

**ERC Advanced Grant**

**Theory of Tone**

***Version 9d***

# Questionnaire for a description of a tonal system

## 0. Generalities

The file for the Analytical Report should be in the DOCX format (or any other text format easily convertible into DOCX: RTF, DOC, ODT). The name of the file should have the following structure:

Glottolog code-language name-AR author’s name

E.g.: soni1259-east\_soninke-vydrin.docx

Please, indicate on which Questionnaire version your Analytical Report is based (this is version 9d).

Please ensure that tonal notation used in illustrative examples reflects all the information essential to your point (whether concerning underlying tonemes, surface tonal realizations, or both). Use several lines of representation if necessary. Whenever there is a significant difference between the underlying and the superficial tonal representations, please present your example in at least two lines to make the difference clear. In such a case it is highly desirable to have at least some illustrative examples where tonal realization is indicated on every MPU (minimal prosodic unit), in order to help readers understand how it is pronounced. When relevant (e.g. when dealing with tonal spans and with extratonal segments), please use the annotation conventions, see file annotation\_rules.

## 1. General information about the language

### 1.1. Language name

Please indicate the name of the language, alternative names (if any). ISO-639 and Glottolog codes.

### 1.2. Genetic affiliation and distribution

Provide genetic affiliation of the language, its geographic area, and the number of speakers *(if relevant, especially for lingua-francas, also indicate the number of L2 speakers)*.

*By default, the Glottolog affiliation is taken. If you find it incorrect, please, provide an alternative genetic classification (with a reference to the source).*

### 1.3. Dialects

List information on dialects, sociolects, etc. (especially if relevant for the tonal analysis, i.e., if tonal systems of the dialects are divergent). Please indicate which dialect(s) or variety(-ies) your AR is based on and provide the glottocode(s) (if any).

### 1.4. Relevant publications

Provide a concise survey of existing publications on the language, particularly on its tonal system. For well-studied languages, include only the most relevant references. The primary purpose of this section is to elucidate the present state of the study of tone in the language.

## 2. Segmental phonology

### 2.1. Phonemic inventory

#### 2.1.1. Vowels

Please, provide a vowel chart.

Status of long vowels and vowel sequences (monophonemic vs. biphonemic), if available. The following criteria can be applied (adapted from (Culhane 2024: 49–61):

1) If [Vː] or [VV] is in phonological of morphophonological alternation with short vowels, it is a phoneme.

2) If [Vː] or [VV̯] have the same phonotactic distribution as unambiguous sequences of two vowels, it is biphonemic.

3) If [Vː] or [VV̯] arise from concatenation of morphemes or other morphological processes, it is biphonemic.

4) If the language has infixation, and in words with a putative vowel sequence, an infix can occur between two vowels, [V:] or [VV̯] is biphonemic.

5) If [Vː] and complex vocalic phenomena are treated as two vowels and two syllables for the purposes of word games, they are biphonemic.

6) putative: If /VαVα/ or /VαVβ/ is treated as two syllables for the purposes of tone, nasalisation, or stress assignment, it is biphonemic.

7) Typically languages have fewer diphthongs than short vowels (Chacon 2012: 30). This is in contrast to languages best analyzed as having sequences of vowels and glides or sequences of two vowels, where typically many different sequences are attested; more than the number of vowels in a given language.

Correlation between vowels and tone (if any).

#### 2.1.2. Consonants

A consonant chart.

Topics which deserve special attention (if relevant):

Are there any distributive restrictions related to the consonants types? *For example, in Guro (South Mande), words with initial voiced consonants (depressors) do not appear with H tone (or do it very rarely), and words with initial voiceless consonants and sonants (anti-depressors) do not appear with L tone.*

Role of different groups of consonants in establishing boundaries of tonal spans.

### 2.2. Prosodic units

#### 2.2.1. Syllable and mora

What is the minimal prosodic unit (MPU) in this language?)

