Martine VANHOVE
CNRS (LLACAN / Fédération Typologie et Universaux Linguistiques)

Semantic associations between sensory modalities, prehension
and mental perceptions: A cross-linguistic perspective

To the memory of Omar Bencheikh,
an untiring lexicographer,
a faithful friend and colleague

1 INTRODUCTION

Since Grimm’s *Fünf Sinne* (1848) and his neo-grammian analysis of “semantic groupings” in Germanic, the question of the semantic associations or extensions between physical and mental perception words has been sporadically debated, increasingly in the last two decades or so. Even before these recent developments, already noteworthy is Buck’s *Dictionary of selected synonyms in the principal Indo-European languages* (1949:1020), in which he grouped together the verbs of sensorial perception, and pointed out to the numerous generic terms and their extension to the domain of mental perception and emotions.

Since then, regular patterns of polysemy and semantic change have been noted to various extents, as well as in different perspectives, within or across the domains of sensory and cognitive perceptions in diverse languages, areas, and genetic stocks. For instance, Matisoff (1978:161), analyzing the semantic network of body parts in Tibeto-Burman languages, refers to the eyes as “our highest, most intellectual organs of sense.” In a different perspective, Meeussen (1975:4-5) was setting out as a possible isogloss for sub-saharan Africa the fact that “the word for ‘hear’ indicates all perception other than by sight (smell, taste, feel)”. His proposition was recently followed, and enlarged to ‘see’ and cognition, by Heine and Zelealem (forthcoming) who also consider that “Examples of polysemies involving verbs for [...] ‘hear’ (to a lesser extent also ‘see’) also denoting other kinds of perception, such as ‘smell’, ‘feel’, ‘taste’, ‘understand’,” could be a characteristic of African languages. These polysemies in fact extend beyond the African continent as was shown by the extensive and in depth typological studies by Viberg (1984) in a sample of 53 languages from 14 different language stocks for intrafield associations, i.e. within the domain of physical perception, and by Evans and Wilkins (2000) in Australian languages for both intrafield and transfield associations, i.e. with other semantic fields, the most thorough typological and cultural study to day. Independently from the aforementioned works, Sweetser also analyzed the same intrafield and transfield semantic extensions from a cognitive and diachronic viewpoint for English and Indo-European. She underlined the fact that “Deep and pervasive metaphorical connections link our vocabulary of physical perception and our vocabulary of intellect and knowledge”, and that “a metaphorical analysis motivates the otherwise strange fact that certain semantic sub-domains within perception are naturally and regularly historical sources for certain sub-domains of cognition, rather than others” (Sweetser 1990:21).

In line with Viberg (1984), and Evans and Wilkins (2000), she mentions the primacy of vision on other sensory modalities at the lexical level (Sweetser 1990:35-36), a fact confirmed by the implicational hierarchy of senses and the corresponding diachronic chain discovered

---

1 The terminology ‘intrafield’ and ‘transfield’ is borrowed from Matisoff (1978:176).
previously by Viberg, and refined by Evans and Wilkins for Australian languages. Sweetser (1990:45) also adds that the connection between vision and knowledge may “be fairly common crossculturally, if not universal”. Evans and Wilkins (2000) were able to dispute this possible universal connection at the lexical and cultural levels on the basis of Australian languages, which have overwhelmingly favoured the semantic extension between hearing and cognition.

This paper aims at a typological study limited to the domain of transfield associations between two sensory modalities, hearing and sight, as well as prehension words (‘taking’)2 on one hand, and mental perception on the other, i.e. internal reception words (‘obeying’ and ‘heeding’) and cognition (or intellectual perception) words, in a sample of 25 languages from 8 different genetic stocks (see annex 1). The study is mainly limited to the verbal category, and more particularly as in previous works, to the basic set of general superordinate verbs, but other lexical categories were also taken into account whenever required, and all lexical items were examined, as much as possible, in their contextual uses.

The purpose is twofold: (i) to check if Sweetser’s hypothesis about possible cognitive universals, as well as Evans and Wilkins’ correlation patterns between semantic extensions and culture, are likely to be supported by the study of non-Indo-European and non-Australian languages; (ii) to propose a tentative typological classification of the different types of semantic associations attested in the data.

The data were mainly collected and discussed by means of a short questionnaire3 which circulated among the research group “Typologie des rapprochements sémantiques” at the French Fédération Typologie et Universaux Linguistiques and a few other colleagues (see annex 2 for the names of the language experts). In addition, we made use of standard dictionaries for a few European languages (English, German, Italian), and for classical Arabic. This sample is by no means a balanced one: it mainly resorts to our competence as field linguists and to our mother tongues, because we thought it best, at this stage of the research, to rely mainly on first hand data and on our own expertise in different cultural and linguistic environments. This explains for instance the over-representation of African languages or the lack of Amerindian and Australian languages. Still, together with the work of Evans and Wilkins (2000), the available data is believed to be diverse enough to venture a hypothesis about a possible typology of the semantic associations under consideration.

Methodologically, it is important to underline that the results discussed below use both synchronic polysemies and heterosemies4, i.e. semantic extensions through derivation, as well as compound forms, and diachronic semantic change, when available. As stated in the introduction to this volume and in Zalizniak’s article (this volume), this procedure is based on the assumption that all approaches are equally legitimate when dealing with semantic extensions or associations, because synchronical facts foster diachronological ones, i.e. synchronic polysemies, heterosemies, etc., and contextual uses, underlie semantic change. Or in the words of Sweetser’s dialectic approach (1990:45-46) because “Through a historical analysis of ‘routes’ of semantic change, it is possible to elucidate synchronic semantic connections between lexical domains; similarly, synchronic connections may help clarify reasons for shifts of meaning in past linguistic history.” (See also Wilkins 1981, 1996, Evans and Wilkins 2000:549ff).

---

2 Because this is another well-known source of, or target concept for, cognition words in Indo-European languages, as well as others (see § 4).
3 Or more precisely a grouping of attested polysemies that emerged from previous discussions and readings, together with a demand for examples in context and more polysemies if possible.
No distinction is made between the three general components (event-type representation in Evans and Wilkins’ terms) of the sensory modalities, i.e. between controlled activity (e.g. ‘listen’), noncontrolled experience (e.g. ‘hear’) and as a source based copulative (state) construction (e.g. ‘sound’), because they are far from being lexicalized as different items in the languages of the sample, although less systematically than in Australian languages (Evans and Wilkins, 2000:554).

