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Lexicalisation of temperature concepts in Gbaya,
(an Ubanguian language of C.A.R.)

Abstract

The chapter provides a systematic description of the temperature terms found in Gbaya, an Ubanguian language spoken in Central Africa. Gbaya has very few nouns and verbs dedicated to temperature but many adjectives – verbal adjectives and ideophonic adjectives. I first present the word classes and the syntactic constructions involved in expressing temperature and examine the different systems of temperature terms with respect to the following five domains: weather conditions, body-parts, the house, food, and water. I then indicate the main cultural specificities or metaphors used to refer to temperature. In conclusion, the domain of temperature is organised opposing two levels WARM / COLD and it is only by juxtaposing the many lexical and syntactic possibilities that an understanding of ways of expressing temperature emerges.

1. Introduction

The Gbaya languages according to the classification of Greenberg, belong to the group 1 of the oriental branch of the sub-family 6 “Adamawa oriental” of the Niger-Congo family, which today are called Ubangian languages. The specific dialect I am studying is Gbaya ’Bodoe as spoken in the Republic of Central Africa (see Map 1).

This introductory section presents the basic information necessary to contextualize the language and the culture.

The Gbaya people are hunters, gatherers and cultivators who live in the West part of the Central African Republic in small villages. Living at a high altitude in a tropical zone of luxuriant savanna, the Gbaya people have all year long an average temperature of 26°C. The nights may be cold, particularly in the dry season. The Gbaya are not accustomed to very hot temperature and complain about it when it goes over 30°C, which only happens at the end of the dry season (end of February).

Gbaya is an isolating language with weak morphology. It is a tonal language with two basic levels, high (´) and low (´). There is a supra-segmental tonal determiner – a high tone noted (D) in the glosses – which occurs between various elements modifying the tonal melody of the first element
Map 1. The gbaya languages depending on the tone of the second one. It is an SVO language, which also makes use of non-verbal predication. Gbaya verbs always express a process where the obligatory subject is either external to the process (transitive construction = transitive voice) or included in the process (intransitive construction = middle voice). Verbs have no lexical tones thus tones on the verb are grammatical elements (TAM). While the verbal predication is dedicated to processive predication, the non-verbal predicates include an essential predicate (PRED.ESS)\(^1\), a locative predicate (PRED.LOC) and presentative particles. There is also a nominal predication expressing possession\(^2\). Gbaya has a clear distinction between verbs and nouns and has three categories of adjectives that may be used both attributively and predicatively as I will develop below.

The present paper is based on natural discourse data collected in the field between 1970 and 2012.

2. Word classes and syntactic constructions

2.1. Nouns

Gbaya has two basic nominal concepts of temperature, opposing the noun \(gëë\) ‘cold’ to the noun \(wëë\) ‘heat’. The noun \(gëë\) ‘coldness’ refers to the

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\(^1\) In the glosses, the point is the morphem separator. The glosses that are not in the Leipzig Glossing Rules are: D = Tonal modifier, PRED.ESS = essential predicate, PRED.LOC = locative predicate.

prototypical meaning, while the noun wèè primarily refers to the permanently hot object ‘fire’ from which the temperature term ‘heat’ has developed, as seen in (1) and (2).

(1)  yì bàá gèè.
    water PFV.catch.D cold
    ‘The water is cold.’

(2)  yì bàá wèè.
    water PFV.catch.D fire = heat
    ‘The water is hot.’

Both nouns are used as object of the transitive verb ba ‘to take, to catch’ to express that the subject, be it an entity or the experiencer (expressed by the noun tɛ meaning ‘body’) is cold or warm. Thus, when the subject is the human body, it expresses the personal-Feeling temperature:

(3)  tɛm bàá gèè.
    body.D.1SG PFV.catch.D cold
    ‘I am cold.’

(4)  tɛm bàá wèè.
    body.D.1SG PFV.catch.D fire = heat
    ‘I am hot.’

These two terms can also be the subject of the verb ye ‘to enter’ to express the intense feeling of cold and heat on the part of the experiencer:

(5)  gèè yèè sôróm.
    cold PFV.enter.D sensation_of_fullness
    ‘He is frozen to the bones.’

It should be noted that the term sôróm refers only to personal-feeling and is required.5

(6)  wèè yèè sôróm.
    fire = heat PFV.enter.D sensation_of_fullness
    ‘He is very hot.’

These are the only two parallel constructions accepted by these nouns. Determined by the definite marker -à: gèè (cold.D.DEF) means ‘its cold’ and wèè (fire = heat. D.DEF) means ‘its heat’ or ‘its fire’ depending on the context. In a locative construction, gèè keeps its value of ‘cold’ referring to

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3 In the glosses, the English verbs are written without ‘to’: ‘catch’ and not ‘to catch’.
4 It is most often a human body, it may also be the body of an animal.
5 Another stimulus could be ‘food’, as in ꋲ yèè sôróm (food PFV.enter.D sensation_of_fullness) ‘He is completely full’.
ambient temperature but \textit{wèè} cannot refer here to ambient temperature but only to its basic meaning ‘fire’.

(7) \textit{gëë} \, ?á \, sènè  \\
    \textit{cold} \quad \textit{PRED.LOC} \quad \textit{inside}  \\
    ‘It’s cold.’

