the trecena positions 6, 7, 8, and 10. An exception to this appears to be the fourth trecena position stem, in which the first syllable is retained. However, if the cardinal number is monosyllabic, it is usually reduced to a unimoraic version. This is the case for the fifth and ninth trecena stems. Vowel-initial numbers, such as 5 and 9, appear as the corresponding trecena stems with an initial velar stop /k/, probably the remnant of a historical prefix. These simple processes account for all stems in this cycle except for the first few positions and those that derive from polymorphemic cardinal numbers. For these other trecena positions, the reconstruction of their pronunciation is more speculative.

Table 2 provides the various segmented written forms of the trecena position stems as they appear in the documents described above. Each form is followed in parentheses by the code of the document in which it is attested (provided in Table 1). If the written forms do not appear to be the result of different scribal practices but instead represent distinct phonological forms, they are assigned a letter to indicate they are a variant. An approximation of the phonological form then follows. The table compares these stems to the cardinal numbers that appear in the roughly contemporary printed Mixtec *Vocabulario* (Alvarado 1593) and to their proto-Mixtec reconstructions. The interpretation of the approximate phonological forms of the trecena stems and

cardinal numbers is based on the study of the colonial orthography and on current knowledge of the linguistic history of Mixtec (Swanton 2021). Of relevance is the use of the syllabic grapheme <q> or <qh>, which represented the syllable [kũ] or [kã], but not [kõ], in the early Dominican orthography (Smith-Stark 2005:19–20). The trecena positions that make use of this convention (4, 5, and 9) show the greatest variation in writing.

The variant forms for the positions 1 to 3 are etymologically obscure, although they may share the same historical prefix that appears as the initial velar consonant on trecena position stems 4, 5, and 9. The documents are internally consistent in their use of one or another form, but the variants do not reflect any identified dialect areas. For example, the first trecena position stem appears to have three linguistic variants: /kõ/, /kã/, /kaũ/. The first is attested in Mitlatongo and Nativitas, the second in Coxcaltepec and the Mixteca Baja, and the third—apparently the most conservative—in Tejuapan. All except for the Mixteca Baja form would fall into Josserand's Eastern Mixteca Alta dialect area. Within that, Nativitas and Coxcaltepec would appear to be in the Apoala subarea.

As the reader will see later in this section, the presence of nasal vowels in the trecena stems (indicated in linguistic representations by a tilde combined with a vowel) has important consequences on the shape of certain veintena stems. There are three desiderata that have been used to posit nasality. The first is the phonology of Mixtec. Across many Mixtec varieties, the phones [n], [ɲ], and [m] only occur before a nasal or nasalized vowel (Martlett 1992). This means that the trecena stems 6 and 8 have nasal vowels. The second is the colonial Mixtec orthography. As mentioned above, the syllabic grapheme <q> or <qh> (but not the abbreviation <q̃>, which represents <que>) indicates a syllable with a nasal vowel, as does the circumflex accent over a vowel. This means that the trecena stems 1, 3, 4, 5, and 9 would be expected to have nasal vowels. The correctness of these two desiderata for reconstruction is reinforced by the etymological data, which show that the sources of the trecena stems 4, 5, 6, 7, and 9 have nasal vowels, whereas 8 and 10 have oral ones. A third desideratum concerns the stems that correspond to polymorphemic cardinal numerals. The trecena stems 10, 11, and 13 manifest the expected segmental composition resulting from the monosyllabification of the first constituent of the compound. Given that there is no evidence that these positions were confused with one another,

**Table 2.** Trecena position stems compared with cardinal numbers.

Trecena Position Stems					Cardinal Numbers			
Position	Variant	Written Form	Source	Approximate Pronunciation	Approximate Phonological Form	Written Form	Approximate Phonological Form	Proto-Mixtec Reconstruction
1	a	<i>co</i> <i>cô</i>	RG-M LN	[kô]	/kô/	<i>ee</i>	/ĩ/	* $\text{ɰ}^{\text{c}}$
	b	<i>cá</i> <sup>1</sup> <i>ca</i> <i>caa</i>	CM CE, VM VM	[kâ] ~ [kââ]	/kâ/ ~ /kaâ/			
	c	<i>gau</i>	CS	[gãũ]	/kaũ/			
2	a	<i>ca</i>	CM, CE	[ka]	/ka/	<i>uvui</i>	/uwil/	* $\text{úw}^{\text{i}}$
	b	<i>co</i>	CS, LN, CE, PT	[ko]	/ko/			
3	a	<i>cô</i> <i>co</i>	LN, CM CM	[kô]	/kô/	<i>uni</i>	/unĩ/	* $\text{úni}^{\text{c}}$
	b	<i>ga</i>	CS	[gã]	/kã/			
4		<i>q</i> <i>qh</i> <i>gu</i> <i>gh</i>	LN, RG-T CM, RG-T CE CE	[kũ]	/kũ/	<i>qmi</i>	/kuwĩ/	* $\text{kúw}^{\text{i}}\text{ĩ}^{\text{c}}$
5		<i>q</i> <i>q</i> <i>qh</i> <i>gu</i> <i>gh</i>	CS LN CM CE CE	/kũ/	/kũ/	<i>hoho</i>	/oʔô/	* $\text{o}^{\text{c}}\text{ô}^{\text{c}}$
6		<i>nu</i> <i>ñu</i> <i>ño</i>	RG-M RG-P CS, LN, CM, CE CE	[nũ] ~ [nô]	/jũ/ ~ /jô/ <sup>2</sup>	<i>iño</i>	/ijô/	* $\text{ijô}^{\text{c}}$
7		<i>sa</i> <i>xa</i>	RG-A, LN, CM, CE RG-P CS, CTC	[já]	/ja/	<i>usa</i>	/uja/	* $\text{új}^{\text{c}}\text{è}$
8		<i>na</i>	CS, LN, MR, CM, CTL	[nã]	/nã/	<i>una</i>	/unã/	* $\text{unè}^{\text{c}}$



9	que q[ue] qu	CS LN CM	[kʰ]	/kʰ/	ee	/tʰ/	*tʰ
10	si xi	LN, CM, CE CS, PT	[ʃ]	/ʃ/	usi	/uʃ/	*uʃi
11	si	LN, CM, CE	[ʃ]	/ʃ/	usi ee	/uʃ + tʰ/	*uʃi + tʰ
12	ca	LN, CM, CE	[ka]	/ka/	usi uwi	/uʃi + uwi/	*uʃi + ðwi
13	si	LN, CE	[ʃ]	/ʃ/	usi uni	/uʃi + uni/	*uʃi + ðni

<sup>1</sup>As already mentioned, Hermann Lejarazu (2003:78–79) observes that the numerals 1 and 3 bear circumflex accents and suggests that this indicates nasality in the *Codex Muró*. A similar pattern appears in the *Lienzo de Nativitas*. The use of circumflex accents to indicate nasalization does occur in a few entries in the *Vocabulario* (Swanton 2021:85). Interestingly, the numerals 1 and 3 in the *Codex Sierra* are written with voiced consonants (*geu* and *gr*), whereas the numerals 2 and 12 are written with voiceless consonants (*co* and *co*)—the same pattern.

<sup>2</sup>It is unclear if the vowel variation between <ñu> and <ño> represents a distinct phoneme given that both forms appear in the *Codex Egerton 2895*.

differences in the stem forms must have existed—that is, there apparently was no homophony. If one considers the phonological distinctions between the graphically identical trecena stems 10, 11, and 13 to be the result of a retention of nonsegmental features—tone and nasalization—from the second morpheme of the compound cardinal number, the positions 11 and 13 would have nasality, whereas 10 would not. Supporting evidence for this appears later in this section. The trecena stem 12 is tentatively taken to be oral because it seems to be related to the stem 2—also oral.

*The Mixtec veintena position stems*

The cycle of veintena position stems is more opaque than that of the trecena stems. The etyma of most of the veintena stems remain uncertain. In only a few cases can a relationship between the veintena logograph and the meaning of the corresponding stem in Mixtec be shown. Because the etyma remain speculative and poorly attested, the interpretation of the veintena stems must be based primarily on the current understanding of the colonial orthographies for Mixtec and general principles of Mixtec phonology.<sup>10</sup> This results in some ambiguity for certain day veintena stems, for which multiple possible pronunciations are plausible. Such different possible pronunciations are separated with the tilde (~). For example, in Mixtec phonology, the medial glottal can occur in disyllabic feet, but only before sonorants. In this position, the glottal was usually not written (Swanton 2021:74–76). This underspecification in writing means that the stems corresponding to the eighth and twelfth positions of the veintena cycle could have had a medial glottal. As with the trecena stems, the use of the syllabic grapheme also results in underspecification in the veintena ones.

Like the trecena stems, the variation in the written forms of the veintena stems reflects both differences in writing conventions and distinctions in the underlying phonological forms that the writing seeks to represent. Consequently, the two written forms attested for the tenth position stem (*va* and *hua*) doubtlessly represent two orthographies for the same linguistic form. However, whereas the variation between <v> and <hu> in the stem of the fourteenth position (*vidzu* and *huiçu*) has the same phonemic interpretation as the initial sonorant in the tenth position, <dz> represents /ð/, whereas <ç> represents /s/. This difference corresponds to diatopic variation among Mixtec varieties. In a large swath of the Mixteca Alta and Baja, the proto-Mixtec strident \*s changed to the interdental fricative /ð/ (pMx \*s > ð), an innovation reflected in the first variant, whereas the second, from the south of the Mixteca Baja, retains the historic consonant in this context (Josserand 1983:265–266). Another example is the variants of the ninth position, *tuta* and *tucha*. The variation in the consonant of the final syllable reflects a sequence of two changes. In the Apoala Mixtec varieties, the proto-Mixtec \*t palatalized to an affricate /tʃ/ before the vowel \*e (\*t > tʃ /\_\_e). Later, the vowel \*e lowered to /a/ in most of the Mixteca (Bradley and Josserand 1982, rules 7b and 11; see also Josserand 1983:422–448). This is the difference in the two forms. The alternation between the vowels /o/ and /u/ in the stems for the positions III

(variants b and c), VI (variants b and c), XI, and XVIII is another case of diatopic variation (see Josserand 1983:373–390).

Nevertheless, the differences in underlying forms cannot all be explained as diatopic variation. This is clearly the case when two different stem forms appear in the same document, which otherwise does not manifest dialectal variation. For example, in the *Codex Muro*, the twelfth veintena stem has two forms, *cuañe* (XII-a) and *mañe* (XII-b); and in the *Lienzo de Nativitas*, both the third and sixth day sign stems also have two forms—*cuau* (III-a) and *mau* (III-b), and *cuahu* (VI-a) and *mahu* (VI-b), respectively. Given that these stem pairs all show the same pattern, it would appear to be a morphologically conditioned alternation.