No attempt has been made here to solve the terminological issue. This is not because I consider it is a subsidiary problem, but as there is so far no consensual cover terms for the cases of polysemy, heterosemy, etc., and semantic change exemplified here, I preferred to use “semantic associations” (Matisoff) and “semantic extensions” (Evans and Wilkins) indiscriminately, even though I am well aware they are not really synonymous, and that other terms are also in use, with slightly different acceptations, such as semantic parallels (Masson 1999), semantic affinities (Pottier, this volume), proxemies (Gaume, this volume), or the very neuter ‘semantic connections’ (Sweetser 1990). What refrains me from adopting “semantic extension” as used in Evans and Wilkins, is a possible diachronic interpretation in terms of unidirectional semantic change. In the case of sensory modalities, this would mean a change from physical and concrete meanings to more intellectual and abstract ones, a change which is not always supported by etymological data. It is well known for instance that French entendre (‘hear’) developed from a cognitive verb meaning ‘understand’, a meaning still in use today in the register of intellectuals. The fact that the starting point of the research was the sensory modalities and prehension verbs does not imply any judgment regarding their historical primacy over cognitive and intellectual perception in each individual language and for each individual lexical item. Truly enough, cognitive linguistics (e.g. Lakoff and Johnson 1980, Lakoff 1987, Sweetser 1990) has rightly emphasized the mapping of various semantic domains on the physical domain, but unlike Sweetser (1990:306), I do not consider that the reverse could not also be true in some instances. From another viewpoint, the debate is still acute between the supporters of unitary or vague meanings vs. polysemous meanings, but it is not the purpose of this presentation to argue in favour of one or the other, even though my approach is clearly on the polysemous side.

2 THE AUDITORY SENSE AND MENTAL PERCEPTIONS

Although vision prevails in the hierarchy of physical senses as Viberg showed, followed by Evans and Wilkins, the auditory modality prevails as far as transfield associations between the hearing sense and mental perceptions are concerned. This is true not only for Australian languages, but also for all the languages of our sample, including the Indo-European ones. Still, the general semantic association is effective to various extents: not all the languages have the same range of particular meanings associated to ‘hear’, they may only have occurred historically or be limited to certain registers such as slang, or to particular

---

6 “We would also like to explain the fact that the mappings are unidirectional: bodily experienced is a source of vocabulary for our psychological states, but not the other way round.”
7 It cannot be ruled out that the semantic shifts which contradict the unidirectional hypothesis of cognitive linguistics could be due to the influence of parallel mappings recurring for other sensory modalities, in other terms, to analogical processes regarding the metaphorical patterns.
8 For a thorough discussion see Riemer (2005).
9 With slight modifications (Evans and Wilkins 2000:560). In addition, this universal also contradicts the assumption of a culturally based hierarchy put forward by the anthropology of the senses (Howes 1991) (see Evans and Wilkins 2000:561-2).
pragmatic contexts. Still, they do exist in the speakers’ discourse and are reproducible, so, just as the etymological evidence, they were considered as true cases of semantic associations.

Providing these limitations, the transfield semantic association between hearing and mental perception, i.e. internal reception and intellectual perception or cognition, seems to be a good candidate for a possible semantic universal. But from the perspective of a typological classification, the distinction between the different concepts which can be associated synchronically or diachronically with that of hearing is fundamental, hence the three main divisions in the discussion below. Also important from the point of view of a typological classification are the different syntactic and morpho-semantic patterns used crosslinguistically (see also Evans and Wilkins 2000).

On the other hand, Sweetser’s claim (1990:41-42) that “the link between physical hearing and obeying or heeding – between physical and internal receptivity or reception – may well, in fact, be universal, rather than merely Indo-European” needs to be refined on cultural and social grounds. If more than two thirds of the languages of our sample (18) indeed show a pervasive association between these semantic domains at the lexical level, it leaves out almost one third of them (7). Of course, it cannot be ruled out that the semantic associations could have been lost in the course of history, but since the languages concerned are only documented in recent times (see § 2.3), only comparative studies within their respective genetic stocks could confirm a possible loss. In fact, social factors also need to be taken into account: a good example is provided by Gbay a ‘Bodoe. This Niger-Congo language of Central Africa is spoken by a small community whose social organisation is basically nonhierarchical, and a consequence thereof is that there is no lexical item meaning ‘obey’, not even polysemous with ‘hear’. But the ‘heeding” sense emerges in context, such as in *zéí mbəra* <listen / advice> ‘listen to, follow s.b.’s advice’ (Y. Moñino, p.c.).

Still, even though the polysemy between physical and internal reception is not universal, it is interesting to note that it goes far beyond the Indo-European and Australian languages. It is present in all the other genetic stocks of our data, i.e. Tibeto-Burman, Eskimo, Afroasiatic, Nilo-Saharan, Austronesian, and Niger-Congo. Only the creole variety of Palenquero lacks this semantic association. But the polysemy ‘hear / listen’ and ‘obey’ is known in other creoles, e.g. in Cap Verdian creole of Santiago (N. Quint, p.c.), even when not attested in the source language, Portuguese in this instance. Of course it would be worth investigating the semantics of hearing words in a larger sample of languages in each stock in order to assess the degree of frequency of this semantic association and check to what extent Sweetser’s assumption can be generalized.

### 2.1 Auditory sense and internal reception

In our sample, a small group of four languages, belonging to four different genetic stocks, Beja, Inuit (in both the Eastern Canada and Greenland varieties), Tamang, and Tswana, are in fact limited to the polysemy between the auditory modality, be it ‘hear’ and/or ‘listen’, and internal reception, i.e. ‘heeding’ or ‘obeying’, and do not display an extension to cognitive verbs such as ‘realize’, ‘understand’ or ‘know’.

In Beja, which makes a lexical distinction between the noncontrolled experience and the controlled activity, the polysemy is shared between two verbs:

- *maasiv* ‘hear, perceive’, and ‘heed’,
- *sinaakir* ‘listen’ and ‘obey’.

