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Facts, feelings and temperature expressions in the Hindukush

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Indo-Aryan Palula (Pakistan) is spoken in a part of the mountainous Hindukush region characterised by sharp climatic and altitude contrasts. In this study, five central temperature terms are investigated and related to tactile temperature, ambient temperature and experienter-based (i.e. personal-feeling) temperature: *táatu* 'hot/warm', *šidáalu* 'cold', *húluk* 'heat', *šidaloó* 'coolness', and *šid* 'coldness'. A few salient correlations between particular expressions and the type of experience involved are identified: First, temperature adjectives are restricted to the domain of rational experience, whereas temperature nouns typically are associated with expressions that refer to thermal (and subjective) comfort or ambient temperature. Second, while temperature evaluated or measured directly by touching an entity tends to be grammatically encoded as noun modification, the subjective experience is expressed with the temperature noun as a stimulus acting upon a non-nominative experienter. Finally we discuss a few semantic extensions into the human temperament/propensity domain, such as 'affection is warmth' and 'anger is heat'.

1. Introduction

This paper investigates the temperature terms used in the Indo-Aryan language Palula, specifically how the choice among a small number of central temperature terms (and their accompanying grammatical constructions) is determined by semantic factors, such as the mode of evaluation (tactile/non-tactile) and the type of experience (temperature sensation/thermal comfort) referred to. Section 2 gives a general background of the speech community and its climatic and socioeconomic environment. Section 3 is a very brief overview of the most salient morphosyntactic features of the language. Section 4 presents the main findings: five central terms are identified and defined in terms of their "basicness"; two distinct lexical subsystems are introduced and related to a differentiation between tactile and non-tactile temperature evaluation; a further differentiation between ambient and experienter-based temperature that is evident in the use of two distinct grammatical constructions is outlined; and a few less central

terms are summarily presented at the end of this section. In Section 5, a few metaphorical extensions of temperature terms are exemplified and briefly commented on. In the concluding section, the findings are summarised and an attempt is made at mapping language-specific coding to a conceptual space defined by experience type, a temperature kinds-of-evaluation scale and a temperature value scale.

Palula speaking area

Map 1. Palula speaking area

2. The Palula community

Palula is spoken by approximately 10,000 people in the Chitral Valley in Pakistan (see Map 1). The language belongs to a group of closely related varieties subsumed under the heading Shina, which in its turn is part of a continuum of Indo-Aryan often referred to as “Dardic”,¹ the latter found in the mountainous Hindukush region at the north-western fringes of the Indian subcontinent, primarily on Pakistani soil.

Chitral, which is also the name of an erstwhile princely state, is the northernmost district in Pakistan’s Khyber-Pakhtunkhwa Province. It is situated in the middle of a system of interconnected mountain ranges that offer some of the world’s most spectacular views with enormous glaciers and high peaks. Compared to the monsoon areas immediately to the east and the south, the Chitral Valley belongs to the arid Central Asian region and receives comparatively little rain, evidenced in the mostly dry mountain slopes. From the main valley, numerous narrow side valleys wind their way through the mountain, side by side with cold water streams that have their starting points in high altitude lakes or glaciers. Within the relatively small habitat of the Palula community, primarily concentrated in the side valleys of Ashret and Biori, the altitude varies between 1,300 and 2,000 metres above sea level. The temperature in one and the same location can reach as high as 40°C in the summer and at least as low as –10°C in the winter. Although the lower altitudes receive occasional snowfall from mid-December onward, it is only in the upper parts of the side valleys where snow remains throughout the winter. The proximity to the Lowari Pass, the entry point from the lowland, provides annual opportunities for the population to experience first-hand extreme winter conditions with several metres of snow blocking the pass for sometimes months at a stretch, along with frequent avalanches.

All of the locations in which Palula is spoken are relatively small settlements with rudimentary infrastructure. Agriculture combined with animal husbandry is the main source of income. Traditionally, a large portion of the population practiced transhumance, in the spring taking their flocks of goats and sheep to the cool, green pastures situated at a considerably higher elevation than the permanent settlements, staying there throughout the summer months. That is still the case, but only to a limited extent, involving only a few individuals rather than a temporary shifting of entire households. A secondary source of income is received from logging (the type of wood referred

1. “Dardic” is not an established grouping, but for reasons of geographical proximity, some shared areal characteristics as well as some shared retentions, these languages are usually – but controversially – lumped together under this term. See Bashir (2003:822), Strand (2001:258), and Zoller (2005:10–11) for contemporary but differing views on classification and the use of terminology.

to as *traambiila šaaká*) in the form of royalties on cedar forest, growing on the high slopes, and through the sale of firewood (*bañi~la šaaká*) from the low-lying oak forest. Contrary to the rest of the district, the forest in these parts is still plentiful, containing a diversity of trees. However, an ever growing demand for wood in the nearby towns is changing the landscape of the habitat.

Photo 1. The co-author outside his house in Ashret, with the snow-capped peaks around the Lowari Pass in the background

There is a high reliance on wood for heating purposes, especially during the winter months, but also for all year round cooking. Each household collects firewood for their own use. While *bañi~la šaaká* is considered superior as firewood, as it lasts longer and its coal radiates more heat, economical benefits of the sale of it in the local markets has resulted in people using *traambiila šaaká* and other kinds of wood for heating, too. Apart from making fires to heat a room or an entire house, water is heated for washing and cleaning purposes. To a very limited extent, some people residing in the larger, low-lying settlements, have started using gas cylinders for cooking. For most of the Palula area, electricity provided by a few small hydroelectric power stations is mainly used for lighting purposes and for running a few low-energy devices. Even that is only possible during certain hours, mainly evenings and night time, in some of the settlements. Torches and kerosene lamps were used to a large extent before the advent of the power stations, and the latter continue to be used along with electric lamps and in areas without access to electricity. The demand for warm clothing is also high during the cold season, as well as during the cold nights in the high pastures. In the old days most clothing was locally made from sheep wool and fur from goats. A long and

thick coat, covering most of the body, known as *šukhaáu*, and a round, woollen cap, *khušóng*, are still today visible symbols of a Chitrali identity. Today, however, most cloth used for sewing clothes as well as the warm sweaters and coats that people wear in the winter are manufactured elsewhere and are purchased in the bazaars.

The need for cooling is not anywhere near that experienced in lowland Pakistan. The hot season is relatively short, and the average temperature is considerably lower than in the plains. Although people who have access to them use electric fans during some of the warmest nights, the usual remedy when the heat of the sun becomes unbearable is to retreat to the shadows under a tree or to the cool of a gushing stream. Without refrigerators, fresh foodstuff is seldom kept for a long time in the summer. If there is a need to store fresh meat for one or two days, it is common to keep it in cold water. On the other hand, the large amounts of tightly packed snow (*hiimaál*) that remain until late spring in some of the high-lying gorges provide a seasonal income to people in the Ashret Valley, as they load blocks of snow to vehicles and supply other parts of the area, including the bazaar town Drosh and its businesses, with the means to cool food and drinks. Apart from that, the annual fall of snow (*kir*) is absolutely essential for supplying the local community's need for water. The socioeconomic environment is likely to be reshaped as a new road tunnel is being constructed under the Lowari. This is subsequently opening up the area to a higher degree of mobility and cultural influences, and new products are being introduced in the local market.

Nowadays many people, particularly the younger generation, identify four distinct seasons, *basaánd* 'spring', *béeriš* 'summer', *šaraál* 'autumn', and *heewaánd* 'winter', but traditionally the year was seen as consisting of seven seasons (Table 1), each being (approximately) either 40 or 80 days long, characterised by particular weather conditions.² There are also further elaborations with more fine-grained (probably month-long) divisions, mostly based on activities associated with prominent crops being cultivated in the area, such as *ghoomlíitr* (the wheat harvest) and *juaarbhootaá* (the ploughing for maize).³

The present study is part of a larger field-linguistic undertaking, taking place from 1998 onward, including the collection, analysis and presentation of language data and orally transmitted tradition in collaboration with the local community (Liljegren 2008, 2009, 2010; Liljegren & Haider 2009, 2011).⁴ This study takes Koptjevskaja-Tamm's questionnaire as its starting point; it was adopted to determine what temperature

2. Some of the names have clear Indo-Aryan etymologies, whereas others are of obvious Pashto origin.

3. A full list along those lines was provided by Maulana Nadir Hussain (Ashret).

4. Two recent works that cover ethnographic aspects of the community and its adjacent environs are Cacopardo & Cacopardo (2001) and Akhunzada & M. Liljegren (2009).

expressions occur in the language, their semantic scope and possible extended use, with the aim of eliciting natural utterances from the Palula-speaking co-author as well as a few other native speakers.⁵ This collection has been supplemented by an already established text data base. However, it should be pointed out that this is only a preliminary study on a language with no other corpus available than the one built up from transcribed speech (mainly narratives) and a limited collection of written school curriculum. Thus, we are mostly relying on native speaker intuition and reproduction of naturally occurring expressions.

