The language of perception in Siwu

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The language of perception in Siwu, a Kwa language of eastern Ghana, is described based on linguistic elicitation, ethnographic field research, and a standardised set of stimuli targeting the perceptual domains of Colour, Shape, Sound, Touch, Taste, and Smell. Verbs of perception pattern into active-explorative and passive-inchoative construals of sensing. Percepts are sometimes encoded by stative verbs or nominal concepts but most often by ideophones. Colour is not a culturally salient category and Siwu may represent an intermediate type of ‘non-partition’ system, in which the available terms do not cover the colour space exhaustively. High codability in the domains of Touch and Taste appears to be associated with the availability of ideophones with highly precise meanings, while lower codability in the domain of Smell is associated with a lack of conventionalised vocabulary.
1. The language and its speakers
One of the signature dishes of the Mawu of eastern Ghana is Ògbàkúsi gu kàmô krà, a rich paste made from local cowpeas, palm oil and chili spices, served with a thick rice flour porridge and preferably with bushmeat. The dish is valued not just for its savoury taste (mèrèmèrè) but also for its rich oily appearance (gelegele), the smooth texture of the porridge (solosalò) and its overall succulent, juicy quality, described with the ideophone "degedege" which resonates with sensual pleasure. Ògbàkúsi is closely connected to Mawu identity, so much so that its consumption entails enculturation. “If you eat Ògbàkúsi,” the Mawu say, “you are one of us, and you’ll understand the Siwu language.”

Siwu is a Kwa (Niger-Congo) language spoken in eastern Ghana by about 15,000 people, the Mawu. It is one of the Ghana Togo Mountain languages (formerly TogorestSprachen). Aspects of its grammatical structure have been described in sketch grammars by Ford and Iddah (1973) and Dingemanse (2011b ch. 4). This article discusses the language of perception in Siwu as spoken in Akpafu, a region north of Hohoe. It presents an understanding of the language and sensory world of the Mawu gained through linguistic and ethnographic fieldwork, participatory observation, and a set of standardised elicitation tasks targeting six sensory domains.

2. Ethnographic background
The land of the Mawu is called ‘Kawu’ in Siwu and ‘Akpafu/Lolobi’ in the surrounding languages and some of the earlier literature. Located in the Togo Hills of the Volta Region, eastern Ghana, it is a forested upland environment with a tropical monsoon climate. Dotted around the mountains are eight Mawu villages (not counting temporary farming settlements) connected by footpaths. Many of the flat-roofed compound houses and storage places in the villages are constructed from trampled mud and have the brown-red colour of the earth.

Most Mawu are subsistence farmers with several small swiddens of hilly land at walking distance (30 minutes to 2 hours) where they grow corn, cassava, yam and plantain as well as brown rice of a species endemic to this part of West Africa (Oryza glaberrima, see Linares 2002). Many clans also have larger tracts of land in less hilly areas where they grow imported rice and cocoa for trade. The Mawu distinguish two main seasons: kàdò ówì, the humid rainy season, and kùkpe, the dry season during which the harmattan, a dust-laden desert wind, blows. The most important starchy foods of the Mawu are yam, cassava, rice, and fufu, a staple food made by boiling starchy vegetables and pounding them. The main protein sources are chicken, eggs, goat meat, dried fish, and bushmeat. Common vegetables are okro, egg plant, shallot, pepper and tomato. As in many West-African cultures, the oil palm (Elaeis guineensis; kùbèrè in Siwu) is used for many purposes: oil is extracted from the palm fruits and kernels, the fronds are used in...
basketry, the leaves are used to make brooms, and the sap is extracted and fermented into sweet palm wine and stronger distilled drinks.

The trade and exchange of material artifacts has always played an important role in the life of the Mawu. The Togo Hills contain iron-bearing outcrops that for several centuries supported a strong iron industry (Asante 1889; Rattray 1916; Pole 1982). The iron tools made in Akpafu were traded for food, livestock and pottery (Pfisterer 1904) and once had a regional distribution, as testified by the appearance of the word Akpafumla ‘bush knife from Akpafu’ in an early 20th-c. dictionary of southern Ewe (Westermann 1905). There is an ongoing trend of importing material artifacts rather than constructing them. Early sources mention barkcloth but this is no longer used. Few specialist drum makers remain, although hardwooden drums are in active use and are serviced by local artisans (Figure 1). Musical instruments like clappers, rattles and various types of metal bells used to be made locally (Agudze 1991) but are now mostly imported. Rice flour is sometimes replaced by talc powder but still occupies an important role in religious rituals. Gourds, widely used as water containers and drinking vessels, face increasing competition from plastic containers — a process well exemplified by the fact that in 2007 in Ghana, distribution trucks of a well-known manufacturer of plastic goods could be seen bearing the slogan: “Enter the era of plastic!”

Despite changes in material culture production and consumption, manual labour remains important in Mawu society. This includes work on the farm, pounding food, sharpening knives and machetes, processing rice, corn and cocoa, pressing palm-oil, and making baskets and brooms — all manual tasks which are done by both men and women. Some tasks are more specialised. Only elderly people (men and women) process palm bunches and break palm kernels for oil. Only men hunt, tap palmwine, build mud houses, construct traps, hunt, perform religious rituals, and in the past, worked as blacksmiths. Only women fashion fireplaces from fine river sand, make bracelets with beads, grind brown rice into rice flour, wash clothes, and sing funeral dirges. Though men prepare food when out hunting, women prepare food at home, and only women make the more elaborate dishes, including ceremonial ones like Ògbàkusi. In every village, some people are recognised for their special skills in administering traditional medicine, building houses, making gunpowder, drumming, and constructing wooden tools like winnowing trays, ladles, and pestles and mortars.

3. Grammatical overview
By far the most common sensory words in Siwu, both in terms of corpus frequency and overall number, are ideophones. Ideophones are marked words that depict sensory
imagery, found in many of the world’s languages (Dingemanse 2012). Examples from Siwu are degedege ‘sensually delicious’ (which we saw above), fwefwe ‘malleable, flexible’, fututuu ‘pure white’, minimini ‘spherical’, and saaa ‘cool, fragrant sensation on the tongue (e.g. of ginger)’. They are highly recognisable as a class of words because they tend to feature a wider than normal range of word forms and are frequently reduplicated or lengthened for intensification. Their meanings are in the domain of sensory perception, and they are frequently used to communicate expert knowledge and to share in experiences (Dingemanse 2011a). Ideophones, which we will see returning in all six sensory domains discussed below, are often used in combination with other linguistic resources such as copulas or verbs of perception.