This alternation appears to be the result of a morphophonological process involving nasalization. In almost all Mixtec varieties, both modern and early, nasality is a feature of the prosodic foot or an unfooted syllable. In the case of the foot, this feature occurs on the final vowel, from which it regressively assimilates to adjacent vowels if there is either no intermediate consonant or if the intermediate consonant is a sonorant. In most modern Mixtec varieties, the sonorants /j/ and /w/ have the allophones [ɲ] and [m] when preceding a nasal or nasalized vowel (Swanton 2021:82–85 and references therein). Therefore, the presence of an initial <m> indicates that the final vowel is nasal. This also means that *cuañe* (XII-a), even without the initial <m>, has a final nasal vowel, probably with the phonological shape of /k<sup>w</sup>ajĩ/ (realized [kwãjĩ]), or /k<sup>w</sup>aʔjĩ/ (realized [kwãʔjĩ]). The most parsimonious explanation for these patterns is that all three veintena stems are nasalized in both the <cu> and <m> forms. The context of the alternation appears to be the nasality of the preceding trecena stem. If it is a nasal vowel, the <m> form occurs; however, if it is an oral vowel, the <cu> form appears. In other words, a nasalized foot consisting of a hiatus or with a medial sonorant neutralizes /k<sup>w</sup>/ and /w/ when compounded with a preceding syllable with a nasal vowel. This also explains why the stem *cuaa* (VII) does not demonstrate this alternation, because it is composed of an oral vowel. Consequently, in the *Lienzo de Nativitas*, the form *cuau* (III-a) appears after the oral stem for the tenth trecena position, whereas the form *mau* (III-b) occurs after the nasal stem for the first trecena position. In the *Codex Sierra*, the form *mao* (III-c) appears after the nasal stem for the eighth trecena position, whereas in the *Relación Geográfica* of Petlaltzingo, the form *quáaho* appears after the oral stem for the seventh trecena position. In the *Codex Muro*, the form *cuañe* (XII-a) appears after the oral seventh trecena position stem, whereas the form *mañe* (XII-b) appears after the nasal sixth stem. This variation is shown in Table 4, in which the stems for the third, sixth, and twelfth trecena positions are exemplified in combination with the veintena stems. The variation of these three veintena stems is contrasted with the invariable seventh position stem. The source of each form is indicated by the document code.

A consequence of this pattern is that orthographic ambiguity can be reduced when interpreting day names written alphabetically. For example, if a <cu> form of an alternating

veintena stem (III, VI, or XII) appears after a trecena stem <si>, it can be expected to be the numeral 10; and if a <cu> form of one of these three stems appears after a trecena stem <co>, the trecena position presumably must be the second. What is surprising is that this pattern means that the ninth trecena stem is oral, although one would anticipate that it is nasal according to its cardinal numeral source. Nevertheless, because there is only one unambiguous, “transliterated” attestation of this trecena position stem in combination with any of the alternating veintena stems, a scribal error cannot be ruled out. Additional data need to be brought to bear on this issue.

Finally, Table 3 shows forms of a fourth variant for the stems of third and sixth veintena positions—respectively, *quaa* and *maha*. In these two variants, the /au/ hiatus appears to have been reinterpreted as a single long vowel. Although *maha* appears in only one of the sources for which pictographic equivalents are available, it occurs with some frequency in names in alphabetic texts. For example, a person named Antonio Qhmaha appears in a preliminary inquiry into the accidental death of an old man, written in Mixtec in 1602 (Ñayevui Yonanducu Tnuhu Sanaha 2021:134). This same pattern occurs with the third veintena position stem. In this 1602 inquiry, a man named Melchor Simaa is mentioned as a witness. The lack of a medial <h>, quite consistently used in this and other texts by the same writer, indicates that his day name is quite probably a similar variant of the third trecena stem *mau* and like the fourth variant for this stem. It is unclear under what circumstances this variation occurs. Some diatopic or idiolectal variation may be involved. The hiatus <au> / <ahu> is rather uncommon in Mixtec lexical phonology (Swanton 2021:94–97). There may have been pressure then to reanalyze this unusual vowel sequence as a long vowel, perhaps because of vowel harmony with the preceding trecena stem or perhaps to avoid multiple labial features in the same prosodic foot (Silverman 1993).

#### *The prosodic structure of the day name compounds*

The minimal word in Mixtec is a bimoraic foot: either a monosyllable with a long vowel (represented in the colonial orthography as a double vowel or, slightly more ambiguously, with the syllabic grapheme) or an isochronic disyllable with two short vowels. The phonological word can include an initial unfooted syllable. The stems for the trecena positions are usually unimoraic syllables, although there is evidence that the stem could also be realized as a long vowel or bimoraic hiatus (e.g., 1-b: *caa* and 1-c: *gau*). The evidence of bimorcity for the first trecena stem and the fact that many other stems are derived from bimoraic cardinal numbers suggests that, historically, the day names may have been compounds of two bimoraic feet. However, by the second half of the sixteenth century, trecena stems were generally unimoraic. This means that if the veintena stem is also unimoraic, the resulting compound is a bimoraic foot (a minimal word). However, if the veintena stem is bimoraic, the trecena stem, if

**Table 3.** Veintena position stems.

Veintena Position	Translation from Nahuatl name	Variant	Mixtec Written Form	Source	Approximate Pronunciation	Approximate Phonological Form
I	Alligator		<i>qvi</i>	LN	[kʰβi]	/kiwi/
			<i>quevi</i>	CM		
			<i>quehui</i>	RG-T		
			<i>guihui</i>	CE		
			<i>quihui</i>	CTL		
II	Wind		<i>chi</i>	RG-R, LN, CM, CE	[tʃi]	/ti/ : /tʃi/¹
III	House	a	<i>cuau</i> <i>quaaho</i>	LN RG-P	[kʰāũ]	/kʰaũ/
		b	<i>mau</i>	LN, CM	[māũ]	/waũ/
		c	<i>mao</i>	CS, CE	[māõ]	/waõ/
		d	<i>quaa</i>	PT	[kʰāã]	/kʰaã/
IV	Lizard		<i>q</i>	LN	[kʰ] ~ [kʰ:] ~ [kũ] ~ [kũ:]	/kĩ/ ~ /kĩĩ/ ~ /kũ/ ~ /kũũ/
			<i>q.</i>	LN		
			<i>qh</i>	CM		
			<i>ghy</i>	CE		
V	Serpent		<i>yo</i>	LN, CE	[jo]	/jo/
VI	Death	a	<i>cuahu</i>	LN	[kʰāʔũ]	/kʰaʔũ/
		b	<i>mahu</i>	LN, CM	[māʔũ]	/waʔũ/
		c	<i>maho</i>	MP	[māʔõ]	/waʔõ/
		d	<i>maha, maa</i>	VM	[māʔã]	/waʔã/
VII	Deer		<i>cuaa</i>	LN, CM	[kʰa:]	/kʰaa/
			<i>quaa</i>	RG-T, LN		
			<i>guaa</i>	CE		
			<i>gua</i>	RG-A, CE		
VIII	Rabbit		<i>sayu</i> <i>xayu</i>	LN, CM, CE CS	[ʃaju] ~ [ʃaʔju]	/ʃaju/ ~ /ʃaʔju/
IX	Water	a	<i>tuta</i>	CE	[tuta]	/tuta/
		b	<i>tucha</i>	CM	[tutʃa]	/tutʃa/
X	Dog		<i>va</i>	LN	[βa]	/wa/
			<i>hua</i>	CM, CE		
XI	Monkey	a	<i>ñuu</i>	LN, CM	[nũ:]	/juũ/
		b	<i>ñoo</i>	CE	[nõ:]	/joõ/
			<i>ño</i> <i>ñooy</i>	CE RG-M		
XII	Grass	a	<i>cuãñe</i> <i>cuãñe</i>	CM CM	[kʰãjĩ] ~ [kʰãʔjĩ]	/kʰajĩ/ ~ /kʰaʔjĩ/
		b	<i>mañe</i>	CM	[mãjĩ] ~ [mãʔjĩ]	/wajĩ/ ~ /waʔjĩ/
XIII	Reed		<i>huiyo</i>	CS, CE	[βijo]	/wijo/
			<i>viyo</i>	LN, PT		
			<i>biyo</i>	CE		
XIV	Ocelot	a	<i>vidzu</i>	LN	[βiðu]	/wiðu/
		b	<i>huiçu</i>	CE	[βisu]	/wisu/
XV	Eagle		<i>sa</i>	CM, CE	[ʃa]	/ʃa/
XVI	Vulture		<i>cuii</i>	LN	[kʰi:]	/kʰii/
			<i>cuiy</i>	CM, CE		

(Continued)

Table 3. (Continued.)

Veintena Position	Translation from Nahuatl name	Variant	Mixtec Written Form	Source	Approximate Pronunciation	Approximate Phonological Form
XVII	Movement		<i>qh.</i> <i>qhu</i> <i>ghi</i>	LN, LS CM CE	[kʰʔi] ~ [kūʔū]	/kiʔi/ ~ /kuʔū/
XVIII	Flint	a	<i>cusi</i> <i>cuxi</i>	LN, CE CS, CTL	[kuʃi]	/kuʃi/
		b	<i>coxi</i>	CE	[koʃi]	/koʃi/
XIX	Rain		<i>co</i> <i>go</i>	CM, CE CE	[ko]	/ko/
			<i>vaco</i> <i>huaco</i> <i>coy</i>	LN, CM CE, CTC RG-M <sup>2</sup>	[βako]	/wako/

<sup>1</sup>The phonological status of the phonetic realization [ʃi] depends on the variety of Mixtec. For Teposcolula Mixtec, it is the realization of the syllable /ti/ (Swanton 2021:62–64), but for varieties of the Apoala dialect area, this realization has phonologized.

<sup>2</sup>Only the final syllable of the twentieth position stem appears in the RG-M. Moreover, like the ninth sign stem from this same source, it ends inexplicably in a <y>.

monosyllabic, becomes an unfooted syllable. Across Mixtec varieties, such unfooted syllables typically show fewer oppositions in tone and nasalization. Moreover, there are also no glottals in this position.

There are five unambiguously unimoraic, monosyllabic veintena position stems: II, V, X, XV, and XIX. These are the only ones that yield a bimoraic compound. There are another four bimoraic, monosyllabic veintena stems: VII,

Table 4. Alternations between /k<sup>w</sup>/ and /w/ and combinations of trecena and veintena stems.