*MPU is the smallest prosodic unit relevant for surface realization of tone. It is either syllable or mora.*

*By default, the MPU is considered to be a syllable, unless the contrary is not proven. If the mora is relevant for the tonal system of a language, this must manifest itself somehow in the alignment of the tonal spans or tonal melodies, in the choice of the variants of tonal morphemes, etc. So far, the following criteria for the relevance of mora as MPU have been formulated:*

*1. If there is a tonal process where the number of realized tonal targets of a morpheme depends on the number of morae in the segmental chain, mora is MPU.*

*E.g., in Bunoge (Dogon) the tonal marker of the head noun in an NP is L if the word contains 1 or 2 morae (CV, CV:, CVCV) or LHL if the word contains 3 or 4 morae (CV:CV, CVCVCV, CVCVCV).*

1. *If there is a tonal process where the position of tonal target is defined taking into account the number of morae in the segmental chain, mora is MPU.*

*E.g., in Aukshtaitish Lithuanian, when the locative case marker é is optionally deleted, its H tone shifs to the final mora of the preceding heavy syllable: tam-é* ‘where’ → *taḿ.*

*If the MPU is the mora, it does not mean that other units of the prosodic hierarchy (in particular, the syllable) are not relavant for the tonal system. For example, in Iquito there is only one toneme, HLL, which is mapped onto three adjacent morae. The initial H and the final L then spread one mora to the left nad to the right respectively, but only within same syllable. E.g., /*aɾiíkùmà*/*‘shoulder’ → [aɾ**í**íkùmà]/amárìjàana/ ‘year’ → [amárìjà**à**na] (rather than \*[ámárìjààna]).

Syllable structure. Discuss the problems that exist in segmentation into syllables and (if relevant) into morae.

#### 2.2.2. Foot

Is there such a unit as prosodic foot? If it exists, what are its characteristics? Does it play any role in tonal distribution? (i.e., are there tonal rules sensitive to feet boundaries?)

*It should be taken into account that a prosodic foot is not necessarily related to stress, see in particular* (Culhane 2023; Vydrine 2010; Vydrin 2020)*.*

*In the languages of Southeast Asia, sesquisyllables can be regarded as equivalents of feet. In a foot, recessive syllables can display different degrees of reduction: in some languages, a full inventory of tonemes can appear on recessive syllables (although realizations of the tonemes may be of a lower intensity); in others, the inventory of tonemes on recessive syllables may be reduced (e.g., only two tonemes out of 4 or 6); elsewhere, recessive syllables may be toneless.*

#### 2.2.3. Word

Criteria for a word in the language under analysis.

*In our study, we are interested primarily in prosodic word (rather than morphological, orthographic, etc.). Please explain, on what grounds a prosodic word is defined in the analyzed language.*

*In some languages, a word can be of little relevance (e.g., in Vietnamese, a word usually coincides with a syllable, and in Dan, with prosodic foot). For such languages, please, report cases (even marginal) where it may be still necessary to assume the existence of a word larger than a syllable/foot.*

*Example: in Eastern Dan, a prosodic word usually coincides with a prosodic foot. There are however several phonotypes of adjectives consisting of two feet (sometimes more) characterized by specific tonal melodies, and these melodies are certainly indicators of wordhood, e.g.: dɛ́ŋ̏dɛ̏ŋ ‘flat’, díŋ̏dȉŋ ‘numb’, etc.*

## 3. Tonal inventory

In our project, we attempt to specify the meaning of the basic terms of tonology, in particular, the term of **tone**.

We use this term

* in an abstract sense: Tone is a system of linguistic oppositions based on the pitch difference (e.g., “language X has tone”);
* in a specific sense: Tone is a tonal level or contour of underspecified phonological status.

*This latter use of “tone” is still somewhat informal. Regarding the Jamsay Dogon form* tégêː *‘s/he was/is/will be talking’, it is equally valid to say that the final mora has a L tone, that the final syllable has a HL (falling) tone, or that the whole word has a HL tone.*

*To designate the acustic reality (the F0 curve), it is preferable to use the term* ***pitch*** *(rather than tone), to avoid an ambiguity.*

**Tonal level** is a distinctive pitch range relevant for the tonal system.

**Tonal contour** is sequence of tonal levels.

**Toneme** is a basic unit of tonology which can distinguish lexical and/or grammatical meanings.[[1]](#footnote-1)

*We analyze the aforementioned Jamsay Dogon form* tégêː *‘s/he was/is/will be talking’ as containing exactly two tonemes: H spanning the first two morae and L on the final mora* (Gerasimov 2024)*.*

### 3.1. Character of tonal system

Can the system be characterized as (predominantly) level-based or contour-based?

