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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.

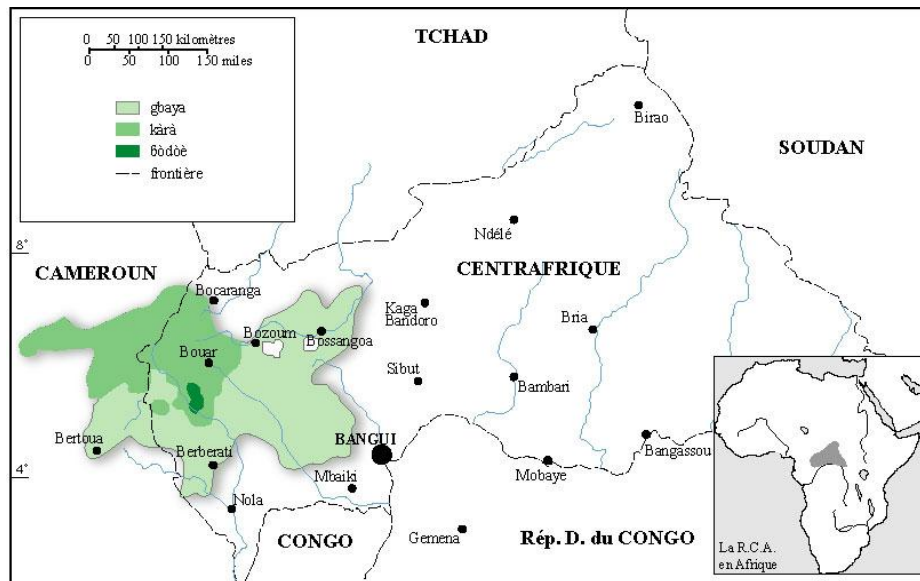
1. Introduction

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 Ubanguian 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 gbay 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 possession². 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 *gǝǝ* ‘cold’ to the noun *wèè* ‘heat’. The noun *gǝǝ* ‘coldness’ refers to the

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.

² For more detailed presentation see Roulon-Doko (1995 and A1998).

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 gèé.*
 water PFV.catch³.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 *tè* meaning ‘body’) is cold or warm.⁴ Thus, when the subject is the human body, it expresses the personal-feeling temperature:

(3) *těm bàá gèé.*
 body.D.1SG PFV.catch.D cold
 ‘I am cold.’

(4) *těm 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) *gèé yèè sóróm.*
 cold PFV.enter.D sensation_of_fullness
 ‘He is frozen to the bones.’

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

(6) *wèè yèè sóróm.*
 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*: *gèéà* (cold.D.DEF) means ‘its cold’ and *wèéà* (fire = heat. D.DEF) means ‘its heat’ or ‘its fire’ depending on the context. In a locative construction, *gèé* keeps its value of ‘cold’ referring to

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 *ɲòŋ-mò yèè sóróm* (food PFV.enter.D sensation_of_fullness) ‘He is completely full’.

ambient temperature but *wèè* cannot refer here to ambient temperature but only to its basic meaning ‘fire’.

(7) *gèé* *ʔá* *sèné*
 cold PRED.LOC inside
 ‘It’s cold.’

(8) *wèè* *ʔá* *sèné*
 fire PRED.LOC inside
 ‘There is a fire.’

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

(9) *gèé* *dèè* *wí.*
 cold PFV.make.D. person
 ‘One is feverish.’

(10) *wéwéi* *ʔàá* *nè* *gèé*
 man 3SG.TOP with 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.⁶ 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) *gèé* *yì*
 cold.D water
 ‘Cold water’

(12) *wéé* *yì*
 fire = heat.D 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: *ba* ‘take’, *ye* ‘enter’ and *dé* ‘make’. In this section we will look at five verbs

⁶ Used as adjectives, they can never be used in a predicative construction.

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

Temperature	V intr	meaning	possible subjects			
COLD	dengi	to cool down	water	body	weather (thing)	
	gà	to get colder	water	body	weather (thing)	food
WARM	wosi	to get slightly warm	water			
	gbeṅ	to warm up, to heat up		body		
	kpɔr	to get very hot	water		weather (sun)	

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 *gà* ‘to get colder’.