(8) \textit{wèè} \, ?á \, sènè  \\
    \textit{fire} \quad \textit{PRED.LOC} \quad \textit{inside}  \\
    ‘There is a fire.’

Furthermore \textit{gëë} has an extension in the lexical field of illness meaning then ‘fever’. So it can be the subject of the transitive verb \textit{de} ‘to make’ which has the experiencer as object in (9) or be the second term of a nominal sentence in (10).

(9) \textit{gëë} \, dëè \, wí.  \\
    \textit{cold} \quad \textit{PFV.make.D.} \quad \textit{person}  \\
    ‘One is feverish.’

(10) \textit{wèwèi} \, ?áá \, nè \, \textit{gëë}  \\
    \textit{man} \quad 3\text{SG.TOP} \quad \textit{with} \quad \textit{cold}  \\
    ‘The man caught a cold.’ (from cold to illness)

These two nouns are among the few Gbaya nouns that can be used, without any formal modification, as an adjective in an attributive construction.\footnote{Used as adjectives, they can never be used in a predicative construction.} Both express the property by conversion when placed before the noun they determine. In the following attributive constructions they mean then ‘cold’ and ‘hot’:

(11) \textit{gëë} \, yì  \\
    \textit{cold.D} \quad \textit{water}  \\
    ‘Cold water’

(12) \textit{wèè} \, yì  \\
    \textit{fire = heat.D} \quad \textit{water}  \\
    ‘Hot water’

2.2. Verbs

In section 2.1 we saw examples where ‘heat’ and ‘cold’ appear with three different verbs which meaning is not dedicated for expressing temperature: \textit{ba} ‘take’, \textit{ye} ‘enter’ and \textit{de} ‘make’. In this section we will look at five verbs
which meaning focuses specifically temperature when used in an
intransitive construction with a specific subject. These subjects have an
expected neutral temperature which serves as a point of reference in
evaluating the way temperature raises or falls. So do water, body, weather
and food, but not house. Thus this domain is not concerned. Verbs do not
refer to a specific value as nouns do but indicate a change of temperature
(see Table 1).

Table 1. Verbs of temperature

<table>
<thead>
<tr>
<th>Temperature</th>
<th>V intr</th>
<th>meaning</th>
<th>possible subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLD</td>
<td>dengi</td>
<td>to cool down</td>
<td>water body weather (thing)</td>
</tr>
<tr>
<td></td>
<td>ga</td>
<td>to get colder</td>
<td>water body weather (thing) food</td>
</tr>
<tr>
<td>WARM</td>
<td>wosi</td>
<td>to get slightly warm</td>
<td>water</td>
</tr>
<tr>
<td></td>
<td>gbenŋ</td>
<td>to warm up, to heat up</td>
<td>body</td>
</tr>
<tr>
<td></td>
<td>kpɔr</td>
<td>to get very hot</td>
<td>water weather (sun)</td>
</tr>
</tbody>
</table>

Most of these verbs are specific to some subjects and cannot be used
with all of them as I will show.

Water, as rain or water river, is cold, but when it stays in the sun, it
warms up: wosi ‘to get slightly warm or lukewarm’, and when it is put on
fire it gets very hot: kpɔr ‘to get very hot’. After reaching a certain degree of
heat or warmth, an object’s temperature—may go down, as expressed by the
verbs dengi ‘to cool down’ and ga ‘to get colder’.

For the human body, the verb gbenŋ ‘to heat up’ expresses the process of
warming up that always refers to sweat. The cooling of the hot body is
expressed by two verbs: dengi ‘to cool down’ and ga ‘to get colder’.

For weather, is it the permanent hot object, the sun, that is the subject
of the verb kpɔr ‘to be very hot’ to express a very hot temperature. On the
other hand, when the weather is ‘getting cool or cold’, the verbs dengi or ga
are used with the term mɔ ‘thing’ as subject to refer to the ambient cool
temperature.

It is only the verb ga ‘to get colder’ that can be used with food as subject
referring to tactile temperature.\(^7\) It always expresses the process of cooling, as
in the following examples.

(13) ʔám ʔèè ḥá kpɔ́́ó ɡá së.

‘I let the meal cool down first.’

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\(^7\) And hot iron too which gets colder when put in water.
Section 3 illustrates the use of these verbs and the domains to which they refer.

2.3. Adjectives

Gbaya has three subclasses of adjectives\(^9\): (i) a closed word class of primaliry adjectives exclusively expressing a primary state [raw, new, crude...] and two open word classes of adjectives including (ii) adjectives derived from verbs that express quality as the result of the process of the verb and (iii) ideophonic adjectives whose original lexical form is well established and stable, that express all the qualities, including those already expressed by the two other subclasses. They are particularly used to convey the notion of degree; they can also often associate more than two semantic values such as ‘tall and heavy’, ‘big and high’, for instance; or they can be specific to a referent (‘swollen for a short element’, ‘swollen for a long element’, etc.). Thus the quality WHITE is conveyed by the adjective bú ‘crude, white’, by the verbal adjective fëŋ ‘faded, whitened’, by the ideophonic adjectives mbûyêlê ‘white [temporary]’, ndâl-ndâl ‘very white’ and ñânàŋnûŋ ‘with white patterns against red’. From a syntactic point of view, these three categories can be used in an attributive construction – placed as attribute before the noun that they qualify –, and can all be nominalised producing a derived noun (for ex. ‘white’ will give ‘the white one’). However, they have different ways of being used in a predicative construction – being complement to the copular verb ñô which means primarily ‘to lie’. All of them can, depending on variety of modalities, be used as adverbs (like the -ly adverbs in English).

