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## **Let me count the ways it stinks: A typology of olfactory terms in Purepecha (Mexico)\***

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### **Abstract**

In this chapter I present a three-way typology of olfactory language in Purepecha, comprising: (i) abstract terms, composed of one of 15 perception roots and the smell-specific ‘spatial couplet’ morphology *-k’u* and *-nti*; (ii) descriptive terms whose root refers to another state or event, such as ‘to burn’, plus the spatial couplet morphology; and (iii) an odor source (usually a noun) introduced by a generic verb ‘to be, smell’ *ja-*. I discuss how different elicitation methods obtained varying proportions of these three

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types, as well as the distribution of the three generic roots referring to smelling. I then offer an historical perspective, demonstrating how the same three-way typology of smell terms has remained relatively stable over time. Implications for theories of word formation in Purepecha are also considered.

**Keywords:** Purepecha, olfactory language, smell canon; word formation

## 1 Introduction

The study of olfaction in various disciplines has lagged behind the study of other senses, especially sight and touch (e.g. McHugh 2012: 9; Classen, Howes & Synnott, 1994: 9; Stoller 1989). Where olfaction has been studied, it has often been subject to negative aesthetic judgements, such as being placed at the bottom of the sense hierarchy (Corbin 1982). Classified by Kant (2006 [1798]) as a secondary, subjective sense, smell has traditionally been considered difficult, or even impossible, to express in words (Levinson & Majid 2014; Majid & Burenhult 2014; Wnuk & Majid 2014 and references therein). Indeed, of the five senses, olfaction is widely considered to be confined to the periphery of our sensory expression. In many Western languages, terms for smells are drawn from the source of the smell itself, or a similar smell, such as ‘smoky’ (i.e. of or from smoke), or constitute an

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ostensive statement such as ‘like bacon’ or ‘bacon-y’ in English.

Alternatively, smell terms may constitute hedonic statements (i.e. relating to pleasant or unpleasant sensations) that can be applied to all kinds of sources, for example ‘disgusting’ or ‘delicious’. As these hedonic adjectives indicate, in many languages terms for smells may be shared across the senses, enabling something (or someone) to look, feel, taste, smell or sound ‘lovely’.

Yet olfaction is unique amongst the senses when it comes to both perception and reception. Odors can be carried and perceived from afar, as well as from nearby, making smell both a remote and a contact sense (McHugh 2012: 25). In contrast, objects cannot be touched or tasted at a distance and, while sounds can be heard from afar, they do not interact physically with the human body as the particles contained within odors do. Indeed this uncontainable, or transgressive, property, of smell alone was considered both fantastic and dangerous in early Christian writings, for example: When writers from this period wished to evoke a divine presence in concrete terms, they did so with olfactory imagery, whereby invisible odors could cross the boundary of heaven and earth (Harvey 2006: 53). Conversely Tertullian, an early Christian theologian from Carthage, considered the uncontainable fumes and fragrances from pagan rites to be dangerous to Christians since one cannot block out olfactory stimuli as one can visual or auditory stimuli, for do so is to stop breathing (Harvey 2006; 38).

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To this end, many languages have developed morpho-syntactically distinct constructions for expressing this “highly elusive” (Classen et al. 1994: 3) and potent sense. Purepecha, an isolate spoken in centre-west Mexico, is one such language. It possesses three different, but related, predicate types for describing smells that I call (i) abstract, employing a reduplicated form of one of 15 roots relating to specific types of  $\sqrt{\text{PERCEIVED FOULNESS}}$  or  $\sqrt{\text{PERCEIVED PLEASANTNESS}}$  and the two spatial location suffixes *-k'u* ‘manual’ and *-nti* ‘interior surface’; (ii) descriptive, whereby a root whose semantics are not restricted to smell, such as *kurhi-* ‘to burn’, is reduplicated and then optionally combined with the same pair of spatial location suffixes; and (iii) source-based, which involves the source of an odor (usually a noun, with optional objective marking) introduced with the generic existential smell predicate *ja-*. Two further generic smell predicates exist, *p'untsu-* and *sipi-*, whose functions I will also discuss in relation to Viberg’s (1984) typology of perceptual predicates.

The rest of this chapter is structured as follows: In Section 2, I offer a brief background to the linguistic domain of olfaction, namely the various cross-linguistic and cross-cultural strategies for encoding smells. I introduce Purepecha, including a brief history of scholarship on the language, as well as some key aspects of its morphosyntax in Section 3. This then acts as context for Section 4, where I present the three-way typology of odor terms in Purepecha, that is, the morphosyntactic constructions employed to describe smells, based on my own fieldwork data collected in 2014-2016 in

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the villages of Carapan, Tacuro and Zopoco<sup>1</sup>, as well as data drawn from Friedrich (1984, unpublished). This typology is supplemented by a presentation of taste predicates as a means of introducing the notion of root under-specification (for more detail, see Bellamy 2018). In Section 5, I offer an historical perspective of olfactory terms by discussing the forms present in the two main early historical sources of the language: the *Diccionario Grande*, an extensive Purepecha-Spanish dictionary, and the *Relación de Michoacán*, the earliest written record of the prehistory of one group of Purepecha people, the *wakusecha* ‘eagle warriors’. This historical comparison suggests that the three-way typology has remained relatively stable since written records began. Section 6 constitutes conclusions and avenues for future research.

## 2 Background to ‘smell languages’<sup>2</sup>

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<sup>1</sup> These three villages are situated in the Purepecha-speaking region known, in Spanish, as the *Cañada* or *Valle de los Once Pueblos* ‘Valley of the Eleven Villages’ or *Eraxamani* in Purepecha. According to Chamoreau (in press), around 15% of contemporary Purepecha speakers reside in this region.

<sup>2</sup> Various anthropological studies have also been concerned with the osmologies (i.e. classificatory systems based on smell) found in a number of societies in Africa, Asia and the Americas. As these studies focus on the social and cultural role of smell rather than its

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Contrary to Classen et al.'s (1994: 113) claim that odors “elude expression through language” due to their non-verbal processing in the brain, it is possible to identify many languages where smells are encoded according to specific linguistic strategies, which are not related to or reliant on their source. I will review these languages briefly in this section.

Let us begin in Africa. The Western Nilotic<sup>3</sup> language Luwo (centre-west Sudan) possesses dedicated terms for expressing smells (also called ophresiological terms) that constitute a separate word class on morphosyntactic grounds (see Storch 2014 and references therein). Its smell words are not semantically related to any other nouns, verbs or adjectives in the language, and possess a multiplicity of meanings not found in any other set of quality words, such as those expressing sounds or textures (Storch 2014: 51). For Kuteb (Jukanoid, east-central Nigeria) Koops (2009: 62) lists thirteen “unusual” olfactory terms, all of which refer to unpleasant smells, mostly described in terms of comestibles, e.g. *nun ashwáe* ‘to smell of fermented cassava, guinea corn sprouts’. Blench & Longtau (1995) present the main odor terms of Tarok (Benue-Congo Plateau, east-central Nigeria), highlighting their unique grammatical properties with respect to other word

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linguistic encoding, I will not review them here. Instead I refer the interested reader to Classen et al.'s (1994) overview, as well as the references cited therein.

<sup>3</sup> Note that all language classifications are based on those found in Glottolog (Hammarström et al. 2018).

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classes, including ideophones. In five Bantu languages of Gabon, Hombert (1992) identifies up to nine basic odor terms (in the sense of Berlin & Kay 1969) referring primarily “at least in our culture, to unpleasant odors” (Hombert 1992: 62, my translation). In the Afro-Asiatic family, Kambaata (Highland East Cushitic, Ethiopia) has two basic evaluative smell verbs: *anj-* ‘to smell good (intr.)’ and *bob-* ‘to smell bad (intr.)’, supplemented by the more specialized, but equally basic, term *toon-* ‘to smell burnt (intr.)’ (Treis 2010: 326). Kapsiki (Biu-Mandara, north-east Nigeria and northern Cameroon) possesses 14 smell ideophones amongst its rich canon of ideophones (see also Lambert-Brétière, this volume, on ideophones in Fon).

The systematic cross-cultural research into olfactory language of Asifa Majid and collaborators has highlighted, amongst other things, the important role of hedonic terms in smell typologies. Take their work on the Aslian languages, for example. Jahai (Malay Peninsula) possesses around a dozen abstract, but everyday, terms for describing odors (Burenhult & Majid 2011; see also Majid & Burenhult 2014). These terms can be categorized in terms of their pleasantness, with unpleasant connotations accounting for the majority (two-thirds) of terms. Maniq (southern Thailand) is also rich in abstract smell terms, possessing around 15 phenomenon-oriented descriptions characterized along two principal dimensions: pleasantness as before, but also in terms of dangerousness (Wnuk & Majid 2014: 133, see also references therein). Semai (Malay Peninsular) has around 25 distinct smell terms, 15 of which adhere to a sensory template structure, termed



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‘expressive’ (considered by some to be synonymous with ideophone<sup>4</sup>), which provides information on a type of perceptual notion not limited to olfaction (Tufvesson 2011: 88).

Finally, Amis (Formosan; Taiwan) possesses “more than a dozen abstract odor terms, and uses the proclitic *hala=/hali=/ha=* plus reduplication of a noun as the source-oriented construction for manifesting olfactory perception” (Lee 2015: 321). A similar preference for unpleasant terms has been found for Formosan languages (Lee 2015, 2010, this volume), while certain similarities with referents of ‘stink’ terms in Seri (isolate, Mexico) are also suggestive of this overall preference (O’Meara & Majid 2017; see also Section 4.1).

In Mexico two ‘smell languages’ have also been identified, namely Papantla Totonac (Totonacan; Veracruz) and Seri (isolate; Sonora).<sup>5</sup> In Papantla Totonac, the verb *kinkalá* ‘to smell’ can be used intransitively to

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<sup>4</sup> I thank an anonymous reviewer for clarifying this point of terminology, as well as for highlighting that the use of ideophones or expressives is common cross-linguistically for describing sensory perception events.

<sup>5</sup> Enríquez Andrade (2010) presents specific odor terms from ten languages of Mexico (Chinantec, Ch’ol, Chontal de Tabasco, Huastec, San Mateo del Mar Huave, Maya (undefined), Mazatec, Guerrero Tlapanec and Zapotec) on the basis of dictionary entries. Some of these languages do not appear to possess abstract terms as defined in this chapter, and those that do require further, empirical investigation before being included in an overview of ‘smell languages’, if that is indeed appropriate.