For the human body, the verb *gbeṅ* ‘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 *gà* ‘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 *gà* are used with the term *mɔ̀* ‘thing’ as subject to refer to the ambient cool temperature.

It is only the verb *gà* ‘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 há kpòó gá sé.
 1SG PFV.leave.D so_that meal IPFV.cool before
 ‘I let the meal cool down first.’

⁷ And hot iron too which gets colder when put in water.

(14) *nòŋ-* *gàá* *gàá.*
*mò*⁸
meal PFV.cool cool.DET
‘Meal is cold.’ (lit. has cooled well)

(15) *nòŋ-mò* *gàà* *?é*
meal PFV.cool. D already
‘Meal is already cold.’

Section 3 illustrates the use of these verbs and the domains to which they refer.

2.3. Adjectives

Gbaya has three subclasses of adjectives⁹: (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 *féŋá* ‘faded, whitened’, by the ideophonic adjectives *mbùyèlè* ‘white [temporary]’, *ndál-ndál* ‘very white’ and *nànàpùŋù* ‘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 *?ɔ* 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.

⁸ In Gbaya transcription the hyphen is used to link the elements of a compound name, as in the French transcription for ‘oeil-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

Temperature	VA	meaning	specific to	
COLD	<i>déngá</i>	cooled down	water	
	<i>gá</i>	cool, cooled down	water	
WARM	<i>wósá</i>	slightly warm	water	
	<i>gbéńá</i>	warm, heated up	water	body
	<i>kpórá</i>	very_hot	water	sun

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 *kpórá wèsé* (very_hot/sun) ‘scorching sun’, *déngá kàfě̀* (cooled_down/coffee) ‘cold coffee’, *wósá yì* (slightly_warm¹⁰ /water) ‘tepid water’, *gbéńá tẹ̀* (heated_up/body) ‘sweaty body’ and *gá* as in the example below.

- (16) ʔám nòńà gá dāńkálẹ̀
 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 *nẹ̀* ‘as’.¹¹

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

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

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 gě̀* (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

AA	Meaning	Specific domain				
		Body	Weather	House	Food	Water
	<i>wòsì-wòsì</i>	warm	x		x	
	<i>gòsì-gòsì</i>	warm (cosy)			x	
	<i>fáǎǎ</i>	warmed up	x			
W	<i>fátátá</i>	warmed up			x	x
A	<i>ɲèè</i>	warm +	x			x
R	<i>wòlòkòsò</i>	hot				x
M	<i>kpóyóyó</i>	hot	x	x		x
	<i>hìò-hìò</i>	hot	x			
	<i>gìwìŋ-gìwìŋ</i>	warm or hot	x		x	
	<i>kpóróró</i>	very hot	x	x		
	<i>hèlèlè</i>	burning hot	x			
	<i>kpóngóngó</i>	very feverish	x			
C	<i>dòmì</i>	cool	x	x		
O	<i>bún-bún</i>	cold	x		x	x
L	<i>ngìt-ngìt</i>	very cold	x	x		
D	<i>yìngbìngbì</i>	very cold			x	
	<i>yírírí</i>	icy	x	x		

These temperature IDEO.As are most often used in a predicative construction. They follow directly the copular verb *ʔɔ*. In such a construction, the IDEO.A is used with its basic temperature meaning.¹² The IDEO.As can also be placed, without any morphological change, after a

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 *zǎé-zǎé* ‘tasteless’ (22) and *hàlòè* ‘too strong’ (31).

temperature verb and function as adverbial modifiers of the verb bringing a semantic characterisation (degree or specific domain).¹³

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’ *mò* as subject in some cases, in particular to express the ambient cold.

- (19) *mò dèngá / gâá*
 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 *gâ* ‘to cool’, alongside ‘good morning’ does not refer to temperature but to daylight, the verb used then is *sâ* ‘to be clear, to be clean’.

- (20) *mò gâà mé 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 *dòmì* ‘cool’ identifies the sensation of coldness as being a nice sensation.