The other three languages have only one lexical item which is polysemous with internal reception:

Eastern Canada Inuit *naalak* uses one verb for both the activity ‘listen to’, and the experience ‘hear’, which is polysemous with ‘obey’, but Greenland Inuit makes use of the
verb for the active meaning only, and develops also another closely related meaning to ‘heed’:
naala(k) ‘listen, obey, be well-behaved’.

Tamang is a case similar to the above:
Ingjan-pa ‘listen’, heed, obey, let o.s. be persuaded’.

In Tswana, the verb utlwa\(^{10}\) is polysemous for several sensory modalities: ‘hear; perceive, feel; taste’, and also with ‘obey’, a polysemy which affects also its nominal derivative kutlo ‘hearing sense, sensation, feeling, obedience’.

### 2.2 Auditory sense, internal and intellectual perceptions

The most common pattern of semantic association in the sample is the one which combines all three physical, internal, and intellectual perceptions. It concerns a group of 13 languages (see map) distributed among 5 of the 8 genetic stocks of the sample, which have, in addition to ‘heed’ and/or ‘obey’, a semantic association with cognitive verbs such as ‘understand’, ‘learn’, ‘know’, or more rarely ‘think’\(^{11}\).

It concerns the five Indo-European languages, and in this respect Evans and Wilkins statement (2000:551) that “‘Hear’ never develops ‘know’ or ‘think’ meaning in Indo-European, though it sometimes develops to ‘obey’ (Danish) or ‘attend to’ (Swedish)”, if correct diachronically, cannot and must not be interpreted as an impossible mapping between these semantic domains at the cognitive and lexical levels, whatever the direction of the historical development.

For instance, Italian sentirre has a full range of intrafield and transfield polysemies: the bilingual Larousse Italian-French dictionary gives, in this order, the following meanings:

\textit{sentrre} : ‘Feel, smell, perceive; taste; touch; recognize. Hear, listen. Consult; learn, know. Feel, experience. Think’\(^{12}\).

In addition ascoltare ‘listen to’ is associated to ‘heed’ in

\textit{ascoltare i consigli di un amico} ‘follow a friend’s advice’,

and to ‘obey’ in

\textit{ascoltare la propria coscienza} ‘obey one’s conscience’.

In French, and even in English, like in Italian, the association is distributed between two verbs, for which register and pragmatic factors have to be taken into account.

French has \textit{écouter} ‘listen, obey’, which is historically considered to be derived from a meaning ‘*heed’\(^{13}\), and \textit{entendre} ‘hear, understand, know thoroughly’ (historically derived from a meaning ‘understand’).

In English \textit{hear} is also glossed by the so-called figurative meanings of ‘understand, learn, know’. The examples provided in dictionaries are good instances of bridging contexts, be they pragmatic or syntactic:

\textit{I hear you} = understand;
\textit{Have you heard the news?} = learn;
\textit{Have you heard the one about the Scotsman who…} = know the story of.

On the other hand, \textit{listen} also means ‘heed, and obey’.

---

\(^{10}\) The derived verb utlwelela, with the applicativ suffix –ela, means ‘listen’, but Tswana also has another verb reetsa, same meaning, based on a different root.

\(^{11}\) A meaning not so rare in Australian languages (Evans and Wilkins 2000:569-70).

\(^{12}\) All the translations from the bilingual and etymological French dictionaries are mine.

\(^{13}\) All references to French etymologies are taken from Rey (1992). Italian ascoltare is of course cognate with French \textit{écouter}. 

5
In German the triple association is today realized in one polysemous verb, hören ‘hear, listen, learn, know, pay attention, obey’, which in colloquial German also means ‘understand’ (P. Koch, p.c.).

The case of Russian is more complicated because the connection between the three semantic domains is partly synchronic, partly diachronic, as well as dialectal and heterosemic. Sakhno (2001:313-4) mentions under čujat ‘feel, sense, perceive, hear’, the fact that the latter meaning is a dialectal variant, and M. Koptjevskaja-Tamm (p.c.) that it is also used in colloquial Russian in the sense of ‘understand’, e.g. in interrogative sentences like:

čueš? ‘Can you see this? (= understand)’. This verb is etymologically related to:

čuvstvovat ‘feel; experience; understand’.

Both verbs have a common Slavic etymon *čuti ‘perceive’ which “goes back to Indo-European *(s)keu- / *(s)kou- ‘notice, be vigilant, attentive, careful’, a root which is probably represented in Sanskrit kāvih ‘wise, clairvoyant’, Greek koēn ‘perceive, understand, hear’14, and Latin cavere (< *covere) ‘be careful, vigilant, cautious’ (> French caution) and cautela ‘carefulness, caution, precaution’ (> French cautèle, cautèleux).” (Sakhno 2001:313-4). Thus, the meaning of ‘heed, be attentive’ is only a diachronic one from which were derived ‘hear’, and ‘understand’ at a post-Indo-European stage.

Obviously the issue of the direction of the semantic change is at stake, but as etymology in this typological presentation is not in focus, I shall not discuss it here. Suffice is to know for our purpose that the semantic association exists.

Russian also has another verb slušat ‘listen, hear’, which is a case of heterosemy: its reflexive derived form slušat’sja means ‘obey’, hence:

slušat’sja soveta ‘follow an advice’.

As for the other genetic stocks, one finds a similar variety of semantic and lexical patterns.

In Afroasiatic classical Arabic, the different meanings are shared between two roots:
samīra ‘listen, hear, obey’

and a rather obsolete verb našata ‘listen carefully in order to understand’, which was a frequent meaning in the Quran (= ‘urge people to reason’).

The two Nilo-Saharan languages have one polysemous lexical item:

Yulu pāagā ‘listen, hear, be attentive, understand, conform to, obey’.

In addition, Sar dō develops a few other meanings: ‘perceive, mainly with the ear, but also in another way’; ‘hear, listen, understand, think’; ‘get on with’; ‘obey’; ‘suit’, be favorable:

dō tā bōbān (lit. he perceive mouth/ word of his father) ‘he obeys his father’;
dō tā (lit. perceive mouth) ‘understand’ (a language);
mōo wūsā dēē ālē ‘I smelt the smell of nobody’ (= nobody was present).

Three Niger-Congo languages show cases of heterosemy and polysemy.

Wolof belongs to both patterns: dégg ‘hear’, ‘understand’ (a word), ‘know how to speak a language’, and dégg-al < hear-causative> ‘obey’.