3.1.1. If it is a (predominantly) level-tone system, how many levels does it count?

*Please, use the following universal notation:*

|  |  |  |  |
| --- | --- | --- | --- |
| Number of levels | Symbolic representation | Tone names | Diacritics |
| 2 | H L | High, Low | á, à |
| 3 | H M L | + Mid | á, ā, à |
| 4 | xH H L xL | + extra-High, extra-Low; - Mid | a̋, á, à, ȁ |
| 5 | xH H M L xL | + Mid | a̋, á, ā, à, ȁ |
| 6 | xxH xH H L xL xxL | + super-High, super-Low; - Mid | ? |

Please, present the “traditional” notation as well (if available), and explain its correspondence to the universal notation (i.e., formulate the rule of the convertion from the “traditional” to the universal notation).

*The number of tonemes (even level tonemes) may differ from that of tonal levels. For example, it is typical of privative systems of the Bantu type to have two tonal levels (L and H) and only one level toneme (most often, H, but in some languages, L). In Babanki (Wide Grassfields < Southern Bantoid < Benue-Congo < Niger-Congo), there are 4 tonal levels and only 2 level tonemes (H, L): the M tone only arises as a realization of the combination /HL/ hosted by one syllable, while xL is only attested phrase-finally as part of the LxL realization of /L/* (Akumbu & Vydrin 2024)*.*

3.1.2. Are there contours hosted by one MPU?

*Arguments for and against their tonemic status are discussed in §3.2; please don’t discuss this question here.*

*For designation of simple tonal contours, please use combinations of the letters suggested in §3.1.1, and simple diacritics: circumflex (â) for the falling contour, HL, and hachek (ǎ) for the rising tonal contour, LH.*

*For richer contour systems, please, use combinations of numbers from 1 to 5, where 1 stands for the lowest level, and 5, for the highest. For example, in Wobe (Kru < Niger-Congo):* pa41 ‘cocoon’, pa42 ‘to carve (intr.)’, pa43 ‘to carve (tr.)’, pa32 ‘to enter’ (Bearth & Link 1980).

### 3.2. Inventory of tonemes.

Please, enumerate all tonemes of the language, and mention their regular allotones.

For each toneme, enumerate the criteria of tonemicity it complies with. For each case, please either provide diagnostic examples or make references to subsequent sections (e.g., §6.1 on tonal rules), where relevant data is discussed in more detail.

There are three types of criteria for toneme identification.

1) A **general criterion**.

**– The Persistence Criterion:**If a tone on a single MPU is contrastive and it persists in all contexts (i.e., it is not affected by tonal processes which could be regarded as criteria of tonemic status), it is considered to be toneme.

***Tonal process*** *is a situation where an item of mental lexicon (morpheme, stem, word, etc.) in different contexts has surface realizations that are not phonologically equivalent with respect to tone. There are two classes of tonal processes:*

*i) Surface mapping of tonemes onto MPUs crosses the segmental boundaries of their host items.*

*ii) The toneme within the limits of an item is changed, created or deleted in a specific tonal context.*

*This criterion is crucial for those languages where tonal processes are lacking or marginal. It is applicable both to level and contour tones.*

2) **Contour criteria** are designed to distinguish between contour tonemes and combinations of level tonemes.

– **The Non-Compositionality Criterion**: If a language has a tonal contour realized on one MPU composed of levels at least one of which is not available in this language as a toneme, this contour is a toneme.

**The Holistic criterion:** If a tonal specification of a morpheme consists of a sequence of tonal targets, and none of the targets can be shown to constitute a toneme in the language, this sequence is a toneme.

**– The Extensibility Criterion:** If a contour toneme is attested on a prosodic unit (foot, prosodic word) consisting of a single MPU, this contour also represents one toneme when it is hosted by a longer segmental unit belonging to the same level of the prosodic hierarchy.

*Example: In Dom (< Chimbu-Wahgi < Nuclear Trans New-Guinea) both monosyllabic and plurisyllabic words can host three distinct tonal melodies: H, LH, HL (Gerasimov 2025).*

|  |  |  |  |
| --- | --- | --- | --- |
| Toneme | 1 syllable | 2 syllables | 3 syllables |
| /H/ | *ká* ‘word’ | *ékú* ‘afterwards’ | *ŋgúmáná* ‘nose.1sg.poss’ |
| /HL/ | *káà* ‘name.3sg.poss’ | *jópà* ‘tree (sp.)’ | *mólíŋgwâl* ‘be.3pl.loc’ |
| /LH/ | *tàá* ‘dawn.inf’ | *àpál* ‘woman’ | *àupàlé* ‘sister.3sg.poss |