Table 1. Traditional Palula seasons. The list was provided by Khurshid Ahmad (Ashret)⁶

<i>basaánd</i>	40 days	1 Apr–10 May	Days are warm, plants begin to grow and flowers blossom.
<i>basandháaru</i>	40 days	11 May–20 Jun	Some trees bear fruit (e.g. apricots) and the first main harvest (wheat) is gathered.
<i>pišakaál</i>	80 days	21 Jun–10 Sep	The hot season.
<i>šaaraháaru</i>	80 days	11 Sep–30 Nov	Various kinds of fruit are ripe, the second main harvest (maize) is gathered, and people are stocking up for the cold season.
<i>ispinatsalá</i>	40 days	1 Dec–10 Jan	A change to cold weather and a possibility of snow.
<i>tooratsalá</i>	40 days	11 Jan–20 Feb	The coldest season.
<i>surjumi</i>	40 days	21 Feb–31 Mar	The days are turning warmer again.

3. A morphosyntactic overview

Three major open word classes can be identified: nouns, verbs and adjectives. Nouns are inflected for number (singular, plural) and case (nominative, oblique, genitive). In most of the declensional classes nominative plural and oblique singular are combined into a single formative. The genitive (at least in the plural) can be analysed as suffixed to the oblique rather than to the nominative stem: *šing* ‘horn’ (NOM.SG), *šing-a* (NOM.PL/OB.SG), *šing-am* (OB.PL), *šing-ii* (GN.SG), *šing-am-ii* (GN.PL).⁷ There are three

5. Special thanks to Muhammad Atiqullah (Biori) and Bibi Maryam (Ashret) for providing many relevant examples.

6. A largely identical list was independently provided by Muhammad Atiqullah of Biori.

7. Abbreviations: A transitive subject (in word order), ACC accusative, ADJ adjective, CAUS causative, CONJ conjunction, CV converb, DEF definite, DIST distal, DS different subject, ERG ergative, F feminine, FPL feminine plural, FSG feminine singular, GN genitive, IDEF indefinite, IMP imperative, M masculine, MPL masculine plural, N noun, NEG negation, NOM nominative,

main functions of the oblique case of nouns: (a) as the agent in the perfective (see Example (1)); (b) as the form to which postpositions are added (*šiš-á jhulí* ‘on top of the head’); and (c) as a locative (*diiš-a* ‘in the village’). As for personal pronouns, one group (including 3SG, 1PL, 2PL and 3PL) displays a slightly higher degree of case differentiation than most nouns, whereas another group (including 1SG and 2SG) shows a high degree of case syncretism with only two forms available. A number of other case-like functions and peripheral arguments appear as postpositional phrases. Palula has a typical Indo-European two-gender system, which is primarily sex-based (Corbett 2008:1). A noun is either masculine or feminine, a property established through morphological agreement.

There are two types of adjectives, inflecting and invariant. Invariant adjectives occur in one single form whereas most inflecting adjectives occur in three different forms (ending in *-u*, *-i* and *-a*),⁸ showing agreement in gender (masculine, feminine), number (singular, plural) and case (nominative, non-nominative):⁹ *paṇáar-u* ‘white’ (NOM.MSG), *paṇáar-a* (NOM.MPL/OB.M), *paṇээр-i* (F).

Verbs inflect for tense-aspect and mood (the latter in a limited sense). Verb agreement is part of all finite clauses, but the type of agreement realised on the verb is related to the particular tense-aspect category expressed. In the perfective,¹⁰ alignment is essentially ergative, as seen in Example (1); the agent is non-nominatively marked and verbal agreement is with the direct object. In the non-perfective categories, however, alignment is essentially accusative; the agent in (2) is in the nominative and the verb agrees with it in gender and number.

- (1) *iṇç-a čhéeli khéel-i.*
 bear[M]-OB she.goat[F] eat.PFV-F
 ‘The bear ate the goat.’

- (2) *iṇç áaṇç-a kha-áan-u.*
 bear[M] raspberry[M]-PL eat-PRS-MSG
 ‘The bear is eating raspberries.’

NP noun phrase, O transitive object (in word order), OB oblique, OBLG obligative, PFV perfective, PL plural, PROX proximate, PRS present, PST past, REFL reflexive, REM remote, S intransitive subject (in word order), SG singular, TMA tense, mood, aspect, TOP topic, V verb, VN verbal noun, VOC vocative, 1 first person, 2 second person, 3 third person.

8. There is also a marginally occurring feminine plural ending in *-im*.

9. In adjectives with accented *óo/áa* we find *é*-umlaut in the stem when inflected with a feminine *i*-suffix.

10. What historically are participles have been reinterpreted and extended in their use, and serve to express the two main TMA categories, Present and Simple Past.

In the present (2) as well as in categories based on the perfective (1), the verb agrees in gender and number, whereas in the future and past imperfective the verb ('eat' in (3)) agrees with the agent in person.

- (3) *áak hooṭal-í be gúuli kh-ón de ta áak*
 IDEF hotel[F]-OB go.CV bread[F] eat-3PL PST DS IDEF

šúm-a ṭeekíl-u.
 parrot[M]-OB call.PFV-MSG

'They went into a hotel, and while they were eating [there], a parrot addressed them.'

There are also a number of nonfinite forms, of which the "converb" (e.g. *be* 'having gone' in (3)) undoubtedly is the most central; it fulfils an important role, among other functions, in marking adverbial coordination and perfective sequentiality (see Haspelmath 1995 for a detailed treatment of the term *converb*). A productive way of increasing valence is by suffixing *-a* (or *-awa*) to a verb stem: *šidal-áanu* '(it) cools down' → *šidal-a-áanu* '(he) cools (it) down'. Sentences lacking an overt copula are allowed, and for predicate nominals in the Present tense, those are the norm.

4. Lexicalisation and grammatical distinctions within the temperature domain

4.1 Central concepts and basic values

Table 2 shows the central concepts encoded as words in Palula, their approximate meaning and corresponding semantic values in English. As will be seen in the following, they are not the only words used in the temperature domain, but they are the most salient ones, terms used throughout the speech community, and they are representative of the basic values that are expressed within the domain.

Table 2. Central temperature concepts in Palula

<i>húluk</i>	HEAT	NOUN	<i>táatu</i>	HOT	ADJ	Warming ↕ Cooling	Moderately cooling
<i>šidaloó</i>	COOLNESS	NOUN					
<i>šid</i>	COLDNESS	NOUN	<i>šidáalu</i>	COLD	ADJ	Cooling	

While all five terms are central in the sense that each fulfils an essential role in the temperature system as a whole, they are not all equally basic (Sutrop 1998: 61). First, only three of them are non-derived: *táat*- 'hot/warm' (*-u* in the cited form is a masculine singular agreement suffix), *húluk* 'heat' and *šid* 'coldness', whereas *šidáal*- 'cold' is

an adjectival derivation and *šidaloó* ‘coolness’, in its turn, is a noun secondarily derived from the latter. Second, while the four terms *táatu*, *húluk*, *šid* and *šidáalu* are independent from their preceding temperature history, and thus absolute terms (if adopting Frans Plank’s terminology, as outlined in Sutrop 1998: 68–69), *šidaloó* is a relative term, as it is dependent on the preceding (warming) temperature.

