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From Polysemy to Semantic Change. Towards a typology
of lexical semantic associations
Edited by Martine Vanhove

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Martine Vanhove
Llacan (Inalco, CNRS), Fédération TUL

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Table of contents

Cognitive onomasiology and lexical change

Around the eye*

Peter Koch
University of Tübingen

Using the methodology of diachronic cognitive onomasiology, as developed in two projects at Tübingen University, the study discusses polygenetic semantic parallels in semantic change, focussing on those that are due to fundamental cognitive constants. The cognitive and formal relations between a source and a target concept are identified through a two-dimensional grid. The approach is exemplified for the semantic domain of EYE (EYELASH, EYEBROW, EYELID, and EYEBALL). The study provides a list of all the cognitive solutions to create lexical innovations chosen in the language sample. Together with cultural and linguistic categorization, it also explains the different options chosen by the languages for lexical conceptualisation and gives insight to the ongoing debate on linguistic relativity.

Keywords: body parts; cognition; contiguity; frame; metaphor; metonymy; onomasiology; polygenesis; semantic change; semantic parallels; typology

1. Theoretical and methodological preliminaries

1.1 The search for semantic parallels

Cognitive semantics has not only given a fresh impetus to synchronic, but also to diachronic linguistics, in so far as cognitive approaches to the description of metaphor, metonymy, subjectification, etc. shed new light on well-known problems of semantic change (cf. Blank & Koch 1999). As Lakoff & Johnson (1980) and Traugott (cf. recently Traugott & Dasher 2002) have shown mainly for vocabulary, and as Heine & Kuteva (2002) have shown mainly for grammar, but in part also for vocabulary, certain paths of change are of particular interest, especially those which are followed again and again when it comes to semantic change in language, and which therefore seem to point

to constant cognitive factors. Presumably these factors intervene in linguistic change like an *invisible hand* (in the sense of Keller 1994) and time and again produce similar results in a polygenetic fashion. If this were true, it would be much easier to predict lexical change (cf. Koch 1997; 2000: 75–81, 89–92; 2001a: 8–17, 25–31; 2003: 154–162, 2005a; Blank 2003).

My paper is intended to show how diachronic cognitive onomasiology proceeds in this domain and what insights it offers. From both a theoretical and a methodological point of view, it is first of all necessary to discuss several questions:

– What would the results have to look like if the term "polygenesis" is to be applied legitimately (see immediately below and 1.2.)?
– Will our approach be semasiological or onomasiological (1.2.)?
– On the basis of what kinds of data can our hypotheses be checked (1.3)?
– What is lexical change (1.4.)?
– What kind of lexicological model are we to adopt (1.5.) to account for a realistic conception of lexical change (1.4.)?

When we began to study the designations of parts of the human body, we first established a project limited to Romance languages (*DECOLAR*)[1] and intended to analyse 14 languages or varieties in total in order to document the cognitive types present in the Romance area as completely as possible. Our second project, *LexiType_{Dia}*,[2] is based on a worldwide sample of languages, and here, within the domain HEAD, we describe designations of body parts with a different aim in mind: We check for semantic parallels in languages all over the world.

According to our hypothesis, semantic parallels between languages *may* be due to fundamental cognitive constants (a). However, it is obvious that semantic parallels may also be triggered either by genetic kinship of languages (b) or by linguistic and cultural contact (c). Especially in case (c), we suppose semantic parallels to show a significant areal distribution.

Since it is rather trivial to find semantic parallels in cognates belonging to genetically related languages (b), and since it is quite natural to find them in languages in contact (c), we have to radicalize our starting hypothesis: Semantic parallels arouse

our interest only in so far as there is a chance of these having been triggered by cognitive constants and of being independent of linguistic kinship as well as of language contact. So we have to search for semantic parallels that are likely to be *polygenetic* in nature. In order to find this kind of results, we have to stick to a rigorous methodology, as described in 1.2.–1.5.

1.2 Onomasiology

Our starting point has to be an onomasiological one. Onomasiology is like a sieve filtering out everything that corresponds to a pre-established criterion – the fact of designating a given concept – without our being able to manipulate the results. So we have to accept everything that is filtered out, whether it confirms our hypothesis or not.

