

dog-NOM white-NOM FOC bark-F-**IMPF**

‘The white dog is barking.’

No attempt is made here to distinguish tense from aspect, and it is frequently difficult to determine from descriptive grammars whether a category ought to be considered tense or aspect. Different descriptions of the same language often differ in whether they characterize a category as one of tense or as one of aspect.

@	1.	Tense-aspect prefixes	150
@	2.	Tense-aspect suffixes	629
@	3.	Tense-aspect tone	11
@	4.	Combination of tense-aspect strategies with none primary	133
@	5.	No tense-aspect inflection	139
		total	1062

While the major types of morphological indicators of tense-aspect are prefixes and suffixes, there are three less

common morphological ways to indicate tense-aspect: **tone**, **infixes**, and **stem changes**. Tone is the primary method in eleven languages on the map, illustrated in (2) for Lango (Nilotic; Uganda); the initial *a-* in these forms is the first person singular subject prefix.

(2) Lango (Noonan 1992: 92)

àgíkò 'I stop (something), perfective'

àgíkô 'I stop (something), habitual'

ágìkkò 'I stop (something), progressive'

Apart from the doubling of the second consonant in the progressive form in (2), the aspectual differences are indicated solely by tone. None of the languages examined here appears to use either infixes or stem change as the primary method for tense-aspect, and these types are therefore not shown as types on the map, but, as discussed below, they do combine with other methods in some languages. Changes in the verb stem to express past tense is a common method with irregular verbs in English (e.g. *run, ran; see, saw*), though suffixing (e.g. *walk, walked*) is

considered here the primary method for English. If the changes in stems in a language are entirely localized on the initial (or final) segment(s) of the stem, they are not treated here as stem changes, but as prefixes (or suffixes). For example, while the list in (3) of realis and potential (irrealis) forms from Chalcatongo Mixtec (Oto-Manguan; Mexico) does not adhere to a simple pattern, the differences other than tone are all at the beginnings of words, so this language is treated as prefixal on the map.

(3) Chalcatongo Mixtec (Macaulay 1996: 45)

REALIS	POTENTIAL	
<i>ndíso</i>	<i>kundiso</i>	‘carry’
<i>xátù</i>	<i>kuxátú</i>	‘be spicy’
<i>žesámá</i>	<i>kesámá</i>	‘eat’
<i>xíčaʔa</i>	<i>kačáʔa</i>	‘dance’
<i>xíkó</i>	<i>k^wíkó</i>	‘spin’
<i>xítú</i>	<i>kútú</i>	‘work in the fields’
<i>xasú</i>	<i>kásu</i>	‘close’
<i>kaku</i>	<i>kákú</i>	‘be born’

Reduplicative processes are treated as prefixes (or as suffixes) if the part of the stem that is reduplicated is less than the whole stem and includes the beginning (or end) of the stem. While complete reduplication is used in some languages for certain aspectual notions like repetitive, continuative, or intensive aspect, as in Turkana (Nilotic; Kenya and Uganda; Dimmendaal 1983: 106), it is not included in the morphological strategies considered here. See Map 27 on different types of reduplication.

For many languages, perhaps even a majority, the morphological indicators of tense-aspect on verbs are rather heterogeneous and do not form a single category within the morphological system of the language. For this reason there are many languages which combine two or more of the first three types or which combine one or more of these with infixing or stem changes. If one type is deemed **primary**, either because of the number of relevant morphemes in the language or the apparent frequency in usage, then the language is coded on the map according to that primary method. However, there are many languages which are treated here as lacking a primary method; these are shown on the map as languages with a **combination**

of tense-aspect strategies with none primary. The majority of these are languages that employ both prefixes and suffixes. For example, Mesa Grande Diegueño (Yuman; California) has a progressive prefix, illustrated in (4a), and a future suffix, illustrated in (4b).

(4) Mesa Grande Diegueño (Langdon 1970: 147, 159)

a. *ta-ʔ-wa*

PROG-1.SUBJ-sit

‘I am/was sitting.’

b. *ʔ-a-x*

1.SUBJ-go-FUT

‘I will go.’

There are also many languages which combine prefixes or suffixes with one of the minor strategies. For example, Krongo (Kadugli; Sudan) combines prefixes with tone (Reh 1985: 188). Ocotepc Mixtec (Oto-Manguan; Mexico) combines tone, prefixation, and stem-internal vowel lengthening; compare the following forms of the verb *kunū*

‘weave’: *kūnū* ‘potential’, *kúnū* ‘continuative’, *nkū:nū* ‘completive’ (Alexander 1988: 250). A few languages combine infixes with some other method: Atayal (Austronesian; Taiwan) employs a past tense infix and a future prefix (Rau 1992: 47, 50), while Rutul (Daghestanian; Russia) combines infixation with suffixation (Alekseev 1994: 228).

The final type shown on the map is languages with **no tense-aspect affixes** (or stem changes). Such languages will generally code tense and/or aspect categories by means of separate words, either by auxiliary verbs or by noninflecting particles or clitics. For example, in Loniū (Oceanic; Manus Island, Papua New Guinea), tense and aspect are coded by words that precede the verb, illustrated by the present tense and stative aspect words in (5).

(5) Loniū (Hamel 1994: 107)

yo lɛʔi tɔ ehe

1SG PRES STAT lie.down

‘I am lying down.’

Languages with tense/aspect affixes vary as to the centrality of these affixes to the languages. In some languages, verbs obligatorily inflect for tense or aspect, although one of the categories may be realized by the absence of any overt tense-aspect morphology. In Lango, for example, illustrated above in (2), each verb form must be in one of the three aspects shown there. In other languages, the tense-aspect affixes play a minor role in the system. In Indonesian, tense/aspect is generally expressed by separate words, as in (6a), but there is one suffix that occurs on a number of transitive verbs to indicate repetitiveness or thoroughness, as in (6b).