Gbaya ‘Bodoe has only one polysemous lexical item:

14 More common is Greek akouein ‘hear, understand’ (Chantraine 1999). This language could be added to the list of languages which have a semantic association between ‘hear’ and cognition verbs.
zěi ‘hear, listen; understand’, zěi mbóra ‘listen to, follow s.b.’s advice’

In Kasem the triple polysemy is distributed between the noncontrolled experience and the controlled activity:

ni ‘hear, listen’

nì kàsì < hear Kasem > ‘understand the Kasem language’;

nì ñwóñì < hear sweetness > ‘understand sweetness’ (= to take things well, be free of worries, like a child),

and cëgì ‘listen, heed’:

cëgì ñwàñà < listen word > ‘listen, pay attention’ (in a place where one can watch out).

This multiple polysemy is also known in 3 of the 5 Austronesian languages of the sample:

Olorat and Lakon have one polysemous item for various senses: roñ ‘hear’, ‘listen’, ‘smell’, ‘feel’, with extensions to ‘know’, and ‘obey’:

na ga roñ haha-ñ ‘I know your name’. (Lakon)

‘Understand’ does not seem to be included in the range of meanings of roñ, a fact which could go contrary to Sweetser’s assumption (1990:43) that “It would be a novelty for a verb meaning ‘hear’ to develop a usage meaning ‘know’ rather than ‘understand’ whereas such a usage is common for verbs meaning ‘see’.” But it must be mentioned that the meaning ‘understand’ is known in a closely related language, Mwotlap (see below)16. In addition, Evans and Wilkins (2000:570) also mention the scarcity of Australian languages without the ‘understand’ meaning. So all these data do not seem to be convincing evidence against Sweetser’s assumption.

Mwotlap is similar to the above two languages, with the addition of the meaning ‘understand (a language)’: yoñteg ‘hear’, ‘listen’ (the voice of s.o.), ‘feel by touch, smell, taste, intuition’; ‘obey’.

yoñteg vëglal < hear know > ‘recognize (s.o., s.th.) through hearing’ (in serial verbs)

no mal vap van, ba nêk et-yoñteg te na-lêck! ‘I warned you, but you did not obey me!’;

The limitation of the meanings ‘know’ or ‘understand’ to contexts linked to the auditory modality, such as words or language, is not uncommon in our sample, just as in Australian languages, and this could also be considered as a first step towards broader acceptations, what Evans and Wilkins (2000:568, 570) have called “bridging contexts”.

2.3 Auditory sense and intellectual perceptions

Finally there are seven languages (see map) which link ‘hearing’ only to cognition verbs such as ‘understand’ and ‘know’, more rarely ‘think’, without the meanings of ‘heed’ or ‘obey’.

Three of the four Bantu languages (although marginally for Swahili) are concerned by this type of semantic association.

In Makonde kwìigwa is limited to ‘hear, understand’, but the closely related Bantu language, Swahili is more polysemous for sensory modalities: kusikia: ‘hear, feel’; ‘understand, twig (slang)’, (umesikia ‘did you hear / feel / understand?’), as is Vili kùkùù ‘hear, listen, understand’ (and ‘smell’ in kùkùù ñìkù < hear smell > ‘smell’).
In Austronesian Araki, the association with cognition seems to be rather marginal through the sole meaning of ‘realize’: dogo ‘hear’ (s.o., s.b); ‘feel’ (physically s.th.):

Om dogo cada mo ūdug? ‘Do you feel warm?;
‘realize’ (+ prop. Realis):
Hadiv mo dogo mo de mo ñarahu ‘Rat realized that he was afraid;
‘feel like, want’ (+ prop. Irrealis).

But this is a highly endangered language with 3 or 4 speakers left and for which further research is needed.

The other Austronesian language Nêlêmwa displays the sensory polysemy in tâlâ ‘hear (noise), smell, feel’, which has also the cognitive meanings ‘understand’, and ‘remember’ (often in a compound form: tâlâ mwemwelî <hear know>, the only language in our data in which the latter cognitive meaning, quite common in Australian languages, is attested.

As for the two remaining languages, they have the basic polysemy: Yupik (Siberian) niiqur ‘hear, understand’, Palenquero kuchá ‘hear, listen, understand’ (< Spanish escuchar ‘listen’).

2.4 Conclusions

In addition to Evans and Wilkins’ findings for Australian languages, our data seem to confirm a very strong, if not universal, typological tendency, sometimes only historically, towards a transfield semantic association between the domains of auditory perception and cognition. The data published in Howes (1991) show similar semantic associations in Hausa (an Afroasiatic language of the Chadic branch), in Suya (an Amerindian language), and in Ommura (a language of Papua New Guinea).

But contrary to Australian languages (Evans and Wilkins 2000:570-2), the polysemy between physical perception and ‘remember’ is very limited in our sample, in fact restricted to Nêlêmwa, an Oceanian language, as is the polysemy with ‘think’ only noted for Italian and Sar.

The findings and classification of this section are summarized in the table below (organized by genetic stocks) and visualized in the following map:

<table>
<thead>
<tr>
<th>Language</th>
<th>heed</th>
<th>obey</th>
<th>understand</th>
<th>know</th>
<th>learn</th>
<th>think</th>
<th>remember</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>listen</td>
<td>listen</td>
<td>hear</td>
<td>hear</td>
<td>hear</td>
<td>hear</td>
<td>hear</td>
</tr>
<tr>
<td>German</td>
<td>hören</td>
<td>hören</td>
<td>hören</td>
<td>hören</td>
<td>hören</td>
<td>hören</td>
<td>hören</td>
</tr>
<tr>
<td>French</td>
<td>écouter</td>
<td>écouter</td>
<td>entendre</td>
<td>entendre</td>
<td>entendre</td>
<td>entendre</td>
<td>entendre</td>
</tr>
<tr>
<td>Italian</td>
<td>ascoltare</td>
<td>ascoltare</td>
<td>sentire</td>
<td>sentire</td>
<td>sentire</td>
<td>sentire</td>
<td>sentire</td>
</tr>
<tr>
<td>Russian (&lt; čujat’)</td>
<td>*I.E. (s)keu- slušat’sja</td>
<td>čuvstvovat’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>(+)</td>
<td>sami’a</td>
<td>naṣata</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beja</td>
<td>maasîw</td>
<td>sinaakir</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sar</td>
<td>òò</td>
<td>òò</td>
<td>òò</td>
<td>òò</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yulu</td>
<td>pâagō</td>
<td>pâagō</td>
<td>pâagō</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gbayá</td>
<td>(zéí)</td>
<td></td>
<td>zéí</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kasem</td>
<td>cōgî</td>
<td></td>
<td>nî</td>
<td>(nì)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makonde</td>
<td></td>
<td>kwïiïgwa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swahili</td>
<td></td>
<td>kusikia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tswana</td>
<td>utlwa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vili</td>
<td></td>
<td>kûkûû</td>
<td>(dégg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolof</td>
<td>dégg-al</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(dégg)</td>
</tr>
</tbody>
</table>
Table 1: Semantic associations between hearing and mental perceptions