Trecena Position Stems	Veintena Position Stems			
	III (House)	VI (Death)	XII (Grass)	VII (Deer)
1 /kō/ /kā/ /kaū/	cō+mau (LN) câ+mau (CM)	caa+maha (VM)		
2 /ko/ /ka/	co+quaa (PT)			ca+guaa (CE)
3 /kō/ /kā/	ga+mao (CS)			
4 /kū/				q+quaa (RG-T)
5 /kū/	gu+mao (CE)			qh+cuaa (CM)
6 /jū/ ~ /jō/		ñu+mahu (CM)	ñu+mañe (CM)	ñu+cuaa (LN)
7 /ja/	xa+quaa (RG-P)		sa+cuañe (CM) sa+cuañe (CM)	sa+gua (RG-A)
8 /nā/	na+mao (CS)	na+mahu (LN) na+maho (MP)		
9 /ki/ ~ /kī/		q+cua (LN)		
10 /ji/	si+cua (LN)			
11 /jī/				si+quaa (LN)
12 /ka/				
13 /jī/		si+mahu (LN)		

**Table 5.** Syllabic and moraic structures of veintena position stems.

Unimoraic Monosyllabic Stems		Bimoraic Monosyllabic Stems		Ambiguous Monosyllabic Stem		Bimoraic Disyllabic Stems	
II (Wind)	<i>chi</i>	VII (Deer)	<i>cuaa</i>	IV (Lizard)	<i>q</i>	I (Alligator)	<i>quevi</i>
V (Serpent)	<i>yo</i>	XI (Monkey)	<i>ñuu</i>			III (House)	<i>cuau</i>
X (Dog)	<i>hua</i>	XVI (Vulture)	<i>cuii</i>			VI (Death)	<i>cuahu</i>
XV (Eagle)	<i>sa</i>	XVII (Movement)	<i>qh</i>			VIII (Rabbit)	<i>sayu</i>
XIX (Rain)	<i>co</i>					IX (Water)	<i>tuta</i>
						XII (Grass)	<i>cuañe</i>
						XIII (Reed)	<i>huiyo</i>
						XIV (Jaguar)	<i>huidzu</i>
						XVIII (Flint)	<i>cusi</i>
						XX (Flower)	<i>huaco</i>

XI, XVI, and XVII. One stem is ambiguous: IV. It is monosyllabic, but its orthography, which makes use of the syllabic grapheme, does not permit a clear distinction of its length. The 10 remaining stems are bimoraic and disyllabic, two of which, just mentioned, include the relatively rare vowel hiatus *au* (III, VI, Table 5).

**Etymological criteria**

To make a credible argument that a lexical item has its origin in the Mixtec mantic day name vocabulary, a similarity in form is insufficient. Chance similarities can produce look-alikes. In this article, six criteria are used to argue in favor of the etyma presented here: (1) sound correspondences, (2) the presence of etymological pairs for vocabulary, (3) phonological patterning, (4) morphological patterning, (5) semantic patterning of etyma, and (6) cultural associations.

Despite the ambiguities of the colonial orthography and the doubts about several of the etyma of the stems (both trecena and veintena), it is possible to show regular sound correspondences. Such correspondences constitute crucial evidence that forms are cognate. For example, the seventh trecena position stem was represented as <sa> and <xa> in

documents from the Eastern Alta and Northeastern Alta dialect areas. The consonant belongs to a correspondence set that is reconstructed as \*tʃ before \*e (Tables 6 and 7).<sup>11</sup> Therefore, if a suspected cognate of this stem were detected in a Coastal variety, one would expect it to have the consonant /tʃ/ and if it were found in a Baja variety, one would anticipate that it would be either /s/ or /ʃ/.

The second criterion is the presence of multiple etyma for the same referent. Given that day names were used in ritual or vocative contexts, one would expect that other, more generic nouns would have existed alongside the mantic names, especially for commonly known lifeforms. If a generic term still exists for the lifeform in other Mixtec varieties, this constitutes additional evidence in support of a day name etymon. Such generic terms should have forms that are distinct from the mantic day names and perhaps even have identifiable cognates in other Mixtecan languages.

The third criterion is phonological patterning. For example, since nasality occurs only on the final vowel of the prosodic foot or, in some varieties, on an unfooted syllable, evidence for nasality on a medial vowel of the foot—but not on the final one—is an unexpected pattern that suggests the lexical item is a fused compound. Related to this is the

**Table 6.** Correspondence set of \*tʃ/\_\_\_\*e according to variety and dialect area.

E. Alta	E. Alta	N.E. Alta	N. Alta	W. Alta	Alta-Mix.	Baja-Tez.	S. Baja	W. Coast
Teposcolula	Peñoles	Apoala	Coatsospan	S. Mag. Peñasco	Mixtepec	Yucuquimi	S. Martín Peras	Zacatepec
tʃ	s	s	tʃ	h	ts	s	ʃ	tʃ

**Table 7.** Cognate set for pMx \*tʃtʃe, ‘seven.’

E. Alta	E. Alta	N.E. Alta	N. Alta	W. Alta	Alta-Mix.	Baja-Tez.	S. Baja	W. Coast
Teposcolula	Peñoles	Apoala	Coatsospan	S. Mag. Peñasco	Mixtepec	Yucuquimi	S. Martín Peras	Zacatepec
uʃa	úsá	úsà	úʃè	uhà	ùtsà	ùsà	ùʃà	uʃa

fourth criterion, morphological patterning. For example, unfooted syllables preceding the foot typically have their origin in another morpheme. Sometimes these are productive; for example, the great majority of lexical items for animals in Mixtec bear a classifier or the remains of such a morpheme as a preposed unfooted syllable. In pMx, these forms are \*t̥ and \*n̥. However, if a lexical item has a morphologically opaque unfooted syllable, this is evidence that it is a fused compound. Additionally, given that the use of the animal classifiers is quite extensive in the Mixtec lexicon, the absence of such a classifier would be suggestive that the word in question is somehow unusual.

The fifth and sixth criteria have to do with meaning. If the morphological patterning of the reconstructed etyma can be shown to be meaningful—that is, if the reconstructed mantic name has a symbolic association related to its referent; for example, a word for “deer” bearing the seventh veintena stem, usually translated from Nahuatl as “deer”—then it can be taken as evidence in support of the etymology. Likewise, one would expect that mantic day names would be given to lifeforms or toponyms of special cultural significance. Although one might argue that all lifeforms and toponyms are special in that they have distinctive qualities, clearly some are imbued with richer symbolic power; for example, not all animals are considered an omen, nor are all places an appropriate site for offerings.

In what follows, the attentive reader will discover that combinations of these six criteria apply to the 12 proposed etyma.

### Proposed mantic name etyma for Mixtec vocabulary

In this section, 12 etyma of words in different varieties of Mixtec are proposed. The first eight are zoonyms (corresponding to six animals): sak<sup>w</sup>aa ‘deer,’ originating from the mantic day name ‘7-Deer’; j̥iwaã~j̥iwaũ~kuj̥iwaã~kujuwaã ‘owl,’ from the day name ‘13-House’; sako~seko~jako~hako~t̥jako and joko~joko ‘opossum,’ from the day names “7-Rain” and “6-Rain,” respectively; j̥ik̥t̥t̥ and koowijo~kuwijo~k̥”ijo ‘roadrunner,’ from the day names “10/11/13-Movement” and possibly “1/2/3-Reed”; fajo ‘rattlesnake,’ from the day name “7-Serpent”; and se?ju~se?ju ‘rabbit,’ from the veintena position stem “Rabbit.” Then, the etyma of two other lifeforms are analyzed: the phytonym tu”disawaku ‘broomstick tree,’ from the day name “7-Flower” and t̥ikawaã~t̥ikawaũ ‘corn smut’ (or *huitlacoche* in Spanish), from the day name “1/3-House.” Unlike the zoonyms, the names of these two lifeforms bear class terms. The last two nouns are toponyms, both located on the Mixtec coast. The first is the Mixtec (Tacuate) name of the municipality of Santa María Zacatepec, juku+t̥jatura, and the second is the name of a hill located to the south of the town of Santiago Jamiltepec, juku+t̥jak<sup>w</sup>aa. Both bear the toponymic class term *juku*, meaning “mountain.”<sup>12</sup>

#### Deer: sak<sup>w</sup>aa from the day name “7-Deer”

In her discussion of the Mixtec day names, Mary Elizabeth Smith (1973a) observed that the word for “deer” appears

as *sacuaa* in a couple of eighteenth- and early nineteenth-century sources from the Mixteca Baja. She considered such forms to be the source of the veintena stem for the seventh position, usually translated as “deer” (Smith 1973a:23, n21).<sup>13</sup> A decade later, Kathryn Josserand (1983) showed that sak<sup>w</sup>aa is attested as the common word for “deer” in 21 localities, corresponding precisely to three of her dialect areas—the Central Baja, the Tezoatlán area, and the Northern Baja—all located in the northern half of the Mixteca Baja (Josserand 1983, cognate 12). A typical example of this lexical item is that of Yucuquimi Mixtec, which is s̥ak<sup>w</sup>āā (p.c. Octavio León Vázquez). Contrary to Smith’s interpretation, the evidence suggests that this lexical form is not the source of the veintena stem, but rather was derived from it and has its origin in the day name “7-Deer”—that is, the seventh trecena position in combination with the seventh veintena position.

The sound correspondences for this form are regular, with the initial consonant of the first syllable pertaining to the correspondence set in Table 6. Furthermore, there exists a generic noun for “deer” that is attested in all other dialect areas. This etymon can be reconstructed in proto-Mixtec as \*júsù,<sup>14</sup> which has roots in proto-Mixtecan.<sup>15</sup> The reflex of this etymon appears as *ydzu* in the Dominican *Vocabulario* (1593:46v; cf. 63r). This etymological pairing suggests that the sak<sup>w</sup>aa form has displaced the older, generic form \*júsù in one area of the Mixteca. The former lexical item also has an initial unfooted syllable for which no morphological explanation has been made. Finally, the relationship between the name of the deer, a culturally significant animal, and the veintena position, which is usually depicted as a deer and translated as such in languages like Nahuatl, also supports the argument that its origin is to be found in the mantic vocabulary.

The mantic name 7-Deer is significant. It is the first day name with the position “Deer” in the first trecena (and veintena). Moreover, it corresponds to the name of a Mixtec divinity, who may have been the lord of the deer. In the *Codex Vindobonensis*, this divinity is depicted as a man with a deer head wearing a jaguar suit (Figure 2). He is present at various ceremonies (pp. 29, 26, 25, 4), including when the first people are born from the sacred tree (pp. 37–36). Lord 7-Deer also appears at the beginning of the *Codex Tulane*, where two persons are making an offering to him (Smith and Parmenter 1991:25–27). In this document, the divinity is depicted as the head of a man wearing a deer helmet. Lord 7-Deer is usually shown in the company of another divinity named Lord 9-Movement (or 9-Eagle in the *Codex Tulane*) who wears an eagle suit. The names of these two divinities are depicted multiple times in the *Lienzo de Zacatepec*, where they are shown as sacred bundles or symbols in temples rather than personified divinities (Doesburg 2022:81–83). Interestingly, the 1581 *Relación Geográfica* of Acatlán, a community that is in the heart of the region where the sak<sup>w</sup>aa form for “deer” is used, indicates that *saquaha*, which was translated in the document as “seven deer” (*siete ciervos*), was the “supreme god” (*supremo dios*) of that community (Acuña 1984–1985, Tome II:36–37, cf. Caso 1977–1979, Tome II:167–168 and Jansen 1982:283–284).