The main verbs of perception in Siwu are nyɔ ‘look/explore’ and nɔ ‘hear/perceive’. They also appear in complex predicates like pegu nyɔ ‘touch’ (‘touch explore’), ti nyɔ ‘taste’ (‘insert explore’), fɔrɛ nɔ ‘smell’ (‘smell perceive’). The patterning of the two basic verbs suggests a fundamental opposition between two components or construals of perception events in Siwu: active/explorative sensing and passive/inchoative perceiving. The first verb (nyɔ ‘look/explore’) is used not only for vision, but also in taste and haptic touch constructions, while the second (nɔ ‘hear/perceive’) is used for hearing, smell, and passive touch (as shown in Table 1). The linguistic construal of vision, taste and haptic touch in Siwu thus focuses on sensing as a controlled, explorative act; hearing, smell, and passive touch on the other hand are construed more as passive-inchoative events of perception.

<table>
<thead>
<tr>
<th>SEE</th>
<th>TOUCH</th>
<th>TASTE</th>
<th>HEAR</th>
<th>SMELL</th>
</tr>
</thead>
<tbody>
<tr>
<td>nyɔ ‘look/explore’</td>
<td>nyɔ</td>
<td>pegu nyɔ</td>
<td>ti nyɔ</td>
<td>kɔ atsue</td>
</tr>
<tr>
<td>nɔ ‘hear/perceive’</td>
<td>nyɔ</td>
<td>nɔ</td>
<td>- (nɔ)</td>
<td>nɔ</td>
</tr>
</tbody>
</table>

Table 1 Active/explorative (nyɔ) and passive/inchoative (nɔ) sensing in Siwu

To see how this distinction plays out, consider the description of touching in examples (1-3). The sense of touch is construed as a two-phase activity involving first the explorative act of “touching and looking/exploring” (pegu nyɔ) with the finger, as in (1), and then the passive-inchoative “hearing/perceiving” (nɔ) within the finger (2). The act of perception described with nyɔ in (1) could well have taken place in the dark, showing that nyɔ is used here in a general sense of “explore” rather than in a narrow visual sense. The actual tactile percept is described using an ideophone, in this case wɔsɔrɔdɔ ‘rough’ (3). Example (3) also shows that nɔ does not need to be modified by i-rɔl ‘finger’ to have the general sense of perceiving, suggesting that its primary meaning may be general rather than restricted to hearing. However, its most frequent uses are related to the auditory modality, which is why it is glossed as ‘hear/perceive’.

5
(1) ̀n-to  lò-pegu  nyi  gu  ū  i-rṣī
1SG-PROG 1SG-hit.INSTR look/explore with 1SG.POSS finger
I’m feeling with my finger [lit. touch look with my finger]

(2) ̀n-ọ  i  ū  a-rṣī  ame
1SG:PST-hear/perceive LOC 1SG.POSS A-finger inside
I felt (it) in my fingers [lit. perceive inside fingers]

(3) ̀n-ọ  so  i-barə  wọsọrọ  dọ
1SG:PST-hear/perceive QT it-do  IDPH.rough
I felt that it’s rough [lit. perceived that it does rough]

With the distinction between active/explorative sensing and passive/inchoative perceiving, Siwu carves up the space of sensory perception in a way that is different from the traditional textbook division between the “proximate” senses (olfaction, taste, touch) and the “distal” senses (vision, hearing). The latter basically relies on distance: proximity sensing happens close to the body, while distal sensing is concerned with perceiving objects more distant from the body. The Siwu way of carving up the space makes equal phenomenological sense: seeing, tasting and (active) touching must necessarily involve some controlled act of sensing on the part of the experiencer, while hearing, smell and (passive) touch do not necessarily involve such control.

Viberg (1984) explored the conflations of verb meanings across different sensory modalities. He makes a basic distinction between controlled, intentional sensing (which he calls activity) and stative, uncontrolled sensing (called experience). These two components, which construe the perceptual event from the perspective of the experiencer, are further juxtaposed against a copulative component, which focuses on the experienced entity. The three semantic components tabulated against the five traditional sensory modalities, form the basis of a Viberg table. For Siwu, the following Viberg table can be constructed:

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1 See for example Slobin (1971), Howes (1991), Classen (1993), among many others.
Some languages feature activity/experience oppositions such as English look/see, listen/hear. In Siwu, the only regular opposition of this kind is in the visual modality (nyɔ ‘look’ vs. nyà ‘see’). The more prominent opposition in Siwu is the one we saw above, between active/explorative sensing (nyɔ) and passive perceiving (nɔ). This is also apparent from the distribution of the verbal resources in the first two columns of the Viberg table.

In terms of corpus frequency, experiencer-based construals appear to be less common than the copulative constructions listed in the Viberg table above. The most common copulative constructions in Siwu combine generic verbs like se ‘be’, ba ‘have’ and bara ‘do’ with ideophonic complements that represent percepts, as exemplified in examples (4-7) below.

(4) i-se mimimin
   1.S-be IDPH.spherical
   it is spherical

(5) i-ba miomi
   1.S-have IDPH.pointy
   it is pointy

(6) i-barə sůkůrə-sůkůrə
   1.S-do IDPH.sound.of.grinding
   it goes sůkůrə-sůkůrə [makes a grinding sound]

(7) i-barə pətə
   1.S-do IDPH.rotten
   it is rotten

The most general of the copulative verbs is se ‘be’. This verb can be used in virtually all sensory domains and is thus similar in generality to the English copula. The other two general verbs encode a distinction between percepts as permanently exhibited by objects (ba ‘have’) versus percepts of a more intermittent character (bara ‘do’). The
former are construed more as properties, while the latter are construed more as events. For instance, a pointed shape, which for most objects is permanent, is described with *ba ‘have’* in (5), whereas *sukūrū-sukūrū* ‘making a grinding sound’ and *pōtō* ‘being rotten’ are treated more as transient states, as shown by the use of *bara ‘do’* in (6) and (7).

While these three copulative verbs are general across the senses, some sensory modalities have dedicated verbal resources for copulative construals of perception: Vision, Smell, and possibly Sound. Examples of Vision and Smell are in (8) and (9). The verb *fōrē* ‘smell’, when used in a source-based construal, is used either with an ideophonic adverb component (it smells *kōrōkōrō* ‘pleasantly’), or with a simile (smells like soap) as in (9), or with both (‘smells *kōrōkōrō* like soap’). There is a sensory verb *rē* ‘emit’ that can be used for sound (10) but also for light (11).