Onomasiology has a second advantage: It enables us to discover material that is interesting independently of any etymological relationship. In this way, we can postulate a potentially polygenetic evolution even within one and the same language family:

(1) a. Late Lat. *cilium* EYELASH < Lat. *cilium* EYELID
(hence the denominations for EYELASH in many Romance languages: Fr. *cil*, It. *ciglio*, etc.; cf. Appendix I)
b. Occ. *parpèlha* EYELASH < Lat. *palpebra* EYELID
c. Rom. *geană* EYELASH < Rom. *geană* EYELID

There is no etymological relation between the words Late Lat. *cilium* (1a), Occ. *parpèlha* (1b), and Rom. *geană* (1c), taken from three – otherwise related – Romance languages. *Prima facie*, their only common denominator is the fact that they designate the concept EYELASH.[3] Making some provisional reservations (might there be a typical "Romance" cognitive pattern EYELASH ← EYELID?), we can consider these examples as cases of polygenetic semantic change (as we will see in 3.2., these reservations will turn out to be unnecessary).

A further important advantage of our onomasiological approach is its conformity with the innovating speaker's perspective (inasmuch as speakers innovate).[4] Speakers do not *intend* to change the vocabulary of their language (cf. Coseriu 1958: 112, 116f., 127f.; Keller 1994: 24f., 112f.). They sometimes just innovate using a trope that makes communication more efficient, that improves their personal image, etc. (only in *some* cases will this innovation afterwards be adopted by the speech community). Speakers use innovating tropes to designate a particular concept, not to change the

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1. The *DECOLAR* sample comprises the following Romance languages/language varieties/ language states: Catalan, Engadinian, Old French, Modern French, Friulian, Galician, Italian, Ladin, Occitan, Portuguese, Romanian, Sardinian (Campidanian), Sardinian (Logudorian), Spanish. For *DECOLAR* cf. Blank et al. (2000); Gévaudan et al. (2003).

2. The data of *LexiType_{Dia}* will be presented and interpreted in Steinberg (in prep.). For *LexiType_{Dia}* cf. Koch & Steinkrüger (2001); Koch (2003); Mihatsch & Steinberg (2004) (especially Koch 2004a; Mihatsch & Dvořák 2004).

3. Concepts are set in small capitals here.

4. In fact, that is what they constantly do, even though I would insist myself on the fact that there are also hearer-induced innovations: cf. Koch (1999a: 155f.; 2001b: 226–228; 2004b: 42–45); Detges & Walttereit (2002: 155–169).

meaning of a word (cf. Koch & Oesterreicher 1996: 77f.; Koch 2001a: 8–11). So the motivation behind speaker-induced innovation is to *express* something and not to *give* an expression *a different interpretation* (even though the expression concerned actually undergoes a different interpretation). Consequently, the linguist who adopts the onomasiological perspective and asks him- or herself from which cognitive source a given lexical innovation was taken, puts him- or herself exactly in the innovating speaker's place.

1.3 Language samples

A second important aspect of our methodology is the reference to a pre-established sample of languages. The adequacy of the sample depends on the specific aims of a given project.

In the *DECOLAR* project, as I have already noted, we want to document the cognitive types present in our Romance sample (in the following: "rom"; cf. n. 1) as completely as possible. Here, then, the focus is on diversity. If we discover potential polygenetic material, as exemplified by the examples in (1), so much the better, but we have to check it against the material of the *LexiType_{Dia}* project.

In this latter project, we try to guarantee a worldwide distribution corresponding to typological criteria. There are certainly some limitations due to the need to find sufficient lexicographical documentation including etymological or at least comparative data. So a certain European bias is nearly inevitable, but as will be seen later on, we are trying to reduce it to a minimum. The worldwide sample has not yet been totally evaluated. So the results I am going to present in sections 2. to 4. are based on a more limited and somewhat differently designed sample used in Mihatsch (2005) and comprising 24 languages worldwide (in the following "ww").[5]

1.4 Change of designation and types of lexical change

Let us consider once again what an onomasiological starting point means in detail (cf. Koch 1999b: 331–334; 2000: 77–81; 2001a: 11–17; Gévaudan 2003; 2007: 31–34). In our first example (Fig. 1), the dotted lines represent the fact that the lexical item Vulg.Lat. *carrellu*, which meant CART, became OSp. *carrillo* meaning JAW.[6] This is

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5. The "ww" sample, as used in Mihatsch (2005), comprises the following languages: Albanian, Bahasa (Indonesia), Bambara, Chinese (Mandarin), English, Estonian, Gaelic (Scottish), German, Hausa, Hopi, Hungarian, Japanese, Lahu, Nahuatl (Istmo-Mecayapan), Nepali, Quechua (Highland Chimborazo), Russian, Sotho (Northern), Swahili, Swedish, Tamil, Tibetan, Tzeltal, Yir Yoront.