Etymologically, we are concerned with only three roots, all of them fully native and identified as belonging to the inherited Old Indo-Aryan (OIA) vocabulary. Palula *táatu* goes back to *taptá-* (Turner 1966: 5679), occurring in the Rigveda with the meaning ‘heated’ or ‘hot’. (Cf. the reconstructed Indo-European root **tep-* (Pokorny 1959: 1069) and its reflexes in various descendant languages, such as Latin *tepidus* ‘warm’, English *tepid*, and Russian *teplyj* ‘warm’.) Similar forms are found in contemporary temperature expressions in other Shina and Kohistani varieties. The word *húluk* has a reconstructed OIA etymology, **hūlukka* ‘heat’ (Turner 1966: 14148), with cognates in Kalasha (Chitral Group) *húluk* ‘noon; heat; hot’ (Trail & Cooper 1999) and Gawri (a Kohistani variety alternatively referred to as Bashkarik and Kalam Kohistani) *húluk* ‘sweat’ (pc. Muhammad Zaman Sagar). The three derivationally related word forms *šid*, *šidáalu* and *šidaloó* can be traced to *šítá-*, used as ‘cold’ in the Rigveda (Turner 1966: 12485). The derivations themselves, however, are most likely of ancient origin as evidenced in the form *šítalá-* ‘cold’ in Mahabharata (Turner 1966: 12487), and do not represent productive derivational patterns in today’s Palula. Similar forms with equivalent semantic content are found in other Shina and Kohistani varieties spoken in the region.

Thus, while the three terms, *táatu*, *húluk* and *šid* can be said to be equally basic in terms of morphological simplicity, independence and nativeness, both *táatu* and *húluk* are restricted, each to a particular semantic subdomain of temperature, and only *šid* can, as will be seen below, apply across these domains, leaving it as the single basic temperature term in Palula, taking all the relevant criteria for basicness into account.

As far as basic values within the domain are concerned, the main distinction is between only two opposite values: HOT and COLD, with the terms *táatu* ‘hot, warm’ and *húluk* ‘heat’ at one end and the terms *šidáalu* ‘cold’ and *šid* ‘coldness’ at the other end of the spectrum. Although both *táatu* and *húluk* were termed central in the previous section, the contrast between them is not related to basic value. There is subsequently no lexicalised differentiation comparable to that between English *hot* and *warm*, but it is worth noting that whereas *táatu* can refer to both pleasant and unpleasant warming temperatures, depending on context, *húluk* is exclusively used for excessive or unpleasant heat. The fifth of our central terms, *šidaloó*, stands for coolness, but is really an elaboration within the coldness realm. It is used exclusively to express the pleasant coolness that can be experienced during the hottest season, as a contrast to *húluk*, for instance when spending time in the shades of trees, away from the direct heat of the sun, or near a stream gushing by with water from ice-cold sources up in the

mountains. It is also used, as in (4), to talk about the considerably lower temperatures in the summer pastures as compared to the permanent settlements further down the valleys. The term is never used to express any perceived ‘not so cold’ temperature during the winter. Its value is thus essentially parallel to English *cool* or Swedish *sval*.

- (4) *súun-a bakáara xošán haans-éen-i, šidaloó haans-áan-u.*
 pasture[M]-OB flock[FPL] happy stay-PRS-F coolness[M] stay-PRS-MSG
 ‘The sheep and goats are happy there, where it’s cool (lit. where coolness stays).’

A corresponding expression, where the coldness of the winter is instead interrupted by pleasant warmth, would be captured in *moosím baraabár* ‘The weather is fine’ (lit. ‘equal’ or ‘even’, a term used with a scope much larger than the temperature domain alone). If making a tactile evaluation, and neither the HOT value nor the COLD alone is applicable, it is normally expressed as a rejection including both terms: *na ta táatu, na ba šidáalu* ‘It’s neither hot nor cold’.

Two clearly separate lexical subsystems can be identified in the language, one involving the two adjectives *táatu* ‘hot, warm’ and *šidáalu* ‘cold’, and the other involving the nouns *húluk* ‘heat’ and *šid* ‘coldness’ (and to some extent *šidaloó* ‘coolness’). Each of the two systems has its own grammar, a division that closely corresponds to a distinction between tactile temperature and non-tactile temperature, and in the latter system there is an additional morphosyntactic differentiation between ambient uses and experiencer-based uses.

4.2 Temperature adjectives: *táatu*, *šidáalu*

Tactile temperature or “touch temperature” is typically specified by the two opposite terms *táatu* ‘hot, warm’ and *šidáalu* ‘cold’. The two terms display the same morphological and syntactic behaviour. Both are inflecting adjectives, having the typical agreement forms, ending in *-u*, *-a* and *-i*, with regular umlaut formation in the feminine:

táat-u (NOM.MSG), *táat-a* (NOM.MPL/OB.M), *téet-i* (F)
šidáal-u (NOM.MSG), *šidáal-a* (NOM.MPL/OB.M), *šidéel-i* (F)

Like other typical (inflecting) adjectives these terms occur in modification, i.e. they modify nouns, as in (5), as well as in adjectival predication, as in (6). In the absence of a copula, it is the adjective-noun order that shows whether it is used predicatively or attributively: the noun phrase is head-final.

- (5) *yaár-oo bíiḍ-u šidáal-u mhoór-u wíi hín-u.*
 friend[M]-VOC very-MSG cold-MSG sweet-MSG water[M] be.PRS-MSG
 ‘My friend, this is very cold and sweet water.’

- (6) *pač, aní čay téeti-i.*
 ouch! PROX tea[F] hot-F
 'Ouch! This tea is hot.'

Examples of other adjectives that function as descriptive or qualitative modifiers of nouns, showing the same morphosyntactic characteristics as *táatu* and *šidáalu*, are given in (7)–(10):.

- (7) *tíi mají áa ĵhaťil-u ĥaaťáaku yhóol-u.*
 3SG.REM.OB in IDEF hairy-MSG demon[M] come.PFV-MSG
 'Meanwhile a hairy demon arrived.'
- (8) *so ĵhaťil-u de.*
 3MSG.REM.NOM hairy-MSG be.PST
 'He was hairy.'
- (9) *so bidráag-u kuṇaák sastíil-u.*
 DEF.MSG.NOM ill-MSG child[M] recover.PFV-MSG
 'The sick child recovered.'
- (10) *pañ-kaalúk-u phoó saxt bidráag-u de.*
 five-year.old-MSG boy[M] very ill-MSG be.PST
 'The five year old boy was very ill.'

A number of Palula adjectives, especially dimensional and human-propensity adjectives, can be substantivised, i.e. occur on their own as heads of noun phrases (as with *lhénđ-u* 'bald' in (11) that in this sentence has been translated as 'the bald one', referring to a boy called Katamosh), but that does not seem to be possible with *táatu* or *šidáalu*, or any other adjectives primarily referring to physical properties of inanimate entities.

- (11) *lhénđ-u sóon-a šóo čaáx bhíl-u hín-u.*
 bald-MSG pasture[M]-OB good.MSG fat become.PFV-MSG be.PRS-MSG
 'The bald one has become nice and fat in the high pastures.'

While *táatu* is a primary, non-derived adjective, *šidáalu* is, at least diachronically, derived from the noun *šid* 'coldness'.¹¹ Typically, *táatu* evaluates physical entities, such as food items that have been heated before serving (12), a surface or an object that has been warmed up by the sun (13) or in the fire (see Example (6) above), or a body part of someone who has a fever.

11. Although the derivation by means of a suffix *-áal* is of some historical significance, it cannot be described as a synchronically productive process.

- (12) *téet-i zúum uṛainíi-ee kaṭamuš-á čéyi díti.*
 hot-F broth[F] pour.VN-CNJ Katamosh[M]-OB cry[F] give.PFV-F
 ‘When pouring hot broth (over him), Katamosh cried out.’
- (13) *táat-a baṭ-á ḡhulí bhešéel-i.*
 hot-OB stone[M]-OB on make.sit.PFV-F
 ‘He put [her] on top of a hot stone.’

The same goes for indirectly heated objects, e.g. containers of hot drinks or food items: *téeti looṛí* ‘a hot bowl’, *táatu piaalá* ‘a hot cup’, etc.

In a similar way *šidáalu* evaluates physical entities, such as food items that are either not heated properly or have been allowed to cool off, as in Example (14), or a surface or a body part that has been exposed to cold air or snow, as in Example (15):

- (14) *ohó, čay šidéel-i hín-i.*
 oops! tea[F] cold-F be.PRS-F
 ‘Oops! The tea is cold.’
- (15) *šidáal-u khur ma na ḡhaká.*
 cold-MSG foot[M] 1SG.ACC¹² NEG touch.2SG.IMP
 ‘Don’t touch me with your cold feet!’