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refer to something or someone smelling or emitting an odor (e.g. ‘it smells of sweat here’), or transitively to refer to the act of perceiving an odor, such as *Juan kinkalá tamaqni* ‘Juan smells the fish’ (Enríquez Andrade 2012: 26-30). In addition to *kinkalá*, Papantla Totonac also possesses a specific set of odor terms, analyzed as adjectives, which behave as nominal predicates (Enríquez Andrade 2012; Levy 1992; see also Enríquez Andrade 2004; Aschmann 1946 for previous analyses). These terms can be organized into four groups, plus a marginal group and one for taste, which always refer to the place of emanation of a particular odor (Enríquez Andrade 2012: 31-33).

Seri possesses seven monomorphemic and two multimorphemic smell verb roots. These terms are abstract in that they “appear to distinguish different qualities of smells, [... but] do not lexicalize the source of the odor and are not used with one particular referent” (O’Meara & Majid, 2017: 115). The case of Seri also highlights how smellscapes can change over time; olfactory language in Seri is under threat as a result of cultural transformations imposed by increasing globalization (see also Section 5).

Purepecha, a language isolate spoken by around 125,000 people (INEGI, 2010) in the central highlands of Michoacán, Mexico, also appears to be one of these olfactory languages. Friedrich (1971a, 1984) was the first scholar to note that the language possesses an unusually large number of terms translated as ‘to stink’, and that these terms display a particular, and uncommon, morphosyntactic pattern. However, until now, this observation has slipped under the radar of olfactory language researchers. In this

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chapter, I aim to fill this gap by offering the first classification of odor terms in Purepecha. To do so, I draw on data from Friedrich's published and unpublished materials (idem.; Friedrich unpublished), a late sixteenth century Purepecha-Spanish dictionary (Anonymous 1991) and my own fieldwork data from 2014 to 2016, gathered using the language of perception elicitation kit (Majid (ed.) 2007), interviews, freelisting, a written translation exercise, and reactions to real sources or 'smell jars'.

### **3 Introduction to Purepecha**

#### *3.1 Purepecha language*

Purepecha is spoken by around 125,000 people (INEGI, 2010) in the highlands of Michoacán, center-west Mexico. Speakers are currently located in four non-contiguous regions, which also constitute the four main dialect groupings. Dialectal differences can be observed in the phonology and lexicon (Chamoreau 2005; Friedrich 1971b), although the extent of syntactic variation remains unclear due to a continued lack of research (Chamoreau, in press). The language is widely regarded as an isolate (e.g. Bellamy 2018; Campbell 1997), and a peripheral member at best of the Mesoamerican linguistic area (Chamoreau, in press; Campbell, Kaufman & Smith-Stark 1986). The majority of Purepecha speakers are bilingual in

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Spanish, the national, dominant language of Mexico, with only around a quarter of children learning Purepecha at home (Chamoreau 2000: 14). As such, the language is under considerable pressure from Spanish, the results of which can be observed in general language shift as well as in innovative grammatical constructions based on Spanish models (see Chamoreau 2012, 2007).

The modern language is relatively well described; references include two descriptive grammars (Chamoreau 2000; Foster, 1969), an historical grammar (Swadesh 1969), a learner's grammar (Chamoreau, 2003) and various books and articles on more specific aspects of the language (e.g. Aranda Herrera 2016 on pluractionality; Capistrán Garza 2015 on multiple object constructions; Vázquez Rojas Maldonado 2012 on semantics, including the mass-count distinction; Monzón 2004 and Friedrich 1971a on spatial location morphemes). A Purepecha-Spanish dictionary (Velásquez Gallardo 1978) and sketch dictionary (Lathrop 2007 [1973]) also exist, although neither offers analysis of its entries at the morpheme level.

Researchers also benefit from a number of historical sources, notably a very early colonial grammar and dictionary (Gilberti 1987 [1558], 1975 [1559]), and an impressive two volume Spanish-Purepecha, Purepecha-Spanish dictionary, probably dating to the late sixteenth century (Anonymous 1991). This last source in particular enables a comparative historical perspective to also be taken in this chapter.

Purepecha is a wholly suffixing, agglutinating language, with

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nominal-accusative alignment, seven nominal cases and a preference for dependent marking (cf. Chamoreau, in press). The language is characterized by its rich verbal morphology and a large set of between 30 and 50 spatial location morphemes, depending on the regional variety. The verb, or what Friedrich (1984) rather underwhelmingly refers to as the ‘long word’, in its maximum expression has 12 slots following the root (see Table 1).

Table 1. Maximum verb template in Purepecha (following Chamoreau, in press)

√	1	2	3	4	5	6	7	8	9	10	11	12
Stem	Derivational suffixes							Inflectional suffixes				
√	S	LO	DI	CAU	VC E/ VA L	DE S	AD V	3PL. O	AS P	TN S	IR R	M D
	F	C	R	S								

It is not possible to fill all slots simultaneously, and words rarely contain more than four or five suffixes, with a functional maximum of seven (Friedrich 1984: 65). Moreover, suffixes occurring in the same slot generally do not co-occur, with two exceptions to be discussed in the next section.

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### 3.2 *Spatial location suffixes*

The spatial location<sup>6</sup> suffixes play a pivotal role in the formation of both nouns and verbs in Purepecha, and constitute a vital component of the abstract smell terms. Spatial location morphemes are of two types: (i) those expressing extracorporeal reference only (1a), and, more frequently, (ii) those with both corporeal and extracorporeal reference (1b-c).

(1) a. *waxa-nu-x-ti*

sit-**SP.LOC.patio**-AOR-3.S.ASS

‘He sat on the **patio**’ (adapted from Chamoreau, in press)

b. *jupa-narhi-xa-p-ka=ri*

wash-**SP.LOC.flattish.area**-PROG-PST-1/2.S.ASS=2.S.SG

‘You were washing your **face**’ (adapted from Chamoreau, in press)

c. *jupa-narhi-ta-xa-p-ka=ri*

wash-**SP.LOC.flattish.area**-NCR-PROG-PST-1/2.S.ASS=2.S.SG

‘You were washing the **wall**’ (adapted from Chamoreau, in

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<sup>6</sup> These suffixes are also known as suffixes of locative space (Friedrich 1971a) or *morfemas espaciales* ‘spatial morphemes’ (Monzón 2004). I will use the term ‘spatial location’ suffix or morpheme, in the spirit of Monzón, to avoid possible confusion with the locative case marker *-rhu*.

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press)

Foster (1969: 93) notes that “[b]ody suffixes may be applied to non-body areas but not vice versa.” Indeed, this latter sub-set can have abstract as well as concrete reference, in some cases also demonstrating considerable metaphorical and semantic extensions (Chamoreau, in press; see also Capistrán Garza 2011 for more detail). The suffix *-narhi* ‘flattish area’ in examples (1b-c), for example, can also refer to feelings of fear and the sun (idem.). Note also that there is no formal or functional relationship between the spatial location suffix and the nouns for the locations / areas they represent, e.g. *-nu* ‘on the patio’ vs. *ekwarhu* ‘patio’ in (1a) and *-narhi* ‘principal, flattish area’ (1b) vs. *tsintsikata* ‘stone wall’ (1c).<sup>7</sup>

Aside from the voice / valency suffixes, whose combinatory properties are limited to causative plus one other suffix of the same category (Chamoreau, in press; see also Capistrán Garza 2015), the spatial location suffixes are the only morphemes that can co-occur in the same verb slot.

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<sup>7</sup> However, it is worth noting that in an alternative word for ‘patio’ *teronukwa* or *terunukwa* the SP.LOC for ‘principal, flattish objects’ *-nu* is clearly observable (Chamoreau 2003: 223; Velásquez Gallardo 1978: 76). This term can be analyzed as comprising the root *teru-* ‘to be in the middle’ (Friedrich unpublished), the spatial locative for ‘patio’ and the nominalizer *-kwa*. A similar situation is found in the term *kánarhikwa* ‘face’ (Chamoreau 2003: 232), where the spatial locative *-narhi* can be observed directly after the root *ká-*, here probably in the sense of ‘to have something on the body part’ (Friedrich unpublished).

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While the single occurrence of a spatial location suffix is more common, certain combinations of two suffixes are attested. Friedrich (1971a: 71-73; see also Monzón 2004: 46-51) identifies three major (2a) and five minor (2b) spatial suffix combinations which, as a group, he names the ‘coupled spatial’.

(2a) Major coupled spatial (Friedrich 1971a: 71-72)

- (i) *-cha* ‘narrowing, usually of a longish object at an intersection’ + *-nti* ‘interior surface of angle on vertical axis’

e.g. *p’amo-cha-nti-ni* ‘to covet the food another is eating’

- (ii) *-k’u* ‘manual’ + *-nti* ‘interior surface of angle on vertical axis’

e.g. *kuri-k’u-nti-ni* ‘to smell foully’ (see Section 4.1)

- (iii) *-nha* ‘interior enclosure, cavity’ + *-cha* ‘narrowing, usually of a longish object at an intersection’

e.g. *arhi-nh(a)-cha-ni* ‘to speak enviously of another’

(2b) Minor coupled spatial (Friedrich 1971a: 72-73)

- (i) *-marha* ‘oral’<sup>8</sup> + *-nti* ‘interior surface of angle on vertical axis’

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<sup>8</sup> The only scholar to discuss *-marha* as a spatial locative, Friedrich (1971a: 15) initially labels it as having only the referent ‘taste’, but later in the same work (p. 72) refers to it as an ‘oral’ suffix, along the lines of *-mu* and *-mi* both ‘edge-orifice’ and *-marhi* ‘orifice-edge’, to which it is clearly related, thereby underlining its spatial nature.



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e.g. *ampa-marha-nti-ni* ‘to clear up (as of the sky)’ (see also

Section 4.2)

(ii) *-mi* ‘edge-orifice’ + *-cha* ‘narrowing, usually of a longish object at an intersection’

e.g. *iki-m(i)-cha-ni* ‘to hate or curse someone else’

(iii) *-mi* ‘edge-orifice’ + *-nha* ‘interior enclosure, cavity’

e.g. *iki-m(i)-nha-ni* ‘to be angry, enraged’

(iv) *-pa* ‘hearth, field, social “front”’ + *-nharhi* ‘flattish surface, often interior’

e.g. *t’i-pa-nharhi-ni* ‘to roast corn’

(v) *-tsi* ‘lower surface seen from above’ + *-mu* ‘edge-orifice’<sup>9</sup>

e.g. *teru-tsi-mu-ni* ‘to cross a threshold’ (idiomatic or archaic)

As we saw in the single-occurrence examples in (1a-c), the referents of spatial location suffixes can range from the concrete (i.e. a body part or area) to the abstract (e.g. ‘fear’), and the pathway of semantic change may not be easily reconstructible, if at all. A similar situation holds for the coupled spatial.<sup>10</sup> As Friedrich (1971a: 71) notes, “their meaning ranges

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<sup>9</sup> Note that both *-mi* and *-mu* refer to the area identified by Friedrich (1971) as ‘orifice edge’.