There is no primaliry adjective referring to temperature. The temperature adjectives in Gbaya are either (i) verbal adjectives (VA), or (ii) ideophonic adjectives (IDEO.A). All of them express a temporary concept characteristic of an entity opposing two levels WARM / COLD.

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\(^8\) In Gbaya transcription the hyphen is used to link the elements of a compound name, as in the French transcription for ‘œil-de-boeuf’ for example.

\(^9\) Cf. Roulon-Doko (2001) and (2008)
2.3.1. Verbal adjectives

Each of the temperature verbs presented above (see Table 1) produces a verbal adjective (VA) that expresses temperature as the result of the process of the verb they are derived from. Table 2 shows that there are five VAs expressing temperature (3 for WARM and 2 for COLD) which are only used within four domains of temperature, water, body, sun and food.

Table 2. Verbal adjectives of temperature

<table>
<thead>
<tr>
<th>Temperature</th>
<th>VA</th>
<th>meaning</th>
<th>specific to</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLD</td>
<td>dëngää</td>
<td>cooled down</td>
<td>water</td>
</tr>
<tr>
<td></td>
<td>gă</td>
<td>cool, cooled down</td>
<td>water</td>
</tr>
<tr>
<td>WARM</td>
<td>wósá</td>
<td>slightly warm</td>
<td>water</td>
</tr>
<tr>
<td></td>
<td>gbëñá</td>
<td>warm, heated up</td>
<td>body</td>
</tr>
<tr>
<td></td>
<td>kpɔrá</td>
<td>very_hot</td>
<td>water, sun</td>
</tr>
</tbody>
</table>

The use of these verbal adjectives no longer refers to the process they come from, rather, they only have a qualifying meaning as in the case of other adjectives. They are more often used in an attributive phrase as kpɔrá wèsé (very_hot/sun) ‘scorching sun’, dëngää kafë (cooled_down/coffee) ‘cold coffee’, wósá yì (slightly_warm /water) ‘tepid water’, gbëñá tè (heated_up/body) ‘sweaty body’ and gă as in the example below.

(16) ʔám ṭàŋ’á dàŋkálè
      1SG PFV.eat.D cold sweet_potatoe
      ‘I ate a cold sweet potato.’

Used in a predicative construction the VA has to be nominalised and preceded by the instrumental nè ‘as’.

(17) ɲòŋ-mò nè gáà
      meal as cold.NOMINALIZER
      ‘The meal is cold.’ (lit. meal as the cold one)

(18) yì bé nè wósáà ná
      water IPFV.can_be as slightly_warm.NOMINALIZER NEG
      ‘The water is not tepid.’

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10 The VA wósá ‘slightly warm’ that can be translated by ‘tepid’ or ‘lukewarm’ is the first step of warming up for water.
11 But it is a rare construction; most often the same can be expressed using the verbal expression ba gëë (catch/cold) as in (1) and (3) above.
2.3.2. Ideophonic adjectives

Gbaya expresses gradability of temperature lexically. For this purpose, there are 17 ideophonic adjectives (IDEO.As) which express specific values of temperature (12 for WARM, 5 for COLD). Most of them refer to a degree – higher or lower than the default value – and some of them to a specific domain – weather conditions, body-parts, the house [indoor], food, and water, as indicated in Table 3.

Table 3. Ideophonic adjectives for temperature

<table>
<thead>
<tr>
<th>AA</th>
<th>Meaning</th>
<th>Specific domain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Body</td>
<td>Weather</td>
</tr>
<tr>
<td>wòsi-wòsi</td>
<td>warm</td>
<td>x</td>
</tr>
<tr>
<td>gòsi-gòsi</td>
<td>warm (cosy)</td>
<td></td>
</tr>
<tr>
<td>fǎāñ</td>
<td>warmed up</td>
<td>x</td>
</tr>
<tr>
<td>fàátáá</td>
<td>warmed up</td>
<td></td>
</tr>
<tr>
<td>jìeè</td>
<td>warm +</td>
<td>x</td>
</tr>
<tr>
<td>wólòkösò</td>
<td>hot</td>
<td></td>
</tr>
<tr>
<td>kpóyóyó</td>
<td>hot</td>
<td>x</td>
</tr>
<tr>
<td>hiò-hiò</td>
<td>hot</td>
<td></td>
</tr>
<tr>
<td>giwíŋ-giwíŋ</td>
<td>warm or hot</td>
<td>x</td>
</tr>
<tr>
<td>kpóćró</td>
<td>very hot</td>
<td>x</td>
</tr>
<tr>
<td>hélélè</td>
<td>burning hot</td>
<td></td>
</tr>
<tr>
<td>kpóngóngó</td>
<td>very feverish</td>
<td></td>
</tr>
<tr>
<td>dɔmìì</td>
<td>cool</td>
<td>x</td>
</tr>
<tr>
<td>bún-bún</td>
<td>cold</td>
<td>x</td>
</tr>
<tr>
<td>ngít-ngít</td>
<td>very cold</td>
<td>x</td>
</tr>
<tr>
<td>yìngbìngbì</td>
<td>very cold</td>
<td></td>
</tr>
<tr>
<td>yìrírí</td>
<td>icy</td>
<td>x</td>
</tr>
</tbody>
</table>