<table>
<thead>
<tr>
<th>Language</th>
<th>Sense 1</th>
<th>Sense 2</th>
<th>Sense 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Araki</td>
<td>(dogo)</td>
<td>(dogo)</td>
<td>(dogo)</td>
</tr>
<tr>
<td>Lakon</td>
<td>roñ</td>
<td>roñ</td>
<td>roñ</td>
</tr>
<tr>
<td>Mwotlap</td>
<td>yoñteg</td>
<td>yoñteg</td>
<td>(yoñteg)</td>
</tr>
<tr>
<td>Olrat</td>
<td>roñ</td>
<td>tâlà</td>
<td>tâlà</td>
</tr>
<tr>
<td>Nêlêmwa</td>
<td>(naalak)</td>
<td>naalak</td>
<td>naalak</td>
</tr>
<tr>
<td>Inuit</td>
<td>(naalak)</td>
<td>naalak</td>
<td>naalak</td>
</tr>
<tr>
<td>Yupik</td>
<td>niiqur</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamang</td>
<td>1ngjan-pa</td>
<td>1ngjan-pa</td>
<td></td>
</tr>
<tr>
<td>Palenquero</td>
<td>kuchá</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 VISION AND MENTAL PERCEPTIONS

Against the possibility advocated by Sweetser (1990:45) that the connection between vision and knowledge may be fairly common crossculturally, if not universal, Evans and Wilkins have clearly shown that this semantic association is only marginal among Australian languages, both culturally and lexically. Our language sample also confirms that the lexical association is far from being universal: just over half of them, i.e. 14/25, are concerned, which means that the transfield associations between sensory modalities and internal and/or intellectual perception show parallel patterns for both the hearing and the vision senses in these languages.

But it has to be mentioned that the absence of polysemy or semantic change does not necessarily mean that the languages concerned do not display a cultural connection between
vision and cognition. This is the case at least\(^{17}\) for one African language of our sample, i.e. Gbaya 'Bodoe. For the Gbaya people the eye is considered as the knowledge organ: one learns not only by hearing about things and events, but also by looking at them. As a matter of fact this is the teaching method for the traditional technics: the adults do not utter any kind of explanations while showing them to the children, neither do they correct verbally the children’s mistakes when they try to imitate what they have been shown (Y. Moñino and P. Roulon-Doko, p.c.). Furthermore, even though *zɔ́k* ‘see, look at’ does not mean ‘understand’, ‘learn’, or ‘know’, the cultural link between the two semantic domains is reflected in the following saying:

\[ wéwéé nè ɡbà-yík \]

‘the man is the eye’.

As with the auditory modality, the range of the possible semantic associations differ from one language to the next. Still, the threefold classification below is slightly different from the previous section because the semantic sub-domains are organized differently, and because internal perception is marginal as compared to intellectual perception. For the sake of comparison and classification, I have deliberately limited the investigation to these two semantic domains, leaving out the domains of imagination or emotions for instance. However for the non-European languages, other semantic extensions are mentioned when available, in order to provide information for further research.

### 3.1 Vision and ‘understanding’

The binary semantic association between vision and ‘understanding’ is the most frequent one in our sample and is always realized in polysemous lexical items. It concerns 5 languages in 4 genetic stocks.

This is the case for Italian *vedere* ‘see; understand’.

Two Niger-Congo languages are also concerned: Swahili *kuona* ‘see; understand’ (oral speech), and Wolof *gis* ‘see’; ‘notice, understand’ (colloquial):

\[ gis nga \]

<see you+perfect> ‘Do you understand what I mean?’.

Among the urban young generation, the expression with ‘see’ replaces more and more often *xam nga* <know you+perfect> ‘you know’ (Loïc Perrin, p.c.). Wolof is interesting in the sense that it illustrates the pragmatic path from the ‘see’ meaning towards ‘understand/know’: *gis* is only used in an absolute construction for the so-called phatic function, in order to attract attention to a piece of information. It can never be used with an object whether animate or inanimate, such as ‘language’.

Quite parallel is the situation in Palenquero where the association is limited to the interjection *bé!* ‘realize!’, ‘look!’ (which comes from Spanish *ver* ‘see’), but it is not present in the verb itself.

Nilo-Saharan Sar also has, in addition to ‘understand’, the polysemy with ‘heed’, as well as others:

\[ dàà \] ‘see, look at, observe’; ‘attend (a show)’, ‘meet (s.o.)’; realize, notice, understand’; ‘heed’ (e.g. with body parts as a complement); ‘light, shine, dazzle’; followed by an adjective: ‘appear, show’ (by one’s behaviour), ‘be’.

### 3.2 Vision and ‘knowing’

The semantic association between ‘see’ and ‘know’ occurs in three languages of the sample, with different grammatical and historical patterns. In each case there are also other extensions (which go beyond the domain of emotions).

---

\(^{17}\) It has not been possible to investigate all the languages of our sample about this matter.
In Russian, the association is diachronic: videt’ ‘see’ and vedat’ ‘know; manage’ are two phonetic cognates of the Indo-European root *weid- / *woid- ‘see, notice, know’.

Classical Arabic ra‘ā is polysemous: ‘see, catch sight’; ‘know, recognize, find’; ‘judge, think good that…’; ‘believe, think, have an opinion, consider’.