- (21) m̀ g̀áá d̀m̀ì
 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 *z̀é-z̀é* ‘tasteless’ that refers also to a lack of taste.¹⁴

- (22) t̀t̀ỳè z̀ééé...
 morning tasteless.DURATIVE
 ‘In the cool early morning...’

Independently of the time you refer to, it is always the noun *g̀éé* ‘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 *dé* ‘to make’ with the noun *m̀* ‘thing’ as object when referring to ambient temperature.

- (23) k̀ g̀éé dé m̀ ʔé...
 when cold IPFV.make thing already
 ‘When it’s already cold...’ (day or night)

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

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

- (25) g̀éé ǹém 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 *ỳr̀r̀í* ‘icy’.

- (26) g̀éé b̀r̀r̀ò ʔó ỳr̀r̀í
 cold.D hail IPFV.be icy
 ‘Hail is icy.’

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’ *wèsé*, 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-sáká wèsé*, which people like very much. Then the sun ‘shines’ *nei* (lit. be in the distance), first ‘beating’ *bàñ-bàñ*, next ‘glaring’ *bèdêñ-bèdêñ*.

- (27) *wèsé nei nè dókáà*
 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’ *kpɔr* (be very hot).

- (28) *wèsé kpɔrà ?é*
 sun PFV.get_very_hot.D already
 ‘The sun is beating down.’

There are two IDEO.As that can modify this verb *kpɔr* (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) *wèsé 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) *wèsé 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 wèsé* (blank/sun) which burns everything as expressed by the IDEO.A *hàlòè* ‘too strong’.¹⁵

- (31) *wèsé 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).

¹⁵ As for *zṣé-zṣé*, 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) *těm 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 *gà* 'to get colder' expressing the physical sensation that one feels cool as one's body is cold .

(i) The IDEO.A *dòmì* '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 dḡḡ gíḡ, těm gḡḡ dòmì*
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 *bún-bún* 'cold' refers to a neutral physical sensation of cold which is also used for food as in (64).

- (34) *těm gḡḡ bún-bún*
body.D.1SG PFV.cool.D cold
'I feel cold.'

The main factors that cool the body temperature down are *yì* 'river water'¹⁶, which is always cold, or *gíḡ* '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.

¹⁶ This term means both 'river' and 'water'.

- (35) yì gǎá tǐm dǒmì
 water PFV.cool.D body.D.1SG well_cooled
 ‘Water has well refreshed me.’

To express a sensation of higher degree of cold, the only stimulus Gbaya always mentions is the noun *gǎǎ* ‘cold’. It is then the subject of the verb *dɛ* ‘to make’, with the experiencer supported by a body-part as object.

- (36) gǎǎ dèè náǰám
 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) gǎǎ dé ʔó bêm
 cold IPFV.make PL child
 ‘Children have fever / are cold.’

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

- (38) gǎǎ yì dém ngìt-ngìt
 cold 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) tǐm ʔó yírírí
 body.D.1SG IPFV.be icy
 ‘I am completely frozen’

When you are frozen, your arms and legs covered in ‘goose bumps’ *kúí-gǎǎ* 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 *wòsì-wòsì* ‘warm’ introduced by the copular verb *ʔó* refers to thermal comfort. It is also used for the house as in (60).

- (40) tẽm ʔó wòsì-wòsì
 body.D.1SG IPFV.be warm
 'I am warm.'

The IDEO.A *fáǎǎ* '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 ʔó nù gón kpòngò
 when.3PL IPFV.lie ground above bed
 ká téwà bàá wèè fáǎǎ 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 yíkàà bá wèè fáǎǎ
 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 *ɲèè* 'warm' that can be used also for warm water as in (69).

- (43) tè bẽm ʔó mì ɲèè
 body.D child IPFV.lie there warm
 'This child is a little feverish.' (lit. has a warm body)

The IDEO.A *kpóyóyó* 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 *ʔó* 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) téà bá wèè kpóyóyó
 body.D.3SG IPFV.catch fire hot
 'He is hot.'

- (45) téà ʔó hìò-hìò
 body.D.3SG IPFV.be hot
 'He is hot.'