<sup>10</sup> I follow Friedrich’s (1971a) glosses for the spatial location suffixes, which are similar, but not identical, to those given by Chamoreau (in press), Foster (1969) and Monzón (2004)

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from the sum of two constituents to something considerably different from that of either.” The verb cited in (2b-iv) is a fine example of compositional semantics, since its literal translation is reflected in its component parts, namely: to heat (*t'i-*) the interior surface (*-nharhi*) allofactively<sup>11</sup> in the hearth area (*-p'a*).<sup>12</sup> Examples (2a-ii, iii) instantiate the non-compositional type, where the meanings of the spatial location suffixes do not logically combine to produce the meaning of the derived verb. I will offer a more detailed analysis of the spatial couplets relating to smell (2a-ii) and taste (2b-i) in Sections 4.1 and 4.2.

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for other varieties of Purepecha. I consider the semantics to be similar enough across authors to be able to follow one author only. Seeing as Friedrich was the first to identify the spatial couplet, I follow his terminology.

<sup>11</sup> Allofactive voice here refers to an action that is carried out by an agent towards an object that is external or distinct from it (Friedrich 1971a: 8). Middle and reflexive stems, on the other hand, are instances of the “non-allofactive voice”, which comprise “actions and states that are somehow immanent in or referring to the subject” (Friedrich 1971a: 8–9); i.e., the event remains in the domain of the subject (Capistrán Garza 2015: 206).

<sup>12</sup> The terminal suffix *-ni* ‘non-finite’ does not need to be translated for these examples to make explanatory sense, thus it is omitted.

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#### 4 Smell terms in Purepecha

Purepecha speakers have three linguistic strategies at their disposal for describing smells. The first set of terms constitutes roots that only refer to odors when combined with a particular pair of spatial location suffixes, the aforementioned ‘coupled spatial’ of *-k’u* and *-nti*. They are not related semantically or formally to the sources they describe, therefore I refer to this set as abstract terms, although it should be noted that when they combine with different spatial location morphology, they can then refer to taste (see Section 4.2). The second set of terms takes an intransitive root, e.g. *kurhi-* ‘to burn’ or *xarhi-* ‘to be sour’, and optionally combines with the spatial couplet morphology that is obligatory for the first set to describe the smell indicated in the root. I label these descriptive terms, following, for example, Burenhult & Majid (2011), and Lee (2015). The third set comprises the root *ja-* ‘to be’<sup>13</sup> often combined with the spatial couplet morphology for smell (as in the first and second sets) and the source of smell in the form of a noun, often marked with the objective case *-ni*. I simply call this third set

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<sup>13</sup> The root *ja-* has rather general stative semantics, translated by Friedrich (unpublished) as ‘to be, to be or get dirty’ on its own, but its combinatorial possibilities with stem formative morphemes are numerous. The spatial couplet morphology of *-k’u* and *-nti* offer a smell reading of the root, whereas *-marha* indicates taste. Other derivational possibilities include *ja-shi-* ‘to be dirty in general (singular)’. I translate *ja-* simply as ‘be’ for simplicity and to save space in the gloss, but this simplification should be acknowledged.

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source terms or source-based terms. See Table 2 for an overview of the three types of smell terms.

Table 2. Smell term types in Purepecha

<b>Smell term type</b>	<b>Morphosyntactic properties</b>
	<i>Example</i>
<b>Abstract</b>	Smell root + reduplication + spatial couplet <i>uchu-</i> + <i>uchu</i> + <i>-k'u-nti-</i>
<b>Descriptive</b>	Intransitive root (+ reduplication) + spatial couplet <i>kurhi-</i> (+ <i>kurhi-</i> ) + <i>-k'u-nti-</i>
<b>Source-based</b>	Source noun (+objective case) + generic smell root <i>urhusi</i> (+ <i>-ni</i> ) <i>ja-k'u-nti-sin-ti</i>

In the sub-sections that follow, I will outline the morphosyntactic properties and semantic boundaries of each set of terms, as well as their relative frequencies in the different types of elicitation methods used to collect data on the language of smell in Purepecha.

#### 4.1 *Abstract terms*

Abstract smell terms are formed according to a specific morphological template, comprising a reduplicated smell root, the spatial couplet of *-k'u*

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‘manual’ and *-nti* ‘interior surface of angle on vertical axis’ followed by a combination of context-appropriate verbal morphology, such as tense, mood and person marking, see Table 3.

Table 3. Abstract smell term template

<b>Root</b>	<b>Reduplicated</b>	<b>Spatial</b>	<b>Spatial</b>	<b>TNS / MD /</b>
<b>root</b>		<b>couplet 1</b>	<b>couplet 2</b>	<b>PERS</b>

As such, these abstract terms behave as intransitive verbs when grammatically complete. This template is presented in examples (3a-d), which are citation forms of a subset of the eight terms found in the Paul Friedrich Papers at the University of Chicago (Friedrich unpublished).<sup>14</sup> Note that examples (3a-c) refer to an unpleasant smell, whereas (3d) refers to a pleasant one (cf. Section 2).

(3) a. *kini-kini-k'u-nti-ni*

stink-RD-SP.LOC.manual-SP.LOC.interior.surface-NF

‘to stink (e.g. from body dirt, especially of unwashed person)’

b. *k'witsi-k'witsi-k'u-nti-ni*

stink.bad-RD-SP.LOC.manual-SP.LOC.interior.surface-NF

<sup>14</sup> Note that examples from all sources have been adapted to fit the orthographic conventions used in this chapter.

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‘to stink badly (e.g. as bar when men have vomited and urinated the night before)’

c. *uchu-uchu-k’u-nti-ni*

stink-RD-SP.LOC.manual-SP.LOC.interior.surface-NF

‘to smell (e.g. of fish, soup, etc. after eating, of bad meat, bad breath)’

d. *p’untsu-p’untsu-k’u-nti-ni*

smell.good-RD-SP.LOC.manual-SP.LOC.interior.surface-NF<sup>15</sup>

‘to be fragrant, aromatic (e.g. of grilled meat, after rain)’

We can call these terms abstract insofar as they bear no formal or functional relation to their prototypical referents or sources, for example the terms *kurucha* ‘fish’ and *churipu* ‘soup’ show no similarity to the root *uchu-* in *uchu-uchu-k’u-nti-ni* ‘to smell of fish, soup, etc.’ in example (3d). Likewise, *xiwani* ‘to vomit’ and *jarhatsini* ‘to urinate’ are not related to the smell root *k’witsi-* in (3b). The olfactory medium of perception of the root qualities seems to be provided by the spatial couplet, yet this interpretation does not fall out logically from their individual semantics, namely *-k’u* ‘manual’ and *-nti* ‘interior surface of angle on vertical axis’ (but see Section 4.2. for the more transparent case of taste morphology). The main issue lies in the

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<sup>15</sup> In subsequent examples, I will gloss the spatial locatives simply as SP.LOC (i.e. without the locational specification) for the sake of space.

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manual nature of the first suffix. While the second suffix could potentially apply to the region under the nose (although not the septum directly, more the general area in which smell might be perceived), the first has no obvious application or extension to that region since hands, fingers, wrists – and its semantic extensions of leaves and material – are not involved in the olfactory experience. How the manual suffix came to contribute to the expression of olfactory experience in Purepecha remains an open question for the moment.

Table 4 lists the 15 abstract smell terms identified to date, where they are attested (under the heading ‘Ref’, where PF stands for Paul Friedrich archive and KB for data gathered by the author), their meaning, and typical sources.

Table 4. Abstract smell roots in Purepecha

Root	Ref	Meaning	Typical source
<i>janha-</i>	PF,	‘to smell bad all over’,	not specific <sup>16</sup>
	KB	‘to smell intense (bad or good)’	

<sup>16</sup> There is an argument for moving *janha-* to the generic category described in Section 3.3.1, since it is clearly composed of *ja-* ‘to be; smell’ and the spatial locative *-nha* ‘interior enclosure, cavity’ and has a much less specific set of prototypical referents. It should also be noted that it is a marginal form, having only been elicited from one participant. However, it will remain in this category with the aforementioned caveats attached.

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<i>jio-</i>	PF	‘to smell bad’, ‘to stink’	Grasses (unpleasant), butter / lard / fat, pig, goat
<i>jore-*</i>	KB	‘to smell bad’	Fried onion
<i>kiní-</i>	PF, KB	‘to stink’	Things unwashed, mainly people (body dirt) but also plates, etc.
<i>k’witsi-</i>	PF, KB	‘to stink badly’	Vomit, urine (also places where these have occurred)
<i>one-</i>	KB	‘to smell bad’	Food that is on the turn
<i>p’untsu</i>	PF,	‘to be fragrant,	Grilled meat, fresh wet earth /
-	KB	aromatic’	ground / clay, perfume, flowers
<i>síncho</i>	KB	‘to smell bad’	Smoke, burning
<i>sipi-</i>	PF, KB	‘to stink (fouly)’, ‘to smell bad’	Old sweat, unclean / unwashed things (including clothes, house, animals) wound, urine, woman’s sexual parts, rotten things
<i>síwi-/</i>	PF,	‘to smell strongly’	Acrid fumes, mainly toasting chili,
<i>tsíwi-</i>	KB		dust
<i>tose-</i>	KB	‘to smell fatty’	Fatty foods, fish, meat
<i>tsike-</i>	KB	‘to smell strongly’	Chili, something hot or acrid that gets up your nose (like <i>xiwi-</i> , found in Santo Tomás)
<i>tso-/</i>	PF,	‘to have a strong smell’,	Chili and onion, when cutting or
<i>ts’o-**</i>	KB	‘to give off fumes, vapor that smarts or	cooking, onions on breath, etc.



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		bothers' / 'to have a strong smell (usually but not necessarily bad)'
<i>uchu-</i>	PF, KB	'to stink' Fish, soup, chicken, etc. (mainly after eating), bad meat, bad breath, sexual fluids

\* It is unclear whether the similarity to the root *jorhe-* 'to be hot' is notable.

\*\* Friedrich (unpublished) states that these two roots differ as a function of individual variation, although also offers different translations for each one.