**Figure 2.** Lord 7-Deer from *Codex Vindobonensis*, obverse, f. 4 (Illustration: Mitzy Reyes Juárez).

Owl: *ʃiwaã~ʃiwaũ~kuʃiwaã~kuʃuwaã* from the day name “13-House”

In the sixteenth-century Mixtec *Vocabulario*, there appears a lemma for “owl” followed by two Mixtec words: “*buho. teñumi, simaa*”. The first word, *teñumi*, is a common Mixtec form for “owl” and can be reconstructed as \*t̥i-jũwĩʔ. Reflexes of this form are used in most of the Mixteca; however, in Guerrero and on the coast, they commonly refer to the barn owl (*lechuza* in Spanish, family *Tytonidae*). In these areas, the true owl (family *Strigidae*) is something like *kuʔũ, kaʔũ* or *kaʔwũ*. The second Mixtec equivalence given for this lemma, *simaa*, is less common. Cognates have been found in Peñoles and Huitepec Mixtec in the Eastern Alta dialect area and in Cuatzoquitengo and Alacatlalzala in Guerrero (Table 8).

The sound correspondences are regular<sup>16</sup> and, like the previously mentioned etymon, there is an unfooted syllable

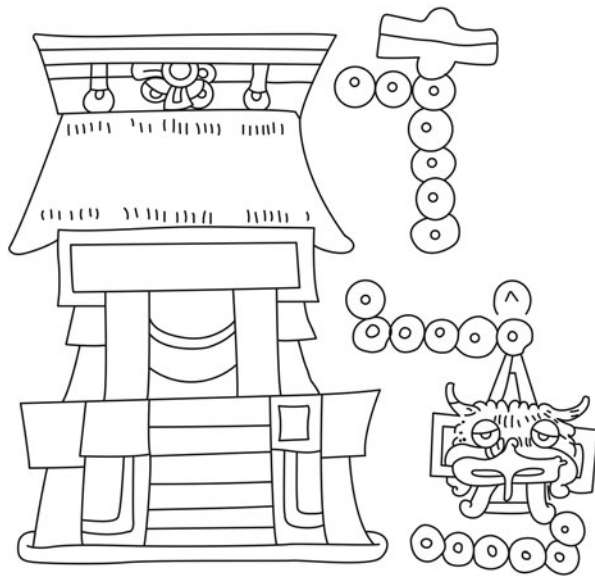
without any clear morphological explanation. The Huitepec form is of particular interest in that the uncommon hiatus /aũ/ was not reinterpreted as a long vowel /aã/, so it shows the same variation in this form that existed in the sixteenth century (section “The Mixtec veintena positions stems”). The source for the initial consonant in the Huitepec form is unclear. It may have emerged from the affrication of the postalveolar fricative (ʃ) from contact with the animal classifier. Likewise, the initial syllable *ku* in the Cuatzoquitengo and Alacatlalzala cognates is unclear. It might be that the historical prefix indicated by the velar /k/, mentioned above, preposed to the unreduced first morpheme of the corresponding cardinal number (*uʃi*). This bisyllabic form for the thirteenth trecena stem is also attested in the *Codex Egerton*, from the Mixteca Baja, in the names *gusihua* (13-Dog, f.11) and *cusicuiy* (possibly 13-Vulture, f.21).<sup>17</sup> It appears that the Alacatlalzala form underwent a process of vowel harmony in the initial syllables as this variety also did for the word for the cardinal number “ten,” *uʃu* (Zylstra 1991:124). Future work on these varieties and their relation to proto-Mixtec may clarify the forms. The owl, widely taken as a harbinger of death in Mesoamerica and elsewhere in Indigenous America, would certainly be an animal of powerful cultural symbolism that could have been addressed with an individualizing or special name.<sup>18</sup>

Based on the stems described in section “The Mixtec count”, this form might have the etymon of either 11- or 13-House; that is, a compound of the eleventh or thirteenth trecena stem with the third veintena stem. This is based on the expected alternation of the bilabial <m> with the labiovelar <cu> when between nasal (or nasalized) vowels and the reinterpretation of the hiatus <au> as a single long vowel <aa>, except in the Huitepec cognate. However, there is additional evidence that points to the day numeral being 13.

On the reverse of the *Codex Vindobonensis*, the Lord 5-Crocodile—father of the ill-fated Lord 8-Deer—makes an offering of copal and blood before a sacred bundle (p. VI). The date recorded for this event is year 13-Owl, day 7-Movement (Figure 3). This is the only occurrence of a year “Owl” in the entire corpus of Mixtec codices. The same event is recorded in the *Codex Bodley* (p. 8), but in

**Table 8.** Cognates for “owl.”

Variety	Dialect Area	Form	Reference
Teposcolula-Tamazulapan	Eastern Alta	<i>ʃiwaã</i> < <i>simaa</i> >	Alvarado 1593:38v
Santa María Peñoles	Eastern Alta	<i>ʃiwaã</i> [ʃimãã]	p.c. Elodia Ramírez Pérez
San Antonio Huitepec	Eastern Alta, Teozacoalco subarea	<i>ʃiwaũ</i> [ʃimãũ]	p.c. Irinea Velasco García and Juan Julián Caballero
Cuatzoquitengo	Guerrero	<i>kuʃiwaã</i> < <i>kúximàà</i> >	Casiano Franco 2008:53
Alacatlalzala	Guerrero	<i>kuʃuwaã</i> < <i>kuxu màà</i> >	Anderson 2006:75



**Figure 3.** Year 13-Owl, day 7-Movement from *Codex Vindobonensis*, reverse, f. VI (Illustration: Mitzy Reyes Juárez).

this text, the date appears as year 13-House, day 7-Movement. This curious variation was first interpreted by Alfonso Caso in 1949, who suggested that the anomalous day sign for the year indicates a change in the calendrical system (1949:24, 1950:26–28, 1960:35; 1977–1979, Tome II:24). Three decades later, Maarten Jansen and Marcus Winter (1980) presented a second attestation of a year 13-House from the Mixteca during the Postclassic period. A carved stone from the archaeological zone Monte del Cacique in San José Tres Lagunas, Tilantongo, depicts the date year 13-Owl, day 4-Vulture (Jansen and Winter 1980). The authors argue that the year 13-Owl is an alternative name for 13-House. They suggest that the atypical year is some sort of indirect reference to a sacred bundle ceremony that is being carried out. In a later publication from 2009, Jansen observes the linguistic relationship between the name for “owl” in the *Vocabulario* of 1593 (*simaa*) and the mantic name 13-House. He suggests that the pictographic representation of 13-House as 13-Owl was an archaism (Jansen 2009:591).

Jansen’s suggestion that the graphic representation of third veintena position with the face of an owl is an archaism in the *Codex Vindobonensis* and the Tilantongo Stone has supporting evidence from various early attestations of Mesoamerican writing. A veintena position was depicted as a face of an owl in the Late Preclassic period in the mantic day name 13-Owl, carved on the southeastern corner stone of Building C in Huamelulpan in the Mixteca Alta (Gaxiola González 1984: Figure 44a, photo 23). The face of an owl was also a common sign for a veintena position in the Classic-period Ñuiñe writing from the northern Mixteca (Urcid 2012:857, Rodríguez Cano 1996:394, 424–425). For both Ñuiñe and the neighboring Zapotec writing system, Urcid assigns the veintena sign that is the image of an owl’s face (Glyph F) to the third position. In Zapotec Preclassic and Classic representations of day names, there

is no veintena sign depicting a house (Urcid 2001:170–174, 176). The earliest attestations of veintena signs representing a house appear in central Mexico in the Epiclassic period.<sup>19</sup> Nevertheless, the use of an archaic graphic convention for the third position veintena sign does not account for the homonymy between the forms for “owl” in Table 8 and the reconstructed pronunciation of glyphic representation of the thirteenth trecena position in combination with the third veintena one. The fact that 13-House—and seemingly no other year with the veintena sign House—was represented as 13-Owl and that 13-House was also the mantic name of the owl suggests that this was not merely an archaicism, but rather that some word play made have been involved. Perhaps too, like the animal itself, a year with this name may have had certain unfavorable associations.

*Opossum:* sako~seko~jako~hako~fjako from the day name “7-Rain” and joko~joko from ‘6-Rain’

Throughout the Mixteca, the opossum is commonly named with a reflex of the pMx form \*ʃjèkó. There are, however, some minority forms. In the western portion of the Western Alta, the word for “opossum” is *joko* in San Miguel Progreso, *joko* in Santa María Yucuhiti, and *ʃjèko* in San Esteban Atlatlahuca. In Apoala Mixtec, in the Northeastern Alta, the word for “opossum” is *tètà*, which is cognate with the Nuxáa Mixtec form, in the Eastern Alta, *tità*<sup>(1)</sup>. The forms of these three zones—here called A, B, and C—are summarized in Table 9.<sup>20</sup>

Whereas the forms in the zones A and B appear to share some relation, the forms in zone C are notably different. In Apoala Mixtec, the pMx \*e regularly developed into /a/, which means the initial vowel in *tètà* has another origin. The long /e/ in Apoala has two principal sources—either historic rimes that involved a medial \*j (Swanton 2021:88–90) or from \*ii—; however, the short /e/ develops from \*ʃi in the penultimate syllable of a heterovocalic foot. It appears that the \*ʃi in this position may itself originate in certain cases of coalescence—for example, from the merger of an unfooted \*tʃi, the principal animal classifier (e.g., “grasshopper” pMx \*tʃi+júkà > Apoala *ʃjèkà*; Swanton and Mendoza Ruiz 2021:341–342). This appears to be the case for the Apoala Mixtec word for “opossum,” which resulted from the coalescence of the animal classifier and the root: *tètà* < pMx \*tʃi+jútà. Although an uncommon form in Mixtec, the root appears to be cognate with the Cuicatec word for “opossum,” *sʔiaʔta*<sup>(1)</sup> (Anderson and Concepción Roque 1983:701).