Some temperature conductors (or what are in some contexts perceived as sources of heat/coldness) can also receive tactile evaluation, such as *téeti húuši* ‘warm wind’, *šidáalu kir* ‘cold snow’ or *šidáalu hawá* ‘cold air’, when coming in contact with particular body parts.

While the temperature adjectives *táatu* and *šidáalu* most typically are used in the tactile sub-domain, as shown above, they can also denote ambient temperature. In such a case, however, the term is always a modifier or a predicate of a noun which defines weather in general, (16), or a specific time, (17), or space, (18)–(19), where the temperature is observed. The construction as such is thus entirely identical to the one used for tactile evaluation.

- (16) *aāj moosím bíḡḡi téet-i.*
 today weather[F] much -F hot-F
 ‘Today, the weather is very hot.’
- (17) *šidéel-i raát ḡḡi.*
 cold-F night[F] go.PFV.F
 ‘The cold night is over.’

12. The nominative and the accusative of the first person singular pronoun are identical in form, *ma*, as is also the case with the second person singular, *tu*, whereas the other personal pronouns maintain a NOM vs. ACC distinction: 3MSG: *so* vs. *tas*; 3FSG: *se* vs. *tas*; 1PL: *be* vs. *asaám*, 2PL: *tus* vs. *tusaám*, 3PL: *se* vs. *tanaám*.

- (18) *anú kamrá táat-u.*
3SG.PROX.NOM room[M] hot-MSG
‘This room is warm.’
- (19) *čatróol šidéel-i zhaáy.*
Chitral cold-F place[F]
‘Chitral is a cold place.’

The same terms are also used with reference to clothing, where *šidéeli paaṇṭí*, ‘lit. cold clothes’, are made of thin cloth and make you feel pleasantly cool in the summer, whereas “warm” clothes, as in (20), or blankets are necessary to keep you warm during the cold season.

- (20) *máa-the táat-u baneén zarurát.*
1SG.ACC-to warm-MSG sweater[M] necessity
‘I need a warm sweater.’

A number of entities modified by these two temperature adjectives are listed in Table 3.

Table 3. Entities modified by *táatu* and *šidáalu*

<i>táatu</i> ‘hot, warm’		<i>šidáalu</i> ‘cold’	
<i>tééti čay</i>	‘hot tea’ (after tasting it is considered good for drinking, i.e. really hot)	<i>šidéeli čay</i>	‘cold tea’ (after tasting it is considered not hot enough although still warm)
<i>táatu wii</i>	‘hot/warm water’ (usually heated over fire, e.g. for taking a bath)	<i>šidáalu wii</i>	‘cold water’ (usually really ice-cold, e.g. from a spring or a cold stream)
<i>táata baṭá</i>	‘hot stones’ (have e.g. been heated in fire)	<i>šidáalu báaṭ</i>	‘cold stone’ (exposed to cold weather)
<i>táatu piaalá</i>	‘hot cup’ (e.g. containing hot tea)		
<i>téeti dharaán</i>	‘hot ground’ (exposed to sun and felt when touching with bare feet)	<i>šidéeli dharaán</i>	‘cold ground’ (exposed to cold air and after touching with bare feet)
<i>téeti haát</i>	‘warm hand’ (i.e. someone else’s that you happen to touch)	<i>šidáalu khur</i>	‘cold foot’ (i.e. someone else’s that you happen to touch)
<i>téeti kursí</i>	‘warm chair’ (warmed up by someone sitting)	<i>šidáalu kir</i>	‘cold snow’ (after touching it)
<i>táatu dhaataár</i>	‘hot fire place’ (only used when it is still hot after a fire is put out)	<i>šidáalu ghoóṣṭ</i>	‘cold house’ (i.e. not heated during the cold season)
<i>téeti paaṇṭí</i>	‘warm clothes’ (such as worn in the winter to keep the body warm)	<i>šidéeli paaṇṭí</i>	‘thin clothes’ (worn in the summer to keep the body cool)

(Continued)

Table 3. (Continued)

<i>táatu</i> ‘hot, warm’		<i>šidáalu</i> ‘cold’	
<i>táatu baneén</i>	‘warm sweater’ (i.e. of a material that keeps you warm)		
<i>téeti húuši</i>	‘hot wind’	<i>šidéeli húuši</i>	‘cold wind’
<i>téeti zhaáy</i>	‘warm place’ (usually about a geographical location that tends to have warm weather all year round)	<i>šidéeli zhaáy</i>	‘cold place’ (usually about a geographical location that tends to have cold winters)
<i>táatu deés</i>	‘hot/warm day’ (in the summer)	<i>šidáalu deés</i>	‘cold day’ (in the winter)
		<i>šidéeli raát</i>	‘cold night’

4.3 Temperature nouns – ambient uses: *húluk*, *šidaloó*, *šid*

Non-tactile temperature is normally not expressed with the entity modifiers *táatu* or *šidáalu* (but note the special cases in (16)–(20) above). Instead we find constructions involving the nouns *šid* ‘coldness’ (21), *húluk* ‘heat’ (22)–(23), and *šidaloó* ‘coolness’ (24), as well as a few other less frequent or non-basic concepts (to be introduced in Section 4.6).

- (21) *kháaŋ-a, ték-a jhulí bīḍ-u šid de.*
 mountain[M]-OB peak[M]-OB on much-MSG coldness[M] be.PST
 ‘On the top of the mountain [the Lowari Pass] it was very cold.’
- (22) *típa húluk široó bhíl-u.*
 now heat[M] started become.PFV-MSG
 ‘It has started to be warm now.’
- (23) *aní ghooṣṭ-á šīṭi bīḍ-u húluk hín-u.*
 PROX house[M]-OB inside much-MSG heat[M] be.PRS-MSG
 ‘It’s warm inside this house.’
- (24) *šidaloó the be bheš.*
 coolness[M] to go.CV sit.2SG.IMP
 ‘Go and sit where it’s cool [i.e. in the shade]!’

The three terms *húluk*, *šid* and *šidaloó* are all masculine nouns. Like many other abstract nouns in Palula, their inflectional potential is somewhat limited; they do not (as far as we can discern) pluralise, but both *húluk* and *šid* occur with an oblique case marking that differs from the basic (nominative singular) form: *húluk-a* ‘in the heat’ and *šid-á* ‘in the coldness’, respectively, typical of nouns belonging to the *a*-declension, the largest declensional class. We have not been able to verify any other form of the in-between term *šidaloó* through corpus data or elicitation.

When these terms signify ambient temperature, they usually occur as a theme linked to a location,¹³ as in (25) (cf. (21) and (23), already cited above) or as an entity whose existence – or non-existence – is stated (with or without an overt copula verb), (26)–(28).

- (25) *aní zhay-í ba šidaloó na.*
 PROX place[F]-OB TOP coolness[M] NEG
 ‘It’s not cool in this place (lit. In this place there is no coolness).’
- (26) *páar bíiḍ-u húluk de.*
 last.year much-MSG heat[M] be.PST
 ‘It was very hot last year (lit. Last year there was much heat).’
- (27) *aáj bíiḍ-u húluk bhíl-u.*
 today much-MSG heat[M] become.PFV-MSG
 ‘It has been very hot today (lit. Today much heat came into being).’
- (28) *bakáara bíiḍ-i de, šid bíiḍ-u.*
 flock[FPL] much-F be.PST coldness[M] much-MSG
 ‘There were many sheep and goats, and it was very cold (lit. There was much coldness).’

Similar constructions are used when referring to the presence or absence of other abstract as well as concrete entities, as in the Examples (29)–(32).

- (29) *hasé díiš-a hateen-ú yam bhíl-u.*
 REM village[M]-OB such-MSG grief[M] become.PFV-MSG
 ‘There was such a grief in the village (lit. In that village such grief came into being).’
- (30) *maaxaám çhiṇ bhíl-u.*
 in.evening darkness[M] become.PFV-MSG
 ‘In the evening it became dark (lit. Darkness came into being).’
- (31) *míi ghooṣṭ-á túuri áak gáaḍ-u táapaṛ de.*
 1SG.GN house[M]-OB below IDEF big-MSG rock[M] be.PST
 ‘Below my house there was a big rock.’
- (32) *neečíir ba eesé waxt-í bíiḍ-i.*
 hunting[F] TOP REM time-GN much-F
 ‘There was a lot of hunting in those days.’