It is noteworthy that the terms in Table 4 refer to bad or unpleasant smells in all but three instances: *p'untsu-* 'to be fragrant, aromatic' has overtly positive connotations, while *tose-* 'to smell fatty' is neither positive nor negative, and *janha-* 'to smell strongly or all over' can apply to both positive and negative odors. This preference for negative smell terms is a pattern attested in many other olfactory languages (Lee 2015; Wnuk & Majid 2014; see also Section 2). Additionally, two of these abstract roots can also take particular derivational morphology to form a noun that expresses an object that is either odorous or emits odor. From the root *k'witsi-* 'to stink badly' we find, notably, the noun *k'witsi-ki* 'skunk', where the suffix *-ki* is a fused nominalizing or classifying morpheme (see, e.g., Bellamy 2018). From *sipi-/xipi-* 'to stink foully' there is both *xipi-a-ti* 'medicine' and the less

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explicable in terms of semantic extension *xipi-mi* ‘mosquito’.

Abstract terms proved quite difficult to elicit from native speakers in an experimental setting. Indeed, the first attempt at exploring such olfactory terms fell flat on its face. In this task, Purepecha speakers (N = 12) smelled the 12 scents stored in The Brief Smell Identification Test™ booklet. To release the odor, participant scratched the brown patch on each page of the booklet with a sharp pencil, and then responded to the question *na jak'untini?* ‘how does it smell?’ (see Majid et al. 2007 for the full protocol). This procedure yielded 119 valid tokens, of which 19 (16%) were descriptive (as described in Section 4.3) and an overwhelming 100 (84%) were source-based (as found in Section 3.3). No abstract terms were elicited.

However, it did not prove impossible to elicit abstract smell terms from Purepecha speakers. In a follow-up task, participants (N = 13) performed a freelisting exercise, where they were asked to list as many terms for smells as they knew, having just done the same for both colors and body parts. Of the 66 terms (mean = 5) produced by the speakers, 26 (almost 40%) were abstract terms, almost half were descriptive terms, while only 7 (11%) were source-based terms. Twelve different abstract roots were produced, with only *janha-*, *tipa-* and *jore-* missing from the full list provided in Table 4. The most popular roots were *p'untsu-* and *uchu-*, occurring four times each. This switch in preference for the type of term used may be related to the nature of the task. The freelisting task allows the speaker more opportunity

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to produce personally or culturally relevant terms and is not constrained by specific odors as it is not odor-oriented. The Basic Smell Identification Kit™ tests for odors that are considered common in the USA (and the West more generally) but may not be so familiar to the Purepecha speakers. Alternatively (or additionally) these odors may invoke associations with cultural imports, such as *pinoli* ‘pine floor cleaner’ or *duvalina* ‘type of dessert’, both Purepecha versions of Mexican brand name products, as opposed to naturally occurring odors.

Abstract terms were also elicited in the ‘smell jar’ experiment, in which the same participants from the freelisting exercises were given ten plastic jars in succession, each one containing a prototypical odorous source, as identified in Friedrich’s (1984, unpublished) work. Despite the preference for bad odors in the abstract smell terms, the substances given to the participants to smell were relatively balanced between odors considered positive (grilled meat, fresh wet earth, perfume, flowers, maize and smoky wood) and negative (butter, toasting chili, cooked onions and fish) to avoid an overwhelmingly unpleasant participatory experience. All participants were given the jars in the same order and were asked the same question after opening each jar and sniffing its contents: *na jak’untisti?* ‘how does it smell?’. The results were not dissimilar, in terms of distribution of response type, to those elicited from the freelisting exercise. Abstract terms comprised 33 of the 124 responses (27%), descriptive terms 55 (44%) and source terms 35 (28%); in both experiments, descriptive terms proved the

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most frequent. Similar to the previous task, 11 separate abstract roots were elicited, with *p'untsu-* again the most popular, alongside *s'iwí-*, both occurring eight times each. An overview of the three experiments and their respective results, in terms of response type is presented in Table 5.

Table 5. Type of smell term response elicited by experiment

<b>Experiment</b>	<b>Total no. responses</b>	<b>Type 1 (Abstract)</b>	<b>Type 2 (Descriptive)</b>	<b>Type 3 (Source)</b>
<b>Brief Smell</b>	119	0 (0%)	19 (16%)	100 (84%)
<b>ID Kit</b>				
<b>Freelisting</b>	66	26 (40%)	33 (50%)	7 (10%)
<b>Smell jars</b>	124	33 (27%)	55 (44%)	35 (28%)

The smell jars elicited the largest number of responses, closely followed by the smell identification booklet. The most abstract terms were elicited through freelisting, with descriptive terms quite evenly balanced between the freelisting and smell jar tasks. Source-based terms are overwhelmingly linked to the scratch-and-sniff test, indicating it is the least useful for investigating the domain of olfaction with this population.

#### 4.2 *A matter of taste*

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It should be considered here that the abstract terms presented above are not strictly restricted to expressing odors. On the one hand, the roots in this set are monolexic, in that they can apply to multiple sources and are not formally related to the words for these sources, rendering them abstract. On the other hand, not only can two of the roots take nominal morphology to form odor-related nouns, but most can also serve as taste predicates by removing the root reduplication and replacing the spatial couplet of *-k'u + -nti* with *-marha* 'oral', referring to taste (see Friedrich 1971a; cf. also Vanhove & Hamid Ahmed, this volume, on a relationship between olfactory and gustatory perception in Beja). In this sense, then, the roots cannot be considered pure basic smell terms, such as those found in Maniq for example (see Section 2), as they can form part of a verb that refers to a sense other than olfaction. It is the addition of the spatial suffixes that changes the locus of perception from the nose to the mouth (see the discussion of *-marha* below). The consequence of this interpretation is that the root in itself should not be translated as 'to stink' or 'to smell bad' but rather be represented by a concept of  $\sqrt{\text{PERCEIVED FOULNESS}}$  or  $\sqrt{\text{PERCEIVED (UN)PLEASANTNESS}}$  (rendered orthographically in SMALL CAPS to reflect the conceptual nature rather than direct translation of the entry) along with its typical referents, such as 'fish', 'soup' or 'unwashed body' (cf. also Bellamy, 2018).

It is highly likely that the disyllabic suffix *-marha* can be deconstructed into the spatial locatives *-ma* 'presence of liquid or, in its absence, concave

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space’ and *-rha* ‘central frontal area external or internal to the secondary volume’; ‘central frontal area of an inanimate body or of a surface’ (Monzón 2004: 194-195, my translation). Friedrich does not explicitly state this to be the case in his published work, and Monzón (2004: 192) omits *-marha* from her list of spatial morphemes. However, in an unpublished presentation of taste verbs, Friedrich claims that *-ma* and *-rha* are indeed separate morphemes that, when combined, refer to ‘the having of taste’, with the specific meaning of whatever has the taste being covered by the root. He further relates the *-ma* segment to the set of *m*-stem spatial location suffixes, which all have to do with the mouth / chin / jaw area when referring to the human body (see also Chamoreau 2000: 296-298). A further example of this *m*-stem is the, here reduplicated, root plus spatial locative *tso-tso-mi-* ‘to have a bad or acrid taste, like a strong chili’ (Friedrich unpublished).

In the same way that there are three linguistic means for describing odors in Purepecha, there are also three to describe tastes. The first is the abstract term, as described in Section 4.1 for smell, where one of a limited number of specific roots combines with a spatial couplet, e.g. *jio-ma-rha-* ‘to taste bad’. The difference in the case of taste is that the root is not obligatorily reduplicated. A list of abstract taste predicates, adapted from Friedrich’s (1971a: 204) list of roots taking *-ma(-)rha* ‘taste’, ‘oral’ is found in Table 6.

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Table 6. Abstract taste predicates in Purepecha<sup>17</sup>

<b>Taste predicate</b>	<b>English translation</b>
<i>jio-ma-rha-ni</i>	‘to have a bad taste’
<i>kwata-ma-rha-ni</i>	‘to taste well’
<i>shunha-ma-rha-ni</i>	‘to taste unpleasant, as of unripe fruit, vegetables’
<i>sincha-ma-rha-ni</i>	‘to taste charred, burnt’
<i>sira-ma-rha-ni</i>	‘to have a bad taste, of smoke and fumes’
<i>tsere-ma-rha-ni</i>	‘to taste somewhat bitter’
<i>tsire-ma-rha-ni</i>	‘to taste badly, especially of badly baked bread’
<i>uri-ma-rha-ni</i>	‘salty’

In this list, Friedrich (1971a) also mentions *tse-ma-rha-ni* ‘to speak well, courteously’, although in his unpublished dictionary he states that the same root can combine with *-marhi* ‘orifice-edge’ or *-ntira* ‘jaw’, ‘teeth’, ‘chin’ and still produce the same meaning. We may well be dealing with dialectal

<sup>17</sup> I have removed *te-ma-rha-ni* ‘to taste salty’ from this list of abstract terms as it clearly stems from the root *te-* ‘RELATING TO SWEETNESS’. It is likely, moreover, that this translation is incorrect. The root *te-* clearly relates to sweetness, so the translation would more appropriately be ‘to taste sweet’. I can only assume this was an accidental oversight on the part of the author.

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variation, although note that all forms relate to the mouth area, where tasting and speaking both occur. Note also the form *tse-n-tse-ma-rha-* ‘to speak softly, gently, but clearly’, where the root is reduplicated for emphatic reasons, and an epenthetic *-n-* inserted, a standard phonological process for reduplicated forms such as this (Capistrán Garza, 2015: 11; see also Foster, 1969: 38-39). In addition, he includes separately two instances that contain the *-ma-rha* couplet but do not fit into the set as they have no taste / speech / oral connotations: *amba-ma-rha-nti-ni* ‘to clear up, said of sky’ from the root *amba-* ‘good’, ‘well’ and *warhi-ma-rha-nti-ni* ‘to be partly depopulated, with many dying’, from the root *warhi-* ‘IDEAS OF DEATH’. It is likely that the lack of taste or speech association stems from the addition of a second (in Friedrich’s terms, a third in mine) spatial location suffix, in both cases *-nti* as seen above. The latter term is also an excellent example of the difficulties inherent in assigning concrete meaning to a bare root (see Bellamy 2018).

Second, descriptive terms comprise roots referring to more generic sensory qualities such as *xarhi-* ‘to be sour, tart’, *te-* ‘to be sweet’, *tipa-* ‘to burn’, ‘to itch’ (see also Section 4.3), as in examples (4a-b). Note that loanwords from Spanish are underlined in the examples where they occur.