These temperature IDEO.As are most often used in a predicative construction. They follow directly the copular verb ʔ. In such a construction, the IDEO.A is used with its basic temperature meaning. The IDEO.As can also be placed, without any morphological change, after a

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12 Some IDEO.As that have a basic meaning not referring to temperature but that can be used for expressing temperature in some particular domain are not presented in Table 3, but are considered in later discussion as zɔ́-zɔ́ ‘tasteless’ (22) and hálòè ‘too strong’ (31).
temperature verb and function as adverbial modifiers of the verb bringing a semantic characterisation (degree or specific domain). So in Gbaya, while verbal adjectives are accepted as attributes most of the time, and more rarely as predicates, IDEO.As are most often used as predicates or as adverbial modifiers when combined with a verb.

I shall present in the next paragraph the use of each of these IDEO.As within the domain they express temperature.

3. The different systems of temperature terms

Gbaya temperature concepts are organised according to the semantic domain they refer to: weather conditions, body-parts, the house, food, and water, each of them constituting a system on its own.

3.1. Weather conditions or ambient temperature

There are five IDEO.As expressing ambient temperature, however none of them are specific to this domain, both being used for weather and body temperature.

3.1.1. Cold

There are no impersonal constructions in Gbaya. The subject of a clause must be a noun or a pronoun and all pronouns refer to animates. Then to express weather conditions Gbaya uses specific nouns as búk ‘wind’ kórò ‘rain’, zân ‘sky’, etc. It is also possible to have the noun ‘thing’ ṃ̄̄̄̄̄ as subject in some cases, in particular to express the ambient cold.

(19) ṃ̄̄̄̄̄ dèngá / gagara
thing PFV.cool_down PFV.cool
‘It’s cool.’

Referring to cold is the usual way to say ‘good afternoon’ or ‘good evening’ using the verb ĝa ‘to cool’, alongside ‘good morning’ does not refer to temperature but to daylight, the verb used then is sə ‘to be clear, to be clean’.

(20) ṃ̄̄̄̄̄ gara mè ndé?
thing PFV.cool.D 2S INTERROGATIVE
‘Is it cool for you?’

13 All the other adjectives can also be used as adverbial modifiers but, unlike the IDEO.As that remain unchanged, they have to be nominalized and placed after the instrumental nè ‘as’, like for the predicative construction in (17) and (18).
The IDEO.A *dômìi* ‘cool’ identifies the sensation of coldness as being a nice sensation.

(21) mò gàà dômìi
    thing PFV.cool.D well_cooled
    ‘It is nicely chilled.’

Between 5 and 6 in the morning, just before the sun comes out, the cold caused by the lack of sun is expressed by the IDEO.A *zö-zö* ‘tasteless’ that refers also to a lack of taste.14

(22) tútûyè zëëë...   
    morning tasteless.DURATIVE
    ‘In the cool early morning...’

Independently of the time you refer to, it is always the noun *gëë* ‘cold’ that is used to express the neutral value of cold as in (7). In the example below it is the subject of the verb *de* ‘to make’ with the noun *mò* ‘thing’ as object when referring to ambient temperature.

(23) kà gëë dé mò ?ë...
    when cold IPFV.make thing already
    ‘When it’s already cold...’ (day or night)

The IDEO.A *ngit-ngit* ‘very cold’ specifies a higher degree of cold that can be expressed too by mentioning an excess as in (25).

(24) gëë péí ngit-ngit-ngit
    cold IPFV.return very_cold.DURATIVE
    ‘It’s very cold.’

(25) gëë ném ná.
    cold IPFV.suit NEG
    ‘It’s too cold.’

The cold of hail which is the highest degree of cold is often expressed by using the IDEO.A *yîrîfî* ‘icy’.

(26) gëë bùrà ?s yîrîfî
    cold.D hail IPFV.be icy
    ‘Hail is icy.’

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14 Referring to food, it only means ‘tasteless’ mostly by lack of seasoning. Its use is so specific for sun that I prefer not to count it within the temperature IDEO.A of Table 3.
3.1.2. Heat

For weather conditions, the term wèè ‘fire’ cannot be used to refer to ’heat’. It is the ‘sun’ wèśè, the main source of heat and light, which is the permanent hot temperature reference the Gbaya refer to.

It is only after 8 o’clock in the morning that the sun produces warmth. The sun that begins warming things up, when it is sunny, is called a ‘half-sun’ sàkà-sàkà wèśè, which people like very much. Then the sun ‘shines’ _nei (lit. be in the distance), first ‘beating’ bàŋ-bàŋ, next ‘glaring’ bèdèŋ-bèdèŋ.

(27) wèśè _néí    nè dškáà
    sun  IPFV.be_in_the_distance as a_lot.NOMINALIZER
    ‘It’s very warm.’

It is only from 10 o’clock that the sun ‘is hot’ kpɔrax (be very hot).

(28) wèśè kpɔrà    ñé
    sun  PFV.get_very_hot.D already
    ‘The sun is beating down.’