(8)    *ndu nyɔ kpii*  
      water look IDPH.static  
      the water looks still

(9)    *i-te i-fōrē ale ṣ-kwai*  
      1.S-PROG 1.S-smell like ṣ-soap  
      it smells like soap

(10)   *sì-lo te sì-re teterèè*  
      CL-voice PROG S.LS-emit IDPH.intense  
      the voice sounds loud

(11)   *ku-wē te kù-re teterèè*  
      CL-sun PROG KU.S-emit IDPH.intense  
      the sun shines intensely

Nominal resources for talking about perception are relatively scarce and include terms like *kulu* ‘noise/sound’, *silô* ‘voice/sound’, *ṣfā* ‘scent’ and *ipaɡu* ‘presence’ (which is a nominalised form of the verb *peɡu* ‘touch’ or ‘hit with’). There is a nominal property construction in which the predicate is *ba ‘have’* and the complement a nominal property concept from a small set of nouns including *dọ* ‘bitterness’, *bğe* ‘power’, *bbe* ‘sharpness’ (12), *bhrâ* ‘weight’ (13), and *bmeñê* ‘tastiness’ (14).

(12)    *i-pômi ba bbe*  
      1.SG-knife have ṣ-sharpness  
      the knife is sharp (lit. has sharpness)

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2 Nouns with perceptual meanings can also be derived from verbs and ideophones through a productive process of nominalisation: *i-nya* ‘vision, seeing’ (NOM-see), *i-ti i-nya* ‘taste’ (NOM-insert NOM-look), *i-fututu-á* (NOM-IDPH.white-ADJ), but such terms are rarely used in everyday speech.
The resources outlined here represent the most important constructions of perception of the Siwu language. “Constructions” is used here in a double sense. The first sense is that of linguistic constructions—ways of describing events of perception—that make up the Siwu ways of talking about perception. But the differences are not merely linguistic: as these constructions are used in everyday social interaction, they reflect and modify how perception is culturally construed. This is the second sense: the linguistic resources described here represent different construals of perception. We see this in the way the verbs se ‘be’ and bara ‘do’ pattern to construe percepts as permanent or more transient. We also see it in the way the different expressive resources pattern over different sensory domains, explored in more detail using a set of field experiments.

4. The language of perception experiment

4.1. Participants
A total of 17 participants (10 male) took part in the LoP tasks. The average age was around 40, with the youngest participant being 20 and the oldest being 74 at the time of testing. Not all people participated in all tasks, but every task was done by at least 10 participants, except Smell which was done by 8. All participants had Siwu as their first language and had spent most of their life in the village of Akpafu-Mempeasem. Three were monolingual; all others spoke at least Ewe, a dominant regional language and also the language of primary school education. Many also spoke some Ghanaian English and Twi.

4.2. Methods
Six perceptual domains were sampled using the following tasks:

Colour task (Majid and Levinson 2007). booklet with 80 Munsell colour chips systematically varying in hue and brightness. The chips are organised in a fixed random order. Focal Colour task (Majid 2008): a single array with all 80 colour chips from the Colour task. Participants were asked to pick out the best exemplar for a set of common colour terms. Shape task (Levinson and Majid 2007a). A booklet presenting 20 “good Gestalt” shapes—circle, sphere, square, cube, cone—as well as less prototypical shapes—star, flower—in a booklet for a labelling task. Sound task (Levinson and Majid 2007b). A set of 20 paired audio files varying in perceived loudness, pitch and tempo.
Participants were asked to describe contrasts in loudness, pitch and tempo. *Touch task* (Majid, Senft, and Levinson 2007a). A booklet with 10 pages, with each page containing a single textured material that consultants explore with their fingers without being able to see it. *Taste task* (Senft, Majid, and Levinson 2007). Substances presenting the 5 physiologically basic tastes, four of them administered as solutions (sweet, sour, bitter, salty) and one administered in crystalline form (umami). *Smell task* (Majid, Senft, and Levinson 2007b): A booklet titled “The Brief Smell Identification Test™”, presenting 12 different smells on scratch and sniff patches.

The naming tasks were introduced in Siwu as a labelling task in which there were no wrong answers. Participants were presented with the stimuli one by one and asked to label it with the task-specific elicitation prompt listed in the Appendix. Stimuli were presented in a fixed random order. Sessions were recorded and responses were transcribed and coded as soon as possible after the task was administered.

5. Results

5.1. Colour

There is no word in Siwu corresponding to the English ‘colour’, but there are many ways to describe surface appearance. Most common in everyday use are ideophones like *gelegele* ‘shiny’, *wɔrɔwɔrɔ* ‘spotty’, *kpìnàkpìnà* ‘dark/black’, stative verbs like *fudza* ‘be white’, *rete* ‘be ripe/red’, *yue* ‘be unripe/green’, and source-based simulative descriptions like *ale kùdokpo sekelela* ‘like the clear sky’.

All of these resources —ideophones, verbs, and source-based descriptions— are used in the Colour task. A first thing to note however is that not all chips received descriptors by all participants; on average, about 12% of the chips were left unnamed, with at one extreme a participant naming all of the chips (recruiting a significant amount of loanwords from English) and at the other extreme a participant naming only 64% of the chips. These naming strategies appear to bear a relation to age and education: younger people were more likely to recruit loanwords like *pink* and *bùluù* to fill gaps, whereas elderly people were adamant that some chips simply could not be labelled. Chips in the purple and blue range were particularly difficult to name: as Figure 2 shows, “no response” was the most frequent response for as many as 11 chips in this region (17 if the loanword *bùluù* is excluded). Chips in the brown area also posed difficulties: some participants drew a blank, while others came up with a great variety of simulative and source-based responses. These results suggest that Siwu may be a non-partition language where the available terms do not cover the perceptual space exhaustively (Kay and Maffi 1999), a possibility discussed in more detail below.