The IDEO.A *hìò-hìò* 'hot' can also be used with the verb *gbéɲ* 'to warm, to heat up' that always refers to *gbèɲ-mò* 'sweat', literally 'the heated up thing' with focus on its relation to hot temperature.

- (46) tẽm gbéɲ hìò-hìò,
 body.D.1SG IPFV.heat_up hot,

ʔám kòò mó-nè zóí yì
 1SG PFV.want.D INF.VIRTUAL.go INF.PFV.bathe water

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

The IDEO.A *gìwìṅ-gìwìṅ* ‘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) kò nájám ʔó gìwìṅ-gìwìṅ
 inside.D foot.D.1SG IPFV.be hot

‘The soles of my feet are hot.’

(48) zǔm ʔó gìwìṅ-gìwìṅ
 head.D.1SG IPFV.be hot

‘I have a headache.’ (lit. a hot head)

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

(49) téà ʔó kpóróró
 body.D.3SG IPFV.be hot

‘He is very hot.’

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

(50) téà ʔó hèlèlè
 body.D.3SG IPFV.be burning_hot

‘He is very hot and sweats’

While using the verb *gbey* ‘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 wèè* (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) tẹ wí bá wèè
 body.D person IPFV.catch fire = heat

‘One is feverish.’ (lit. his body is hot)

Lastly the IDEO.A *kpóngóngó* 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.

- (52) téà bàá wèè kpóngóngó
 body.D.3SG PFV.catch. D fire = heat very_feverish
 'He has a strong fever.'

Although 'fever' is named *gèé* '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.

- (53) ?àá nè gèé, zúà bàá wèè fé
 3SG.TOP with cold head.D.3SG PFV.catch.D fire a_lot
 '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.

- (54) téà dèngà ?é
 body.D.3SG PFV.get_colder already
 'Now he feels cool.' (lit. his body gets colder)

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 *bún-bún* 'cold' expresses that the house is cold, as it also does for the body as in (34), food and water as in (64).

- (55) kútùà ?ó bún-bún
 indoor IPFV.be cold
 'It's cold in the house'

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

- (56) kútùà ʔó yìngbìngbì
 indoor IPFV.be very_cold
 ‘It’s very cold in the house.’

3.3.2. Warm house

There are three IDEO.As which express degrees of heat for the house. The IDEO.A *gìwìṅ-gìwìṅ* ‘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 ʔó g̀ìwìṅ-g̀ìwìṅ
 indoor IPFV.be warm
 ‘It’s warm in the house.’

The IDEO.A *ẁòsì-ẁòsì* 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 g̀g̀é, kòd kóm m̀ó-p̀èi ʔé,
 indoor of.1SG PFV.catch.D cold wife of.1SG PURP.IPFV.return already
 ká kútùà ʔó ẁòsì-ẁòsì
 then indoor IPFV.be warm
 ‘My house is cold, when my wife will come back it will become warm.’

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

- (59) zéwà táá kútùái d̀íláá,
 time.D. 3PL in indoor.ANAPHORIC numerous
 kútùà ʔó g̀òsì-g̀òsì
 indoor IPFV.be warm
 ‘They have stayed a long time in the house, it’s well warm.’

- (60) bêm d̀èé sàà kútùà, kútùà ʔó g̀òsì-g̀òsì
 child PFV.make.D game indoor, indoor IPFV.be warm
 ‘The children have played 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,
ǀéí nón ngèrèm-ngèrèm
one IFV.eat crunchy
‘When buffalo skin warmed up it is crunchy to eat.’

- (62) *ǀèé wà sán ǀé ká 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 *gà* ‘to get colder’ with no reference value as in (63), while combined with the IDEO.A *bún-bún* ‘cold’ it refers to the property fixing a objective value as in (64).

- (63) *nòŋ-mò gâá gâá*
food PFV.cool.D cool.DET
‘Food is cold’ (lit. has cooled down)

- (64) *nòŋ-mò / yì gââ bún-bún*
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-bún* ‘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 than on the lukewarm property. This verb is not specific to water.