There are two IDEO.As that can modify this verb kpɔrax (get very hot) expressing two further degrees of ambient temperature heat: kpóyóyó ‘hot’ for a first degree and kpóróró ‘very hot’ for a higher degree.

(29) wèśè kpɔrà    kpóyóyó
    sun  PFV.get_very_hot.D hot
    ‘It is hot’ (lit. the sun is hot) (between 10 and 11 in the morning)

(30) wèśè kpɔrà    kpóróró
    sun  PFV.get_very_hot.D very_hot
    ‘It is very hot’ (lit. the sun is very strong) (at noon)

At noon, the sun is specifically called the ‘noonday sun’ bú wèśè (blank/sun) which burns everything as expressed by the IDEO.A hàlòè ‘too strong’.

(31) wèśè kpɔrà    hàlòè
    sun  PFV.get_very_hot.D too_strong
    ‘It is too hot.’ (lit. the sun is too hot / is burning).

After it has been very hot, then in the afternoon it’s cool as express in (19) and (21).

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15 As for zhè-zhè, that first characterises a very hot chilli, its use is so specific for sun that I prefer not to count it within the temperature IDEO.As of Table 3.
3.2. Body temperature or Personal-feeling

There are 12 IDEO.As expressing personal-feeling temperature. They are used most often in constructions where the experiencer supported by the ‘body’ is the subject of the verb.

The natural wellbeing for personal-feeling is a neutral temperature which Gbaya refers to using the adverb géè ‘ordinary’:

(32) tɛm dúk géè
body.D.1SG IPFV.stand ordinary

‘I feel well.’

However the temperature of the body can change, either heating up or cooling down as follows.

3.2.1. Cold body

There are four IDEO.As to express degrees of cold for the body. None of them are specific to the body.

Two of them follow the verb ga ‘to get colder’ expressing the physical sensation that one feels cool as one’s body is cold.

(i) The IDEO.A dɔmìì ‘cool, well cooled’ expresses a sensation of cold produced by an external factor that refreshes the body to a nice cool sensation the same way it is used for weather temperature in (21).

(33) ?ám yèé dɔ dù gìì, tɛm gàà dɔmìì
1SG PFV.enter.D under.D shadow body.D.1SG PFV.cool.D well_cooled

‘I stand under the shadow and my body feels nice and cool.’

(ii) The IDEO.A bùn-bùn ‘cold’ refers to a neutral physical sensation of cold which is also used for food as in (64).

(34) tɛm gàà bùn-bùn
body.D.1SG PFV.cool.D cold

‘I feel cold.’

The main factors that cool the body temperature down are yì ‘river water’, which is always cold, or gëë ‘shadow’, which protects from sun, so one feels cool. These stimuli are used as the subject of the verb in a transitive construction with the experiencer supported by the ‘body’ as object.

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16 This term means both ‘river’ and ‘water’.
To express a sensation of higher degree of cold, the only stimulus Gbaya always mentions is the noun *gege* ‘cold’. It is then the subject of the verb *de* 'to make', with the experiencer supported by a body-part as object.

(36)  
*gege*  
*

dè  
*

*nañám*  
*cold  

*PFV.make.D  

*foot.D.1SG*  

‘My feet are cold.’

With the same construction, if the object is the whole person, this can mean either ‘to be cold’ or ‘to have fever’ as in (10).

(37)  
*gege*  
*

dé  
*

*ʔó  

*bèm*  
*child*  

‘Children have fever / are cold.’

The IDEO.A *ngit-ngit* ‘very cold’ expresses a higher degree of cold for the body. It is also used for weather conditions as in (24). The stimulus *gege* ‘cold’ that produces the cold can be specified as in example below.

(38)  
*gege*  
*

*yì  

*dém*  
*water  

*IPFV.make.1SG  

*very_cold*  

‘I am freezing because of cold water.’

The highest degree of cold for the body is expressed by the IDEO.A *yírírí* ‘icy’ following the copular verb *ʔó*.

After a long time under rain, you can say:

(39)  
*yì  

*ʔó*  
*

*yírírí*  
*icy  

*body.D.1SG  

*IPFV.be  

‘I am completely frozen’

When you are frozen, your arms and legs covered in ‘goose bumps’ *kúí-gé* literally named ‘eggs of cold’.

### 3.2.2. Hot body

There are nine IDEO.As which express degrees of heat for the body. Four of them are specific to the body. The factors that can raise the body temperature are usually a physical effort and illness.

The IDEO.A *wòsí-wòsí* ‘warm’ introduced by the copular verb *ʔó* refers to thermal comfort. It is also used for the house as in (60).
(40) tɛm ʔs wɔsì-wɔsì
body.D.1SG IPFV.be warm
‘I am warm.’

The IDEO.A fàfàŋ ‘warmed up’ is specific to the body. When used with the verbal expression ba wèè (catch/fire), it denotes a spontaneous reaction of the skin to an external contact.

(41) kòwà ʔs nù gón kpɔngò
when.3PL IPFV.lie ground above bed
kà tèwà bàá wèè fàfàŋ ʔín màá
now body.D.3PL PFV.catch.D fire hot with each_other
‘Sleeping in the same bed, we keep one another warm.’

(42) ʔám mbèrà yìkáá bàá wèè fàfàŋ
1SG PFV.slap.D face.D.3 SG INF.PFV.catch fire hot
‘I slapped him, his cheek is burning.’