In Yulu, the semantic association is diachronic, but in a different way than Russian: it shows a case of historical heterosemy. ‘Know’ is in fact a compound verb èedô.gåàyô, the first element of which means synchronically ‘see’, while the second one originally meant ‘know’, as attested in related languages, such as Sar géër < Sara-Bongo-Bagirmi *(n)gålì. In Yulu the latter element can only be a ‘postverbal’ adjunct in compound forms, meaning ‘know how to do (s.th.)’, e.g.:

àabô.gåàyô ‘know how to dance’

ñeëtô.gåàyô ‘know how to work’.

Thus èedô.gåàyô ‘know, be aware of, recognize’ is literally ‘know how to see’.

3.3 Vision, ‘understanding’ and ‘knowing’

The triple polysemy between ‘see’, ‘understand’, and ‘know’ is attested in three Indo-European languages. In colloquial French voir means ‘see’ and, in appropriate contexts, also ‘understand’:

tu vois ce que je veux dire? ‘do you see what I mean, do you understand?’),

and ‘know’

La Tour Eiffel, tu vois où c’est? ‘The Eiffel Tower, do you see where it is?’.

Such is the case for English see ‘see, understand, learn (be informed); know, etc.’, and for German sehen ‘see, know, recognize, understand’.

Kasem (Gur, Niger-Congo) is somewhat different from the three above Indo-European languages as it is a boarder case for both cognitive meanings, and a very interesting one as far as bridging contexts are concerned**. ‘Know’, expressed by the verb nà ‘see, catch sight, discern, perceive distinctly’, is in fact limited to the senses ‘observe, notice (behaviour), note, be informed, be conscious’ and also ‘dream’. Other appropriate translations would be ‘understand, manage to know, realize’. All these cognitive meanings are in fact deeply connected to cultural facts which associate vision with deep understanding in order to do (i) the right predictions:

kâzîn kàm yîò nê, kîmî-m pê kà twî kà pôrsô wêènû <old woman / the / eyes / see / that-it is / give / she / come she predicts things>

‘This old woman perceives deeply, that is why she can predict things’

or (ii) perceive the important and constraining messages from the ancestors while sleeping, hence ‘dream’. Dreams have to be deciphered, understood, in order to adapt one’s behaviour to their content.

nà also means (iii) ‘decipher, understand’, in the context of a reality or an event that are beyond the normal understanding of human beings, and (iv) ‘know’ the hidden side, in order to adopt the right attitude or strategy to neutralize wrong deeds:

ô kàá njînî s-ô nà kô mààmà  
<he / sacrifice-PF / altar / so-he / see / that / all>  
‘he did a sacrifice on the altar in order to decypher all that’.

Other meanings associated to nà are ‘find out’ (truth), ‘concern’, ‘be confronted with’ (prohibition, force), ‘consult, ask for advice’, ‘meet’ (s.th. disappeared, rules), ‘win, get, get an advantage’ (woman, life, water, crop…).
Concerning the meanings outside perceptions, Tswana (Bantu) needs to be mentioned here as well. The cognitive meanings of bona ‘see’ are limited to ‘consider, suppose, imagine, recognize (guilty)’, but this verb shows, similarly to Kasem, a polysemy with ‘win, get, find out’, and also with ‘receive, have, check’.

On the other hand, in Kasem, two other verbs mean ‘know’, an active one, lwärï, and a stative one, yé. The latter may be related to the noun designating the ‘eye’, yí. It corresponds to a regular derivational pattern of the language, but the stem /yi-/ is linked to three different concepts according to the nominal class they belong to, the class morpheme being compulsory to actualize the stem as a noun. These are yúú ‘head’ (yí+cl. 4), yígA ‘face’ (yí+cl. 3), and yí ‘eye’ (yí+cl. 2). The problem is that the morphology does not tell from which particular noun the verb may be derived. Knowing the connection between vision and knowledge and understanding crosslinguistically, it would not be surprising if yé ‘know’ were derived from yí ‘eye’, and that we had here a case of heterosemy. Still, only a comparable semantic and typological survey of the nouns designating the ‘face’ and the ‘head’ could help, if proved rare or negative in their association with cognitive verbs, to ascertain the link between yé ‘know’ and yí ‘eye’ in Kasem.

3.4 Conclusions

In our sample, the lexical semantic association between vision and cognition concerns only Europe, and a European based creole of Southern America, and parts of Africa, to the exclusion of other language stocks and areas. We know that it is also attested in some Australian languages (Evans and Wilkins 2000) and Tibeto-Burman languages (Matisoff 1978). It would be worth enlarging the sample to find out whether some areas or linguistic families are totally devoided of this transfield association mapping vision and mental perceptions as the table and map below might suggest.

<table>
<thead>
<tr>
<th>Language</th>
<th>heed</th>
<th>understand</th>
<th>know</th>
<th>learn</th>
<th>think</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>see</td>
<td>see</td>
<td>see</td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>sehen</td>
<td>sehen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>voir</td>
<td>voir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td>vedere</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td></td>
<td></td>
<td><em>I.E. weid-</em></td>
<td>vedat’</td>
<td></td>
</tr>
<tr>
<td>(‘vedet’&lt;)</td>
<td></td>
<td></td>
<td>raʔa</td>
<td>raʔa</td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td></td>
<td></td>
<td>raʔa</td>
<td>raʔa</td>
<td></td>
</tr>
<tr>
<td>Beja</td>
<td></td>
<td></td>
<td>raʔa</td>
<td>raʔa</td>
<td></td>
</tr>
<tr>
<td>Sar</td>
<td>ǧa</td>
<td>ǧa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yulu</td>
<td></td>
<td><em>čed5.ğay5</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gbaby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kasem</td>
<td>(nā)</td>
<td>(nā)</td>
<td></td>
<td>yě (&lt; yí ‘eye’?)</td>
<td></td>
</tr>
<tr>
<td>Makonde</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swahili</td>
<td>kūona</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tswana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vili</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolof</td>
<td>gis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Araki</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lakon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mwotlap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olrat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
On the basis of the anthropology of senses, Evans and Wilkins (2000:585) discussed the possibility that literacy might privilege sight as opposed to hearing and conversely that “developments from ‘hear’ would mark cultures with a basically oral tradition.” It seems our data does not support this hypothesis, at least as a lexical universal. Six unscripted (or recently scripted) languages of the sample (African languages Sar, Kasem, Swahili, Wolof, Yulu, and Creole Palenquero), some of them with very limited contact with Western cultures and languages, do have a lexical association, even though sometimes a marginal one, between mental perception and vision (in addition to ‘hearing’).