- (65) kèì ʔé yì té-wèè,
 when.one IPFV.put water on_fire
 kèì bá ʔé nù, ká dèngá
 when.one IPFV.take INF.PFV.put ground then PFV.get_colder.D
 ‘When you heat up some water and take it out of fire, it cools down.’
- (66) yì dèngá ʔé
 water PFV.get_colder.D already
 ‘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, *wósá* ‘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.

- (67) yì kpór ná,
 water IPFV.get_very_hot NEG
 yì wòsá wòsí
 water IPFV.get_slightly_warm get_slightly_warm.DET
 ‘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’ < *ɲèè* ‘warm’ < *wòlòkòsò* ‘hot’.

The IDEO.A *fátátá* ‘warmed-up’ only refers to a warming up process and is used with the verbal expression *ba wèè* (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).

- (68) yì bàá wèè fátátá
 water PFV.catch.D fire = heat warmed-up
 ‘Water is slightly warm’ or ‘water is lukewarm.’

The IDEO.A *ɲèè* ‘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).

- (69) wà ʔé yì té-wèè há dé ɲèè,
 3PL IPFV.put water on_fire in_order_to IPFV.make warm

wà zóí nè mbózd bêm.
 3PL IPFV.bathe INSTRUMENTAL baby child

‘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 nèè, dōṅáà 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 ?é, ?ám nó b̀d̀ 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 *kpər* ‘to get very hot’ in order to focus on this very hot temperature.

(72) yì kpòrà ?é.
 water PFV.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’ *gǎ* (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 *dǎṅ-sèè* (bad/~) means ‘unhappiness’; and impatient when it’s ‘red’, so *gbé-sèè* (red/~) means ‘impatience’. When one’s liver suffers, it heats up, using the verb *gbey*, meaning one is angry.

¹⁸ Cf. Koptjevskaja-Tamm & Ekaterina, 2006.

- (73) sèáà gbéṅ gbèṅí
 liver.D.3SG IPFV.warm warm .DET
 ‘He is angry.’

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

- (74) ʔà gǎǎ sèáà ʔé
 3SG PFV.calm_down.D liver.D.3SG already
 ‘He has already calmed down.’

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

4.2. Heating up = agitation, excitement and violence

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

- (75) bêm hẹ kpòrà fé
 child this PFV.get_very_hot.D a_lot
 ‘He is a very mischievous child’

It is also used to express quarrel.

- (76) ʔám kpòrà ʔín bêm
 1SG PFV.get_very_hot.D with.D child
 ‘I tell off the child.’
- (77) wà kpòrà ʔín màá
 3PL PFV.get_very_hot.D with.D each_other
 ‘They quarrel.’

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

- (78) kòwà ʔó nù gón kpòngò,
 when. IPFV.lie_down ground on bed
 3PL
 ká téwà bàá wèè hìò-hìò ʔín màá
 then body.D.3PL PFV.catch fire = heat hot with each_other
 ‘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’ (*dé*), 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 ỳ̀k kómé dé wèè m̀́-bà sàdì
 then net of.2 SG 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) ʔám k̀́fá ndààkà ʔéráà, ʔá-nàá ḍṃ
 1SG PFV.ask.D tobacco hand.D.3SG, and_now.3SG PFV.burn.D.1SG
 ‘I begged him for tobacco and he refused.’

Refusing is conceived as burning somebody as in the proverb:

- (81) ɲ̀̀ŋ ngá m̀̀ dó màá nè ỳ̀ 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 *gá* ‘to get colder’ or the verbal adjective *gá* ‘cold’.

- (82) gá tèmé
 IMP.calm_down body.D.2SG
 ‘Be quiet.’
- (83) ʔà ṭ wèn nè gá ṭ
 3SG IPFV.say speech with cold body
 ‘He speaks quietly.’

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

- (84) k̀̀i tám ʔókòò,
 when.one IPFV.touch woman
 ká ṭi bàá g̣g̣é bún-bún
 then body.D.person PFV.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) ʔà nɛ déngá béí
3SG PRED.ESS cooled_down person
‘He is a shy person.’

5. Conclusion

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

The two nouns ‘cold’ and ‘heat’ provide the basis of the Gbaya 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 Gbaya uses a lot of adjectives expressing a temporary concept characteristic of an entity. Gbaya 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 Gbaya 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.

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