6. The labelling of L and C is, in principle, arbitrary, but it is not undesirable that C_s may be read as "source concept" and C_t as "target concept".

the semasiological description of a lexical change focussing on *meaning change* with respect to the lexical item L_n.
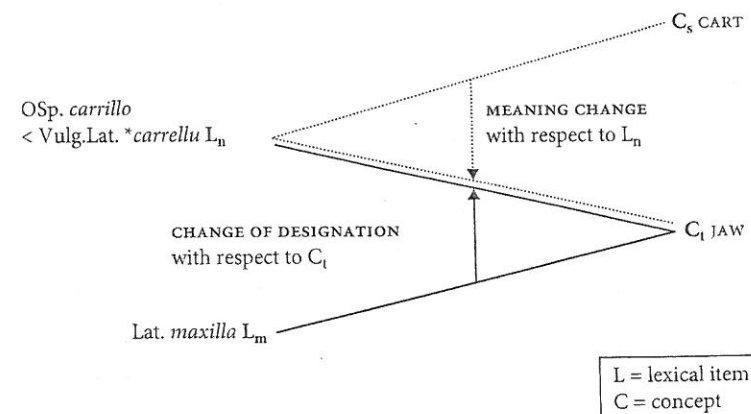
Figure 1. Change of designation and change of meaning.

The change in meaning described went hand in hand with another one (represented by the solid lines in Figure 1) that only an onomasiological perspective reveals: The concept JAW (C_t) was expressed by *maxilla* (L_m) in Latin and by *carrillo* (L_n) in Old Spanish. This is the description of a *change of designation* with respect to the target concept JAW (C_t).

Every meaning change is necessarily accompanied by a change of designation, but the opposite does not hold – a fact we can only grasp from an onomasiological perspective. As shown in Figure 2, in another part of the Romance area there is still another change of designation that has taken place with respect to the target concept JAW (C_t): OFr. *maiscele* (L_m), taken over from Lat. *maxilla*, was replaced by OFr. *maschoire* > ModFr. *mâchoire* (L_n), which was derived from the verb *maschier* "to chew" (L_o).

So, in this case too, we have a target concept C_t (JAW) and a source concept C_s (TO CHEW). However, the lexical process leading us from the source concept to the target concept is not a change of meaning, but a process of word-formation (suffixation). More generally speaking, we can then say that a change of designation involving a target concept C_t and a source concept C_s can come about in very different ways with regard to the formal properties involved:

– by *changing* in C_t the *meaning* of a formally identical lexical item (L_n) that originally expresses C_s (see Figure 1);
– by forming a new lexical item L_n – expressing C_t – via a process of *word-formation* based on a lexical item L_o expressing C_s (see Figure 2, displaying a case of
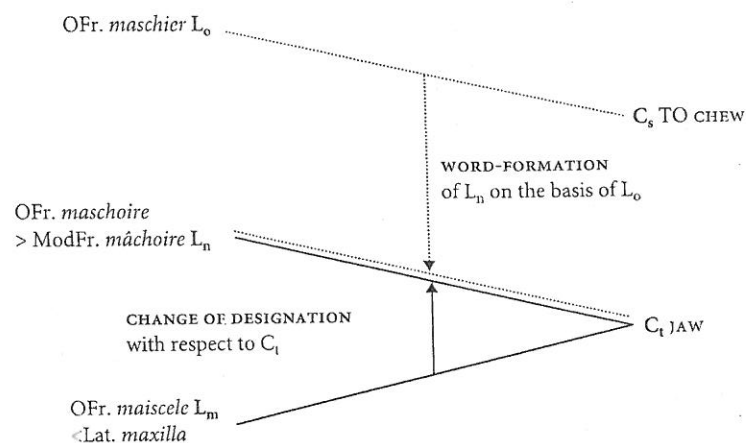
Figure 2. Change of designation and word-formation.

suffixation; obviously, other types of word-formation, such as prefixation, composition, etc. are used for the same purpose);

- by forming a new lexical item L_n – expressing C_t – via a process of *conversion*, i.e., change in word class, based on a lexical item L_o expressing C_s (see below example (2); conversion may even be considered as a border-line case of word-formation);
- by forming a new lexical item L_n – expressing C_t – via a process of *number change* based on a lexical item L_o expressing C_s (see below example (3); this is definitely different from plain word-formation);
- by forming a new lexical item L_n – expressing C_t – via a process of *gender change* based on a lexical item L_o expressing C_s (see below example (4); this is different from plain word-formation as well); etc.