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3 It is marginally possible for younger and educated speakers to use the word *kalà* from Ghanain English.
The four most common terms used in the responses are *kpinàkpinà* ‘dark/black’, *fudza* ‘white’, *rete* ‘be ripe/red’ and *yue* ‘be unripe/green’. The first is an ideophone which appears to be on the way to become a verb, as happens with high frequency ideophones (Dingemanse in press). The *fudza* ‘be white’ verb is related to a widespread Kwa-root *fu* ‘white’. Although the two stative verbs *rete* ‘be ripe/red’ and *yue* ‘be unripe/green’ are lexically simple and salient, they do not appear to be basic colour terms in the classical sense (Berlin and Kay 1969; Levinson 2000). They are primarily used for the concepts of ‘ripe’ and ‘unripe’ rather than ‘red’ and ‘green’. *Rete* ‘be ripe/red’ for example is commonly used for fruits that are not red when ripe, e.g. *kɔ́łu reteá* ‘ripe banana’ (the -à suffix is an adjectivizer). In naturally occurring conversations, when people want to single out red as a surface appearance, they don’t use this verb on its own, but add an ideophonic modifier like *pêê* ‘deep/focal red’, as in *ima rete pêê* ‘the blood is deep red’. Similarly, *yue* ‘be unripe/green’ is limited for most participants to things that undergo a ripening process: it cannot be used, for instance, for the striking colour (‘green’ in English) of rice fields in the rainy season. There is thus some doubt about the status of *rete* ‘be ripe/red’ and *yue* ‘be unripe/green’ as basic colour terms.

About 12% of responses in the naming task were source-based descriptions. Their main characteristic is that they show great variation across participants, and hence appear to be created on the spot as descriptions. The word *iyatà* ‘leaf’ was commonly used in source-based descriptions because it can assume so many different appearances: *iyatà koreá* ‘dry leaf’, *iyatà fɔ̀rɔrɔrà* ‘succulent leaf’, *iyatà burià* ‘rotten leaf’, *iyatà ne lokpa ise karɔ* ‘leaf which has fallen on the ground’. Other commonly used source-based terms were the verb *kore* ‘be dry’ (sometimes as a modifier of leaf) and the nouns *karɔ* ‘earth’, *sise* ‘clay’, *ndu* ‘water’ and *sirikpoá* ‘coco yam’.

Paradoxically, some lexically simple terms whose sense may be most purely in the colour domain were never used in the Colour task. These are the ideophones *fututu* ‘pure white’ and *pêê* ‘deep/focal red’, usually modifiers of the verb *fudza* ‘be white’ (for *fututu*) and *rete* ‘be ripe/red’ (for *pêê*). These verbs and their ideophonic modifiers bear a special relation to each other. In the Focal Colour task, participants had no trouble pointing out a range of colour patches as possible referents for the verbs, but they didn’t do this for the ideophonic modifiers. For these, they picked out one patch, and this was always the one they also picked as the focal exemplar of the corresponding verb. The extension of the ideophones *fututu* and *pêê* thus does not appear to range beyond the focal point of the corresponding verb. The tendency of ideophones to target specific aspects of sensory perception is something that we see in other domains as well.

As noted above, the fact that not all colour chips were named suggests that Siwu may be a non-partition language, i.e. a language in which the colour space is not
exhaustively partitioned by the available simple terms (Kay and Maffi 1999). The relatively small unnamed parts makes Siwu a less dramatic case than the best known example of a non-partition language, Yeli-Dnye (Levinson 2000). However, if we take into account the non-generality of the meanings of rete ‘be ripe/red’ and yue ‘be unripe/green’, the status of these verbs as basic colour terms is doubtful, and far larger areas would become unnamed. The location of the unnamed patches (Figure 2) is not unexpected: the purple zone is perceptually one of the binary or ‘derived’ colours which according to studies of the emergence of colour terms tend to be named only in later stages (Kay and Maffi 1999:744). The Siwu system may therefore present an intermediate stage between the non-partition status of Yeli-Dnye and full partition status of a language like Arabic or English.

Another thing suggested by the findings —in particular the gaps, the non-generality of some of the most common terms, and the use of creative source-based responses— is that colour as a domain may not be very culturally salient for the Mawu. This is consistent with ethnographic evidence. Objects like beads, bracelets, and cloths are aesthetically valued for their texture, decorative patterns, and use of materials, but not for their colour. The walls of mud houses are meticulously smoothed, but never painted. No traditional dyeing techniques have been documented, and the only body paintings are white clay stripes (applied for instance to the limbs and upper body of performers of songs of the iliki genre). Colour symbolism is limited to associations also found among the once culturally-dominant Akan (Hagan 1970): red is the colour of danger, black that of death, and both are worn in combination during funerary rites.

From the perspective of Siwu, colour is probably better seen as just one aspect of a broader domain of surface appearance. The importance of cross-modal packages of visible surface properties in lexical sets that also cover the domain of “colour” has often been downplayed in the Basic Colour Terms literature (Berlin and Kay 1969; Kay and Kuehni 2008), but is well known from in-depth analyses of these domains in diverse languages (e.g. Conklin 1955; Dimmendaal 1995; MacLaury 1999; Levinson 2000; Wierzbicka 2008). Surface appearance is more likely to be a coherent domain in Siwu. For instance, the aforementioned ideophone pēē ‘deep/focal red’ appears in the same verb-ideophone collocations as the ideophone gàà ‘bright/luminous’, which targets the perceptually important dimension of luminosity (MacLaury 1999). Also, in a pile sorting task, participants consistently grouped kpinàkpinà ‘dark/black’ and fututu ‘pure white’ with words like gelegele ‘shiny’ and wūrwūrā ‘variegated/motley’, showing that these together constitute a salient domain for speakers of Siwu (Dingemanse and Majid 2012). Siwu speakers describe the broad domain of surface appearance as “that which shines”, using the verb fie ‘shine’, which can be modified by all ideophones for visual appearance.
5.2. Shape
There are many terms in Siwu for the kinds of shapes that occur in the natural environment, from pointy to crooked to zig-zagging to round. All of them are ideophones; a sample is provided in (15).