- (4) a. *xarhi-marha-ni*            *más* *bien*  
sour-SP.LOC.taste-NF    more well  
‘Better, it tastes sour’



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b. *isiku* *pera-marha-ni* *isi*  
like.this pucker.unpleasantly-SP.LOC.taste-NF like.this  
*ja-marha-ti*  
be-SP.LOC.taste-3.S.ASS  
‘Like this, it tastes unpleasant (sour)’

Third, the source of the taste, usually a noun optionally marked with the objective case marker *-ni*, is introduced with a generic perception verb *ja-* (discussed in more detail in Section 4.5) and combined with *-marha*, e.g. *remedioni jamarhati* ‘it tastes like medicine’ (where *remedio* is a loan from Spanish). See also example (5) and the second half of (4b).

(5) *isiku* *etu-mi-ni* *isi* *ja-marha-ti*  
like.this salt-SP.LOC-OBJ like.this be-SP.LOC-3.S.ASS  
‘Like this, it tastes salty’

Many languages conflate perceptual categories, insofar as the same verb may refer to multiple senses, as in Luo (Western Nilotic) where ‘hear’ also covers touch, and with modification, taste and smell (Levinson et al. 2007: 11-12). Moreover, in premodern India, odorous objects were also potentially audible due to their being carried by the wind and indeed wind means ‘odor carrier’ in Sanskrit (McHugh 2012: 58). Yet although olfaction and taste share the same roots in Purepecha, the presence of different spatial couplet

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morphology clearly delineates the two senses, both semantically and formally. It cannot be claimed, as is the case for Luo, that a smell predicate is being used as a taste predicate or vice versa since neither term is derived or adapted from the other in Purepecha. Rather the root refers to a more generic concept of  $\sqrt{\text{PERCEIVED FOULNESS}}$  and thus requires further morphology (here spatial location suffixes) in order to be interpretable.

#### 4.3 *Descriptive terms*

Descriptive terms in Purepecha are somewhat analogous to the English constructions of the type ‘it smells burnt’ or ‘it smells sweet’. This set of terms takes as its base a root that can refer to an event or state not restricted to smell, such as *kurhi-* ‘to burn’, or *te-* ‘to be sweet’. These roots also optionally combine with the spatial couplet of *-k’u* and *-nti*, followed by the required inflectional morphology to form a smell predicate that refers to something that smells like the root suggests, e.g. *kurhi-kurhi-k’u-nti-ni* ‘to smell badly, like buzzard, burnt feathers, unwashed old man’, see also (6).

- |     |  |                 |                |                |
|-----|--|-----------------|----------------|----------------|
| (6) | <i>isiku</i>                                     | <i>enka=ksï</i> | <i>arhi-ka</i> |                |
|     | like.this  | that=1/3PL.S    | say-1.S.ASS    |                |
|     | <i>xarhi-xarhi-k’u-nti-ni</i>                    |                 |                | <i>arhi-ni</i> |
|     | sour-RD-SP.LOC.manual-SP.LOC.interior.surface-NF |                 |                | say-NF         |

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‘Like this when I say [it] smells sour’

A list of the terms identified in the literature and through elicitation follows in Table 7.

Table 7. Descriptive smell predicates in Purepecha

<b>Root</b>	<b>Root meaning</b>	<b>Olfactory meaning</b>
<i>k'ame-</i>	‘to be bitter / sour’	‘to smell very bitter / sour’
<i>kurhi-</i>	‘to burn’	‘to smell badly, like buzzard, burnt feathers, unwashed old man’
<i>porho- / purhu-</i>	‘to boil’	‘to smell rotten’
<i>(t)pu-</i>	‘fluffy mold’	‘to smell rotten or moldy’
<i>te-</i>	‘to be sweet’	‘to smell sweet’
<i>tipa-</i>	‘to burn’, ‘to itch’	‘to smell acrid, as when toasting chillies’
<i>xarhi-</i>	‘to be sour, acidic’	‘to smell sour, acidic’

These descriptive roots possess more clearly independent semantics than the abstract roots, a connection that is observable in the similarity of meaning

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between the second and third columns of Table 7. Nonetheless the roots still require derivational suffixes for further specification, as exemplified here using *kurhi-* ‘to burn’ and *kurhu-* ‘to burn’, ‘to singe’. This specificity can alter the transitivity of the verb, as in (7a-b), where the suffixes *-p’i* and *-p’a* indicate the intransitive or transitive nature of the action respectively.<sup>18</sup>

- (7) a. *ch’kari*      *kurhu-p’i-s-ti*  
wood      burn-SP.LOC.front.area/body-AOR-3.S.ASS  
‘The wood burned (down)’
- b. *tataka*      *kurhu-p’a-s-ti*      *juáta*  
young.man      burn- SP.LOC.front.area-AOR-3.S.ASS      hill  
‘The young man burned the hill (down)’ (adapted from  
Chamoreau 1998: 203)

Spatial location suffixes can also specify the location of an action or state, here burning. The location can either be on the body (8a) or outside it (8b-c), as demonstrated neatly with the almost minimal pair with *-k’u* (of spatial couplet fame, here appearing alone) in (8a-b).

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<sup>18</sup> Note that some spatial location suffixes, such as *-p’i* and *-p’a-* here, as well as *-ta* as in *mi-ta-kwa* ‘key’ (lit. ‘thing that makes open’, where *-ta* is a causative marker) also have a valency function (see, e.g. Friedrich 1984; Capistrán Garza 2015).

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- (8) a. *kurhi-k'u-xa-ka=ni*                                      *jak'i-rhu*  
burn-SP.LOC-PROG-1/2.S.ASS=1/2   hand-LOC  
'I am burning my hand' (adapted from Chamoreau 2003: 121)
- b. *kurhi-k'u-ku-x-ti*  
burn-SP.LOC-NCR-AOR-3.S.ASS  
'He burns the leaf' (adapted from Chamoreau 2003: 121)
- c. *kurhi-tsi-ni*  
burn-SP.LOC-NF  
'To burn underneath, as of beans in a pot' (adapted from Friedrich 1971a: 240)

More idiomatic and less compositional interpretations are also possible with these semantically heavier roots, as demonstrated in (9), where the concept of accusing is difficult to derive from the causative suffix *-ra*. One could speculate that the action of accusing might figuratively make the accused burn, perhaps of embarrassment, which could be manifested through blushing, namely a burning of the cheeks.

- (9) *kurhi-ra-ni*  
burn-CAUS-NF  
'to accuse another'

Moreover, these descriptive roots can take other derivational morphology to

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function in an adjective-like fashion (see, e.g., Bellamy 2018; Capistrán Garza 2013). They then function as the complement of the generic verb *ja-* ‘to be’, ‘to smell’ (10a), as opposed to the predicate, exemplified by the descriptive structure in (10b). I will discuss the form and semantics of this and other generic smell verbs in more detail in Section 4.5.

(10) a. *sani xarhi-pi-ni isi*

very sour-ADJ-NF like.this

*ja-k'u-nti-sin-ni*

be-SP.LOC.manual-SP.LOC.interior.surface-HAB-NF

‘Like, it smells very sour’

b. *este es un alimento descompuesto,*

DEM be.3SG a foodstuff rotten

*xarhi-xarhi-k'u-nti-ni*

sour-RD-SP.LOC.manual-SP.LOC.interior.surface-NF

‘This is a rotten foodstuff, it smells sour’

The structure presented in (10a) can also include a noun instead of an adjective-like word, as in (11), where the contrast between a nominal complement, here ‘chocolate’, of the generic smell verb, as well as the descriptive term (i.e. *te-* ‘to be sweet’) can be observed.

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- (11) *i*      *isiku*<sup>19</sup>      *chocolati-ni*  
and like.this      chocolate-OBJ  
*ja-k'u-nti-sin-ti*      *sesi*  
be-SP.LOC.manual-SP.LOC.interior.surface-HAB-3.S.ASS well  
*te-te-k'u-nti-ni*  
sweet-RD-SP.LOC.manual-SP.LOC.interior.surface-NF  
'And like this it smells like chocolate, very sweet'

Descriptive terms constituted the most common response type in both the freelisting and smell jar elicitation tasks (see Table 5). They were also the only other response type offered in the Brief Smell Identification Test<sup>TM</sup> task aside from source-based terms, albeit with a low frequency of only 16% of total tokens. I will now turn to these source-based terms.

#### 4.4 Source terms

Source terms are similar to the ostensive constructions familiar to English speakers, such as 'it smells of bacon' or 'like bacon' (see McHugh 2012: 64). In short, they refer to the object that emits the odor being described. In

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<sup>19</sup> Note that the terms *isi* and *isiku*, both 'like this', are used interchangeably. The *-ku* in the second term is likely some kind of frozen nominalizing or classifying element (see Bellamy 2018).

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Purepecha constructions, the source is generally a noun that appears in the objective case preceding or following (constituent order is flexible) the generic verb root *ja-* ‘to be’; ‘to smell’. This root takes the spatial couplet morphology for smell (*-k’u-nti*) to form a generic intransitive smell verb, as in examples (12a-d).

- (12) a. *i isiku urhusi-ni*  
and like.this Montezuma.pine-OBJ  
*ja-k’u-nti-sin-ti*  
be-SP.LOC.manual-SP.LOC.interior.surface-HAB-3.S.ASS  
‘And this smells of Montezuma pine’
- b. *i sesi planta-ni*  
and well banana-OBJ  
*ja-k’u-nti-ni*<sup>20</sup>  
be-SP.LOC.manual-SP.LOC.interior.surface-NF  
‘It smells a lot of banana’
- c. *xapu-ni ja-k’u-nti-ni*  
soap-OBJ be-SP.LOC.manual-SP.LOC.interior.surface-NF  
‘It smells of soap’

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<sup>20</sup> Note that the infinitive is used frequently instead of a conjugated verb when the subject is obvious or already introduced (see Chamoreau 2016).



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d. *isiku tsitsiki-ni*

like.this flower-OBJ

*ja-k'u-nti-sin-ti*

be-SP.LOC.manual-SP.LOC.interior.surface-HAB-3.S.ASS

'This smells of (a) flower'

A very neat example of the multivalent nature of Purepecha suffixes is illustrated in (13). Here the descriptive root *k'ame-* 'to be bitter' is nominalized and combined with the generic smell verb (including the smell spatial couplet) in the first line, followed by its descriptive use in the second line. Both types are linked with a Spanish coordinator (here acting more as a filler) *como* 'like'.