4 PREHENSION VERBS AND INTELLECTUAL PERCEPTIONS

Prehension verbs, i.e. verbs of taking, grasping, etc., are often highly polysemous items and develop a large variety of semantic extensions crosslinguistically, through contextual uses, derivation, composition, serialisation, etc., as well as various processes of grammaticalization (see e.g. Heine and Kuteva 2002). It is thus quite difficult to make any prediction about possible semantic change, patterns of polysemy, and thus to draw a typology of the semantic associations with the concept of ‘taking’ as a starting point. Still, each type of semantic association would need to be studied into detail in order to check if there exists
regular patterns within specific genetic stocks or linguistic areas. As for the present study, the survey had to be limited to the extensions to the domain of mental perceptions, excluding internal reception which is not attested in the data.

Buck (1949:744) mentioned that “Verbs for ‘seize, grasp’, besides the usual notion of ‘seize with the hand’, may come by extension from ‘seize by a claw’, ‘by a hook’, ‘catch birds’, ‘overtake’, etc. Several of these, or their compounds, have come to be used for ‘understand’.” Sweetser (1990:20) also noted that in Indo-European “There is […] strong evidence that mental activity is seen as manipulation and holding of objects: we ‘grasp’ an idea …”, and (p. 38) that “physical manipulation and touching is a source domain for words meaning both sight (visually picking out a stimulus) and mental data-manipulation (grasping a fact = understanding). Thus a word such as discern, which comes from a root meaning ‘separate,’ now means both ‘catch sight of’ and ‘mentally realize.’ Grasping and manipulation are evidence of control: which facts do we have under control, the facts we understand (‘have an hold on,’ ‘have grasped’) or those which we do not understand? Similarly, our visual picking out and monitoring of stimuli is evidence of control (our ‘scope’ in English is our domain of control, whereas in Greek the word still belongs to the visual domain).” Similar extensions of prehension verbs to cognition are also reported for Australian languages (Evans and Wilkins 2000:568).

Although no one claims that the semantic association between prehension and cognition is universal, nevertheless it is not limited to Indo-European and Australian languages. Mentions have also been made, e.g., for Finnish, Hungarian and Turkish (ref.?). Our data enlarges the list to Afroasiatic, Niger-Congo and Austronesian, but it is by far a less productive semantic association than that with hearing or sight. It only concerns nine languages, five of them being Indo-European ones.

4.1 Prehension and ‘understanding’

Two languages present a semantic association between prehension and cognition limited to the concept of ‘understanding’, through derivational processes. This is the case for Wolof jél ‘take (an object)’, jél-i <take-allative> ‘guess s.b.’s thought, twig, understand (without explanations), and for German for two different stems: greifen ‘take’, begreifen ‘understand’, and fassen ‘take’, erfassen ‘understand’.

In Russian the heterosemic link is historical for one stem: ponimat’ ‘understand’ is a cognate form of Old Russian imati ‘take’. In addition, colloquial Russian also shows a case of mere polysemy with the verb xvatat’ ‘size, grasp’ which can be used in the sense of ‘understand’, e.g. in the expression:

xvatat’ na letu (lit. grasp at the flight) ‘to understand immediately’

(said of very sharp and receptive students) (M. Koptjevskaja-Tamm, p.c.).

On the other hand, in Mwotlap, the process corresponds to the mere synchronic polysemy of a single lexical item: lep ‘take’, ‘get through the intellect, manage to understand (problem, explanations)’:

Nék me-lep nê-dêmêm a qele no ma-vap tô van hiy nêk en? – Oo, no me-lep ‘Have you understood the explanation I have just given you? – ‘Yes, I have’. It also means ‘retain, memorize (s.th.)’.

4.2 Prehension and ‘learning’

Classical Arabic is the sole language of the sample, in which the cognitive semantic extension, via polysemy, is limited only to the concept of ‘learning’. Kazimirski’s dictionary
4.3 Prehension, ‘understanding’ and ‘learning’

Less rare in our data than the previous sub-class, is the cognitive extension to both ‘understanding’ and ‘learning’: it concerns four languages. But the lexical, syntactic and grammatical processes, as well as the shades of meanings, vary crosslinguistically.

Kasem has the two cognitive meanings distributed between two different lexical items: kwè ‘take, use’, ‘start’ (process, activity), ‘learn, think of, be highly interested’:

\[ kwè \text{ kasìm} \quad \langle \text{take Kasem} \rangle \quad \text{‘learn Kasem’}; \]
\[ kwè \text{ bōŋā} \quad \langle \text{take thoughts} \rangle \quad \text{‘learn to think over’}, \]

and jā ‘grasp’; ‘capture’; ‘perceive, understand, calm down’:

\[ jā \text{ bāṇi} \quad \langle \text{grasp heart} \rangle \quad \text{‘calm down, understand’}; \]

it is also an inchoative auxiliary.

During the historical development of French, the semantic association occurred at different periods for two lexical items, and for one of them in several derivations. Rey (1992) explicitly relates the two cognitive meanings. Under prendre ‘take’, he mentions that “as the Latin verb, prendre also has (beg. XIIe) the abstract meaning of ‘understand, interpret in a certain way’ often replaced by the compound comprendre [understand] and by other words of the same family”. For apprendre ‘learn’, it is noted that it “comes from colloquial Latin apprendere, from classical Latin apprehendere in the psychological sense of this verb. The verb means as soon as Old French ‘grasp through the intellect’ and ‘get knowledge’, values which are parallel to those of comprehendere, comprendere.” As for comprendre ‘understand’, it is given as a “borrowing from Latin comprendere, specifically ‘grasp together’, and intellectually, ‘grasp through intelligence, thought’. This verb is formed with cum ‘with’ andprehendere. The physical sense of ‘grasp, take, invade’ turned this word to a semantic doublet of prendre until the XVIe ... This use progressively lost ground in favour of the meaning ... of ‘conceive, grasp through intelligence’ (end XIIe-beg. XIIIe).”

The other prehension verb saisir ‘grasp’ illustrates a more recent case of polysemy: “In the XVIIe century, it is said figuratively for ‘to be in a position to know (s.th.) by the senses’ and in particular for ‘understand, discern’. Today, the verb is used in particular (1923) in the absolute for ‘understand’ (tu saisis ? [you twig that?]).”