*In languages with extensible tonemes, a tonal span need not necessarily be identified with a prosodic word. E.g., in Bambara, about 90% of words coincide with tonal spans, but there are also some words which host more than one tonal span; on the other hand, a tonal span can extend over the limits of one word. And still, the interpretation of the tonal system in the terms of tonal contours as single tonemes with extensible tonal spans remains coherent.*

3) **Non-zeroness criteria**

These criteria concern mainly (but not exclusively) level tones and are meant to answer the question: does a tone have a tonemic status or is it phonologically a zero? The following criteria of the tonemic status are applied:

– **The** **Floating Criterion**: If a tone can float, it is a toneme or a part of a toneme (*a negative formulation is also acceptable: “a zero tone cannot float”*);

– **The** **Shared MPU Criterion**: If two level tones can be assigned to one MPU, each tone is a toneme or a part of a toneme, and neither is Ø. *This criterion is applicable to tonal contours whose status of single tonemes has not been confirmed along the creteria for the contour tonemes, see above.*

– **The Activity Criterion**: [[2]](#footnote-2) If a tone is able to surface outside its host segment or trigger a tonal change outside of its host segment, it is a toneme or a part of a toneme. *This criterion can be represented in a simplified formulation: only tonemes, but not zero tone, can trigger tonal processes.*

– **The Tonal Morpheme Criterion**: An additive or replacive tonal (non-segmental) morpheme contains at least one toneme. *For a complex tonal morpheme, we exclude the interpretation that any of its component tones could be a zero tone.*

*If a tonal system in question has two tonal levels, and only one can be recognized as a toneme, and the other one is a zero tone (i.e., a tone which is not a toneme), such a system is privative, i.e. (H, Ø) or (L, Ø). If both tones are tonemes, it is omnitonal (L, H; the term “omnitonal” was recently coined by Larry Hyman). A system with three or four level tones can be also interpreted as including two tonemes and a Ø tone (H, L, Ø) (Yoruba seems to have such a system).*

The criteria above are based on the most general theoretical expectations about the toneme as an item of the phonological inventory and about its relation to the segmental chain. We postulate the following **toneme properties:**

– Sequentiality: *Tonemes follow each other, but do not overlap.*

– Integrity: *One MPU cannot bear more than one toneme if no tonal process is involved*. *If a MPU is involved in a tonemic contrast, it is involved in it completely*.

– Scalability: *A toneme can be extended to multiple consecutive MPUs. Two consecutive tonemes can be compressed onto one MPU.*

– Non-obligatoriness: *Not every MPU is necessarily associated with a toneme.*

– Continuity: *A toneme is realized on an uninterrupted sequence of MPUs.*

– Conformity: *Tonemes in a language tend to occupy entire prosodic units belonging to a certain level (syllable, prosodic foot, or prosodic word)*.

### 3.3. Floating tones

Among the definitions of the floating tones, the most appropriate seems to be that by Rolle & Lionnet (2020): “Floating tones are defined as tones in a representation which are not associated to a tone-bearing unit. This representation may be either part of the underlying form of a morpheme, or arise at some derivational stage. If a constraint against floating tones is ranked high enough, at a point in the derivation floating tones will be either associated to some specific TBU and realized, or will be deleted/unrealized.”

Are there floating tones in your language? To which level of representation can they be attributed? *(the basic underlying level? an intermediate level, where a floating tone can result from tonal processes, such as toneme delinking?)*

Realizations of floating tones. *Which are the rules of their association to the segments at the surface level?*

Functions of floating tones. *Do they represent separate tonemes or constitutive elements of tonemes? Do they represent tonal morphemes?*

### 3.4. Downdrift and downstep

Do the phenomena of downdrift and downstep appear in the language in question? What are their triggers and targets?

***Downdrift*** *is an automatic lower realization of a tone after another tone. Most commonly, a H tone is realized lower after the preceding L.*

*The same term is sometimes used to refer to gradual lowering of pitch towards the end of a prosodic phrase or utterance. We prefer to employ the less ambiguous term* ***declination*** *for the latter phenomenon.*

***Downstep*** *is a lower realization of a tone without a visible trigger. It is most often analyzed as a surface realization of a preceding floating L tone, but other accounts are possible (e.g. as a dissimilation effect, see* (Gussenhoven 2004: 104)*). This phenomenon is very important, because it usually indicates the presence of a toneme and/or tonal process that may not be identifiable otherwise.*

*There have been reports of languages where downstep is an independent feature in the tonal specification of some morphemes, possibly in itself constituting a toneme, see* (Lionnet 2022) *on Paicî,* (Rochant 2023) *on Baga Pukur. It still remains an open question how to best analyze such lexically specified pitch lowering and whether “downstep” remains a suitable label for it. If your language has similar phenomena, please discuss them here.*

### 3.5. Upstep.

Is there upstep in your language? If there is, please, describe how it manifests itself.