(15)  

\begin{itemize}
  \item \textit{miₘᵦiₘᵦ} ‘pointy’
  \item \textit{giligili} ‘circular’ (round-2D)
  \item \textit{minimini} ‘spherical’ (round-3D)
  \item \textit{gọɗọ} ‘crooked’
  \item \textit{kọkọtọ} ‘bent in one place (sharp angle)’
  \item \textit{gọgọ} ‘zig-zagging with smooth corners’
  \item \textit{sọdọsọ} ‘oblong’
  \item \textit{tororo} ‘straight’
  \item \textit{tegele}e ‘flat’
  \item \textit{bebebe} ‘wide, extended in the horizontal plane’
\end{itemize}

While some of the shapes in the Shape task drew ideophonic responses quite consistently, most of the responses were source-based, including such terms as \textit{iwɔmi} ‘star’, \textit{dɔdɔ} ‘bell’ (a possible loan from Ewe, for the cone stimulus), \textit{triangle} ‘triangle’ (for the triangle), \textit{idakagi} ‘box’ (a loan from Ewe, for the square stimulus), \textit{kàyogodọ} ‘doorway’ (for the rectangle), \textit{iqọqọ} ‘egg’ (for the ellipse) and \textit{ahəhə} ‘mirror’ (for the square and rectangle). There was quite some variability in these source-based responses, suggesting that participants creatively associated shapes with objects and may lack abstract terms for some of these particular shapes. Certain abstract terms did surface in descriptions of visual shapes, for instance \textit{siri} ‘line’, \textit{ikpa} ‘branch’ (in a description of corners as ‘branching places’), \textit{kurae} ‘side’ (in a description of a square as ‘having four sides’), and the creative combination of locative noun class prefix \textit{kà-} and locative suffix \textit{-kọ} ‘place related to’ with the ideophone \textit{miₘᵦiₘᵦ} ‘pointy’ to derive the noun \textit{kà-miₘᵦiₘᵦ-kọ} ‘pointy place’ (for something like corner).

An effect of education was observed in the naming of 2D and 3D representations. Elderly participants with little or no exposure to Western-style education did not see representations of cubes as cubes, and conflated representations of 2D circles and 3D spheres, often labelling them both with the same term (e.g. \textit{giligilì} ‘circular’ or \textit{iqọqọ} ‘egg’). A revealing case is the description of the representation of a sphere as “a circular thing; most of it looks black but one small place looks white”. This shows the extent to which representational conventions —in this case the use of white shading to represent the reflectance of a three-dimensional sphere—are learned and therefore partly culturally specific (Gombrich 2002[1960]). Younger participants had apparently picked up some of these conventions in school and did distinguish the two as \textit{giligilì} ‘circular’ vs. \textit{minimini}
‘spherical’, two ideophones that contrast in dimensionality and possibly also in visual versus visual+haptic encoding of shape, as shown for instance by the gestures that accompany them (Dingemanse 2011b:220–2).

The Shape task sheds light on the expressive resources that speakers use creatively in talking about shape, and hints at the important role ideophones have to play in this domain. The absence in Siwu of abstract terms for idealised geometric shapes like square and triangle may simply reflect the fact that these shapes are uncommon in nature (Roberson, Davies, and Davidoff 2000). The language offers ample resources to encode fine shape distinctions, as seen by the occurrence of many shape-related ideophones that encode shape distinctions found in the natural environment.

A culturally salient subset of shape words in Siwu is formed by shape ideophones that refer specifically to bodily characteristics, a selection of which is given in (16).

(16) Some shape ideophones for bodily characteristics in Siwu

lekere ‘fat and flabby’ (used with iyiri ‘belly’)
kpokkø ‘bulging’ (used with anomi ‘eyes’)
kpesese ‘protruding lips’ (used with onyako ‘lip’)
lotò ‘hanging down heavily’ (of belly, breasts, udder)
fieero ‘small buttocks’ (used with amrèse ‘buttocks’)
goro ‘protruding ears’ (used with ətsue ‘ears’)
poke ‘hollow cheeks’ (used with kanya ‘mouth’)

These ideophones only appear in collocations with the body part term in question, and their main use appears to be as body epithets or insults (cf. Blench 2010; Samarín 1969). A preoccupation with exceptional bodily characteristics is a possible universal feature of insults, and ideophones, as vivid depictions of sensory imagery, are well-placed to serve a role here.

5.3. Sound

Two strategies for talking about sound that are widespread if not universal are spatial metaphors and imitative words. In the Sound task, Siwu speakers used both of these strategies. A difference in pitch was described by most participants as bà karò ‘be low’ (lit. have ground) vs. kpagè ‘be high’ or kóle ‘jump’, mapping pitch to vertical space. This is in line with Agawu’s (1988) observation that in aesthetic discourse about songs, pitch is conceptualized in terms of height, as in kùka əfe kpagè ‘the song is too high’. Some participants also used a gendered opposition, with sirèrèlo ‘male voice’ for low sounds and sirègolo ‘female voice’ for high-pitched sounds. Loudness contrasts can be marked in many different ways, including the shape adjectives siarè ‘big’ and kèkei ‘small’, the verb rè ‘to sound’ and its negative form i-i-rè ‘doesn’t sound’, and the ideophones tetèrèè
‘loud, high intensity’ vs. *pọkọọ* ‘gently, softly’. Some terms conflate pitch and loudness, like *ilọmi* ‘small sound’ (high in pitch, low in volume) versus *ilọgbọ* ‘big sound’ (low in pitch, high in volume). Tempo differences are described in terms of speed: *pọkọọ* ‘slow’ versus *mlànlà* ‘fast’ or *pe sìwa* ‘be speedy’. This again matches aesthetic discourse about songs: *tere gu kụka* ‘run away with the song’ is used when a portion of a song accelerates the tempo (Agawu 1988:89).

The words used most commonly in the Sound task, *pọkọọ* ‘gently, softly, slowly’ and *tetèrèè* ‘loud, high intensity’, are ideophones that are not sound-related per se but refer to a more general perception of intensity. *Tetèrèè* for example can also be used for intense sunlight (as seen in (11) above) while *pọkọọ* is commonly used for ‘slow’. Additional elicitation revealed ideophones specific to the auditory domain which target more specific perceptual qualities using various types of iconic form-meaning mappings (Dingemanse 2011c). Words imitating nonlinguistic sounds by means of **direct iconicity** are plentiful; some ecologically relevant examples are *gbiùùm* ‘sound of explosion’, *tòlontòlon* ‘water dripping’, *tsowààà* ‘splash’, *sukuru-sukuru* ‘sound of spices being ground’, and *kiriri-kiriri* ‘sound of claws scratching’. Though these words depict auditory events rather than describing them in abstract terms, their form does encode something about the event structure by means of **gestalt iconicity**. For instance, monosyllables depict unitary events and reduplicated syllables depict repetition. Ideophones for acoustic phenomena are not necessarily simply imitations of sounds. Take for instance *kpenene*, depicting a shrill, piercing voice, and *wòrùrù*, depicting a low-pitched and hoarse, gruff voice. Instead of imitating a particular type of sound, as the onomatopoetic ideophones do, *kpenene* and *wòrùrù* depict certain psychoacoustic properties of human voices without directly imitating these voices. Here again, the form does encode something about the auditory percept, this time by means of an iconic mapping called **relative iconicity**. The relation between the front vowel /ɛ/ and the back vowel /ɔ/ bears a resemblance to the relation between their objects, a sound high in brightness versus a sound low in brightness (Marks 1978).