13. Theme is here only used in its semantic-role sense as “a participant which is characterized as being in a state or position, or changing its state or position” (Andrews 2007: 140).

4.4 Temperature nouns – experiencer-based uses: *húluk*, *šid*

The two terms *šid* ‘coldness’ and *húluk* ‘heat’ are also used within the experiencer-based, or personal-feeling, subdomain, here with a total exclusion of the pair *táatu/šidáalu*. These feelings could be caused by external conditions, such as cold weather (33) or a good fire (34). But they could equally well be due to internal conditions, such as a fever making someone freeze (35), or physical exertion making someone feel hot and exhausted (36).

- (33) *išóo, ma šid dáan-u.*
 ugh! 1SG.ACC coldness[M] fall.PRS-MSG
 ‘Ugh! I’m freezing.’
- (34) *tíi bíiḍ-u angóor de ba ma húluk díṭ-u.*
 3SG.ERG much-MSG fire[M] give.CV TOP 1SG.ACC heat[M] fall.PFV-MSG
 ‘He made a big fire and I began feeling hot.’
- (35) *ḵar-á tas šid šawóol-u.*
 fever[M]-OB 3SG.ACC coldness[M] put.ON.PFV-MSG
 ‘The fever made him/her feel cold.’
- (36) *táru utrap-í tas húluk díṭ-u.*
 fast run-CV 3SG.ACC heat[M] fall.PFV-MSG
 ‘He ran quickly and became hot.’

When *húluk* and *šid* are used for experiencer-based temperature, a clause type that Dryer (2007: 270–274) refers to as a semi-transitive seems to be most prevalent. In South Asian linguistics this construction has e.g. been labelled the Dative Subject construction (Masica 1991: 346–356; Ebert 2006: 560; Noonan 2003: 8–9); its most salient feature is the non-nominative – and non-ergative – coding of a nonvolitional “experiencer” (which in many Indo-Aryan languages typically, but not necessarily (Hook 1990), appears in the dative case), whereas the stimulus or sensation occurs in its basic, nominative form. In Palula, it is for instance the nominative temperature term referring to the sensation that triggers masculine singular agreement on the verbs ‘falling’ and ‘rising’, whether in the non-perfective, as in (37) and (39), or in the perfective, as in (38) and (40). The experiencer of the sensation, on the other hand, occurs in the oblique case if it is a noun, and in the accusative case if it is a pronoun, in either instance a category that encompasses location or goal.¹⁴ This is an instance of what

14. It is worth noting that most transitive clauses involving an argument fulfilling a recipient, benefactive or goal-related role, whether animate or inanimate, needs an additional specifying postposition (*the* ‘to’, *wée* ‘into’, *dáḍi* ‘toward’, etc.), thus clearly setting experiencer clauses of this kind apart as a construction type in their own right.

Bickel (2004: 84–89), in a more inclusive fashion, terms an *experiencer-as-goal* construction, a terminological choice that will be adopted here.

- (37) *asaám húluk dáan-u.*
 1PL.ACC heat[M] fall.PRS-MSG
 ‘We are feeling hot (lit. Heat falls on us).’
- (38) *asaám húluk dít-u de.*
 1PL.ACC heat[M] fall.PFV-MSG be.PST
 ‘We were feeling hot (lit. Heat had fallen on us).’
- (39) *nasiim-á šid šač-áan-u.*
 Naseem-OB coldness[M] rise-PRS-MSG
 ‘Naseem is feeling cold [due to fever].’
- (40) *nasiim-á šid šaat-u.*
 Naseem-OB coldness[M] rise.PFV-MSG
 ‘Naseem was feeling cold [due to fever].’

These clauses are grammatically intransitive, strictly speaking, since they do not have a direct object, but semantically the verb can be described as taking two arguments, an experiencer and a stimulus, whereas non-experiential clauses involving the same verbs, as in (41) and (42), are syntactically, as well as lexically, intransitive (Hook 1990: 325).

- (41) *kir dít-u.*
 snow[M] fall.PFV-MSG
 ‘It was snowing (lit. Snow fell).’
- (42) *angóor šaat-u.*
 fire[M] rise.PFV-MSG
 ‘There was a fire (lit. A fire rose).’

Temperature-experience is only one of several cases where the experiencer-as-goal construction is used (Liljegren 2008: 283–284). Some other, parallel occurrences are exemplified in (43)–(45). Like the temperature experiences, they are instances of non-volitional experience (Masica 1991: 350–351).

- (43) *tusaám níndra yhéend-im.*
 2PL.ACC sleep[FPL] come.PRS-FPL
 ‘You are feeling sleepy.’
- (44) *aslam-á trišt ḍhakíl-i.*
 Aslam-OB thirst[F] touch.PFV-F
 ‘Aslam became thirsty.’
- (45) *thíi le bangleém paš-í ma bhíili déen-i.*
 2SG.GN DIST bangle[M].OB.PL see-CV 1SG.ACC fear[F] fall.PRS-F
 ‘Looking at your bangles makes me frightened.’

Neither of the two arguments in such experiencer-as-goal clauses is an agent, but note that the construction in Example (35) above is an experiencer clause made causative by adding another argument, ‘fever’, which is fulfilling the role of an agent (in the perfective coded, according to the ergative alignment in Palula, with the oblique case, while the verb agrees in gender and number with ‘coldness’). This is also the case in the following examples, involving a sensation of heat (*húluk*) caused by warm clothing (46), and by the sun (47), respectively. Note that the semantics of the causative derivations remains firmly experiencer-based.

- (46) *pamílu baneén ma húluk dawa-áan-u.*
woollen sweater[M] 1SG.ACC heat[M] fall.CAUS-PRS-MSG
‘The woollen sweater makes me feel hot/warm.’
- (47) *súuri tas húluk dawa-éen-i.*
sun[F] 3SG.ACC heat[M] fall.CAUS-PRS-F
‘The sun makes him/her feel hot/warm.’

Apart from occurring as a nominative stimulus in experiencer-as-goal constructions of the kind exemplified above, the terms *húluk* and *šid* are frequently found as the head of a locative expression,¹⁵ ‘in the cold’ or ‘in the heat’, as in Examples (48) and (49).

- (48) *dhoór be šid-á halaáx bhíl-a de.*
yesterday 1PL.NOM coldness[M]-OB lost become.PFV-MPL be.PST
‘Yesterday, we were nearly freezing to death (lit. we had become lost in the coldness).’
- (49) *bakáara húluk-a tang bhéen-im.*
flock[FPL] heat[M]-OB narrow become.PRS-FPL
‘My flock [of sheep and goats] is suffering in the heat.’

The temperature expression itself may occasionally appear in a transitive clause, as the agent (50)–(51), or as the patient (52)–(53), again with either an ambient or an experiencer-based interpretation (although we should hasten to add that it is not necessarily the temperature sensation as such any more that is the most salient part of the experience captured by these utterances).

- (50) *húluk-a tanaám trokóol-u.*
heat[M]-OB 3PL.ACC make.thin.PFV-MSG
‘The heat has made them feel weak.’

15. These and similar obliquely coded noun phrases can alternatively be interpreted as temporal, denoting the “period” of heat or coldness, parallel to *béeriš-a* ‘in the summer’ or *heewand-á* ‘in the winter’.

- (51) *šid asaám kamb-awa-áan-u.*
coldness[M] 1PL.ACC shiver-CAUS-PRS-MSG
'We are shivering due to the cold (lit. The cold makes us shiver).'
- (52) *so húluk na țeng-áan-u.*
3MSG.NOM heat[M] NEG bear-PRS-MSG
'He cannot stand the heat.'
- (53) *tíi dáar lišáa ba húluk thúil-u.*
3SG.ERG door[M] close.CV TOP heat[M] do.PFV-MSG
'He/She made it warm when closing the door.'

It is obvious that experiencer-based temperature, such as the sensation of coldness by the person having a fever, as in (35) above, can stand in direct contrast with a simultaneous hot temperature felt by someone else touching with his hand the person who is having a fever, as in (54), where instead a tactile-related term must be used.

- (54) *aní phoo-íi šis táat-u.*
PROX boy[M]-GN head[M] hot-MSG
'This boy's head is hot [i.e. he is having a fever].'

Table 4 summarises how the five central terms introduced so far interact with grammar to distinguish between the sub-domains of temperature evaluation.