(6) Indonesian (Sneddon 1996: 199, 94)

a. *Kami akan makan nanti.*

1PL FUT eat soon

‘We will eat soon.’

b. *Dia men-cium-i pacar-nya.*

3SG ACTIVE-kiss-REPET girlfriend-3SG.POSS

‘He kissed his girlfriend repeatedly.’

The map does not distinguish languages in which tense-aspect affixes are central from those in which they are less so; because of the single suffix illustrated in (6b), Indonesian is shown on the map as having tense-aspect suffixes.

In deciding whether a morpheme indicating tense-aspect is an affix or a separate word, I follow the orthography of my sources. In some instances, more careful linguistic analysis would probably lead to an alternative analysis. Analyses are often strongly influenced by how morphemes have been analysed in related languages or languages in the same region. In some cases, the facts of a language may be somewhat indeterminate as to whether a particular morpheme should be treated as an affix or a separate word.

Apart from familiar tense categories like past, present, and future, the affixes shown on the map code aspectual categories which are characterized in grammatical descriptions with labels such as *perfective*, *imperfective*, *progressive*, *continuative*, *repetitive*, and *habitual*. In some languages, the indication of tense and aspect combines with pronominal affixes, especially for subject, so that the affixes in question are

often described as agreement affixes or subject affixes which vary for tense or aspect. Such affixes which code some other category in addition to tense-aspect are included here as tense-aspect affixes, as long as one of the grammatical features they code is tense or aspect.

Many languages make a fundamental distinction in their verbal morphology that authors of grammars describe by means of the labels *realis* and *irrealis*. If the irrealis forms are obligatory for referring to the future, and are normally the sole means of indicating future, then the marking of realis vs. irrealis is treated here as an instance of tense/aspect marking. In *Tukang Besi* (Austronesian; Indonesia), for example, there are two sets of subject prefixes, one realis set and one irrealis set, as in (7).

(7) *Tukang Besi* (Donohue 1999: 153)

a. *no-baiara-'e*

3.SUBJ.REALIS-pay-3.OBJ

'She has paid it.'

b. *na-baiara-'e*

3.SUBJ.IRREALIS-pay-3.OBJ

‘She is going to pay it.’

Because the contrast in the simplest contexts is that of nonfuture versus future, these prefixes are treated as tense-aspect prefixes for the purposes of this map.

2. Geographical distribution

Of the two major types, prefixes and suffixes, it is clear from the map that tense-aspect suffixes are overwhelmingly more common than tense-aspect prefixes. There are a number of areas in which prefixes are extremely rare. In the entire mainland of Europe and Asia, there are only three languages shown on the map as employing prefixes as the primary strategy: Ket (Yeniseian; Russia; Werner 1997: 154-155), Jiarong (Tibeto-Burman; China; Lin 1993: 231), and Temiar (Aslian, Mon-Khmer; Malaysia; Benjamin 1976: 169), and the last of these is well down the Malay Peninsula and barely on the mainland. Only two languages in South America and only three in Australia are shown as employing prefixes as the primary

strategy. And while the map shows a number of languages in New Guinea with tense-aspect prefixes, most of these languages are Austronesian; the non-Austronesian languages of New Guinea overwhelmingly employ suffixing for tense-aspect.

The strongest exception to the preference for tense-aspect suffixes is found among Austronesian languages; although many lack tense-aspect affixes, among those that do have them, they are more generally prefixes. There are two areas with tense-aspect prefixes among Austronesian languages: (i) a strip of languages extending from Taiwan south through the Philippines to Sulawesi in eastern Indonesia; and (ii) Austronesian languages of eastern New Guinea, some on the mainland, some on islands like New Britain. Another area in which tense-aspect prefixes are common is Africa. While there are approximately as many languages with tense-aspect suffixes in Africa as there are with prefixes, languages with prefixes are distributed over much of Africa and are found in a number of different subgroups within Niger-Congo (including Bantu, Kwa, Adamawa-Ubangian, Kordofanian) as well as many subgroups within Nilo-Saharan and a few Afro-Asiatic languages within

Chadic and Berber. Finally, there are two areas in North America where tense-aspect prefixes are common: (i) Mesoamerica; and (ii) Canada and the northern United States, represented by Athapaskan and Algonquian languages. There are a few languages in the southwest United States and adjacent areas in northwest Mexico with tense-aspect prefixes, but two of these are Athapaskan languages, closely related to languages in northern Canada.

All but one of the languages employing tone as the primary method for coding tense/aspect are spoken in Africa, but over a wide area stretching from Guinea in West Africa to Uganda in East Africa. The one language not in Africa is Sko (Sko family; Papua, Indonesia; Voorhoeve 1971: 57). There are many other languages in which tone combines with some other method. A number of these are Mixtecan or Chinantecan languages spoken in Mesoamerica.

Languages lacking tense-aspect affixes are most common in two areas in which isolating languages, ones with little or no inflectional morphology, are common: (i) southeast Asia and Austronesian languages of Indonesia and the Pacific;

(ii) central Africa, especially around Nigeria. On this map, the first of these two areas extends northwestward to include many Tibeto-Burman languages which lack tense-aspect affixes but have other inflectional morphology. It should be noted that there are also polysynthetic languages without tense-aspect affixes. For example, Kutenai (isolate; western North America) expresses all tense and aspect notions by preverbal particles but is otherwise polysynthetic, and the neighbouring Salishan language Shuswap is similar (Kuipers 1974: 45, 74, 80-81).