Nominals relating to sonic concepts are relatively few in number, and include *kùlu* ‘noise’, *sìlọ* ‘voice’, and *kùka* ‘song/call’. There is also an elaborate metalinguistic vocabulary distinguishing various types of songs, dances and performance styles, aspects of which have been described by Agawu (1988; 1989) for the genre of *sìna* ‘dirges’ and by Agudze (1991) for *Tokpaiko* worship. Here as elsewhere in technical vocabulary, ideophones play an important role as words that capture highly specific sensations and perceptions.

**5.4. Touch**

Ideophones account for 88% of first responses in the Touch task, and participants used a number of specific ideophones quite consistently to describe the 10 stimuli. Indeed in the
larger comparative project, Siwu is among the highest scoring languages in terms of “codability” of Touch, a fact that is likely connected to the availability of a large number of ideophones for different tactile sensations.

Some of the stimuli in the task received a near-unanimous consistency of responses: stimulus #4 (jagged fabric) was described as Ṽòsòròò ‘rough’ by 11 out of 12 participants and stimulus #6 (plastic sheet) as Ƿòlò ‘smooth’ by 11 out of 12. Paradoxically, in this sensory domain the non-consistent responses may shed more light on the available expressive resources than the fully consistent responses. This is because haptic stimuli often afford different kinds of haptic exploration, with attendant differences in sensations. Consider stimulus #1 (felt): it combines surface roughness (Ṽòsòròò) with a hairy fluffiness (Ŵùrùfùù), and if pressed, it dents in a flexible way (Fùéfùé). Different subjects attended to these different sensory aspects: the stimulus was described as Ṽùrùfùù ‘fluffy’ by five participants, as Ṽòsòròò ‘rough’ by four, and as Fùéfùé ‘malleable’ by three (this is looking at first responses only).

Variety in the responses indicates possible variety in how the stimulus is perceived, and can tell us more about the linguistic resources in the domain than a single response would (Samarin 1967). Of course, the results from stimulus-based elicitation must be triangulated with other methods to better understand the semantic relations between the words. In the case of the tactile ideophones of Siwu, a pile sorting task showed that malleability and surface texture are distinguished as two salient aspects of haptic touch sensations in Siwu (Dingemanse and Majid 2012). Additional elicitation revealed that Ĵùrùfùù ‘fluffy’ can also be used of hairy things that are not Ṽòsòròò ‘rough’, and that Fùéfùé ‘malleable’ can also be used of malleable things that are not Ĵùrùfùù ‘fluffy’ nor Ṽòsòròò ‘rough’. These results in the domain of touch reveal how ideophones target different aspects of sensory perception.

A notable feature of the responses in this task was that the large majority simply consisted of one headword, in most cases an ideophone, contrary to the elaborate descriptions in the Shape task and the creative source-based responses in the Colour task. This is another indication that the domain of haptic touch is highly codable in Siwu. The only type of modification that was very common was intensification of the ideophone, a type of expressive morphology. For instance, in descriptions of stimulus #6 (plastic sheet), the ideophone Ƿòlò ‘smooth’ was often performed with multiple additional reduplications: Ƿòlò Ƿòlò Ƿòlò Ƿòlò Ƿòlò Ƿòlò Ƿòlò Ƿòlò Ƿòlò Ƿòlò ‘very smooth’. Ideophones are more susceptible to such expressive morphology than ordinary words, which is a sign of their status as performative depictions (Dingemanse 2011b:139ff.; Zwicky and Pullum 1987).

There was only one common non-ideophonic source-based response in the texture task. This was in response to stimulus #2 (beads), which was described by most people as Kùbì-kùbì ‘beads’ (Kùbì ‘bead’ with total reduplication carrying distributive meaning). Siwu ideophones feature only three possible tonal melodies: all low, all high, or an
alternating tonal pattern. The irregular LH-HH tone pattern of kùbi-kùbi betrays its non-ideophonic status.

There are many ideophones beyond the ones elicited in the Touch task. Other ideophones in the domain of haptic touch evoke such perceptions as pukupuku ‘clotty’, fòdzòfòdzò ‘spongy and soft’, dekpere ‘fine-grained (e.g. flour)’, safaree ‘coarse-grained (e.g. sand)’, kpòlkplò ‘unpleasantly slippery (e.g. muddy road, mudfish)’, bògòbògò ‘flexible’, petepete ‘thin and fragile’. Note that in glossing these ideophones in English it is often necessary to use source-oriented terms (fluff, groove, silk, bead, clot, grain), whereas in Siwu, the ideophones bear no relation whatsoever to other lexical items. The ideophones pinpoint specific aspects of haptic perceptions in and of themselves, forming a dedicated sensory vocabulary.

The overall picture that emerges from the responses in the Touch task is that texture ideophones target diverse but highly specific aspects of haptic perception such as surface texture, compliance and flexibility. Corpus data show that ideophones are frequently used to calibrate knowledge during joint manual work, for instance the making of gunpowder or the pressing of palm-oil (Dingemanse 2011b:251–300). It is likely that there is a relation between the high codability of the Touch domain and the communicative uses of ideophones in everyday conversation.

5.5. Taste
In a recent literacy primer for Siwu, the proverb Ḍma i-se milé so sò miba ḍmèrè is translated into Ghanaian English as “salt does not praise itself for being sweet” (Atsu 2006). One could easily be put on the wrong foot by the translation. The word ḍmèrè, rendered as “sweet” here, can indeed describe the sweet taste of palm wine, honey and sugarcane. However, it is also used for salty and savoury things like meat, fish, and ḍgbákusi porridge. The meaning of the proverb might thus be better captured by the translation in (17).

(17) Ḍma i-se mi-lé so sò mi-ba ḍmèrè.
    MI-salt NEG-GO MI-praise self QT MI-have tastiness.
    ‘Salt does not praise itself for being tasty.’