Table 4. Grammatically and lexically coded distinctions within the temperature domain

Tactile temperature	Ambient temperature		Experiencer-based temperature
Noun modification	Existential		Experiencer-as-goal
<i>anú táatu wíi</i> 'This is hot water.'	<i>anú deés táatu</i> 'This day is hot.'	<i>aáj húluk</i> 'Today it's hot (lit. Today heat exists).'	<i>asaám húluk dítu de</i> 'We were feeling hot (lit. Heat had fallen on us).'
		<i>róota šidaloó de</i> 'It was cool at night (lit. At night coolness existed).'	
<i>anú wíi šidáalu</i> 'This water is cold.'	<i>aáj šidáalu deés</i> 'Today is a cold day.'	<i>šid bíiđu de</i> 'It was very cold (lit. Much coldness existed).'	<i>ma šid šáatu</i> 'I was feeling cold (lit. Coldness rose in me).'

4.5 Further distinctions within warming and cooling

Both degree modification and comparison are possible with *šid*, *húluk*, *táatu* and *šidáalu*, i.e. the four terms of which each stand in an antonym relationship with one of the other terms. The in-between term *šidaloó*, on the other hand, does allow degree

modification, but not comparison. Degree modifiers such as *bīḍu* ‘very, much’ (e.g. *gī eērā yūuna hūluk bīḍu de* ‘Last month it was very hot’; cf. Examples (16), (21) and (23) above), *sax(t)* ‘severe, severely’ (e.g. *sax(t) táatu* ‘burning hot’) and *ziaát* ‘additional, excessive’ (e.g. *anú wī aré wīa dī ziaát šidáalu* ‘This water is colder than that water’, lit. ‘x is excessively cold from y’) are common with all of them, but it seems a number of other expressions (some idiomatic) are used as well, especially with *šid*, as in (55), and *hūluk*, as in (56), to express e.g. severe weather conditions and how they are being experienced.

- (55) *ma bēeli šid-á mūr-u.*
 1SG.NOM[M] almost coldness[M]-OB die.PFV-MSG
 ‘I was feeling very cold (lit. I almost died in the cold).’
- (56) *be hūluk-a daád-a.*
 1PL.NOM[M] heat-OB burn.PFV-MPL
 ‘We were feeling very hot (lit. We burned in the heat).’

Some degree modifiers can be additionally modified or strengthened by an “amplifying” marker *éé* (also used to encode exclusivity): *aāj ba bīḍu éé hūluk bhīlu* ‘Today it became extremely (or unexpectedly) hot’, and as for *šidáalu* there is a special co-lexicalised intensifier *šam* available: *šam šidáalu* with an approximate meaning ‘extremely cold, ice-cold’.¹⁶

4.6 Non-central temperature terms

Apart from the five concepts discussed so far, a few other temperature-related terms deserve some mention. Some of them are marginal, as they either largely overlap with one or the other of the basic terms or are applied in a very restricted way within the domain. Other terms refer to related processes rather than to temperature evaluation *per se* and are thus not central to the present discussion. However, as we shall see later, two additional terms are in fact of particular interest when defining the relations among the terms.

Both *gárum* ‘hot, warm’ and *garmí* ‘heat, warmth’ are ultimately Persian-derived (*garm*, *garmī*; Platts 1884: 904–905), although, as with so many other words of Perso-Arabic origin, it is almost impossible to say for certain by which route the word was introduced into the language, whether directly from Persian (as the official language of the erstwhile principality of Chitral), or through the regional language of wider communication, Pashto (from which Palula has borrowed extensively for a long time

16. There is in Palula a number of more or less fixed collocations of an individual adjective or adverb with such an intensifier, where the latter serves the purpose of intensification: *tap čin* ‘pitch dark’, *ḍang khilái* ‘all alone’, *čáu lhóilu* ‘bright red’, *šam nīlu* ‘deep blue/green’. Note that the intensifier used with *šidáalu* is also used with ‘blue/green’.

period), or through the present-day influential national language Urdu. Be that as it may, neither of these words – despite their relatively common occurrence – has become enough entrenched in the languages as to have carved out any sub-domain where it is not in competition with any of the central native terms. As for *gárum*, it is used interchangeably with *táatu* in e.g. expressions with reference to clothing, as in (57), but is only marginally applied to clearly tactile temperature. While *garmí* may be used for non-referential non-tactile temperature similar to how *húluk* is being used (*aáj garmí híníee* ‘Is it hot today?’), it does not occur in any constructions encoding an experiencer-based semantics (such as the ones exemplified in (34) and (36)). No corresponding use of non-native vocabulary for the cooling end of the spectrum has been noted.

- (57) *áak musaafár gárum šukhaáu jan-í pailáá*
 IDEF traveller[M] warm cloak[M] self[F]-OB twist.CV
yhíi de.
 come.3SG be.PST
 ‘A traveller came along wrapped in a warm cloak.’

The terms describing the more salient processes relating to temperature change are either derivationally or etymologically related to *táatu* and *šidáalu*, respectively. A number of warming processes are captured by the verbs *tap-* ‘to warm oneself (e.g. by a fire)’, *taapé-* ‘to heat up (something)’, and the passively derived *tapíŷ-* ‘to become warm, heat up (by itself)’. Similarly, for various cooling processes we find the verbs *šidálé-* ‘to become cold, cool down’ and *šidálá-* ‘to cool (something) down’. The verb *šidálé-* can enter into the experiencer-based sub-domain in expressions such as *ma šidáliilu hínu*, which has the literal meaning ‘I have become cold’ but really implies that a person is feeling cold because of a fever or as the result of being exposed to cold air. Usually, however, these verbs are used within the tactile sub-domain, as illustrated in (58) and (59). The expression *míi huŷút šidáliili*, which has the literal meaning ‘My body became cold’, may for instance be uttered by a person who had a fever but has since recovered.

- (58) *tuúš šidalaá ba be nis gúuli sangí kháaya.*
 a.little cool.down.CV TOP 1PL.NOM 3SG.ACC bread[F] with eat.1PL
 ‘We cool it [the stew] down a little, and then we eat it with bread.’
- (59) *kareé jéel-i chíir taapáan-a.*
 when give.birth.PFV-F milk[M] heat.PRS-MPL
 ‘When it [the goat] has given birth, we heat the milk.’

Another, relatively infrequent, term related to temperature change is *huluká-* ‘produce heat’, a verb derived from *hulúk* ‘heat’. This formally transitive verb is used for upward changes in ambient temperature, whether with or without an overtly expressed agent.

Also related to *táatu* and *šidáalu*, respectively, are the two nouns *taapiaál* ‘heat, warmth’ and *šidalaár* ‘coldness’. These two terms are essentially dedicated to the domain of inherently hot entities or well-known conductors of heat or coldness, in other words describing those entities which are perceived as sources of either heat (the sun in (60)) or coldness (the snow in (61)). Typically, the sun, the fire or a fever are such sources of heat, and the (cold) wind, snow, an avalanche, or even winter itself, are sources or inherent conductors of coldness. In most of the available data, these temperature terms are modified by possessive noun phrases encoding the various sources (the sun, fire) or conductors (wind, snow) of heat or coldness.

- (60) *súuri teeníi taapieel-i sangí nikhéet-i.*
 sun[F] REFL heat[F]-OB with come.out.PFV-F
 ‘The sun shone out warmly (lit. The sun came out with her own heat).’
- (61) *kir-íi šidaleer-i díi bač th-eeñđeéu.*
 snow[M]-GN coldness[F]-OB from safe do-OBLG
 ‘You have to protect yourself from the coldness of the snow.’

Unlike the primary terms *húluk* and *šid*, *taapiaál* and *šidalaár* are morphologically complex, derived from the temperature adjectives *táatu* and *šidáalu*, respectively, by a suffix *-aál* or *-aár*. Both of these nouns are feminine, belonging to the *i*-declension (the second largest, and largely feminine, noun class in Palula), and inflect for oblique case with an *i*-suffix and an accompanying umlaut in the stem (*taapiaál*, *taapieeli*; *šidalaár*, *šidaleeri*). Neither of the two nouns is used with plural reference in our data.

Although there is some (rather marginal) overlap between *húluk* and *taapiaál* (cf. (62) with (27)), and between *šid* and *šidalaár* in the ambient sub-domain, the main use of the two terms *taapiaál* and *šidalaár* is restricted to the high or low temperature radiating from inherently hot or inherently cold entities.