The forms from San Miguel Progreso and Atlatlahuca show an unusual feature: the evidence of a nasal vowel in the penultimate syllable. As described above, this normally does not occur in disyllabic feet, and it attests to the presence of a historic compound. In the case of San Miguel, presumably this compound would have originated with a form \*jō+ko. The Yucuhiti Mixtec form might have the same source, but it eliminated the nasal feature, thereby regularizing its phonological pattern. Although the Atlatlahuca form is unclear, it may be the result of this same etymon, which perhaps underwent coalescence with the animal classifier: ʃjèko < pMx \*tʃi+jō+ko. However, it is worth noting that



**Table 9.** Mixtec word sets for “opossum.”

Zone	Form	Variety	Dialect Area	Reference
A	<saco>	Teposcolula-Tamazulapan	Eastern Alta	Alvarado 1593:203r
	sákō	Santa María Peñoles	Eastern Alta	p.c. Elodia Ramírez Pérez
	seko	San Antonio Huitepec	Eastern Alta, Tezoacoalco subarea	p.c. Irinea Velasco García
	hākō	Chalcatongo de Hidalgo	Western Alta	p.c. Mónica Pérez Jiménez
	sákō	Yucuquimi de Ocampo	Tezoatlán	p.c. Octavio León Vázquez
	jàkō	Alcozauca de Guerrero	Guerrero	p.c. Juana Mendoza Ruiz
	jàkō	Cuatzoquitengo	Guerrero	Casiano Franco 2008:136
	ɬako	Santa María Zacatepec	Western Coast	p.c. Rosalba Pérez Bautista
B	ɲoko	San Miguel Progreso	Western Alta	p.c. Alicia Guzmán Ortiz
	joko	Santa María Yucuhiti	Western Alta	Santiago López 2008:175
	ɬēko	San Esteban Atatlahuca	Western Alta	p.c. Benito Sandoval Vásquez
C	tētā	Apoala	Northeastern Alta, Apoala subarea	p.c. José Carlos Jiménez Hernández
	titā <sup>(-)</sup>	Santo Domingo Nuxáa	Eastern Alta	p.c. Inga McKendry

the forms in the A and B zones usually do not bear the animal classifier.

If joko and the other B-zone forms come from \*jō+ko, by analogy, the forms of the A zone could come from \*ɬē+kó. These compound forms correspond to the mantic day names that combine the sixth and seventh trecena stem with the nineteenth veintena stem; that is, the etymon in zone B is the day name 6-Rain,<sup>21</sup> and in zone A, it is the day name 7-Rain. The zone-C form would then be the historic generic form for opossum.

The symbolic status of this marsupial is complex. Often associated with pulque, fire, thievery, and motherhood, the opossum is an important figure in Mesoamerican stories and iconography (Munn 1984). Some of these associations are suggested in the Mixtec codices. A personified, but unnamed, opossum appears prominently and repeatedly in the *Codex Vindobonensis* in the prefiguration of a ritual that involved the preparation of pulque (p. 22, 20, 13). A similar scene appears in the *Codex Nuttall*, where an opossum is depicted in the temple of the primordial Lord 11-Alligator (p. 3, cf. pp. 68–69). The personified opossum also appears in divinatory codices (Anders et al. 1994:291–295): in the *Codex Vaticanus B*, the opossum appears as a thief (p. 86) and in the company of the century plant god (p. 31); in the *Codex Fejérváry-Mayer*, it appears in a temple (p. 33) and as the protagonist in a chapter composed of six scenes involving crossroads that subdivide the 260-day count. The cultural references and symbolism of this animal make it stand out as a significant one that might be addressed with a mantic name.

**Roadrunner:** jikiʔʔ from the day name “10/11/13-Movement” and koowijo~kuwijo~k<sup>w</sup>ijo from “1/2/3-Reed”

There are three distinct sets of words in Mixtec for the roadrunner (Table 10). The most common form can be

reconstructed as \*(l)-suʔū. It can be found across the Mixteca Alta and the coast. This is presumably the generic name. A second form, \*kowijo (or \*koowijo), is attested across the Mixteca Baja. Finally, there is a form that is attested in Santa María Peñoles. The Peñoles form (C zone) has an initial unfooted syllable that is etymologically opaque. The interpretation advanced here is that its origin is in the mantic day name that combines the tenth, eleventh, or thirteenth trecena stem with the seventeenth veintena stem; that is, 10/11/13-Movement.

What remains unexplained is the second form. Like the Peñoles form, it has an unfooted initial syllable and usually does not bear an animal classifier (although the form from Chazumba does have such a classifier). The final element \*wijo resembles the thirteenth veintena position stem, Reed. The initial syllable also resembles possible forms for the first, second, or third trecena stems. It is possible then that this could be a second mantic name for the roadrunner. This seems possible, given that, as the reader will recall from the discussion of the name for opossum, there can be regional variation in mantic names. Nevertheless, as noted above, Jansen and Pérez Jiménez (2011:25) observed that the veintena stem XIII appears to have its origin in the proto-Mixtec word \*wijó (*huiyu* in the Teposcolula orthography), meaning “young corn plant.” Because the roadrunner is known for sowing teocintle corn—often called “roadrunner corn” in the Mixteca—perhaps such a name is an epithet, although the initial morpheme would remain unclear.<sup>22</sup>

Like the other animals considered here, the roadrunner is highly symbolic. In the Mixteca, it is considered a bad omen of sickness or death (Erickson de Hollenbach 1980:449; 2017:511), and its sad song announces that rain will soon come (Gutiérrez Dávila 2010:193). In Santa María Peñoles, it is a bad omen if it cuts across one’s path on a journey (p.c. Elodia Ramírez Pérez).

**Table 10.** Mixtec word sets for “roadrunner:”

Zone	Form	Variety	Dialect Area	Reference
A	ḡúʔù	Apoala	Northeastern Alta	p.c. José Carlos Jiménez Hernández
	lùʔù	San Juan Coatzospan	Northern Alta	p.c. Itzel Carrera González; Small 1990:407
	sùʔù <sup>(ʔ)</sup>	Madgalena Peñasco	Western Alta	Erickson de Hollenbach 2017, Tome I:511, Tome II:719
	suʔù	San Esteban Atatlahuca	Western Alta	p.c. Benito Sandoval Vásquez
	suʔü	San Miguel Progreso	Western Alta	p.c. Alicia Guzmán Ortiz
	suʔü	Santa María Zacatepec	Western Coast	p.c. Rosalba Pérez Bautista
B	kōōwíjō	San Andrés Yutatío	Tezoatlan	Williams 2017:115
	si+kowíjō	Chazumba	Northern Baja	Gutiérrez Dávila 2010:193
	kʷíjō	Alcozauca de Guerrero	Guerrero	p.c. Juana Mendoza Ruiz
	kuwíjō	Alacatzalza	Guerrero	Anderson 2006:75
C	jikíʔʔ	Santa María Peñoles	Eastern Alta	p.c. Elodia Ramírez Pérez

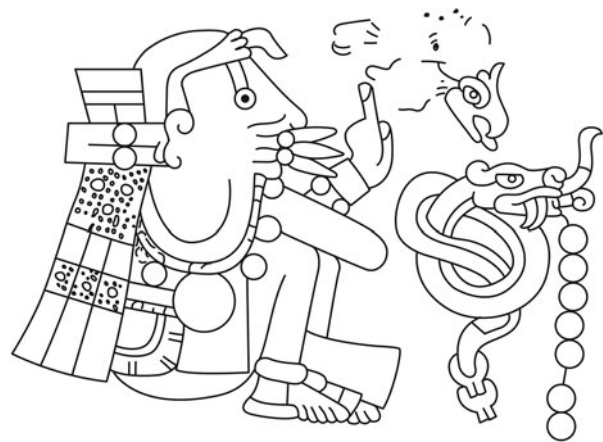
#### Rattlesnake: fajō from the day name “7-Serpent”

The usual name for rattlesnake across Mixtec varieties is a reflex of \*kòòʔ+kàá (perhaps originally from \*kòòʔ+<sup>h</sup>-káá, etymologically “copper snake”). However, in San Martín Peras, located in the Southern Mixteca Baja, the word for this animal is fajō (p.c. Iní Gabriel Mendoza). This corresponds to the mantic day name 7-Serpent.

The mantic name 7-Serpent is highly evocative. A divinity named Lord 7-Serpent appears in both the *Codex Vindobonensis* and the *Codex Nuttall*, usually accompanying Lord 4-Serpent. In the *Codex Vindobonensis*, Lord 7-Serpent appears with knives in his mouth, whereas Lord 4-Serpent has a snake emerging from his. These are ancient divinities that are depicted as snakes in primordial times (*Codex Vindobonensis*:f. 51). Both appear in the prefiguration of a naming ritual in which Lord 2-Dog pierces Lord 9-Wind’s ear before the latter gives personal names to many divinities, beginning with Lords 4-Serpent and 7-Serpent. On this occasion, the latter divinity’s mantic day sign, but not that of Lord 4-Serpent, is represented with the complete body of a rattlesnake instead of the usual depiction of a snake head (*Codex Vindobonensis*:f. 30; Figure 4). The two serpent divinities appear in Apoala (*Codex Vindobonensis*:f. 33; *Codex Nuttall*:f. 36–37) before undertaking a pilgrimage to another location. The two are named in Mixtec, *Qhyo* [4-Serpent] and *Sayo* [7-Serpent], in the *Relación Geográfica* of Tilantongo as the patron divinities of that community (Acuña 1984, II:232; see also Anders et al. 1992a and 1992b).

#### Rabbit: seʔju-feʔju from the day name “(7)-Rabbit”

In many varieties of Mixtec, as well as Cuicatec, the word for “rabbit” today is a loan from the Spanish *conejo*; for example, in Alcozauca, lēkū; in Apoala kònèhú; and in Diuxi-Tilantongo, konejú. However, other varieties retain reflexes of the proto-Mixtec form \*(l)-ísò (probably from \*jòsò, Table 11), which has deep roots going back to proto-Mixtecan.<sup>23</sup>



**Figure 4.** Lord 7-Serpent from *Codex Vindobonensis*, obverse, f. 30 (Illustration: Mitzy Reyes Juárez).

However, in addition to these two sets of words, a third is attested in the southern part of the Eastern Mixteca Alta. In Mitlatongo, the word for “rabbit” is feʔju (p.c. José Carlos Jiménez Hernández), and in Huitepec, it is seʔju (p.c. Irinea Velasco García). Cognates of these words also occur in San Juan Tamazola, San Miguel Piedras, Yutanduchi, and San Mateo Sindihui.<sup>24</sup> Taken together, the distribution of these forms coincides rather precisely with Josserand’s (1983:470) Teozacoalco dialect subarea of Mixtec.

As the reader will recall, the initial /s/ and /ʃ/ in these forms is the expected reflex of pMx \*ʃ. Likewise, the well-established change \*e > a occurred in the Teposcolula variety (Swanton 2021). These developments result in a rather exact correspondence with Teposcolula sayu, the stem for the eighth veintena position, glyphically represented as a rabbit and rendered as such in Nahuatl. These modern varieties also clarify the presence of the glottal, which is underspecified in the colonial orthography. The semantic relation between the name of the animal and the day sign that is depicted by that same animal is suggestive.