(2) C_t = BACKSIDE (OF A PERSON):
　　　L_m = Lat. *podex*
　　　L_n = It. (*il*) *sedere* (noun)
　　　L_o = It. *sedere* (infinitive form of the verb)
　　C_s = TO SIT

(3) C_t = BACK:
　　　L_m = Lat. *dorsum*
　　　L_n = Port. *costas* (PL.)
　　　L_o = Port. *costa* (SG.)
　　C_s = RIB

(4) C_t = GREAT TOE:
　　　L_m = Lat. *pollex* (*pedis*)
　　　L_n = Gal. *deda*
　　　L_o = Gal. *dedo*
　　C_s = TOE, FINGER

1.5   A two-dimensional lexicological approach

The considerations in section 1.4. enable us to recognize two dimensions of lexicological description. Firstly, we have to identify the *cognitive* relation R^c between the target concept C_t, e.g., JAW in Figure 2, and the source concept C_s (TO CHEW, in our example). Since the JAW is a body part whose purpose it is TO CHEW, we can speak of a relation of contiguity. Secondly, we have to specify the *formal* relation R^f between the target expression L_n (*maschoire* in Figure 2) and the source expression L_o (*maschier*). In this case, there is a derivational relation of suffixation. So we always have to identify these two dimensions, the cognitive one and the formal one.

In example (2), the cognitive relation between the target concept C_t (BACKSIDE OF A PERSON) and the source concept C_s (TO SIT) is contiguity as well, because people sit on their backside. The formal relation is conversion.

In example (3), the cognitive relation between the target concept C_t (BACK) and the source concept C_s (RIB) is once more contiguity, because the posterior portion of the ribs is part of the back. The formal relation is number change.

In example (4), the cognitive relation is taxonomic subordination between the target concept (GREAT TOE) and the source concept (TOE), since GREAT TOE (C_t) is a special case of TOE (C_s). The formal relation is gender change.

In the case of Figure 1, the cognitive relation between the target concept C_t (JAW) and the source concept C_s (CART) is one of metaphorical similarity (in a very expressive metaphor, the jaw is seen as a (strong) vehicle). On the formal level, we get the particular constellation of L_n being identical to L_o (i.e., formal identity despite the change of meaning). That is why L_o is lacking in Figure 1.

These two dimensions of description constitute the basic framework of our lexicological grid represented in Figure 3 (cf. Blank 1995, 1996, 1997a, 1997b, 2000, 2003; Koch 1995, 1999a: 257–159, 1999b: 335f., 2000: 81–89, 2001a: 17–25, 2005b; Gévaudan 1999, 2003, 2007: 58–61, 165–177). The horizontal axis corresponds to the cognitive relations R^c, the vertical axis to the formal relations R^f.[7] The numbers

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7.   I shall just mention a possible third ("stratificational") dimension of this lexicological model, where the "stratum" is opposed to borrowings – a very important distinction for diachronic lexicology (cf. Blank 1995; Koch 2000: 84, 88f.; 2001a: 21f., 25; Gévaudan 2003; 2007: 34–38, 141–163, 177–185; Grzega 2004a: 136–150). Thinking of things such as loan translations, loan blends, and, in general, any kind of *calque*, we easily understand that "borrowing" is not a simple

appearing in Figure 2 (*viz.* 01, 02, etc., 10, 11, etc., 21, 22 etc.) are purely arbitrary and only serve as a means of identifying the different squares in the table.

	conceptual identity	contiguity	metaphorical similarity	cotaxonomic similarity	taxonom. superordination	taxonom. subordination	...
formal identity →change of meaning	00	01	02	03	04	05	...
tone change	10	11	12	·13	14	15	...
reduplication	20	21	22	23	24	25	...
number change	30	31	32	33	34	35	...
gender change	40	41	42	43	44	45	...
voice change	50	51	52	53	54	55	...
conversion (change of word class)	60	61	62	63	64	65	...
suffixation	70	71	72	73	74	75	...
prefixation	80	81	82	83	84	85	...
blend	90	91	92	93	94	95	...
morphological composition	100	101	102	103	104	105	...
serial verb	110	111	112	113	114	115	...
syntagmatic composition	120	121	122	123	124	125	...
idiom	130	131	132	133	134	135	...
...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...