***Upstep*** *is the reverse of downstep: if followed by L, a H tone can go up in pitch.*

*An alternative understanding of the upstep (“upsweep”): a sequence of H tones begins quite low and reaches an ultimately H pitch level (Hyman & Leben 2021: 51).*

### 3.6. Other suprasegmental features of tonemes, apart from pitch. Interaction of tonemes and phonations. Registers

Phonation and other laringeal features. If the language has these features, can they be regarded as integral parts of tonemes, or are they independent?

Does your language have registers?

*Registers (a term widely used in the study of Southeast Asian languages) are more or less abstract notion, it may have variable manifestations: pitch, laringeal features, vowel quality or quantity; for a survey see* (Kirby & Brunelle 2017)*. If you language has registers, please describe their phonetic manifestations, especially with respect to the interaction with pitch.*

*The term “register” is sometimes also used in a different meaning, as a basic pitch level in relation to downstep and similar processes* (Snider 2020)*. In this section, we use the term “register” in the SE Asian sense.*

## 4. Tonotactics: tonal span, tonal phrase

### 4.1. Tonal span boundaries

Tonal span is the part of the segmental chain on which a toneme is realized on the surface level.

#### 4.1.1. Tonal span size

What can be the size of a tonal span (in syllables or morae)? Please, indicate its minimal and maximal size (if relevant).

*The size of a tonal span can be Ø, if, for example, a floating low tone is realized as a downstep. If two tonemes are realized on one MPU (i.e., if we have a contour which is interpreted as a combination of two level tonemes), the size of a tonal span is ½. In some languages, the upper size of a tonal span is theoretically unlimited.*

#### 4.1.2. Establishment of tonal span boundaries

Are there tonal rules that affect the boundaries of tonal spans? Please, mention such tonal rules, if available (with reference to §6.1).

#### 4.1.3. Tonal spans and prosodic units

Two kinds of correspondence between the tonal span and prosodic units can be imagined:

a) Coincidence: tonal span limits obligatorily coincide with the limits of a prosodic unit (e.g., in Vietnamese, a tonal span always equals a syllable).

b) Conformity: a tonal span tends to occupy the entire prosodic unit of a certain level (cf. the conformity as a toneme property mentioned in §3.2). *The conformity can manifest itself through tonal rules (e.g., there may be a tonal spreading rule resulting in the extension of the limits of a tonal span to entire foot or word, etc.), or in the mapping of grammatical tones (e.g., in Eastern Dan, replacive tonal morphemes are always mapped onto the entire foot).*

Please, mention if there is any kind of correspondence between tonal spans and prosodic units (mora, syllable, prosodic foot, prosodic word, prosodic phrase)? If such a correspondence exist, specify which type of correlation is available (coincidence or conformity). For conformity, please, specify how exactly it manifests itself.

*Less probably, there might be a correspondence between other types of units: morpheme, root, stem, morphological word. If such a correspondence is available in your language, please, characterize it.*

### 4.2. Combinations of tonemes. Tonal melodies

If boundaries between tonal spans and word/prosodic foot boundaries do not coincide: are there restrictions on combinations of tonemes within a word/foot?

Is the notion of tonal melody relevant for the language in question?

*In our terminology, a* ***tonal melody*** *can be preliminarily defined as a stable combination of tonemes mapped on a segment (most often, a word) of a variable size. The notion of tonal melody is close to that of a restriction on combination of tonemes in a word.*

### 4.3. Extratonal syllables

Are there extratonal syllables (i.e. syllables not included into tonal spans)?

*In some theoretical models, if a tonal span exeeds one MPU, all its MPUs but one can be considered as underlyingly toneless; but this is not what is meant here. Extratonal syllables are those which do not belong to any tonal span on the surface level.*

If yes, how are they tonalized at the surface level? Options:

* they obtain a default tone (which is not a toneme),
* they are tonalized through polarization, and the tones generated through polarization are not tonemic;
* other?