The first degree of warmth always related to a beginning of a fever is expressed by the IDEO.A nèè ‘warm’ that can be used also for warm water as in (69).

(43) tè bèm ʔs mì nèè
body.D child IPFV.lie there warm
‘This child is a little feverish.’ (lit. has a warm body)

The IDEO.A kpɔyɔyɔ that is also used for weather temperature as in (29) and hìò-hìò that is specific to the body both mean ‘hot’. They refer, when following the copular verb ʔɔ or the verbal expression ba wèè (catch/fire), to a hot body, be it the result of a physical effort or illness, without any reference to sweat.

(44) tèá bàá wèè kpɔyɔyɔ
body.D.3SG IPFV.catch fire hot
‘He is hot.’

(45) tèá ʔs hìò-hìò
body.D.3SG IPFV.be hot
‘He is hot.’

The IDEO.A hìò-hìò ‘hot’ can also be used with the verb gbɛŋ ‘to warm, to heat up’ that always refers to gbɛŋ-mɔ ‘sweat’, literally ‘the heated up thing’ with focus on its relation to hot temperature.

(46) tɛm gbɛŋ hìò-hìò,
body.D.1SG IPFV.heat_up hot,
15

‘I feel too hot, I want to go and take a bath.’ (lit. I am sweating and I am hot)

The IDEO.A gı́wını́-gı́wını́ ‘warm or hot’ is only used for a localised part of the body (feet, head and belly) as in the examples below: walking overheats the feet and pain overheats the head.17

(47) kɔ d nàŋám ?́ ę gı́wını́-gı́wını́ inside.D foot.D.1SG IPFV.be hot
‘The soles of my feet are hot.’

(48) züm ?́ ę gı́wını́-gı́wını́ head.D.1SG IPFV.be hot
‘I have a headache.’ (lit. a hot head)

The IDEO.A kpó́róró ‘very hot’ referring to the body expresses a higher degree of heat. It is also used for weather temperature as in (30).

(49) tɛ̀ d ń kpó́róró body.D.3 SG IPFV.be hot
‘He is very hot.’

The IDEO.A hɛ̀lɛ̀lɛ̀ ‘burning hot’ that is specific for the body is always related to sweating, be it the result of a physical effort or illness.

(50) tɛ̀ d ń hɛ̀lɛ̀lɛ̀ body.D.3SG IPFV.be burning_hot
‘He is very hot and sweats’

While using the verb gbını́ ‘to warm, to heat up’ with the experiencer as subject always refers to external factors meaning ‘to feel hot’ as in (46), the interpretation of a hot body by using the verbal expression ba wɛ̀ (catch/fire) depends on whether there are external factors (sun or physical effort) or not. If there are no external factors it always refers to fever that raises body temperature as in (49) and (51).

(51) tɛ̀ wí bá wɛ̀ body.D person IPFV.catch fire = heat
‘One is feverish.’ (lit. his body is hot)

Lastly the IDEO.A kpó́ngóngó refers to the highest degree of temperature for the body which always results from illness meaning ‘very feverish’.

17 For the belly, it is hunger that causes a rise of its temperature.
'He has a strong fever.'

Although ‘fever’ is named ḍéé ‘cold’, as presented in § 1.1. (9), its effect on body temperature is always to make it hot. This reference of fever via both domains of HOT and COLD is also mentioned by A. François in this volume for Vanuatu languages.

‘He caught cold, his head is very hot’.

When you are no longer cold or feverish, your body temperature goes down and you feel well.

3.3. The house

Five IDEO.As characterize the house temperature, three of them are specific to it. The house that every man builds for his wife is the family home. In fact, all the houses have a fire inside which is used for cooking and for warming up the place: indoor has to be warm.

3.3.1. Cold house

There are two IDEO.As which express degrees of cold within the house. If the fire is put out, the IDEO.A ḍún-ḅún ‘cold’ expresses that the house is cold, as it also does for the body as in (34), food and water as in (64).

‘It's cold in the house’

When a house is unoccupied for a long time, it is referred to literally as ‘a cold house’ ḍéé tùà (cold/house) because there is nobody in it and no fire inside. This can be expressed by using the IDEO.A yīngbīngbī ‘very cold’ which is specific to the house.
3.3.2. Warm house

There are three IDEO.As which express degrees of heat for the house. The IDEO.A giwïŋ-giwïŋ ‘warm or hot’ that expresses it as a warm ambient temperature focuses on the presence of a fire inside, the same way it is used for the body focusing on a hot body part as in (47) and (48).

\[(57) \ kútùà \ ?§ \ giwïŋ-giwïŋ \]
\[\text{indoor IPFV.be very_cold} \]
\[\text{‘It’s very cold in the house.’} \]

The IDEO.A wòsì-wòsì which expresses that the house is ‘warm’, because it’s a heartily welcoming place (cosy), is also used for referring to thermal comfort of the body as in (40).

\[(58) \ kútùà \ kóm \ bàá \ gêé, \ kòò \ kóm \ m5-pèì \ ?é, \]
\[\text{indoor of.1SG PFV.catch.D cold wife of.1SG PURP.IP.FV.return already} \]
\[\text{rá kútùà \ ?§ \ wòsì-wòsì} \]
\[\text{then indoor IPFV.be warm} \]
\[\text{‘My house is cold, when my wife will come back it will become warm.’} \]