- (62) *aāj taapiaál ziaát hín-i.*
 today heat[F] excessive be.PRS-F
 ‘It’s extremely hot today.’

Therefore, although the glossing makes them look like synonyms, it might be more correct to gloss *taapiaál* as ‘hot-ness’ and *šidalaár* as ‘cold-ness’, describing a property of the conductor, whereas the term *húluk* stands for ‘the heat’ *par excellence*, and *šid* for ‘the cold(ness)’, the latter two having the ability to influence the subjective experience of human beings. The source-related terms cannot, for instance, occur in the experiencer-as-goal construction described above, and normally they are not used to refer to the tactile temperature of objects that have been subject to a heating or a cooling process. Some typical entities that are expressed as possessors of inherent heat or coldness are listed in Table 5.

Table 5. Possessive constructions with *taapiaál* and *šidalaár*

<i>taapiaál</i>	Inherently HOT	<i>šidalaár</i>	Inherently COLD
<i>súurii taapiaál</i>	the sun's "hotness"	<i>húušii šidalaár</i>	the wind's "coldness"
<i>angóorii taapiaál</i>	the fire's "hotness"	<i>kirii šidalaár</i>	the snow's "coldness"
<i>jaríi taapiaál</i>	the fever's "hotness"		

Another, less frequent, term, *taáu*, is similar in meaning, but not entirely synonymous with *taapiaál*. The best gloss we can find for *taáu* is 'hot temperature' (the closest we come to a generic term for temperature in Palula, although restricted to heating temperatures). Apart from its use with inherently heating entities, it can also be used with heat conductors, even where *taapiaál* would not be considered grammatical: *lambáii taáu* 'the hot temperature of the flame', *buxáarii taáu* 'the hot temperature of the stove'.

5. Semantic extensions of temperature meaning

As far as semantic derivations *to* the temperature domain are concerned, we have not been able to discover any clear examples. That the central temperature terms in Palula show great stability over time, and have withstood dramatic semantic shifts, even within the domain, is evident from the above comparison between contemporary Palula terms and their cognates in Old Indo-Aryan, representing a time-span of approximately 3,000 years (Cardona 1987: 448).

Neither are semantic derivations nor transfield shifts *from* the temperature domain particularly well-attested, but there are a few metaphorical extensions that deserve mentioning. The two main extensions in Palula are also some of the more commonly occurring temperature metaphors in languages at large: AFFECTION IS WARMTH (Kövecses 2002: 126) and ANGER IS HEAT (Kövecses 2002: 71), although it needs to be pointed out again that Palula does not make any lexical distinction between WARMTH and HEAT.

Almost exclusively, it is the heating temperature that is associated with the presence of a particular human propensity, whereas the cooling temperature is the absence of it, rather than in itself having a clearly defined metaphorical meaning. There is a preference for the use of expressions for heating or cooling processes, especially when they refer to anger (while affection is mainly associated with states), and a total absence of terms that typically relate (in its non-extended use) to experiencer-based temperature (*húluk*, *šid*).

5.1 Affection vs. indifference

A kind, generous and merciful person is someone whose heart is *táatu* ‘warm/hot’ (63), i.e. using the tactile-related adjective for heating temperature according to an AFFECTION IS WARMTH extension. More or less synonymous to that is someone whose heart is *gáaḍu* ‘big’.

- (63) *tasīi hīru bīḍ-u táat-u.*
 3SG.GN heart[M] very-MSG hot-MSG
 ‘He’s kind and generous (lit. His heart is very hot).’

The temperature adjective can also be the modifier of a noun referring directly to the person, with the same metaphorical meaning maintained, as in (64), with the antonym term *šidáalu* ‘cold’ used in referring to a person lacking affection or kindness, as is also the case in (65).

- (64) *ma ta táat-u tu ba šidáal-u.*
 1SG.NOM[M] DS hot-MSG 2SG.NOM[M] TOP cold-MSG
 ‘I am merciful but you aren’t (lit. I am hot but you are cold).’

- (65) *amád šidáal-u mīš.*
 Ahmad[M] cold-MSG man[M]
 ‘Ahmad is an unkind person (lit. Ahmad is a cold man).’

A slightly different construction, but with the same metaphorical link as in the previous examples between being ‘cold’ and showing indifference to other people and their needs is found in the local proverb in (66).

- (66) *yéi-ee-báab-ii hīru teenīi auleed-í ḡhulí,*
 mother-CNJ-father-GN heart[M] REFL offspring[M]-OB on
auleed-ii hīru ba šidáal-u baṭ-á ḡhulí.
 offspring[M]-GN heart[M] TOP cold-MSG stone[M]-OB on
 ‘Parents care for their children, but children don’t care for their parents (lit. Mother’s and father’s heart is on top of their offspring, but the offspring’s heart is on top of a cold stone).’

Less commonly, affection can also be phrased as an inchoative process with *tapiḡ-*, as in (67), whereby someone’s heart warms up, meaning that the person became kind, felt affection or started behaving in a generous way.

- (67) *tas the mīi hīru tapiḡl-u.*
 3SG.ACC to 1SG.GN heart[M] heat.up.PFV-MSG
 ‘Now I feel good towards him (lit. My heart heated up to him).’

Processes, however, are primarily associated with the next extension to be dealt with, namely ANGER IS HEAT.

5.2 Anger

While a ‘warm/hot’ heart is related to kindness and affection, a ‘warm/hot’ brain, as in (68), implies anger or an inclination towards anger, and should thus be seen as part of an ANGER IS HEAT schema.

- (68) *so téet-i dimaáy waalá.*
 3MSG.NOM hot-F brain[F] person[M]
 ‘He is easily angered (lit. He is a hot-brain person).’

The heat, or rather its increase or decrease, can also be directly attributed to the person, as in (69) (here with the borrowed term *gárum*, which is equivalent to *táatu*), or by using the inchoative verb for the heating process *tapij-*, as in (70), or the corresponding intransitive verb for the cooling process, *šidalé-*, as in (71).

- (69) *úč-a beet-í-e gárum na bhe.*
 little-OB word[F]-OB-GN hot NEG become.2SG.IMP
 ‘Don’t become angry for small things (lit. Don’t become hot by a little word)!’
- (70) *so máa-the tapijíl-u.*
 3MSG.NOM 1SG.ACC-to heat.up.PFV-MSG
 ‘He became angry with me (lit. He heated up to me).’
- (71) *so šidalíl-u.*
 3MSG.NOM cool.down.PFV-MSG
 ‘His anger subsided (lit. He cooled down).’

Alternatively it is the anger itself that is cooling off, as in (72).

- (72) *tasíi rúuṣ šidalíl-i.*
 3SG.GN anger[F] cool.down.PFV-F
 ‘His anger subsided (lit. His anger cooled off).’

Another use of the intransitive cooling verb in reference to the metaphorical temperature of someone’s heart (which in contrast to the Examples (63) and (67) is relating to the ANGER IS HEAT schema rather than to AFFECTION IS WARMTH) can be seen in (73). What is captured here is the feeling of satisfaction after someone who caused anger has been done away with (either he died or was killed in revenge).

- (73) *míi tas the saxt rúuṣ de,*
 1SG.GN 3SG.ACC to severe anger[F] be.PST
típee míi híru šidalíl-u.
 by.now 1SG.GN heart[M] cool.down.PFV-MSG
 ‘I was absolutely furious at him, but now it’s all gone
 (lit. I had severe anger towards him, but by now my heart has cooled off).’

The cooling down could also be phrased as a causative action (74), whereby a third party settles or mediates in a conflict.

- (74) *ma ĵang šidala-áan-u.*
 1SG.NOM battle[F] cool.down-PRS-MSG
 ‘I settle disputes (lit. I cool down a battle).’

It is a bit more uncertain how the use of the heating verb in (75) relates to the anger metaphor.

- (75) *tasii đóok tapijíl-u hín-u.*
 3SG.GN back[M] heat.up.PFV-MSG be.PRS-MSG
 ‘He is creating problems (lit. His back has heated up).’

5.3 Power

An isolated use of the term *taáu* ‘heat’ (see 4.6) captures another metaphorical extension of heat, namely into the domain of power, force or ability (76).