### 4.4. Tonal phrases

Are there tonal phrases (i.e., a syntactically defined phonological phrase) in your language where some tonological processes occur? *If yes, please, describe these processes.*

## 5. Stress and tone; culminativity; prominence; obligatoriness

*(We avoid the term “accent” which is vague and variably defined by different authors; seemingly, the realities usually represented in the terms of “accent” can be more precisely represented through other notions.)*

### 5.1. Culminativity

Is tone in the language in question culminative? *Culminativity means that there can be, at maximum, only one toneme (underlying tone) per word. Culminativity does not require every word to have a toneme; a system can be regarded as culminative even if there are toneless words.*

### 5.2. Stress

Does the language have stress? *(Stress is obligatory, it must be present in every prosodic word; it is also culminative: a word can have only one (main) stress. Stress is necessarily associated with an entire syllable, rather than a mora.)* If the language has stress:

5.2.1. How is stress expressed? (pitch; vowel length; vowel inventory, consonant length and/or inventory, etc.)

5.2.2. Is position of stress fixed or free?

5.2.3. If it is fixed, what is its position?

5.2.4. If position of stress is free, does it change in inflexional paradigme? through derivation?

5.2.5. Does the language have secondary stress?

5.2.6. Is there any correlation between stress and tonal distribution? (e.g.: tonal contrasts are manifested only on stressed syllables; position of the tonal span is predictable with relation to the position of the stress; tone and stress do not correlate; other?).

5.2.7. For pitch-stress languages: are there stressed syllables on which the tonal contrast is not manifested?

*For the pitch-stress languages, the accentuation rules are usually formulated in terms of “recessive” and “dominant” (“strong”, “accent-attracting”, etc.) syllables. Please, convert this into the format of tonal rules. E.g., in Aukshtaitish Lithuanian, according to the “accentual” interpretation, syllables are subdivided into dominant and recessive. If a word contains a dominant syllable, this syllable is stressed (and if there are two dominant syllables, the first one is stressed). If there is no dominant syllable in a word, the first recessive syllable is stressed. According to our interpretation, dominant syllables are underlyingly tonal (i.e., tonemes are associated with them). Thus if a dominant syllable surfaces as toneless, this must result from a toneme deletion rule. If a recessive (underlyingly toneless) syllable surfaces as tonal, we must postulate a toneme creation rule.*

### 5.3. Positional prominence

(For languages that have no stress:) Is there any kind of positional prominence? *Stress is also a kind of syllabic prominence which is obligatory. Here, we speak of syllabic prominence which is not obligatory (i.e., a prosodic word can have no prominent syllable).*

### 5.4. Obligatoriness of tone

(For the languages which have no stress:) Is this language characterized by obligatoriness of tone? *The obligatoriness means that any prosodic word either bears at least one toneme or is included into a tonal span of a neighbouring word.*

## 6. Tonal rules. Segmental rules which have impact on tones

### 6.1. Tonal rules (tonal processes)

List all the tonal rules relevant for your language (normally, rules explain the passage from underlying tonemes to their surface realizations) and describe their sequence (for each rule, indicate which other rule it follows) and constraints on their application.

For each rule, indicate if it affects the tonal density (through erasing underlying tonemes, etc.).

Tonal rules:

* tonal spreading,
* tonal shift,
* toneme copying,
* toneme delition,
* fusion of tonemes,
* plateauing,
* Obligatory Contour Principle (polarization),
* toneme creation.

If application of a tonal rule is conditioned by morphosyntactic factors (part of speech to which a word belongs, etc.), please, mention this fact.

### 6.2. Segmental processes affecting mapping of tonal spans

List the rules concerning segmental units which affect the mapping of tonal spans (e.g., a vowel elision resulting in resyllabification, thus increasing or decreasing the number of syllables).

### 6.3. Tone and intonation

If there are some processes where intonation influences tonal realizations (or vice-versa), they should be presented here.

*Otherwise, intonation is out the scope of our study. In other words, if there is no noticeable interaction between intonation and tones, you don’t need to describe the intonation.*

## 7. Grammatical and lexical tones

### 7.1. List of grammatical tonal morphemes

List grammatical tonal morphemes in the language under study. How do they affect TDI?