By contrast the IDEO.A gòsì-gòsì which expresses that the house is ‘warm’ because people enliven it, is specific to house temperature expressing a personal-feeling temperature:

\[(59) \ zéwà \ táá \ kútùáí \ díláá, \]
\[\text{time.D. 3PL in indoor.ANAPHORIC numerous} \]
\[\text{kútùà \ ?§ \ gòsì-gòsì} \]
\[\text{indoor IPFV.be warm} \]
\[\text{‘They have stayed a long time in the house, it’s well warm.’} \]

3.4. Food

This section discusses the temperature words for food, which are made cold or warm/hot on purpose. Three IDEO.As characterize the food temperature, two for heat and one for cold. None of them are specific to food.
3.4.1. Hot food

The verbal expression *ba wèè* (catch/fire) ‘it’s hot’ is used for food and there are two degrees on the scale of this food temperature: *fátátá* ‘warmed up’ and *kpóyóyó* ‘hot’.

(61) kà kòtò yérè bá wèè fátátá,
when skin.D buffalo IPFV.catch fire warmed_up,
?éí ṃóŋ ngérèm-ngérèm
one IFV.eat crunchy

‘When buffalo skin warmed up it is crunchy to eat.’

(62) ?èé wà sáŋ ?é kä wèè
and.D 3PL IPFV.pack INF.PFV.put side.D fire
há bá wèè kpóyóyó
in_order_to IPFV.catch fire hot

‘[Dracaena root is crushed] and packed aside the fire to get hot.’

3.4.2. Cold food

Food is usually cooked and has to be hot to be eaten. Then most frequently its cold is the result of a cooling process expressed by just using the verb *gá* ‘to get colder’ with no reference value as in (63), while combined with the IDEO.A *ɓún-ɓún* ‘cold’ it refers to the property fixing a objective value as in (64).

(63) ṃóŋ-mò gáá gáá
food PFV.cool.D cool.DET

‘Food is cold’ (lit. has cooled down)

(64) ṃóŋ-mò / yì gáá bún-ɓún
food/water PFV.cool.D cold

‘Food / water is cold’

3.5. Water

There are four IDEO.As expressing water temperature, three for hot and one for cold.

3.5.1. Cold water

Whether it be river water or rain, *yì* ‘water’, is the basic reference to express cold for the Gbaya. This is expressed by using the IDEO.A *bún-ɓún* ‘cold’, also used for the body as in (34), the house as in (55) and food as in (64).

To simply express that hot water gets colder, the verb *dengi* ‘to cool down’ is also used focusing more on the drop of temperature that on the lukewarm property. This verb is not specific to water.
When one put water on fire, the water gets colder.

‘When you heat up some water and take it out of fire, it cools down.’

The water has already cooled down.

3.5.2. Hot water

The verb wosi ‘to get slightly warm’ and the verbal adjective derived from it, wósí ‘slightly warm or lukewarm’, are both specific to water. They are used for the first step of warming up, when water warms up in the sun, but also when water just put in fire is not yet hot.

Water is not boiling, it gets lukewarm.

Every day women carry water from the spring to the house where it is kept in a large pot and used for drinking and cooking. Most often water is put on the fire to be heated up. There are three IDEO.As which express degrees of heat for the water: fátátá ‘warmed-up’ < pè ‘warm’ < wòlòkòsò ‘hot’.

The IDEO.A fátátá ‘warmed-up’ only refers to a warming up process and is used with the verbal expression ba wè (catch/fire) or the copular verb ʔ. It cannot be used with the verb wosi ‘to get (be) lukewarm’ which expresses without any IDEO.A the same temperature although in relation to a cooling down process as in (61).

‘Water is slightly warm’ or ‘water is lukewarm.’

The IDEO.A pè ‘warm’ refers to the right temperature for bathing a baby. It is the last degree of warmth before getting hot, which can be compared for the body to the first step of fever it refers to as in (43).
They put water on fire to be warm and they bathe the baby.’

The IDEO.A wòlòkòsò ‘hot’ refers to a higher degree of warmth that does not reach boiling yet.

(70) yì dé Ṽè, dônjáá dé wòlòkòsò
water IPFV.make warm, after.DEF IPFV.make hot
‘Water is warm, after it’s hot.’

When referring to coffee it expresses a hot temperature that the Gbaya consider as lukewarm, because people want coffee to be boiling hot.

(71) kàfèè dé wòlòkòsò ?è, ?ám nó bò ná
coffee IPFV.make hot already 1S IPFV.drink still NEG
‘When coffee is hot I no longer drink it’ or ‘when coffee is lukewarm I no longer drink it.’

Later, when water is boiling, it is only expressed by using the verb kpɔr ‘to get very hot’ in order to focus on this very hot temperature.

(72) yì kpɔrà
water IPFV.get_very_hot.D already
‘Water is already very hot.’