Italian prendere, apprendere, and comprendere are in a similar line, as is English grasp (see Sweetser 1990).

4.4 Conclusions

As compared with sight, the semantic association between prehension and intellectual perception seems to concern an even more reduced number of genetic stocks and linguistic areas. Obviously, in this semantic domain as well, further research is needed. The above typological classification is reproduced in the table and map below:

<table>
<thead>
<tr>
<th>Language</th>
<th>understand</th>
<th>learn</th>
<th>think</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>grasp</td>
<td>grasp</td>
<td></td>
</tr>
<tr>
<td>German (&lt;greifen)</td>
<td>begreifen</td>
<td>erfassen</td>
<td></td>
</tr>
<tr>
<td>(&lt;fassen)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French (&lt;prendre)</td>
<td>comprendere</td>
<td>apprendre</td>
<td></td>
</tr>
<tr>
<td>Italian (&lt;prendere)</td>
<td>comprendere</td>
<td>apprendere</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Prehension + Cognition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian (<em>imat’</em>)</td>
<td>ponimat’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>ṭaxada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beja</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yulu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gbaya</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kasem</td>
<td>jā</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makonde</td>
<td>kwè</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swahili</td>
<td>kwè</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tswana</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vili</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolof (&lt;jél&gt;)</td>
<td>jél-i</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Araki</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lakon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mwotlap</td>
<td>lep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orlat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nêlêmwa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inuit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yupik</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamang</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palenquero</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Semantic associations between prehension and intellectual perception
5 CONCLUSION

Hopefully, the above study has shown, after a few others, that the paths of semantic change and patterns of polysemy are not always unpredictable and that typological research, matched with indepth cultural surveys, should also develop in the domain of lexical semantics because systematic semantic patterns do exist.

This presentation is far from drying up the research on the wealth of the transfield semantic associations linked to the domains of sensory modalities, mental perceptions, and prehension. Still, by enlarging the previous studies on Indo-European and Australian languages to other genetic stocks, it already suggests a few hypotheses for future typological research about transfield associations, as well as for comparative, semantic, and cognitive perspectives.

From our data (c.p. tables 1, 2 and 3), it seems a lexico-semantic implicational universal could read as follows:

If a language has a prehension word which maps onto the domain of mental perception, it also has another lexical item with a similar semantic association for vision and the auditory sense, but the reverse is not true.

The hierarchy between the physical domains, as far as their lexico-semantic association with mental perceptions is concerned could be:

Hearing < vision < prehension.

Obviously, because of the limitations of the sample, further investigation and checking are needed on a larger number of languages and genetic stocks in order to confirm, or invalidate these implications. Already one exception exists in our data, namely in Mwotlap where there is no semantic association between sight and intellectual perception even though the extension exists for prehension verbs.

Regarding the physical domains, Sweetser (1990:38) noted, with an examplification from the English data, that “physical manipulation and touching is a source domain for words meaning both sight (visually picking out a stimulus) and mental data-manipulation (grasping a fact = understanding).” There is also a nice example where prehension and hearing meet in one lexical item in another Germanic language, namely Early Middle German where *vernemen* meant ‘take, grasp, comprehend, perceive’, and ‘hear’ (Buck 1949:1201).

The analysis of the lexicon of several languages in various genetic stocks, including the Indo-European ones, has also suggested a possible semantic universal which groups, synchronically or diachronically, at the lexical level, mental perceptions at large with the hearing sense, but not with sight as an Indo-European biased cognitive approach could suggest. This universal could read as follows:

All (most of?) the world languages have a lexical semantic association between the hearing sense and mental perception, be it the outcome of polysemy, heterosemy or semantic change.

For the time being, one must keep in mind that unless the study is enlarged to more languages, the semantic universal remains a hypothesis. Whether this will hold true or not in the light of further research, a typological classification of this association needs to examine, for each lexical item in each language, the details of the semantic networks, morpho-syntactic frames, contextual uses, and historical data or reconstructions. This chapter was a first attempt to organize and classify possible isoglosses, but a finegrained analysis based on all the above mentioned criteria will have to be undertaken in order to propose refined sub-classifications and, perhaps, solve the issue of the direction of semantic change.
Ultimately, from the cultural point of view, the study has also shown that literacy is not a decisive factor which favours the specific semantic extension between vision and mental perception.

6 REFERENCES


Gaume, Bruno. This volume. Structural convergences between semantic networks in French nouns and verbs.


Heine, Bernd and Zelealem, Leyew. forthcoming. Is Africa a linguistic area? in Heine, Bernd, and Nurse, Derek (eds.),* Africa as a linguistic area*.


Pottier, Bernard. This volume. The typology of semantic affinities.


**Language sample and language experts**

**INDO-EUROPEAN**
- Germanic: English, German
- Romance: French, Italian
- Slavic: Russian (Sergueï SAKHNO)

**AFROASIATIC**
- Semitic: classical Arabic (†Omar BENCHEIKH, and Martine VANHOVE)
- Cushitic (North): Beja (Martine VANHOVE)

**NIGER-CONGO**
- Gbaya-Manza-Ngbaka: Gbaya 'Bodoe (Yves MOÑINO)
- Gur: (Gurunsi western): Kasem (Emilio BONVINI)
- Bantu: Makonde (Sophie MANUS), Swahili (id.), Tswana (Denis CREISSELS), Vili (Yves MOÑINO)
- West-Atlantic: Wolof (Loïc PERRIN, and Konstantin POZDNIAKOV)

**NILO-SAHARAN**
- Sara-Bongo-Bagirmi: Sar (Pascal BOYELDIEU), Yulu (id.)

**AUSTRONESIAN**
- Oceanian (Vanuatu central-north): Araki (Alexandre FRANÇOIS), Lakon (id.), Mwotlap (id.), Olrat (id.)
- Oceanian (Kanak): Nêlêmwa (Isabelle BRIL)

**ESKIMO**
- Eastern: Inuit (Nicole TERSIS)
- Western: Yupik (Nicole TERSIS)

**SINO-TIBETAN**
- Tibeto-Burman: Tamang (Martine MAZAUDON)

**CREOLE**
- Spanish based Atlantic (Colombia): Palenquero (Yves MOÑINO)