Figure 3. A two-dimensional grid for diachronic lexicology.

On the one hand (horizontal axis of Figure 3) we have a universal and language-independent closed inventory of cognitive relations (R^c) based on the fundamental associative relations of contiguity (α) and similarity (β):[8]

- *identity* as an extreme case of similarity (β).
- *contiguity* (α), i.e., the relationship between frames and their elements, e.g., VEIN–BLOOD or between two or more elements of the same frame, e.g., BACKSIDE–TO SIT.[9]
- *metaphorical similarity* as the type of similarity (β) which – deliberately cutting across frames and taxonomies – maps concepts on to others, e.g., BALL–EYE (cf. e.g., Lakoff & Johnson 1980; Liebert 1992: 14, 28–82; Croft 1993; Koch 1994: 209–214; Blank 1997a: 160–169; Geeraerts 1997: 75–76, 96–98; Croft & Cruse 2004: 194–204).
- *cotaxonomic similarity* as the type of similarity (β) which connects concepts of the same hierarchical level within a taxonomy, e.g., THUMB–RING FINGER.
- *taxonomic superordination* as for example THUMB–FINGER or RING FINGER–FINGER. The taxonomically superordinate concept emphasizes the similarity (β) between subordinate concepts at the expense of at least some of the contiguities (α) specific to them (part-whole relationships, properties, etc.).
- *taxonomic subordination*, i.e., the reverse of taxonomic superordination, e.g., FINGER–THUMB or FINGER–RING FINGER. In relation to the superordinate concept, the taxonomically subordinate concept foregrounds contiguities (α) (part-whole relationships, properties, etc.) specific to the subordinate concepts and backgrounds similarity (β) with concepts that are taxonomically at the same level (for taxonomic relations in lexical change, cf. Koch 1995: 30–34; 2005b: 173–185; Blank 1997a: 190–217; 2000: 67f.; Geeraerts 1997: 68–74, 77–78, 94–96; Nerlich & Clarke 1999).

On the other hand (vertical axis of Figure 3) we have an open inventory of formal relations (R^f) corresponding to different lexical devices according to the typological make-up of different languages of the world: formal identity, tone change, reduplication, number change, gender change, voice change, conversion, suffixation, prefixation, blend, morphological composition, serial verbs, syntagmatic composition, idioms, etc.

Thus, our example in Figure 1 (OSp. *carillo*) corresponds to the type 02, because it displays a metaphorical similarity CART–JAW alongside with formal identity. Our example in Figure 2 (OFr. *maschoire*) corresponds to the type 71, because it is based on a contiguity relation TO CHEW–JAW alongside with suffixation. It. *sedere* (2) is an example of type 61 combining a contiguity relation TO SIT–BACKSIDE with conversion. Port. *costas* (3) is type 31 (contiguity RIB–BACK and number change) and Gal. *deda* (4) type 45 (taxonomic subordination TOE–GREAT TOE and gender change).

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additional category, but that there must be the possibility of "multiplying" a whole stratificational dimension by the categories of the two-dimensional grid presented in Figure 3. But this is not our concern here, because, as I have already said in 1.1., language contact bringing about borrowings rather rules out the probability of polygenetic developments in the lexicon.

8. This is a closed inventory, even though it is not represented completely in Figure 3. I have omitted everything concerning the relation of contrast (the logical counterpart of similarity, as for example in HARD–SOFT), because it is not present in the material analysed in this article. For further details, cf. Blank (1997a: 220–229; 2000: 68).

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9. For "frame" and related concepts in Cognitive Linguistics, like "domain", "script", etc. cf. Fillmore (1975; 1985); Barsalou (1992); Taylor (1995: 87–92); Ungerer & Schmid (1996: 205–217); Croft & Cruse (2004: 7–14). For the relevance of frames, domains, etc. for contiguity and metonymy, cf. Croft (1993); Taylor (1995: 125f.); Ungerer & Schmid (1996: 128); Radden & Kövecses (1999: 19–21); Koch (1995: 29, 40f.; 1999a: 144–153; 2001b: 202–204, 214–218); Blank (1997a: 89); Walterei (1998: 16–26); cf. also Geeraerts (1997).