(13) *k'ame-kwa*

bitter-NMZR

*ja-k'u-nti-sin-ti,*

*isi*

be-SP.LOC.manual-SP.LOC.interior.surface-HAB-3.S.ASS like.this

como *sani k'ame-k'ame-k'u-nti-ni*

like very bitter-RD-SP.LOC.manual-SP.LOC.interior.surface-NF

'It smells bitter (lit. of a bitter thing), so, like it smells very bitter'

As indicated in Section 4.1, source-based terms comprised the vast majority (84%) of responses to the Brief Smell Identification Test<sup>TM</sup>. Within this set

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60% were loanwords, overwhelmingly nouns, from Spanish. Where applicable, the loanwords were generally adapted to Purepecha morphology, notably with the addition of the *-ni* objective suffix to nouns, e.g. *chicli-ni* ‘chewing gum’, and / or to Purepecha phonology, especially salient in the raising of /o/ to /u/ and /e/ to /i/, as in *sigaru* ‘cigarette’, *perfumi* ‘perfume’ and *aceiti* ‘oil’ from *cigarro*, *perfume* and *aceite* respectively.

#### 4.5 *Generic verbs meaning ‘to smell’*

In contrast with the types of terms presented in Sections 4.1 (abstract) and 4.3 (descriptive), the source of an odor in Section 4.4. is indicated by the noun for this source, introduced by the root *ja-* combined with the spatial couplet morphology *-k’u-nti-*. However, *ja-* is not the only root that can be used in a more generic sense. Two more roots can also refer to olfactory experiences or states, namely *p’untsu-* and *sipi-*, although these do not obligatorily take the olfactory spatial couplet morphology, nor are they reduplicated as abstract roots are. Recall that all three of these roots appear in Table 4 as abstract terms whose semantics are largely evaluative, that is they express a hedonic, or subjective, attitude towards the odor such as ‘to stink’ or ‘to smell fragrant’. In the more generic sense presented in this section, these terms do not explicitly reflect a hedonic statement but rather three different event types.

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Viberg (1984, see also Viberg 2015) identifies three main components for distinguishing between verbs of perception (not simply olfaction): activity, experience and state (copulative). An activity refers to “an unbounded process that is consciously controlled by a human agent, whereas experience refers to a state (or inchoative achievement) that is not controlled” (Viberg 1984: 123). With reference to vision, for example, ‘to look’ is an activity whereas ‘to see’ is an experience, since the former implies agentivity while the latter does not. Both activities and experiences are experiencer-based, whereby the subject of the perceptual predicate is a conscious, animate being, e.g. ‘the boy is looking at the birds’. A source or phenomenon-based verb, on the other hand, takes the experienced entity as its subject, as in ‘the man looks weird’ (Viberg 1984: 124).

In order to investigate the distribution of the three roots that can also be used in a more generic olfactory sense, I distributed a questionnaire based on the sentences in Viberg’s (1984: 125) basic paradigm for verbs of perception. The 20 target sentences (five per sense) were first translated into Spanish and the names changed to make the questionnaire both more culturally relevant and less repetitive. The original sentences, their Spanish translation and the predicate type, according to Viberg’s (1984) typology are presented in Table 8.

Table 8. Target sentences for olfaction verbs translated into Spanish (following Viberg 1984: 125)

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<b>English sentence</b>	<b>Spanish translation</b>	<b>Predicate type</b>
<i>Peter smelled the cigarette (to see if he could smoke it)</i>	<i>Jorge olió el cigarrillo (para ver si podría fumarlo)</i>	Activity
<i>Peter was smelling the cigarette (to see if he could smoke it)</i>	<i>Ivan olía el cigarrillo (para ver si podría fumarlo)</i>	Activity
<i>Peter smelled cigarettes in the room</i>	<i>Abril olió cigarrillos en la habitación</i>	Experience (state/inchoative)
<i>Peter smelled good</i>	<i>Ana olía bien</i>	Source-based: Copulative (state)
<i>Peter smelled of cigarettes</i>	<i>Humberto olía a cigarillos</i>	Source-based: Copulative (state)

Participants (N = 13) translated the sentences from Spanish into Purepecha, following the only instruction ‘in the most natural way possible’. This exercise yielded 65 root tokens, distributed between *ja-* (9), *p’untsu-* (17) and *sipi-* (31; also written as *süpi-*, *xipi-* and *xupi-* due to orthographic variation amongst speakers), as presented in Table 9. The grey shaded areas

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indicate 0-3 tokens of that root for a particular verb type, indicating it is either not used for that type or is marginal.

Table 9. Olfactory verb types and their expression by root in Purepecha

Type of verb	Root		
	<i>ja-</i>	<i>p'untsu-</i>	<i>sipi-</i>
Activity	0	5	8
Activity	0	4	9
Experiencer-based (experience)	0	4	9
Source-based (copulative)	7	3	3
Source-based (copulative)	10	1	2
<b>Total</b>	<b>9</b>	<b>17</b>	<b>31</b>

The results from Table 9 indicate that *ja-* has a more limited distribution than *p'untsu-* and *sipi-*. It can only be used in source-based constructions without an animate agent or experiencer, as in the two target sentences *Ana olía bien* ‘Ana smelled good’ and *Humberto olía a cigarillos* ‘Humberto smelled of cigarettes’, see (14a-b) for examples from two Purepecha speakers.

14 a. *Ana sesi ja-k'u-nti-xa-p-ti*<sup>21</sup>

<sup>21</sup> Note here that I use the orthography provided by the respondents, which contains a

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Ana well be-SP.LOC.manual-SP.LOC.interior.surface-AOR-PST-

3.S.ASS

‘Ana smelled good’

b. *Humbertu* *sigaru*<sup>22</sup> *ja-marha-xa-p-ti=ni*<sup>23</sup>

Humberto cigarette be-SP.LOC.taste-AOR-3.S.ASS=1.SG

‘Humberto smelled of cigarettes’

This usage mirrors that observed in Section 4.4, where the odor source must be explicitly stated. It should also be noted that the *ja-* responses were split almost equally between those expanded with *-k'u-nti-*, the spatial couplet for smell (e.g. (14a)), and those expanded with *-marha-*, the spatial locative suffix referring to taste (e.g. (14b)). It is possible that this variation stems from the proximity of the two senses, both lexically and in terms of physical perceptual experience. I noted in Section 4.2 that it is common for smell and taste to be lexically conflated cross-linguistically, and our results here may be a reflection of such an overlap (see also Section 5 for a historical perspective).

The roots *p'untsu-* and *sipi-* were also attested for source-based verbs,

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certain amount of inconsistency.

<sup>22</sup> Note the Purepechization of the Spanish word *cigarro*, cf. Section 4.4.

<sup>23</sup> The use of the first person subject clitic *=ni* here is non-standard but retained for authenticity.

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but their frequency was low at 4/26 (15%) and 5/26 (19%) instances respectively. However, it is noteworthy that the participants who used these two roots differentiated less between the verb types. Three participants used the same root (two for *sipi-* and one for *p'untsu-*) for all sentences relating to olfaction, two used one root each to translate all the sentences except that in (14b), where they used the other, and one participant used all three roots, with no observable pattern.

The root *p'untsu-* is used for all three verb types, activity, experience and source-based, but is most commonly used with activity verbs (53%), where the subject is an animate agent, consciously smelling the odorous object. In addition, it is used equally with experiencer and source-based verbs (23.5% each), as noted above for the latter. Examples of the more canonical usage can be found in (15a-b).

- (15) a. *Jorge p'untsu-ru-s-p-ti cigarru*  
Jorge smell-SP.LOC.point- AOR-PST-3.S.ASS cigarette  
'Jorge smelled the cigarette'
- b. *Ivani itsutakwa-ni sipi-ru-sa-an-ti*  
Ivan cigarette-OBJ smell-SP.LOC.point-PROG-PST-3.S.ASS  
'Ivan was smelling the cigarette'

Experiencer verb types were also attested with *p'untsu-*, but only as a minority, see (16a), as were a small number of source-based verbs (16b).

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- (16) a. *Abril cigarru p'untsu-ru-p-s-ti* *cuartu-rhu*  
Abril cigarette smell-SP.LOC.point-PST-AOR-3.S.ASS room-LOC  
'Abril smelled cigarettes in the room'
- b. *Ana p'untsu-ru-p-s-ti* *sesi*  
Ana smell-SP.LOC.point-PST-AOR-3.S.ASS well  
'Ana smells good'

The most frequently attested root was *sipi-*, representing 31/65 (48%) of all responses. It too was most frequently used with activity verbs (17/31, or 55%), see example (17a), but it was also the most common root for experience-type verbs (17b). Its use as a source-based verb has already been mentioned. Note also the common use of the spatial locative *-r(h)u*<sup>24</sup> 'point', 'projection of something longish', which can refer to the nose, forehead, point, flower or seed, (Friedrich 1971a: 16) suffixed to both *p'untsu-* and *sipi-*. This suffix is not used with abstract terms, but provides greater specificity to the generic roots presented here.

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<sup>24</sup> Friedrich (1971a) renders this suffix with the retroflex tap, but many of the participants in the perception questionnaire used the simple flap /r/. I take them to be the same suffix.



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- (17) a. *Ivan xipi-ru-xa-p-ti* *itsutakwa-ni*  
 Ivan smell-SP.LOC.point-PST-AOR-3.S.ASS cigarette-OBJ  
 ‘Ivan was smelling the cigarette’
- b. *Abrili sipi-ru-ϕ-ti* *itsutakwa-ni*  
 Abril smell-SP.LOC.point-PST-3.S.ASS cigarette-OBJ  
*troja-rhu*  
 room-LOC  
 ‘Abril smelled cigarettes in the room’

In addition to these roots, Friedrich (unpublished) mentions the activity root *t'unú-* ‘to sniff, as of dogs, with any body part suffix for body part that can be sniffed’, although this root was not elicited in any of the fieldwork tasks.

To sum up, Purepecha makes use of three roots, *ja-*, *p'untsu-* and *sipi-*, to express the three categories of olfactory experience as defined by Viberg (1984): activity, experience, and source. These three roots demonstrate a certain amount of overlap, especially *p'untsu-* and *sipi-*, with the latter being almost twice as popular as the latter. Both roots are attested for all three verb types although considerably less for source-based verbs, which are dominated by *ja-*, in combination with the spatial couplet for smell or taste in equal measure. This root is the only one of the three with very clear-cut semantic boundaries, since it is not attested for activity or experience verbs. The flexibility of the other roots may be facilitated by the ability of both to take the spatial locative *-r(h)u*, which refers to the nose and thus offers

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greater olfactory emphasis. Having presented the contemporary situation with respect to olfactory language, I will now turn to the historical context, focusing on the earliest written period, which we can term early modern Purepecha.