The translation difficulties we run into with ḍmèrè illustrate the fact that in Siwu taste vocabulary, the most frequent positive evaluative term ḍmèrè conflates sweet, salty and savoury tastes. This conflation is also apparent from the responses in the Taste task, in which participants were presented with stimuli corresponding to the five physiologically basic tastes. The three most common terms used in relation to the five taste stimuli are mèrè (or its ideophonic variant mèrèmèrè), nyagbalaa and ọdo (or its ideophonic variant ọfọfọ). It seems that these are the three main categories of taste in
Siwu. They map onto the five taste stimuli as follows. The nominal property concept ṭmērē and the corresponding ideophone mērēmērē cover the sweet, umami and salt stimuli and can be glossed as ‘tasty (sweet, palatable, savoury)’. The ideophone nyagbalaa is used mainly for the sour stimulus and occasionally for the salt stimulus; based on wider elicitation, it is glossed as ‘pungent’. Finally, the noun ṭqo and its ideophonic variant ṭqooqo uniquely map onto the bitter stimulus. It is glossed as ‘bitter’; etymologically, it is probably related to the verb qo ‘bite’.

Though these three taste categories are the most common response types, there was a variety of other responses. Many of these are source-based, for instance mìma ‘salt’, ṭmàdzì ‘lemon’, and kìwa ‘medicine’ (for the bitter stimulus). Of interest is the consistent mapping of a source-based term to the glutamate stimulus: kïip/kïipù, used by 9 out of 12 participants. This is the word for the Maggi cube$^4$ of bouillon, marketed in Ghana by Nestlé since 1975 and commonly used as a flavour additive in soups and other dishes. The main ingredient of this product is monosodium glutamate. This association overshadowed most of the other possible categorisations of the glutamate stimulus, though it was sometimes simply described as ṭmērē ‘tasty’.$^5$

The case of kïip for bouillon cubes reflects the receptiveness of the taste vocabulary to newly imported flavours. A counterpoint is offered by a taste ideophone that reflects an association of language and natural resources that goes back much longer. This is the ideophone nyēkënyēkē, depicting an intensely sweet taste. Fruits and substances that are said to taste like this include màyedu ‘honey’ and tsitsèrē ‘sugar’, but the prototypical examples are two unusual wild forest fruits that are endemic to this region of West-Africa: ipòfù-ibì ‘katamfe a.k.a. miracle fruit’ (Thaumatococcus daniellii) and kamèrēmèrēt ‘serendipity berry’ (Dioscoreophyllum cumminsi). Both of these fruits produce an intensely sweet taste that is slow to develop, but persists for an unusually long time compared to sucrose. The unique taste properties of these forest fruits have been known throughout the forests of West-Africa for centuries, and to Western science for about 150 years (Daniell 1855; Inglett and May 1968). Their sweet taste is due to the proteins thaumatin and monellin, substances which are about “100,000 times sweeter than sugar on a molar basis and several thousand times sweeter on a weight basis” (Inglett and May 1969; Kim et al. 1989). It is this kind of intense sweet sensation that the ideophone nyēkënyēkē refers to. The sucrose solution in the Taste task was not sweet enough to elicit this term — it was used only once. Words like this are vivid illustrations of the close interwining of language and the environment in the domain of perception.

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$^4$ English cube [kjuːb] > Siwu kìipù [kìipù]

$^5$ For two participants, the glutamate stimulus brought up the ideophone sàaa ‘cool sensation on the tongue’, perhaps due to a local cooling effect caused by the process of dissolving the crystalline MSG.
5.6. Smell

Talk about smell in Siwu is usually couched in valenced terms. The two main terms in Siwu are kɔrɔkɔɔ ‘smelling good’ and nyanyariri ‘unpleasant’ — the latter not limited to smell alone but more generally used for perceptions of dirtyness and filthyness. The Smell task did not elicit many abstract descriptive labels for specific smells; the majority of first responses (almost 60%) were widely source-based simulative descriptions of the type X fɔrɔ əle Y ‘X smells like Y.’

Many of the stimuli in the task were recognised as non-indigenous, judging from source-based descriptions like ɔsra ‘tobacco’ (a loan from Ewe), pencil eraser, and Chinese rub (all for #1 cinnamon) or peɛnti ‘paint’, kerosine, brake fluid, and DDT (all for #8 thinner). All participants identified stimulus #12 (onion) as iburà ‘onion’; some young men recognised thinner (#7) and turpentine (#2) as smells related to painting activities. About 40% of the responses were in terms of kɔrɔkɔɔ/nyanyariri ‘good/bad’, which makes smell the domain with the biggest number of evaluative responses of all tasks. This is not exceptional cross-linguistically speaking — talk of smell tends often to be evaluative (Classen 1993). Three responses featured the ideophone nyagbalaa ‘pungent’ (in response to the turpentine, smoke and paint thinner smells), and one the ideophone ɣbɔɔ ‘temperate’ (in response to #3 ‘lemon’). Additional elicitation did uncover one other specific smell ideophone: pi ‘piercing smell of drying cocoa’, a smell that envelopes many compounds when fermented cocoa beans are drying in the sun and release volatile acetic acid.

Although further probing of the domain may reveal more smell terms, at present there is evidence for only a limited smell vocabulary in Siwu. This does not mean that smell is wholly unimportant to the Mawu. For instance, the distinctive odor of a common carnivorous ant (pembɛ, Ponerinae sp.) is said to be a sign of the presence of invisible beings, and farmers report using their sense of smell to judge whether the farmlands are safe. Smell can thus be a diagnostic for detecting visible and invisible danger. Such diagnostic uses notwithstanding, corpus data suggest that smell is not often a topic at talk except in simple evaluative terms.

6. Relative codability of the senses in Siwu

How do the six domains examined here compare? In the larger Language of Perception comparative project, the measure used for this is relative codability (XREF to introductory chapter). Measured by Simpson’s Diversity Index, codability takes into account the number of different response types and the relative abundance of each
response type. When participants are highly consistent in their use of terms, this results in high codability.

[Figure 4 ABOUT HERE]

In Siwu, the two highest scoring domains in terms of codability are Touch and Taste and the two lowest are Sound and Smell. Colour and Shape fall somewhat in between and show quite a large variance, as shown in Figure 4. For Touch, the domain in which Siwu excels compared to almost all of the other languages in the sample, it seems clear that the consistent and abundant use of ideophones (88% of first responses) contributes to the high codability score. Participants used a range of ideophones in a highly consistent way. For Taste something similar may hold: here, ideophones constituted about 50% of first responses. In other domains, low codability scores seem to reflect a lack of conventionalised vocabulary, resulting in participants crafting creative descriptions. This is clearly the case in the domains on Shape and Colour. However, Simpson’s Diversity Index privileges consistency of responses over abundance of response types. This means that codability scores do not always directly translate to the availability of expressive resources in a language, but may overestimate or underestimate them. In the domain of Touch, for instance, different participants attended to different aspects of the haptic sensation and used the rich ideophonic vocabulary available to them to very precisely describe these different aspects (e.g. pliability vs. surface texture). It follows that although the codability score for Touch was already relatively high, it would have been higher if all first responses focused on the same aspect of the haptic sensation.