Please, specify the unit on which a tonal morpheme is realized:

- syllable

- prosodic foot

- prosodic word

- tonal phrase

*Grammatical tonal morphemes can be replacive or additive. A replacive tonal morpheme erases a lexical tonal contour on a segment and replaces it. An additive tonal morpheme is docked on a segment without erasing its lexical toneme.*

*An auxiliary morpheme can be of a mixed, tonal and segmental, nature. E.g., in Hausa, there are suffixes which impose a tonal contour on the entire word-form. For example, for the Class 7 nouns, plural is formed through adding suffix -annii and a tonal contour LH on the entire word (sg. máakòo 🡪 pl. màakwànníi* ‘week’). *This is a “mixed” (segmental + tonal) morpheme: -anniiLH.*

*This situation is not to be confounded with the cases where a toneme is assigned underlyingly to a segmental affix and is mapped on this affix superficially; what we have here is a mere lexical tone of the affix.*

### 7.2. Tonal paradigms

If there are tonal grammatical paradigms, describe these (however, if such paradigms are very bulky, their detailed presentation may be superfluous for the understanding of the functioning of the tonal system and calculation of TDI; in such case, a concize presentation may suffice).

### 7.3. Lexical tones

Does language have lexical tones? *The great majority of tonal languages have lexical tones (and often enough, only lexical tones are available). However, there are also languages where lexemes and have no lexical tones; they are tonalized by grammatical tones or through tonal processes.*

If a language has lexical tones, but there are words without lexical tone, please specify what kind of lexemes are toneless:

* grammatical classes of lexemes;
* words of similar origin (borrowings, lexifiers);
* randomly distributed?

*If there are no toneless words in the language, please, say it explicitly.*

### 7.4. Tonal specification of bound morphemes

#### 7.4.1. Toneless bound morphemes

Are there underlyingly toneless morphemes? (i.e., morphemes to which no toneme is attributed at the underlying level)

If there are, how are they tonalized superficially? *Whenever necessary, refer to the appropriate tonal rules described in §6.1.*

#### 7.4.2. Tonally specified bound morphemes

Are there tonally specified bound morphemes? If there are, explain how their tonal interaction with the stems.

## 8. Tonal classes of words

### 8.1. Differentiation of parts of speech by tone

Are there any differences in the tonal behavior of words belonging to different parts of speech? E.g. some tonal combinations are allowed only on verbs or on adjectives; some word classes may have no lexical tones (verbs in certain African languages), etc.

### 8.2. Tonal classes of words (not necessarily related to the part-of-speech attribution)

In some languages words are divided into classes (which may correlate with their division into parts of speech, but not necessarily), and members of these classes differ in their tonal behavior (in a way that this difference cannot be explained through floating tones). For example, in Mwan (< South Mande < Mande < Niger-Congo), there are two tonal classes: “constant” (words with unmodifiable tones) and “mobile” (words with tones sensitive to grammatical context), see (Perekhvalskaya & Vydrin 2024). Are there tonal word classes in your language? If there are, describe their particularities.

## 9. Diachrony of tone

Provide any data on the diachronic processes in the tonal system if available. (For languages without long written tradition, as a rule, such data are absent. For such languages, if there is any attempt of tonal reconstruction, its results can be given here.)

## 10. Traditional representation of tone

### 10.1. Representation of tones in (local) linguistic tradition

Present concisely the tradition of description of tone in the language (if any) and try to put the traditional notions and terminology in correspondence with those used in the current model.

*This section is intended to cover both (a) vernacular terminology used by native linguists; and (b) traditional terminology specific to the study of the language/family/area, which may not be familiar to general linguists or experts on other tonal languages.*

### 10.2. Tonal notation in the writing

Are tones marked in the practical orthography of the language in question (if any)? If they are, describe the principles of the practical tonal notation. How does it correspond to the “tonemic” notation?

If the tonal notation is “indirect” (the orthography is not designed to distinguish tones, but still gives some information about them), please, mention this fact.

If possible, provide the following information (very shortly):

– when the writing system was created;

– what is its real status in the language community (is it currently used in different spheres of life, or is it only known to a few activists of the literacy campaign, etc.).

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1. In some languages, a toneme can be also characterized by other features (e.g., phonation), however, it necessarily contains a distinctive pitch (otherwise, it cannot be considered a toneme). [↑](#footnote-ref-1)
2. The activity criterion was first formulated by Hyman (2000) as “tonal rule feature” (“if the opposition is /H, Ø/, tone rules should refer only to H’s”), which we took as a departure point, and further elaborated. [↑](#footnote-ref-2)