## **5 Historical perspective**

In his impressive work on the evolution of odor representation in pre-modern South Indian religious texts, McHugh (2012) claims that the vocabulary used to describe smells is contingent on a certain time, place and culture, introducing the idea that different ‘canons’ of smells exist in different periods of time, represented for him by periods of texts.

Concerning South India, he notes that references to and associations of more ‘natural’ odors, such as fish, lotus, meat, and earth, remained relatively constant over time, whereas those related to aromatics evolved (McHugh 2012: 87). As such, we might expect to find changes, or an evolution in the smellscape in Purepecha. Indeed the notion that different odors can dominate in different periods leads to the consultation of the two main early historical documents on the Purepecha language: (i) an extensive, two-volume dictionary from the late 16th century, known as the *Diccionario Grande* (Anonymous 1991), and (ii) the *Relación de Michoacán*, a

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description of the prehistory of the *Wakusecha*, the dominant group within the prehistoric Tarascan State.<sup>25</sup> The *Relación* was compiled between 1538 and 1540 and delivered to the viceroy of New Spain in 1541 by the Franciscan friar Jerónimo de Alcalá, who had acted as both scribe and interpreter for the Purepecha informants, including the *petamuti* ‘chief sacrificer’ (Pollard 2016: 59; Craine & Reindorp 1970: vii). Identifying references to odors in these two texts allows us to gain an impression of the historical canon of scents in Purepecha.

Let us begin with the lexical entries in the *Diccionario Grande*. A total of 14 smell terms are attested in this work, of which 10 are abstract terms and the remaining four are descriptive terms.<sup>26</sup> The same total number of abstract terms is attested in Modern Purepecha (see Section 4.1). A full list of terms collected from the *Diccionario Grande* is presented in Table 10,

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<sup>25</sup> As indicated in Section 2, a second, even earlier dictionary is available for Purepecha (Gilberti 1975 [1559]), as is a grammar (Gilberti 1987 [1558]). However, the *Diccionario Grande* is widely considered to be a more comprehensive work that was in all likelihood compiled either by or with the help of native Purepecha speakers rather than (predominantly) by outsiders, i.e. Spanish friars. As such, I will only use the *Diccionario Grande* in this analysis.

<sup>26</sup> Note that I list the three terms beginning in *je-* as separate terms, as in the *Diccionario Grande*, although it is highly likely that they are all derivations of the root *je-* or *ji-*, whose meaning remains unclear. However, note that the root *jir(h)u-* appears to contain the spatial locative *-rhu*, which refers to the nose area (see also Section 4.5).

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followed by the bare smell root in contemporary orthography and its translation. Entries preceded by an asterisk have been analyzed or identified as descriptive terms, namely those which refer to a state or event that is not fundamentally olfactory, such as ‘to burn’ (see Section 4.3). In addition to these terms, *t<sup>h</sup>unumbarihpeni* ‘to smell like dog (of people)’ is also attested in the 16<sup>th</sup> century source, as well as in the Friedrich archive, although as a transitive, agentive verb I will not include it in this historical canon.

Table 10. Smell roots in 16th century Purepecha from the *Diccionario*

*Grande*

<i>Diccionario Grande</i> entry	English translation	Moder n root	Meaning
<i>hamara-</i>	‘to smell good or bad the part indicated’	<i>ja-</i>	‘to be’
<i>hecume-</i> , <i>herume-</i>	‘to stink of something rotten’, ‘to stink of putrefaction’,	<i>jiku-</i> <i>jir(h)u-</i>	not attested not attested
<i>hecueme-</i>	‘to stink of urine or damp, etc.’	<i>jik(w)u-</i>	not attested
<i>puntzuma-/me-</i>	‘to smell fragrant’	<i>puntsu-</i>	‘to be fragrant’
<i>*quatsi-</i>	‘to stink’	<i>kwatsi-</i>	‘to defecate’
<i>quinguimara-</i>	‘to stink of saltpeter’	<i>kini-</i>	‘to stink (esp. of unwashed person)’

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<i>sipia<sup>h</sup>-</i> , <i>sipi-</i>	‘to smell, stink badly’	<i>sipi-</i>	‘to stink foully’
<i>*teremarahcarani</i>	‘to stink (of house)’	<i>tere-</i>	‘to be rotten’
<i>tocemara-</i>	‘to stink of goat, etc.’	<i>tose-</i>	‘to smell fatty’
<i>caquimarandeni</i>	‘to smell of goat (re: place)’	<i>tsaki-</i>	not attested
<i>tsiquimara<sup>h</sup>-</i>	‘to stink of burnt chilli’	<i>tsike-</i>	‘to smell strongly’
<i>tzunamara-</i>	‘to smell of milk, etc.’	<i>tsunha-</i>	not attested
<i>uchu-</i>	‘to smell of fish’	<i>uchu-</i>	‘to stink’
<i>*xungomarauacurani</i>	‘to smell of cooked herbs’	<i>xunha-</i>	‘to be green’
<i>yndamarandeni</i>	‘to smell of butter or fat’	<i>inta-</i>	not attested

Eight of the 14 terms are attested in both the 16<sup>th</sup> century and the modern language, although *quatsi-* (*kwatsi-* in modern orthography) ‘to defecate’ (Friedrich unpublished; see also Velásquez Gallardo 1978: 38) clearly still exists in the modern language but has not been attested thus far with smell semantics.<sup>27</sup> Moreover, if one assumes that butter or fat and cooked herbs do

<sup>27</sup> It should also be noted that simply because a term has not been attested in the modern dictionary or in the field data collection does not mean it does not still exist. Lexical differences do occur in the Purepecha dialects, therefore it may be that the 16<sup>th</sup> century terms were taken from different varieties of the language than the present study.

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not emit a pleasant smell, which holds for the modern language for the former at least, then only one term in Table 10 has positive connotations.

This preference for negative hedonic statements is paralleled in the modern canon of smell terms, as well as in the inventories of other languages (e.g. Lee 2015; Wnuk & Majid 2014; see also Section 4.1).

Moreover, the majority of the historical smell roots in Table 10 are listed together with the suffix *-mara*, which is the same suffix as *-marha*, relating to taste and the mouth (see Section 4.2), followed by additional spatial location morphology for more specific localization. The frequent presence of this suffix, and the absence of the *-k'u-nti-* couplet that is found with the modern abstract terms, suggests that there may have been a shift in the expression of odor semantics, from a general taste-smell spatial couplet to individual ones for each sense. Indeed, taste morphology may have applied (pre-)historically to both taste and smell, as it still can (as attested in the previous sections), with the smell spatial couplet emerging only later. It should also be acknowledged that the strong emphasis on location may simply reflect an attempt on the part of the creator/compiler of the dictionary to provide as comprehensive a set of entries as possible.

Moreover, the body is clearly a key orienting principle for events, actions and states in Purepecha (Friedrich 1984: 60; see also Section 3.2), even if the historical explanation for this focus is not immediately forthcoming. The main issue in relation to the change in spatial couplet morphology is the lack of intermediate textual evidence, namely from the 17th to early 20th

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century, which would facilitate further research on this issue.

As an example, let us look more closely at the entry for the root *hamara-* (*ja-marha-* in modern orthography) ‘to smell good or bad the part indicated’. Here we find multiple sub-entries constructed with the related derivative *hanga-*, i.e. *ja-* ‘to be’ plus *-nha* ‘interior enclosure, cavity’. These two elements are supplemented by additional spatial location morphology, e.g. *-nti* ‘interior surface of angle on vertical axis’ (to refer to a generic place), to specify which body part or location smells, as in (18).<sup>28</sup>

(18) *janha-marha-nti-ni* ‘to smell a lot (of a place)’

*janha-marha-k’u-ra-ni* ‘to smell good (of hands)’

*janha-marha-ch’a-ni* ‘to smell good (of throat/neck)’

*janha-marha-re-kwa-re-ni* ‘to smell good (of the whole body)’

*janha-marha-ntsi-ni* ‘to smell good (of head)’

*janha-marha-tsi-ka-ni* ‘to smell good (of low parts)’

On the whole, there is much more emphasis on how locations, including body parts, smell in the *Diccionario Grande* than in Friedrich’s dictionary, as well as the latter’s previous references to olfaction in Purepecha.

Nonetheless, we can identify the three types of smell terms, whose

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<sup>28</sup> Note that the orthography has been adapted to the modern conventions used elsewhere in this chapter.

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classification was elaborated in Sections 4.1-4.4, as demonstrated in examples (19a-c), where the original orthography is in the first line, followed by the modern adaptation in the second line.

- (19) a. *Vchu-mara-nde-ni* (Type 1: Abstract)  
*uchu-marha-nti-ni*  
smell-SP.LOC.taste-SP.LOC-NF  
'to stink of fish'
- b. *Tere-mara-hcha-ni* (Type 2: Descriptive)  
*tere-marha-ch'a-ni*  
smell-SP.LOC.taste-SP.LOC.large.narrow.area-NF  
'to stink rotten (of neck)'
- c. *churipu en ha-mara-nde-ni* (Type 3: Source-based)  
*churipu en ja-marha-nti-ni*  
soup in (?)<sup>29</sup> be-SP.LOC.taste-SP.LOC.interior.surface- NF  
'to smell of soup'

In line with the flexibility and overlap of generic smell roots that we saw in Section 4.5, there are also examples of both roots given for the same entry

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<sup>29</sup> Alternatively, this lexeme may be a contraction of *eni* 'to be', which has since fallen out of use, having grammaticalized into the predicativisor *-i* or *-e*. This is unlikely, given the lack of an auxiliary in all the other olfactory language examples in the dictionary.



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in the *Diccionario Grande*, such as *hamarahcarani* ~ *sipimarahcarani* ‘to stink badly (of house)’, where both *ja-* and *sipi-* are attested. This overlap reflects that observed in the modern language, where *ja-* is preferred for source-based (copulative) verbs such as ‘Ana smelled good’, with the other two roots occurring in the same context but with a much lower frequency.