- (76) *tíi ba asaám teeníi taáu paš-awéel-i.*
 3SG.ERG TOP 1PL.ACC REFL heat[F] see-CAUS.PFV-F
 ‘He showed us his power/ability (lit. He showed us his heat).’

We have not been able to discern whether this metaphor is somehow connected with the anger metaphor, such as when a high degree of anger or rage (perhaps of divine nature) produces activity, or constitutes an entirely separate metaphor, perhaps associated with an EMOTION IS FIRE schema (Kövecses 2000:75–76) in which intensity is conceptualised as heat. The latter would not be too far fetched since *taáu* in its literal use often is applied to heat conductors.

5.4 Urgency

Another less central extension, is heat relating to urgency or seizing an opportunity, as in (77), where the idea is that work needs to be done while it is still hot.

- (77) *kráam na šidal-eeñđeú.*
 work[M] NEG cool.down-OBLG
 ‘Don’t delay the work [that has to be done] (lit. You mustn’t cool down the work).’

This is perhaps a component of a blacksmithing schema, reminiscent of the saying “strike while the iron is hot” and similar proverbs in other European languages, in those cases, too, a reminder to seize the opportunity quickly, before it goes.

5.5 Other extensions

Another possible extension is coldness as death, as in (78)–(80), but we still need more detailed study to determine that for certain. It should be noted that the verb ‘go’ occurs in all of these examples.

- (78) *so šidali gúum.*
 3MSG.NOM cooled.down.CV go.PFV.MSG
 ‘He suddenly died (lit. Having cooled down, he went).’
- (79) *so hans-í šidali gúum.*
 3MSG.NOM laugh-CV cooled.down.CV go.PFV.MSG
 ‘He kept laughing./He laughed his head off (lit. Having laughed and cooled down, he went).’
- (80) *so šidáal-u báat gir-í gúum.*
 3MSG.NOM cold-MSG stone[M] turn-CV go.PFV-MSG
 ‘He died (lit. Having turned into a cold stone, he went).’

While *šidáalu* in (80) is clearly identified by native speakers as the adjective ‘cold’, the lexical identification of *šidali* in (78) and (79) as the converb form of ‘cool down’ is much more uncertain. The metaphor DEATH IS COLD is known from other parts of the world, e.g. as it is encountered in European literature (Ruiz 2007: 12–13), where it can be seen as the natural opposite of a LIFE IS HEAT metaphor, perhaps not too unlike the intensity and action associated with heat that we referred to in 5.3.

6. Conclusions

Five central temperature concepts in Palula have been identified: *táatu* ‘warm/hot’, *húluk* ‘heat’, *šid* ‘coldness’, *šidáalu* ‘cold’ and *šidaloó* ‘coolness’. All of them are part of the native vocabulary, with a long history in the language, and each one of them fulfils an essential role in the temperature system as a whole, although they differ somewhat in their basicness. However, as far as basic temperature values are concerned (Sutrop 1998: 68–72; 1999: 186–187), Palula essentially displays two opposite poles, HOT and COLD.

Apart from this basic two-way contrast, another crucial differentiation is one that is made between the encoding of temperature sensation, on the one hand, and the encoding of thermal comfort, on the other, mirroring two underlying types of temperature perception and their separate reference points (Koptjevskaja-Tamm & Rakhilina 2006: 255). Equally important, and intersecting with the previous differentiation, is the extent to which rational and measurable facts are being related back (e.g. as the result of direct skin contact) as opposed to emotional responses,

to e.g. certain weather or health conditions, being expressed. Those parameters determine which particular construction is being activated. Most non-tactile and “subjective” experiences, e.g. those relating to ambient temperature, are lexically coded along with experiencer-based perception, while a particular syntactic construction, the experience-as-goal construction, is exclusively dedicated to thermal comfort. Expressions of (ambient) non-tactile experience that refer to specific locations or temporal entities, however, are perceived as objects rather than as circumstances, and can therefore receive the same encoding as expression of direct tactile sensation.

The semantic distinctions within the domain and its accompanying linguistic coding in Palula is illustrated in Table 6, according to which the type of experience and the kind of evaluation involved together with a temperature value scale (Koptjevskaja-Tamm 2011) define the conceptual space of the temperature region (Croft 2001:92–98) onto which the language-specific constructions have been mapped.

Table 6. Semantic map of the temperature domain in Palula. The boxes show the distribution of the five central concepts and the fields/patterns show the distribution of characteristic constructions, from left: temperature terms as modifiers, temperature terms as themes in existential clauses, and temperature terms as stimuli in experiencer-as-goal clauses. (The dotted line represents the relatively marginal extension of temperature adjectives into the non-tactile realm.)

	EXPERIENCE-BASED		EXPERIENCER-BASED	
	Tactile	Non-tactile
<i>táatu</i> ADJ	<i>húluk</i> N		
	<i>šidáalu</i> ADJ	<i>šidaloó</i> N		
		<i>šid</i> N		

The “objective” evaluation or directly measurable temperature sensation normally appears as adjectival modification, with the two contrasting terms *táatu* and *šidáalu*. This extends into the sub-domain of clothing with the property of keeping people warm or cool. For the “subjective” experience Palula uses nouns. For ambient temperature, the three nouns *húluk*, *šid* or *šidaloó* may appear as themes in existential or locative clauses, whereas an experiencer-as-goal construction is used for experiencer-based temperature, in which the nouns *húluk* or *šid* occur as a stimuli having an effect on non-agent human experiencers, along with a few other minor construction types. That ambient temperature (i.e. non-tactile experience-based temperature) is

semantically lying between tactile and experiencer-based or personal-feeling temperature (Koptjevskaja-Tamm 2011) is confirmed by our findings, but the link between experiencer-based and ambient temperature in Palula is somewhat stronger than the link between tactile temperature and ambient temperature.

In addition to this mapping of the five central concepts and the constructions they occur in, we find it helpful to view the domain from a slightly different perspective, namely that of a transfer of an entity from a source (or possibly a benefactor) to a target (or possibly a recipient). In Palula, we can trace a three-way differentiation between: (a) an identifiable source of heat/coldness, (b) a theme, which is the heat or the coldness itself, and (c) a target for the heat/coldness to be attached to. For each of these three parts of this schema there is a particular lexical encoding (apart from the central concepts also including the two derivations *taapiaál* and *šidalaár*), as is illustrated in Table 7, co-occurring with a particular syntactic or construction-based differentiation.

Table 7. Schematic relations among Palula temperature concepts, their perception and constructional encoding

“SOURCE”	→	“THEME”	→	“TARGET”
<i>taapiaál</i>		<i>húluk</i>		<i>táatu</i>
HEAT (of sun, fire, fever) N		“THE HOT” N		HOT/WARM (tea, day, hand) ADJ
<i>šidalaár</i>		<i>šid</i>		<i>šidáalu</i>
COLDNESS (of wind, snow) N		“THE COLD” N		COLD (foot, night) ADJ
Temp term as <i>possessee</i> of conductor/source entities		Temp term as <i>stimulus</i> in experiencer-as-goal clauses or as <i>theme</i> in existential constructions		Temp term as <i>modifier</i> of concrete and abstract referents

As far as semantic extensions are concerned, the most salient ones are those connected with the two well-known metaphors AFFECTION IS WARMTH and ANGER IS HEAT. As for the first-mentioned it is either the noun referring to the person thus characterised as loving or generous that is being directly modified by the adjective *táatu* ‘hot/warm’ (i.e. as a ‘warm’ person) or the person’s ‘heart’ that is ‘hot/warm’. The antonym *šidáalu* ‘cold’ is used similarly for a person who shows indifference in relation to other people (rather than hate or overt meanness). A growing human affection can alternatively be expressed as an inchoative process, i.e. as someone’s heart ‘warming up’ to another person. Anger is almost exclusively expressed as an inchoative process, either as a person ‘heating up’, i.e. becoming angry, or in the other direction as ‘cooling down’, i.e. letting his or her anger subside. Two other, more marginal as it seems,

extensions are POWER IS HEAT and heat applied to a state of urgency. A matter for further research is a possible extension of coldness to the domain of death. In none of the semantic extensions have we so far found any of the terms or the constructions used at the “subjective” end of temperature encoding. Instead, it is the adjectival modification used for tactile perception and the processes associated with tactile temperature that have been subject to a significant degree of semantic extension.

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17. References to Turner 1966 are made to entry numbers, not to page numbers.