4. Cultural specificities or metaphors

Beside all these domains, there are possible extensions of temperature terms that refer to the linguistic “image” of an element that does not objectively reflect the external world but rather offer a cultural picture based on Gbaya’s experience and rooted in their culture, like for example, the expression of feelings. 18

4.1. The liver = centre of feelings

In Gbaya, sèè wí (liver.D/person) ‘the liver’ is the centre of feelings. When one’s liver is ‘cool’ gğ (cold) one feels all right. One is glad and happy when it is ‘good’, so dí-sèè (good/~) means ‘happiness’; unhappy when it’s ‘bad’, so dày-sèè (bad/~) means ‘unhappiness’; and impatient when it’s ‘red’, so gbɛ-sèè (red/~) means ‘impatience’. When one’s liver suffers, it heats up, using the verb gbɛŋ, meaning one is angry.

When you feel no longer angry, you liver cools down.

‘He has already calmed down.’

When the VA gbèṇà occurs with the noun ‘liver’ or with the compound word yìk-sèè (surface-liver) ‘liver surface’ in the expression gbèṇà sèè/yìk-sèè (heated up/~) it refers to ‘stomach ache’.

4.2. Heating up = agitation, excitement and violence

The verb kpôr ‘to get very hot’ is used to refer to agitation and most often to characterize a mischievous child or an uncontrollable person.

‘He is a very mischievous child’

It is also used to express quarrel.

‘I tell off the child.’

‘They quarrel.’

When referring to physical contact, the IDEO.A hiò-hiò ‘hot’ is combined with the verbal expression ba wèè (to catch/fire) to express excitement and not just warmth as in (45) and (46).

‘When they lie in bed, they are burning [with desire].’

Otherwise the term wèè ‘fire’ can express various things, carrying the meaning of violence. Thus, if ‘something makes fire’ (de), it refers to great
events or miracles. When drums ‘take fire’, they do not burn, but are very loud, making everybody dance to their rhythm. Someone who ‘puts fire in it’, is someone who is totally concentrated on what he is doing.

(79) ká yók kómé dé wèè mó-bà sàdì
then net of.2SG IPFV.make fire INF.VIRTUAL.catch animal
‘Then your hunting net is fantastically good to catch animals.’

In Gbaya, to be refused something can be expressed by the verb do ‘to burn’ with the experiencer as object showing that according to Gbaya thought a refusal can hurt somebody in the same way as fire does.

(80) ?ám kófá ndààkà ?éráà, ?á-náá dám
1SG PFV.ask.D tobacco hand.D.3SG, and_now.3SG IPFV.burn.D.1SG
‘I begged him for tobacco and he refused.’

Refusing is conceived as burning somebody as in the proverb:

(81) pòñá ngá má dó máá nè yì ná
to.eat hard thing IPFV.burn each_other with water NEG
‘Those who eat together don’t refuse one another water.’

4.3 Cooling down = calm and well being

When the body is nicely cool, whether the weather is cold or hot, this sensation no longer refers to temperature but to quiet, expressed by the verb ga ‘to get colder’ or the verbal adjective gá ‘cold’.

(82) gá tèmè
IMP.calm_down body.D.2SG
‘Be quiet.’

(83) ?à tó wèn nè gá tè
3SG IPFV.say speech with cold body
‘He speaks quietly.’

Using the IDEO.A bán-bún ‘cold’ with the verb ga means feeling cool as in (34) whereas with the expression ba gëgë (catch/cold) it refers to quivering with pleasure.

(84) kèi tám ?ókóò,
when.one IPFV.touch woman
ká tèf báá gëgë bán-bún
then body.D.person IPFV.catch.D cold cold
‘When you touch a woman you quiver with pleasure.’
The VA déngá ‘cooled down’ when referring to a person means ‘shy’.

(85) ʔn dëngá bëī  
3SG PRED.ESS cooled_down person  
‘He is a shy person.’

5. Conclusion

There is no generic name for the domain of temperature in Gbay. The Gbay temperature terms are organised into three word classes: nouns, verbs and adjectives.

The two nouns ‘cold’ and ‘heat’ provide the basis of the Gbay temperature system with two levels COLD / WARM. The first one has only the prototypical meaning of ‘cold’, while the second ‘heat’ is the name of a permanently hot object, the ‘fire’. The ‘sun’, another permanently hot object is only used for weather condition and never gets the prototypical meaning of ‘heat’, in the same way as ‘water’ and ‘hail’ never get the prototypical meaning of ‘cold’.

There are five verbs which indicate a change of temperature. They express a process that focuses on the way temperature rises or falls and do not refer to a specific value. Each of them related to a particular subject as water, human body, weather and the sun which have an expected default value serving as point of reference in evaluating this modification, and food which are made cold or warm/hot on purpose.

Otherwise Gbay uses a lot of adjectives expressing a temporary concept characteristic of an entity. Gbay has no primary adjective expressing temperature, but there are five verbal adjectives which express objective qualifying meanings corresponding to the temperature values resulting from each verbal process and 14 ideophonic-adjectives which lexicalise temperature grades. Most of them are specific to one or two domains, but no one is valid for all of them, illuminating the importance of the cultural point of view they support.

All these categories stratify the temperature domain into the same two levels COLD and WARM as nouns do, but there are more terms for heat (65%) than for cold (35%). The human body is the domain with the most numerous IDEO.As showing the significant weight of personal-feelings for Gbay speakers. Water is the domain with the most numerous verbs characterizing it as an element particularly prone to react to temperature changes.

It is only by combining the many lexical and syntactic possibilities that a specific domain for expressing temperature emerges.
References