**Table 11.** Reflexes of proto-Mixtec \*(l)-isò, 'rabbit.'

Variety	Dialect Area	Form	Reference
Teposcolula-Tamazulapan	Eastern Alta	iðo <idzo>	Alvarado 1593:114r ("Gaçapo. idzo yeq.")
Santa María Peñoles	Eastern Alta	iló <sup>1</sup>	p.c. Elodia Ramírez Pérez
Nuxáa	Eastern Alta	iðo <sup>(1)</sup>	p.c. Inga McKendry
San Juan Coatzospan	Northern Alta	ɬiðó <sup>2</sup>	Small 1990 passim:409 passim
Magdalena Peñasco	Western Alta	isò	Erickson de Hollenbach 2017, Tome I:41, Tome II:717.
Yucuquimi de Ocampo	Tezoatlán	iðo	p.c. Octavio León Vázquez
San Miguel Ahuehuetitlán	Western Baja	ilō	p.c. Estrella Peláez Cuenca

<sup>1</sup>In both Peñoles and Ahuehuetitlán Mixtec, a replacive // appears instead of the expected reflex of pMx \*s. This alternation may be the residue of a preceding diminutive morpheme (Arana and Swadesh 1965: 13, 16; Swanton 2021: 62).

<sup>2</sup>The initial /ɬ/ is the result of the coalescence of preceding classifier and an initial /j/. Coatzospan tsáká 'fish' (< pMx \*ti+jáká?).

What is unexplained is why no trecena stem appears. In Mixtec sources, as well as the other names considered here, the mantic name invariably includes both a trecena position and veintena position stem, yet in this word, there is no trace of a trecena stem. A possible explanation is that the trecena position stem was lost through dissimilation. As the reader will recall, the seventh trecena stem appears to be common in the mantic names of animals: the deer is 7-Deer, the opossum is 7-Rain, and the rattlesnake is 7-Serpent. If the name for rabbit had its etymon in the form 7-Rabbit, its reflexes in Mitlatongo would be \*jeje?ju, and in Huitepec, it would be \*sese?ju. The initial syllable would have been prosodically weak because it was unfooted. The elision of this unfooted syllable through dissimilation would be a case of haplogy.

#### Broomstick Tree: tu<sup>n</sup>disawaku from the day name "7-Flower"

In Apoala Mixtec, the broomstick tree (*Pittocaulon praecox*) is known as tu<sup>n</sup>disawákú (p.c. José Carlos Jiménez Hernández).<sup>25</sup> This phytonym bears the classifier for trees or elongated or woody things, tu+. This is followed by another morpheme, "di+, which means "late, deceased" and precedes the names of deceased persons (but not animals or plants). The root for this word is therefore sáwákú—again, a trimoraic form. However, the shape of this root is identical to the mantic day name 7-Flower and

therefore the etymology of this phytonym appears to be "tree of the late 7-Flower." Native to central and southern Mexico, the small tree produces bright yellow inflorescences. It is appreciated in the region for its medicinal properties. An infusion made from its leaves is a remedy for rheumatism, and its resin is used to treat fractures.

#### Huitlacoche: tikawaã~tikawaũ from the day name "1/3-House"

Corn smut, or *huitlacoche* in Spanish, is the result of a disease caused by the fungus *Ustilago maydis* on corn. It is a well-known delicacy in Mesoamerican cuisine. The Spanish word has its origin in Nahuatl, where it is attested in early sources as *cuitlacochein* or *cuitlacohtli*, both based on the noun stem *cuitlaco-*, but with different absolutive suffixes.<sup>26</sup> The etymology of this Nahuatl stem is somewhat opaque, but it appears to be descriptive.<sup>27</sup>

The Mixtec word for "corn smut" is poorly attested. The four forms that appear in Table 12 bear the classifier for small, round things, which is either ti+ or tĩ+, depending on the variety. It appears that the Yutatío form lost the unfooted syllable that follows the classifier, whereas the trimoraic roots /kawaã/, attested in Magdalena Peñasco and Santa María Peñoles, and /tikawaũ/, attested in San Antonio Huitepec, retain the unfooted syllable. As with the Huitepec form for "owl," the form for "corn smut" in this variety shows the uncommon hiatus /aũ/ and therefore

**Table 12.** Mixtec word sets for "corn smut."

Form	Variety	Dialect Area	Reference
tikawaã <sup>(1)</sup> [tikamãã]	Magdalena Peñasco	Western Alta	Erickson de Hollenbach 2017, Tome I:535
tiwaã [timãã]	San Andrés Yutatío	Tezoatlán	Williams 2017:245
tikawaã [tikamãã]	Santa María Peñoles	Eastern Alta	p.c. Elodia Ramírez Pérez
tikawaũ [tikamãũ]	San Antonio Huitepec	Eastern Alta, Tezacoalco subarea	p.c. Irinea Velasco García and Juan Julián Caballero

the same variation in this form that existed in the sixteenth century. The shape of this root corresponds to the mantic day names for 1-House or 3-House.

**Zacatepec:** *juku+ʃatuta from the day name “7-Water”*

The name of the municipality of Santa María Zacatepec in the local Mixtec variety (known as Tacuate) is *juku+ʃatuta*. This name is recorded in two important sixteenth-century sources, where it is written in a variety like that of Teposcolula, *satuta*.<sup>28</sup> Again, the sound correspondences are as expected. In 1973, Mary Elizabeth Smith observed that this toponym is a mantic day name corresponding to 7-Water and is so depicted in the pictography of the *Lienzo de Zacatepec I* (1973a:96).<sup>29</sup>

**Hill in Jamiltepec:** *juku+ʃak<sup>w</sup>aa from the day name “7-Deer”*

A hill located to the south of the town of Jamiltepec is named *juku+ʃak<sup>w</sup>aa* (p.c. Reynaldo López de la Paz). It is a location where petitions and offerings are made for rain. The final root of this word can be analyzed as 7-Deer. It therefore is the equivalent in the Coastal variety of the form discussed above.

## Discussion

The day names of the proposed etyma follow a few patterns. Regarding the trecena positions, the zone B form for “opossum” apparently bears the sixth position stem. The thirteenth position appears in the word for “owl” and perhaps “roadrunner,” the two inauspicious birds of the list. However, the seventh trecena position stem, located precisely in the middle of the 13-day count, is the most common, appearing in six—perhaps seven (with rabbit)—of all the etyma proposed here. The proposed etyma also manifest patterning in the veintena positions. In four examples, the meaning of the veintena stem is the referent of the etymon. The seventh position in the cycle of veintena positions is represented pictographically as a deer, and it is a stem in the name “deer” in the Mixteca Baja. This same relation exists for names “snake” with the fifth position (Serpent), “rabbit” with the eighth position (Rabbit), and “flower” with the twentieth position (Flower). In these four cases, not only is there identity between the pictographic representation of the veintena sign and the lifeform it refers to, but the trecena position in each case is seven. The etymon for the Peñoles Mixtec word for “roadrunner” includes the seventeenth veintena position (Movement), which might be understood as a characteristic of the animal. The veintena stem in the etyma of owl and huitlacoche is the third position (House), the Mixteca Baja forms for “roadrunner” appear to be the thirteenth veintena position stem (Reed), and the A and B zone forms for “opossum” are the nineteenth position stem (Rain). These presumably would have had a symbolic value, which is unclear now, with the referents.

The etyma, which probably include nine different veintena positions—III (House), V (Serpent), VII (Deer), VIII

(Rabbit), IX (Water), XIII (Reed), XVII (Movement), XIX (Rain), and XX (Flower)—also provide information about the phonological shapes of these stems. For example, the form attested for the eighth veintena position stem (Rabbit) in the colonial sources described above is written as either *sayu* or *xayu*. The underspecified orthography does not permit the modern reader to know if this stem includes a medial glottal or not. However, the forms from Mitlatongo, Huitepec, and other Mixtec communities in the Teozacoalco dialect subarea make it clear that it does have a glottal, and the colonial form from the Teposcolula region would have had a phonological representation /ʃaʔju/. Additionally, the modern forms suggest that the vowel on the penultimate syllable was originally \*e, pointing toward a proto-Mixtec form \*ʃèʔjú.<sup>30</sup> Nevertheless, certain ambiguities remain. It is not known if the twelfth veintena position stem had a medial glottal or not. Although the stem is retained in the name of the Mixtec village San Bartolomé Yucuañe, this toponym is pronounced as a Spanish loan in the modern Mixtec varieties that were consulted for this study. Presumably, the stem would have been pronounced either as [k<sup>w</sup>ãʔjɪ] or [k<sup>w</sup>ãʔjɪ̃]. The etymon of the word for “roadrunner” from Peñoles indicates that the veintena position XVII (Movement) stem had the form /kiʔʃi/. This interpretation is reinforced by the orthographic form of this stem in the *Codex Egerton*, *ghi*. However, in certain contexts, the orthography seems to suggest that it was /kuʔü/. For example, in the *Relación Geográfica* of Acatlán (Acuña 1985:37), the mantic name of the divinity Lord 9-Movement, the companion of Lord 7-Deer mentioned above, was written *quicuhu*. Although proto-Mixtec \*i does develop into /u/ in certain varieties and contexts, a more explicit explanation for this variation is required. Furthermore, if more linguistic research is carried out on these varieties, it may well be possible to have a clearer idea about the tone of the stems.

The 12 etyma proposed here can be placed into two groups. The first group consists of the eight zoonyms for the six animals. The words in this group refer to animate beings. With the possible exceptions of the Huitepec form for “owl,” the Atlatluca form for “opossum” and the obvious exception of the Chazumba form for “roadrunner,” these words do not make use of classification markers for animals. The second group includes the broomstick tree, corn smut, and the two toponyms. These refer to inanimate entities and do make use of such markers. These groupings suggest two different uses. The first group hints at a vocative use of the words. As has been observed in Mixtec as well as other Mesoamerican languages with nominal classification systems, classifiers are not combined with nominals when used as vocatives (e.g., Mendoza Ruiz in preparation for Alcozauca Mixtec; Zavala 2000:137 for Akatek; and Costauoc and Swanton 2015:228–229 for Ixcatec). The second group points to a different use, in which the mantic day names are used to specify generic classification markers. The double classification of the form for the broomstick tree, including both the class term for “tree” and the classifier for “deceased persons,” points to a property relation; that is, “the tree of the late 7-Flower.” This is probably

also the case for the toponym of the hill in Jamiltepec, “the Mountain of 7-Deer.” These etyma, unlike the zoonyms, would not have had a vocative origin, but they were objects or places associated with a named entity.