From the cognitive point of view, the advantage of this approach lies in the fact that it reveals cognitive constants across languages even in cases where there is a complete diversity on the level of the formal devices:[10]

(5)   a.   Hopi *puvùpwpi('at)* EYEBROW
            <contiguity.formal identity< Hopi *puvùpwpi('at)* EYELID

      b.   Lat. *supercilium (-a)* EYEBROW
            <contiguity.morphological composition< Lat. *cilium* EYELID
                                                    (+ *super* ABOVE)
            (hence the denominations for EYEBROW in many Romance languages:
            Fr. *sourcil*, It. *sopracciglio*, etc.; cf. Appendix III)

      c.   Rom. *sprânceană* EYEBROW
            <contiguity.blend< Rom. *geană* < Lat. *gena* EYELID
                                        (× Lat. *supercilium* EYEBROW: cf. (5b))

The examples in (5) show three completely different formal devices producing lexical items that express the concept EYEBROW: formal identity, i.e., meaning change in (5a), a kind of morphological composition in (5b), and a blend in (5c). Nevertheless, in all these cases, there is one underlying cognitive constant: the contiguity relation between EYEBROW and EYELID. And this is what we are interested in when we compare diachronic processes in the vocabulary of different languages.

2.   A look at the data

2.1   A first exemplification: The target concept EYELASH

Since those body parts that raise problems of conceptualisation and whose denominations are often less stable seem particularly interesting, I have chosen concepts that are a little bit different from the body part concepts studied in general: EYELASH, EYELID, EYEBROW, and EYEBALL.[11]

Our onomasiological starting point and the fact that our analysis is based on a language sample imply that we have to accept everything that is filtered out by our

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10.   Within the bracket format <x5.x5< the cognitive relation between the target concept (C_t) and the source concept (C_s) is in the first position, and the formal relation between the corresponding lexical items (L_n and L_o) is in second position ("zero" indicating a case of meaning change, i.e., $L_n = L_o$). For this bracket format, cf. Koch (2000: 85–89; 2001a: 22–25); Gévaudan et al. (2003: 7f.); Gévaudan (2003; 2007: 63–67).

11.   For comparative and/or diachronic semantics of body-part terminology, cf. Brown (1976); Andersen (1978); Matisoff (1978); Wilkins (1996).

"sieve", be it welcome or not. This is a salutary principle, since it prevents us from too rash generalisations. If we actually discover polygenetic parallels under these circumstances, they are all the more significant; if not, we have to accept this.

Appendix I contains the data for the target concept (C_t) EYELASH that will be our starting point. They are based on the one hand on the Romance sample "rom" characterized in 1.3. and in n. 1, on the other hand on the somewhat provisional worldwide sample "ww" described in 1.3. and in n. 5. For the time being, we keep these two samples separate, even though it would be legitimate to integrate the data of at least one Romance language into the "ww" sample.

Apart from one case of apparent stability in some Romance languages (Catalan, Galician, Portuguese, and Spanish),[12] we find different types of designation, i.e., different triples R^c (C_t, C_s). A very important type corresponds to the source concept (C_s) HAIR, as exemplified by Bahasa Indonesia:

(6)   Bahasa Indonesia *bulu mata* EYELASH
            <taxonomic subordination.morphological composition<
            bulu HAIR (+ *mata* EYE)

The head of the composition (*bulu*, in this case) conceptualizes EYELASH through a taxonomic subordination to HAIR (as for the modifier *mata*, see 3.1., (6')).[13] This type of taxonomic subordination to HAIR is polygenetically represented. We have two attestations in the "rom" sample (Engadinian and Occitan[14]) and 11 attestations in the "ww" sample (Bahasa Indonesia, Bambara, Chinese, Hausa, Hopi, Japanese, Lahu, Nahuatl, Swedish, Tamil, Tzeltal).

Another polygenetic type is exemplified by Russian:

(7)   Russ. *resnica* EYELASH
            <metaphorical similarity.x5 > cognates: CATKIN   (comparative data)

This is an interesting case from a methodological point of view. For many languages, the "depth" of accessible diachronic evidence is not sufficient to establish relevant

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12.   The lexical items in question are Cat. *pestanya*, Sp. *pestaña*, Gal. *pestana*, Port. *pestana*, pointing back to a (reconstructed) VulgLat. *pestanna* "eyelash" of uncertain etymology.