Even though the *Diccionario Grande* places great emphasis on the location of an odor, the general meaning of the terms shared with the modern language is largely equivalent. The main exception to this generalization is *tocemara-* which refers predominantly to ‘the (bad) smell of goat’ while the modern root *tose-* refers more to ‘the (bad) smell of something fatty’. The root *quingui-/kini-*, whose main referent is ‘saltpeter’ in the 16<sup>th</sup> century dictionary but ‘unwashed person’ in the modern language, may also seem to be another exception at first sight (or sniff!). However, saltpeter has a slight smell of urine which may also emanate from a person who has not washed for some time. As such, it appears that different referents are being used, in some cases, to refer to the same, or at least a similar, unpleasant odor. Taken together, the considerable proportion of shared roots, the preference for negative terms and the semantic similarities indicate that olfactory language has proved relatively robust and stable across time in Purepecha. As such, we do not seem to be dealing with what McHugh (2012: 17-19), following Baxandall (1988), calls the “period nose”, which would predict that sixteenth century Purepecha speakers would perceive and evaluate odors in a different way to their modern-day

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descendants. Aside from the difference in spatial couplet morphology, the historical terms do not differ significantly from those attested and elicited in the modern language in semantic (i.e. regarding their main referents) or formal terms.

In contrast, the *Relación de Michoacán* (RM) offers a far less negative perspective of smell in late prehispanic and early colonial Purepecha culture. In this work, almost 20 references are made to *olores* ‘smells’, ‘fragrances’ (in Spanish, notably), predominantly with reference to smoke or incense. Fire and smoke played a key role in certain Tarascan<sup>30</sup> religious ceremonies, including those carried out before going to war; in fact, most of the references to fragrances appear in the descriptions of preparations for war. Moreover, one of the most important gods, *Kurikaweri* (also spelled *Curicaveri*, *Curicaueri*, *Curicaberi*, amongst others in the RM) ‘he who emerges burning’, was the *Wakusecha* god of war<sup>31</sup>, suggesting also a connection between the terrestrial and celestial beings through an odorous substance (here, smoke).

Indeed, the RM relates how, before departure for war, the *Cazonci*

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<sup>30</sup> Tarascan is generally used in the archaeological and (ethno-)historical literature to refer to the inhabitants of Michoacán prior to the arrival of the Spanish, as well as in the early modern period. I follow this convention here.

<sup>31</sup> Pickering & Beekman (2016: 13) note that the Old Fire God was the single most recognizable Mesoamerican deity prior to the Epiclassic period (around 800-900 CE).

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ordered villagers to collect wood, which they stacked in large piles in temples throughout the region. These wood piles were lit so as to create large fires over which prayers and exorcisms were conducted by priests known as *Jiripacha* (singular: *Jiripati*<sup>32</sup>). Together with five sacrificers and five priests known as *Curitiecha* ‘the knowers of burning’, the *Jiripacha* would make little balls of fragrance<sup>33</sup> from incense and tobacco known as *andumukwa* ‘bile, tobacco, henbane (*Hyoscyamus niger*)’. The *andumukwa* were attached to branches in the wooden pyre and later cast into the fire by the priests so that the gods would grant the Tarascans victory over their enemies, including by causing illness in their villages. Before burning the fragrance balls, the *Jiripacha* would preach, explaining how the god *Kurikaweri* had ordered the wood to be burned as an offering of the gods. They would take a ball of fragrance and offer this prayer to *Kurikaweri*:

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<sup>32</sup> The loss of *-ti* in the plural is unexpected. The term is can be glossed as *jiri-pa-icha* ‘to seek-PLR-PL’, indicating ‘one who is constantly seeking’ (see Aranda, 2016 for the pluractional analysis of the morpheme *-pa*; I thank an anonymous reviewer for this observation).

<sup>33</sup> “The use of “balls of fragrance” seems to have been a trait held in common in much of Mesoamerica [...]. The Tarascans gathered resin from various tropical trees, which they made into little balls for use in religious ceremonies and apparently at any time an important decision had to be made. At times the balls were also made of tobacco. These little balls, when placed in fire, burned slowly and gave off an odor that was pleasing to the gods” (Craine & Reindorp 1970: 20, footnote 2).

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“Thou God of Fire who hast appeared in the midst of the houses of the chief priests, perhaps there is no virtue in this wood which we have brought to the temples and in these fragrances which we have here to give thee” (Craine & Reindorp 1970: 20-21). The priest would then call out the name of each of the enemies’ lords, thus: “Thou Lord , who hast in charge all the people of such and such village, receive these fragrances and let there be a few of your vassals for us to take in the war” (idem.). This ceremony was performed on two nights, with the words of the prayers directed to the four quarters of the world and to hell. Once the prayers were finished, the balls of fragrances were thrown on to the fires (de Alcalá 2000 [1541]; Craine & Reindorp 1970). The odors of incense and smoke were considered to be perceptible to the gods, as exemplified in the following interaction between *Tariacuri* (the main hero of the RM and the unifier of the Tarascan Empire) and his nephew *Tangaxoan* regarding the arrival of *Xaratanga*, goddess of Tariaran (probably the modern-day village of Zirahuen):

“How can you bring her here? There are many dangers along the way.

[...] Go clear her temples and her throne and place the incense there,

make fires and smoke in that place for she will smell them when she

comes.” *Tangaxoan* replied that he had cleared that place and throne.

(Craine & Reindorp 1970: 206, emphasis added)

As indicated above, tobacco was one of the substances burned in Tarascan

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ceremonies. Tobacco (also known in Mexican Spanish as well as Nahuatl by its Nahuatl name *picietl*) was also an important sacred plant for the premodern Maya and Nahua. Considered the sacred medicine *par excellence*, it was a god in its own right. It was used in various forms, including drunk as an infusion, chewed, smoked in cane tubes or inhaled as dust through the nose (e.g. Carod-Artal 2015; Larqué-Saavedra 2016). The RM indicates that in the *Cazonci*'s funeral procession, one person carried his cane-tubes of fragrances (Craine & Reindorp 1970: 45), suggesting that he also partook in tobacco smoking (see also Evans 2004: 434-435). In the Maya and Nahua traditions, ground tobacco was left in receptacles in temples so that gods could leave their trace to their human followers in the form of an animal print. Also, in meetings of poets and nobles, tobacco was smoked in cane pipes with hallucinogenic plants, granting it both a ritual and a medicinal meaning. Together with copal incense and flowers, tobacco continues to constitute the "impalpable nourishment of the divine beings" (de la Garza 2001: 101). It also still has an important social meaning in some Nahuatl and Maya communities; in religious and family celebrations cigarettes are offered as gifts, often to older women (de la Garza 2001: 100-101).

Burning and sacrifice, and their associated smells, also played a role in early Christian society. Here smoke functioned as a transmitter of odor and its qualities, such as the transformation of the stench of burning flesh into the sweet scent of martyrdom, as in the case of Saint Polycarp. The

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uncontainable and invisible properties of smell enabled odors to cross the boundaries of heaven and earth, thereby offering a link to the divine being (Harvey 2006: 53-55). The key cross-cultural similarity here is the positive association or perception of the odor that relates to or connects with the deity. We saw in the brief description of the Tarascan war ceremony above that pleasant fragrances in the form of balls of copal and / or tobacco were cast on to the fire to please the god of fire *Kurikaweri*. A satisfied god brings good fortune to the worshippers, or rather bad fortune to the enemies. By ensuring the support of the gods, then, it could be claimed that pleasant odors therefore played their part in the expansion of the Tarascan State.

## 6 Conclusions

Rather than being difficult to express verbally ('ineffable'), as claimed by scholars from various disciplines (see Section 1), the domain of smell in Purepecha is actually fairly extensive. Odors can be described using three different linguistic strategies: (i) an abstract reduplicated root referring to some kind of PERCEIVED FOULNESS plus specific smell morphology in the form of the spatial couplet *-k'u-nti*; (ii) a stative root with non-olfactory semantics, e.g. *kurhi-* 'to burn', (optionally) combined with the same spatial couplet morphology; and (iii) a generic verb derived from the root *ja-* 'to

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be' with the source of the odor, usually in the objective case, as well as the olfactory spatial couplet after the root. The presence of abstract roots that can refer only to odors (when combined with smell morphology) indicates that Purepecha constitutes another 'olfactory language'. However, it seems that these abstract roots are somewhat underspecified for meaning, as illustrated by the translation in small caps, and receive their manner of perception through the spatial couplet suffixes. These abstract roots have proved to be relatively stable over time, in terms of both form and meaning, suggesting that their origin or introduction into the language considerably predates the earliest existing written records. However, the reason for the preoccupation in Purepecha with how objects, and more especially body parts, smell, remains poorly understood.

We also saw in Section 4 how different elicitation methods obtained different types of responses, with the Brief Smell Identification Test™ being the least effective with reference to abstract terms. This is likely due to the low cultural salience of the stimuli contained in the booklet, as opposed to the smell jars that contained well-known, local substances. Moreover, the author's presence during data collection may well have influenced participants, consciously or unconsciously encouraging the use of Spanish, the language associated with outsiders. It should also be mentioned that the lower-than-expected use of abstract terms attested through the different elicitation methods may also indicate that the system is falling into obsolescence under the influence of bilingualism with Spanish,

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especially since younger speakers appear to use these terms less (see also O'Meara & Majid 2017). Nonetheless, the observed propensity for negative hedonic smell terms in Purepecha supports the notion that foul odors are more consciously salient than pleasant ones (Lee 2010: 115). This notion is not new, however, having been observed by Kant (2006 [1798]) over 200 years ago:

Which organic sense is the most ungrateful and also seems to be the most dispensable? The sense of smell. It does not pay to cultivate it or refine it at all in order to enjoy; for there are more disgusting objects than pleasant ones (especially in crowded places), and even when we come across something fragrant, the pleasure coming from the sense of smell is always fleeting and transient. (Kant 2006 [1798]: 50-51)

While cross-cultural comparison of olfactory language may help to highlight certain universal tendencies in naming of typical referents, I also contend that olfactory terminology is more valuable when considered from a language- and culture-internal perspective. This is the position put forward by McHugh, whereby the “vocabulary used to describe smells is contingent on a certain time, place and culture”, (McHugh 2012: 65; see also Section 5). As the spatial couplet morphology helps us to better understand word formation processes, from both a synchronic and diachronic perspective in Purepecha, so might other elements of olfactory language help in



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unravelling the many complex puzzles posed by languages across the world.

## Abbreviations

1 1<sup>st</sup> person, 2 2<sup>nd</sup> person, 3 3<sup>rd</sup> person, ADJ adjectivizer, ADV adverbial, AOR aorist, ASP aspect, ASS assertive, CAUS causative, DES desiderative, DIR directional, HAB habitual, IRR irrealis, LOC locative, MD mood, NCR non-co-referential, NF non-finite, NMZR nominalizer, O object, OBJ objective, PERS person, PL plural, PLR pluractional, PROG progressive, PST past, RD reduplication, S subject, SF stem formative, SG singular, SP spatial, TNS tense, VAL valency, VCE voice.

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