These two groups require different motivations. The second group has always had a head (as a class term) or classifier that is morphologically transparent. This means that when the mantic day vocabulary fell into disuse and the internal morphological complexity of these forms was no longer accessible to Mixtec speakers, the day names became “cranberry morphemes”—that is, a bound morpheme that cannot be assigned a clear lexical or grammatical meaning but still functions to distinguish words (Aronoff 1976). This is a more general process that is not restricted to the mantic day names.<sup>31</sup> However, the first group appears to have followed a different process, in which the entire word lost its internal morphological complexity. The vocative use of a mantic day name as a *nahualtocahtl* became a generic noun that does not bear an explicit classifier.

This raises the question about the circumstances under which these animals were named with vocatives. In the absence of any explicit textual attestations, one can only speculate about such usage. Nevertheless, colonial descriptions and present-day traditions provide some orientation on this matter. For example, Ruiz de Alarcón describes a deer hunting ritual at length, in which the buck is addressed with a mantic name, 7-Flower (Andrews and Hassig 1984:94–105). However, whereas the deer might have been invoked in hunting rituals, most of the other animals with mantic names are not typical prey. Some, however, are animals that would have been invoked in the context of omens. The fifth book of the *Florentine Codex* is dedicated to such omens, known as *agüeros* in Spanish, as is the ninth chapter of Ruiz de Alarcón’s first treatise. Called *tetzahuitl* in Nahuatl, the omens described in these sources interpreted events, typically involving animal behavior, such as the hoots of an owl or a rabbit or deer entering one’s house. Multiple omens concern the behavior of birds, although the roadrunner is not specifically mentioned.<sup>32</sup> On the other hand, as indicated above, in the Mixteca, the roadrunner continues to be taken as a portent of unfavorable future outcomes. The Mixtec equivalent of the *tetzahuitl* appears to have been called *ñena* ([ɲɛ̃ʔnã] < pMx \*jɛ̃ʔnã).<sup>33</sup> When such an omen befell someone, apotropaic rituals could be performed. Indeed, such activities are still realized today. For example, in Santa María Peñoles, if an owl hoots, one should quickly count nine pebbles and cast them while the bird is vocalizing. By throwing the nine stones, the portentous message is returned to the owl. Then, for the next three days, one must be alert to be sure the omen passes on (p.c. Elodia Ramírez Pérez).

As mentioned above, some of the *nahualtocahtl* in Ruiz de Alarcón’s work are the names of divinities. This is also the case among some of the zoonyms described here. Both 7-Deer and 7-Serpent are important divinities that were honored in the Mixteca. Lord 7-Deer was the patron of Acatlán, and Lord 7-Serpent was one of the pair of snake divinities in the temple of Tilantongo. This raises an

ontological question about the relationship between the animals and the divinities that were worshipped in the temples of Acatlán and Tilantongo as well as represented in the codices. Were the divinities some sort of guardian of the animals, or were the animals manifestations of the divinities? Perhaps both. Whatever this relationship was, the etyma presented here indicate that the addressee of such mantic day vocatives could be, or become, the animal itself.

As observed above, the hemerological count of 260 days was in decline in the second half of the seventeenth century and appears for the last time in the early eighteenth century. This would be the time when one would expect the forms to lose their internal morphological transparency. Indeed, the forms *saquââ* and *zaqua* are attested in the Mixteca Baja for the word “deer” in 1755 (based on an 1882 copy) and about 1800, respectively (see note 13). However, some of these mantic forms are attested already in the sixteenth century, when the hemerological count was still in use. As the reader will recall, the form *simaa* appears as a possible word for “owl,” and *saco* appears as the only word for “opossum” in the 1593 *Vocabulario* that the Dominicans had printed. This suggests that the use of mantic day names for these animals had been conventionalized and could replace the generic names even while the mantic day cycle was still in use. Consequently, the Dominicans registered only *saco* for “opossum,” but not a form that is cognate with *tétà* in Apoala or *tita* in Nuxáa. This points to a considerable antiquity in the use of mantic day names when referring to certain animals in specific circumstances.

## Conclusions

This article has argued that 12 lexical items in Mixtec have their origin in compounds that arose from the hemerological count of 260 days. Today, these “disguised compounds” have lost their internal morphological complexity, which is no longer accessible to Mixtec speakers. The use of these compounds and the subsequent loss of their internal morphology reflect phenomena that are both culturally and historically specific. The eight zoonyms discussed above appear to have had their origin as mantic day names for the animals when used as vocatives, perhaps in ritual contexts, such as omens. With the European colonization and persecution of Mesoamerican religious practices, the use of the hemerological count was abandoned. It was at this time that the compounds would have been demotivated—that is, the internal morphological structure would have become inaccessible to speakers who could no longer relate it to the mantic cycle. This then enriched the lexicon, creating etymological pairs for the same, or similar, referents. There is no reason to believe that this process was limited to these 12 etyma, and it may well be that future research will uncover others.

It is not surprising that the mantic day count has left a legacy in the Mixtec lexicon. The count fulfilled many functions and was used extensively in the Mixteca for centuries, both before and after the European invasion. It is also not the only language to have fossilized mantic

names. In Oaxaca, the Zapotec villages of Macuilxochitl de Artigas Carranza, located in the municipality of Tlacoahuaya in the Central Valleys, and San Juan Chicomezuchil, located in the Ixtlan district, both bear names stemming from the mantic count in Nahuatl: the etyma of Macuilxochitl and Chicomezuchil are 5-Flower and 7-Flower, respectively.

The occurrence of Mesoamerican mantic names as an etymological source of contemporary Mixtec vocabulary is an example of how historical linguistics can benefit from culture history while also contributing to it. This kind of endeavor is aided by the abundant and early written attestations of the Mixtec language, both pictographic and alphabetic, and the living cultural traditions and rich linguistic knowledge of Mixtec people today. Although the historical linguistics of Mesoamerican languages has generally eschewed word histories<sup>34</sup>—perhaps partly because of the interdisciplinary and broad humanistic approach they require—they can enrich our understanding of the area's unique culture history, provide solutions to recalcitrant linguistic forms that refuse to fall into rigid schemata, and demonstrate that the history of modern Mesoamerican languages is as rich and interesting as any of the area's state-sponsored hegemonic ones.

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## Endnotes

<sup>1</sup> Joyce Marcus and Kent Flannery (Marcus 1976; Flannery and Marcus 1976, 2005:14, 463–466, etc.) have argued that Monument 3 from San José Mogote, Oaxaca, dates to the Rosario phase, which would place it three centuries before the dates from San Bartolo, Guatemala. However, this proposed age of Monument 3 has been a subject of debate (Cahn and Winter 1993).

<sup>2</sup> From the second chapter of third treatise of Alarcón's *Tratado*, Andrews and Hassig 1984:124.

<sup>3</sup> In a discourse narrated by José Velázquez of Ocoapa in Copanatoyac, Guerrero, to ask the hand of a bride, the speaker refers to his sandals, hat, and staff as being of *kama'a* and *kaviyo* (Solano González 1985:9). In 2001, Chantal van Liere and Martijn Schuth, working with the late Prof. Vicente Paulino Casiano Franco of Cuatzoquitengo, registered these

names as *yoko kamao* and *yoko kavi* (Liere and Schuth 2001:77–80, 145, 162–165). These same day names, written *caa maha* and *caa huiyo*, appear in the 1593 *Vocabulario* as entries for the sun and the moon (Alvarado 1593:190v, 139v).

<sup>4</sup> Intriguingly, in a Triqui version of this story from San Andrés Chichahuaxtla, the deer is invoked with the name *Hiakuàj* (ja<sup>2</sup>k<sup>w</sup>ah<sup>1</sup>), possibly a loan from Mixtec *Xakuua* (jak<sup>w</sup>aa), or 7-Deer (Hernández Fuentes 2019:19).

<sup>5</sup> For example, although in early colonial sources every Mixtec woman and man possessed a mantic name, in the Cuernavaca censuses of the 1540s, it was common that Nahuatl names were “nicknames” (Lockhart 1992:118). Likewise, whereas the Mixtec codices assiduously record the mantic names of all persons, the Nahuatl codices from central Mexico rarely do.

<sup>6</sup> The name 1-Death for the sun is frequent in the Mixtec codices, see *Codex Selden*, p. 1; *Codex Bodley*, p. 33-II, III; *Codex Nuttall*, pp. 17–18, 79; *Codex Becker I*, pp. 3, 4. A stela fragment attributed to Tlaxiaco that is now in the American Museum of Natural History (cat. No. 30/495) also represents the sun with this mantic name. I thank Javier Urcid for having brought this carved block to my attention.

<sup>7</sup> For subsequent studies of the Mixtec glosses in the *Codex Muro*, see Jansen (1989:111–115, 1994:54–77), López García (1993), Hermann Lejarazu (2003), and Jansen and Pérez Jiménez (2009:56–65); for the *Codex Egerton*, see Jansen (1994:145–191) and Rodríguez Cano (2019).

<sup>8</sup> Previous studies have noted the similarity of some of the trecena stems with their corresponding cardinal numbers, e.g., Smith 1973a:26–27, who notes similarity of the trecena positions 4, 6, 7, 8, 10, 11, and 13 with the Mixtec cardinal numbers. Regarding the various prosodic domains mentioned in this article, see Nespor and Vogel (2007) and, specifically for Mixtec, Penner (2019), Swanton and Mendoza Ruiz (2021), and Mendoza Ruiz (in preparation).

<sup>9</sup> This process of phonological reduction occurs elsewhere in the language; for example, the classification markers for animals and tree-wooden-elongated object (respectively *te+* and *tnu+* in early Teposcolula Mixtec) are phonologically reduced forms of the generic nouns *quete* ‘animal’ and *yutnu* ‘tree.’

<sup>10</sup> Smith (1973) and Jansen and Pérez Jiménez (2011) have advanced suggestive etymologies for some of the veintena position stems. Smith proposes that the origins for the stems II, IX, and XX are to be found in the nouns “wind,” “water” and “macaw” (*guacamaya*) (Smith 1973:23, 26), which are *tachi*, *nduta*, and *tehuaco* (the initial *te* is an animal classifier) in the early Mixtec orthography. Jansen and Pérez Jiménez (2011) propose promising etyma for the stems X, XIII, and XV: *hua* (X) is a reduced form of the word for “coyote” (*tehuahu*); *huiyo* (XIII) comes from the word of the same shape meaning “young corn plant”; and *sa* (XV) comes from the moribund word for “falcon” or “hawk” (*sasa*) (Jansen and Pérez Jiménez 2011:24–25). Two additional stems, *quevui* (I) and *cusi* (XVIII), appear to have their origins in archaic words for an “earth animal” (like a toad), and “atlatl” (dart thrower), respectively. More speculative—and needing considerable further investigation—are possible etymologies of the stems *cuau* (III), perhaps “darkness,” and *co* (XIX), perhaps from “cloud.”