13.   Obviously, all the binary lexical devices, such as (morphological or syntagmatic) composition, serial verbs, idioms etc. relate the target concept (C_t) at the same time to two source concepts (C_s): see 3.1.

14.   Unlike all the other languages cited here, Occitan does not recur to a composition, but uses the word *pelisson* that originally means LITTLE HAIR. Nevertheless, the cognitive procedure of taxonomic subordination is the same as in the other languages.

diachronic filiations. In these cases, etymological dictionaries display reconstructed forms with *reconstructed* (proto-)*meanings*. Now, it has been shown that proto-meanings of this kind do not represent epistemologically legitimate "data" of a diachronic cognitive onomasiology, all the more if one wants to draw farther-reaching conclusions regarding polygenesis (cf. Koch & Steinkrüger 2001: 537–541; Koch 2003: 164–166; 2004a: 84–96). But even in these cases, we do not have to abandon the idea of cognitive onomasiology. The analysis simply has to be based not on a diachronic filiation, but on synchronic *comparative* data. Thanks to the repertoire of cognitive relations, (cf. 1.5. and Figure 3), we are always able to establish semantically interesting and relevant connections between the meanings of *cognates*, which are the synchronic result of diachronic lexical processes in related languages and thereby ultimately reflect the cognitive relations involved. As example (7) shows, this does not only apply to languages without any written tradition, but also, for instance, to Indo-European languages, insofar as non-documented portions of their diachrony are concerned (Proto-Slavonic or Proto-Indo-European, in the present case).

Even though the notation has to be a little bit different in the case of comparative data,[15] the relevant cognitive relation that holds between the two concepts involved emerges clearly from a comparative datum and makes the diachronic and the comparative material commensurable to a certain extent. In example (7), we have a metaphorical similarity between the concept EYELASH and the concept CATKIN. This comparative datum can be related to a more general metaphorical model, realized in diachronic data of various languages, that is based on the similarity between EYELASH and s.th. HAIRY: PANICLE (Estonian at an earlier stage: see n. 20), WOOL (Quechua), BURNT END OF A WICK (Swahili), and WING/FEATHER (Tibetan). All in all, then, this metaphorical model is polygenetically attested in the diachronic or comparative data of 5 languages of the "ww" sample (4 languages without the earlier stage of Estonian).

A third relatively important polygenetic type is exemplified by Swedish:

(8)   Swed. *ögonfrans* EYELASH
      <metaphorical similarity.morphological composition<
      frans FRINGE (+ *öga* EYE)

The head of the composition (*frans*, in this case) conceptualizes EYELASH through a metaphorical similarity to FRINGE (as for the modifier *öga*, see 3.1., (8′)). In a broad sense, this type is attested four times in the "ww" sample (Swedish = (8); Engl. *eyelash*:

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15.   In order to express the non-directional comparative relations involved, the diachronically intended notation explained in n.10 is replaced by a symmetrical bracket format <x5.x5>, where the indication of formal relations is lacking, because these may vary between cognates in different languages.

head = FLEXIBLE PART OF A WHIP; Sotho *ntšhi* BRINK OF A RIVER, SHORE, EDGE, Nepali *parelo* with cognates meaning FENCE, SHEATH).

We neglect for the moment the remaining parts of Appendix I and especially the details of the contiguity-based solutions (cf. 3.2.) in order to discuss here and now what we can realistically expect from our data. There will never be *one* overall solution, but if we get different solutions that are attested polygenetically in more than one language, this is already a good result (cf. also Mihatsch & Dvořák 2004).

In the Romance languages, where we get an overall picture of a language family, we discern the possibility of conceptually identical solutions in several languages that are nevertheless based on the same etymon. In these cases, it would be misleading to count separately every occurrence of the identical conceptual solution based on the same etymon. This is the reason why it is counted only once, and this is indicated by a sign of equality between the names of two or more Romance languages. Thus, the indication "Galician=Occitan" in the "contiguity" portion of Appendix I (Romance languages column) points to the following facts:

(9)   a.   Gal. *perseba* EYELASH
           <contiguity.zero< LateLat. *palpebra* EYELID

      b.   Occ. *parpèlha* EYELASH
           <contiguity.zero< LateLat. *palpebra* EYELID   cf. (1b)

In contrast to this, disconnected (blocks of) Romance language names appearing in the same field of Appendix I correspond to intra-Romance cognitive parallels on the basis of different etymons, as exemplified in (1).