The evidence discussed in this study suggests that Siwu is well equipped for talk about texture, shape, surface appearance (though not colour specifically), taste, and sound. What is the relation between the differential elaboration of sensory vocabulary and the ethnography of the senses sketched earlier? This is not a simple question to answer. Relations between language and culture are obscured in at least two ways. First, by the absence of historical data: although details about material culture may go back some centuries, the rich records of contextualised linguistic behaviour that would allow us to make sense of it are only now starting to be built. Second, because of the chicken-and-egg quality of the problem: do cultural preoccupations give rise to linguistic elaboration or vice versa? The direction of causality cannot be determined with certainty and is likely variable.

Accepting these limitations, some patterns may nonetheless be pointed out. For instance, it may be possible to understand the differential elaboration of some of the domains as related to recurrent communicative needs. Consider the contrast between the domains of colour and touch. While surface appearance is important in various ways, Mawu society lacks traditional dying techniques, and the use of specific colours for
symbolic and decorative purposes is limited. If the present situation is any indication of
the past, it appears that there has been little selective pressure towards the development of
an elaborate vocabulary of basic colour terms. One the other hand, there are strong
indications of the importance of manual labour and the manufacture of material culture,
both past and present — not just in the remarkable iron industry, but also in everyday
activities like food preparation, basket weaving, woodworking, mud building, the making
of gunpowder, and traditional medicine (Figure 5). Such activities involve manual actions
like grinding, pounding, carving, bending, and pounding — many of them done jointly
and therefore posing recurrent coordination challenges (Clark 1996). In these activities,
haptic properties like smoothness, grain size, flexibility and malleability are crucial
quality indicators: the flour should be fine, the palm twigs for basketry flexible, the fufu
not too clumpy, the mud wall smooth, and the őgbakasi succulent. There appears to be
much use for an elaborate touch vocabulary in Mawu society, and we find precisely such
a vocabulary in the form of touch ideophones.

While this chapter had shed light on the expressive resources of Siwu in several
sensory domains, it also raises new questions. The occurrence (or non-occurrence) of
sensory vocabulary is only part of the story; the distribution of different linguistic
resources over the domains is another aspect that requires investigation. What does the
semantic typology of sensory language look like, and how does it relate to the typology
of linguistic resources? Why are ideophones so all-important in Siwu whereas some other
languages get by with verbs, nouns and adjectives? These will be fertile questions for
future research, and to answer them, a holistic understanding of linguistic systems will be
crucial. Ideophones have often been excluded from typological considerations due to
their supposedly exotic or marginal nature (exotic mainly to Western language
ideologies, and marginal only in Standard Average European languages). Ameka (2001)
shows that one can arrive at very different conclusions about the nature of the adjective
class in Ewe depending on whether one includes or excludes ideophones. In the case of
Siwu, the fact that ideophones are so ubiquitous in everyday conversations and feature so
prominently in talk about perception shows that they are a central expressive resource in
the language.

7. Conclusions
When the Mawu of eastern Ghana talk about the sensory world, they use such diverse
devices as perception verbs, source-based descriptors and nominal property concepts, but
their most important linguistic resource is the dedicated word class of ideophones.
Ideophones occupy a central place in several perceptual domains — especially texture,
taste and shape—and none of the domains examined does without them. This underlines the remarkable fit between depictive words and sensory imagery and calls for an investigation of the role of ideophones as dedicated sensory vocabulary in other ideophonic languages around the world.

From perception verbs to texture ideophones and from the taste of Maggi cubes to wild forest fruits, we have seen some of the resources the Siwu language provides its speakers to construe and articulate their perceptions and sensations. It is my hope that this glimpse into the sensory world of the Mawu helps illuminate the ways in which the language of perception is simultaneously shaped and constrained by nature and culture.

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References


Figure 1 Two artisans repair an *atumpani* drum against the background of an earthen wall. A newly prepared antelope skin is fastened to the frame of the drum using a nylon cord and wooden pegs.
Figure 2 Mode map showing the most common response for every colour chip. If the background to a chip is speckled, “no response” was the most frequent response.

Figure 3 Specimen of *Dioscoreophyllum cumminsii* ‘serendipity berry’ (left) and *Thaumatococcus daniellii* ‘miracle fruit’ (right)
Figure 4 Boxplot showing relative codability of the senses in Siwu
Figure 5 Everyday technologies in which texture is important (clockwise from top left)  
Appendix
The elicitation prompts were designed in consultation with native speaker consultant Òdimɛ Kanairo. Prompts using simulative constructions were avoided because these would push for source-based responses only. The grammatical constructions used in these prompts are based on actual use and described in Section 3 of the paper.

**COLOUR**
(18)  Si a-nyा kùọ  i-nyɔ — nda i-se-e?
if 2SG-see way it-look how it-be-Q
If you see how this ((pointing to colour chip)) looks, how is it?

**SHAPE**
(19)  Ñda kùọ se màbra-a?
how way HAB 3PL-make-Q
How is it made/shaped?

**SOUND**
(20)  Deakat3 ne, ndà i-rè-è?
first TP, how it-sound
As for first one, how does it sound?
(21)  Ìnyɔare ne, ndà i-rè-è?
second TP, how it-sound-Q
As for the second one, how does it sound?

**TOUCH**
(22)  Si a-pegu a-nyɔ, ñda i-se-e?
if 2SG-touch 2SG-look how it-be-Q
If you feel (lit. touch-look, i.e. explore by touch), how is it?

**TASTE**
(23)  Si a-ti a-nyɔ, ñda i-se-e?
if 2SG-dip 2SG-look-Q
If you taste (lit. dip-look, i.e. explore by taste), how is it?

**SMELL**
(24)  Si a-fɔrɛ a-nɔ, ñda i-se-e?
if 2sg-smell 2sg-hear how it-be-Q
If you smell (lit. smell-perceive, i.e. perceive by smell), how is it?