<sup>11</sup> For reasons of exposition, the environment of this correspondence is simplified for certain varieties. For example, in Coatsospan, the change \*tj > j occurs in post-tonic position and in certain historic compounds, such as “fifteen” \*tjè?ù (presumably from \*ùtj+ò?ò) > jé?ù; elsewhere, \*tj > Ø/#\_e. Similar patterns exist in other varieties. Also not represented in Table 6 are J-varieties, so identified because of the distinctive change \*tj > j in penultimate tonic syllables before vowels other than \*i. In these varieties, which are principally located in southern portions of the Western and Eastern Alta dialect areas as well as in the Northern Alta to the south of the Río Santo Domingo (Josserand 1983:267), the reflexes of \*tj are more complex and include /j ç j h/ as well as loss.

<sup>12</sup> Regarding toponymic class terms in Mixtec, see Doesburg et al. (2021:286–287).

<sup>13</sup> Smith observes that *sacuaa* appears as the word for “deer” in “an unpublished vocabulary from the Mixteca Baja region of southern

Puebla compiled by Josep Mariano Tupeus [sic],” which she knew from a microfilm at the Yale University Library. This is a manuscript volume that José Mariano de la Peña (Latinized as Josephus Marianus Rupeus) began compiling in 1800. It is currently located in the library of the University of Virginia. A transcription was published as an appendix to Doesburg with Faudree (2021). The word for “deer” appears in the entry “*benado zaqua*” on page 16 of the manuscript (Doesburg with Faudree 2021:383). A second source that Smith mentions is the “Arte, prontuario, vocabulario y confesionario de la lengua mixteca por Miguel de Villavicencio,” a manuscript work dated to 1755 that is known today through an 1882 copy by Francisco del Paso y Troncoso, now in the Biblioteca Nacional de Antropología e Historia (Colección Antigua 260-bis). In this source, the word for “deer” appears on folio 15v in the entry “*Cierbo. Saquáá*.” This manuscript is currently the subject of the doctoral investigation of Lena Weißmann at the Freie Universität Berlin.

<sup>14</sup> Josserand (1983, num. 12), Dürr (1987, num. 43), and Swanton (2021, num. 7) reconstruct this form with the segmental form \*isu, although the last author points out that such vowel-initial words may have been the result of a glide-vowel coalescence at an early stage of the language. The evidence in favor of the new reconstruction here comes from a small set of Guerrero Mixtec varieties, e.g. Alacatlazala *jusu*: Cahuatachi *jusu*; Cuatzoquitengo *jusu* / *jisu* (Josserand 1983, num. 12; Casiano Franco 2008:153). This would correspond to the initial syllables of the Cuicatec and Triqui cognates, *vide infra*. A similar process appears to have occurred in the word for “corn field,” which Josserand (1983) reconstructed as \*itu, cf. Alacatlazala *jutu*: Cahuatachi *jutu*; Cuatzoquitengo *jutu* / *jitu* (Josserand 1983, num. 169; Schultze Jena 1933–1938, III:110; Casiano Franco 2008:154), which point to pMx \*jütú. <sup>15</sup> Longacre 1957, num. 209. The cognates—proto-Mixtec. \*júsú : Cuicatec. j̄ʷuʷšú : proto-Triqui. \*j̄ʷutah<sup>3</sup> (<\*tV-jutah<sup>3</sup> ?) : Amuzgo \*sò —show the expected consonant correspondence (s : š : t : s) already identified by Longacre (1957:34–35). Furthermore, they point to a glide \*j in the initial syllable.

<sup>16</sup> The correspondence set in Table 6 changes slightly before the vowel \*i; for example, in Peñoles Mixtec, \*j̄ > j̄ / \_\_ \*i.

<sup>17</sup> I thank Bas van Doesburg for this insight.

<sup>18</sup> For early attestations from central Mexico of the owl as a portent, see Benavente Motolinía (1996:279), Mendieta (1993:94–95), the *Primeros Memoriales* (Sullivan 1997:174), and the *Florentine Codex* (Anderson and Dibble 1950–1982:bk.5:161–163); see also García Garagarza 2020. An early source from the Central Valleys of Oaxaca is *Arte en lengua zapoteca* of fray Juan de Córdova, which lists *buhó* (táma in Zapotec) and *tecolote* (*pequia*) in second and third place (after the serpent) of the things that Zapotecs held as omens (“*si encontrauan o venian a sus casas o junto a ellas, se tenían por agoradas dellas*”; Córdova 1578:123v, cf. Urcid 2001:170). For the owl as a portent in the Mixteca, see Dyk (1959:167–168), Jansen (1982:255) Butterworth (1975:134) and Alavez Chávez (1997:222–223).

<sup>19</sup> For example, in the Epi-Classic site of Xochicalco, Morelos, the veintena sign “house” appears on the northwest basal façade of the Pyramid of the Feathered Serpents (9-House), on the so-called Palace Stone (4-House), on Stela 2 (7-House), and on Stela 3 (9-House). An unprovenanced Teotihuacan-style “mask” with an Epi-Olmec text that includes the day name 10-House may be the first known attestation of this veintena sign (Justeson and Kaufman 2018:228, 240, cf. 211, n17).

<sup>20</sup> Excluded from consideration are epithets; for example, in Coatsospan, the expression for opossum is *šúʷme nč̄š̄*, literally “naked tail” (p.c. Itzel Carrera González; compare with the popular Mexican epithet for this animal “rabo pelado,” Caso and Bernal 1952:265). Likewise, Table 9 does not include the San Juan Mixtepec word *šóko*, which appears to belong to zone A but with an unexpected vowel in the penultimate syllable—perhaps the result of vowel harmony.

<sup>21</sup> The harmonization of j̄u to j̄ō is expected when in a foot that ends in the vowel /o/ as feet with u-o sequences are not permitted.

<sup>22</sup> There appears to have been a morpheme \*kúʷ that derived nouns, e.g. omen:demon (\*j̄ʷnā : \*ʷ-kʷj̄nāʷ, perhaps from \*kúʷ-j̄ʷnā) and loaned:rich (\*ʷ-j̄k̄áʷ - \*ʷ-kʷj̄k̄áʷ, perhaps from \*kúʷ-j̄k̄áʷ), suggesting

a possible etymological meaning of something like “corn maker.” However, the long vowel kōō form in Yutatío casts doubts on such a correlation.

<sup>23</sup> Cf. pTr. \*j̄ato<sup>3</sup> (probably <\*ti-jato<sup>3</sup>) : Amuzgo. su<sup>M</sup>. The early Cuicatec word for “rabbit” <lloodo> (\*j̄oođo), also cognate, appears in a toponym registered in 1562: *hico baco lloodo*, translated as “Zerro Conexo” (*hico*<sub>1</sub> *baco*<sub>2</sub> *lloodo*<sub>3</sub>, mountain<sub>1</sub> home<sub>2</sub> rabbit<sub>3</sub>), in “Información sobre el pleito que doña Catarina de Salomé, cacica de Tepeucila, sus pueblos y tierras, y vecina en el pueblo de Papalotipac, sigue contra Domingo Hernández,” BNAH, Col. Antigua 828. I thank Bas van Doesburg for this reference.

<sup>24</sup> I thank Inga McKendry for having shared her lexical data from these communities from a survey carried out in the 1990s.

<sup>25</sup> I thank José Carlos Jiménez Hernández for bringing this tree and the possibility that its etymology includes mantic day vocabulary to my attention during the Mixtec philology seminar held in Oaxaca in which we both participate. I thank Selene Rangel Landa for the tree’s taxonomic identification.

<sup>26</sup> For example, in the 1571 *Vocabulario de la lengua mexicana* of Alonso de Molina (1571, Nahuatl to Spanish: 27r), both forms are attested: “*Cuitlacochin. maçorca de mayz degenerada y diferente delas otras.*” and “*Cuitlacochtli. mayz o trigo añublado.*”

<sup>27</sup> This Nahuatl stem consists of two roots, *cuitla*+*coch*. Whereas the first root, *cuitla*, means “excrement” (or more generally, any excrescence), the second, which is the head of the compound, is less transparent. It may be related to the head of the compounds *tlancoch* ‘molar’; *cuexcoch* ‘occiput’; and perhaps *nacoch* ‘ear pendant’ (presumably from *na(caz)*<sub>1</sub>+*coch*<sub>2</sub>, ear<sub>1</sub>+x<sub>2</sub>). In these compounds, the root *coch* seems to refer to a protuberance, which would suggest that *cuitlacoch* originally meant something like “excrecent protuberance.”

<sup>28</sup> The *Relación Geográfica* of Zacatepec of 1580 (Acuña 1984, Tome I:318) and the *Arte en lengua mixteca* of Antonio de los Reyes, O.P. (1593:67r).

<sup>29</sup> See also Doesburg 2022:85–86 for an updated account of the toponyms of the *Lienzos de Zacatepec* and the corresponding toponyms.

<sup>30</sup> A similar conclusion can be made regarding the ancestral vowel of the seventh veintena stem based on the Peñoles and Diuxi-Tilantongo forms mentioned at the beginning of section “The Mixtec count,” \*kʷee > Teposcolula *cuaa*.

<sup>31</sup> For example, see Doesburg et al. (2021) for an example of a cranberry morpheme that has only been retained in a toponym and a name for a flower.

<sup>32</sup> Anderson and Dibble 1950–1982, bk. 5:161, 167, etc. See also the *Primeros Memoriales* (Sullivan 1997:174–176). Conversely, the roadrunner is a bad omen among the Zapotecs of San Baltazar Loxicha; its song nearby announces that the hearer will suffer an illness, such as a fever (Cruz Santiago 2010:58, no. 266).

<sup>33</sup> The noun *ñena* is attested in multiple entries in the sixteenth-century Mixtec *Vocabulario*; e.g., “Adivuinar por agueros. yosini tnunindi ñena. [futuro]. qni.”; “Agorero que lo declara. tay yontniño ñena [...].”; “Agüero ñena”; etc. (Alvarado 1593:9v, 11v, 12v). Indeed, the sixteenth-century Mixtec *Vocabulario* includes an entry for “ominous bird”: “Aue agorera. queteñena”—literally, “omen animal” (Alvarado 1593:30v). However, this may have been drawn from Elio Antonio de Nebrija’s Spanish-Latin vocabulary, a source for the Mixtec one, which includes similar entries (v. Swanton 2021:54–55).

<sup>34</sup> This is not to say that no such studies exist; for example, there exists a robust and ongoing debate involving the etymologies of the words “cacao” and “chocolate” (Dakin and Wichmann 2000; Hernández Triviño 2013; Kaufman and Justeson 2007).

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