All in all, we observe that the Romance languages are "well integrated" into the general picture that emerges from the "ww" sample, since – apart from one case of apparent stability (s. above and n. 12) – they adopt not all, but some of the solutions that are present in the "ww" sample.

2.2   Extending the analysis: The concepts EYELID, EYEBROW, and EYEBALL

As already announced at the beginning of section 2., the other three target concepts we want to include in this overview are EYELID, EYEBROW, and EYEBALL (Appendices II-IV). We find roughly the same general picture as for the concept EYELASH (though with some little peculiarities in Romance for EYELID and EYEBROW; but we will not go into these idiosyncratic details here).

As for the concepts EYELID and EYEBROW (Appendices II-III), the situation resembles very much what we saw in the case of EYELASH. Among the different taxonomic, metaphorical and contiguity-based solutions, there are at least two that are well represented in a variety of languages distant enough to admit an interpretation in terms of polygenesis: taxonomic subordination to SKIN, FLESH for EYELID (cf. examples 15, 16, and 17), metaphorical similarity with VEIL, WRAPPER, LID for EYELID (cf. the comment

on Eng. *lid in* example 20), taxonomic subordination to HAIR for EYEBROW (cf. example 14), metaphorical similarity with FRINGE, LINE, EDGE for EYEBROW (cf. examples 8 and 10), etc.

(10)   Scott. Gaelic *mala* EYEBROW
      <metaphorical similarity.x5 > cognates: MOUNTAIN, HILL, EDGE
                                      (comparative data)

The target concept EYEBALL presents an even more uniform picture. Even if there are different conceptual solutions as well, they overwhelmingly recur to metaphors that exploit the very salient ROUNDNESS of this body part, as for example the following:

(11)   a.   Jap. *me-damá* EYEBALL
              <metaphorical similarity.morphological composition<
              damá BALL (+ *me* EYE)

      b.   Quechua *ñahui lulun* EYEBALL
              <metaphorical similarity.morphological composition<
              lulun EGG (+ *ñahui* EYE)

We will come back to this issue in section 4.

3.   Refining the analysis

3.1   Dependent and independent conceptualisation

With respect to a relatively well delimitated and profiled conceptual domain as the HUMAN BODY, there are logically two types of *conceptualisation* that can be activated to denominate the concepts corresponding to its parts: we can distinguish *dependent* and *independent* conceptualisation.

Dependent conceptualisation of body parts involves other body parts either via contiguity or via taxonomic relations (mainly taxonomic subordination).

As for contiguity, we may think here of Wilkins' "intra-domain metonymies" (1996: 274). In this sense, any of the examples (1a-c), (5a), and (9a,b) illustrates dependent conceptualisation via intra-domain metonymy. But thanks to the formal dimension of our two-dimensional lexicological grid (Figure 3), we are able to widen the range of contiguity-based procedures of dependent conceptualisation. We can include additionally, for instance, cases of number change like (3) or of blend like (5c), and we have to take into account in particular cases of composition. Formally speaking, a morphological or syntagmatic compound consists of a *head* displaying the grammatical properties of the whole compound and a *modifier*. The compound expresses a target concept C_t, whereas the head and the modifier express two source

concepts, C_{s1} and C_{s2} respectively. Cognitively speaking, the relations connecting C_t with C_{s1} may be of different kinds, and the same for C_t and C_{s2}. Thus, our example (6), Bahasa Indonesia *bulu mata* that we take up here, displays a relation of taxonomic subordination for $C_t - C_{s1}$ (EYELASH is a kind of HAIR) and a relation of contiguity for $C_t - C_{s2}$ (EYELASH belongs to the frame EYE):

(6′)   Bahasa Indonesia *bulu mata* EYELASH (= C_t)
      <taxonomic subordination.morphological composition<*bulu* HAIR (= C_{s1})
      <contiguity.morphological composition< *mata* EYE (= C_{s2})

With respect to contiguity, Indonesian *bulu mata* is a case of dependent conceptualisation inasmuch as its modifier *mata* spells out the frame (EYE = C_{s2}) to which the target concept C_t belongs.

As for dependent conceptualisation via taxonomic subordination, a case in point is example (4), where C_t = GREAT TOE is related to C_s = TOE (formally realized by gender change). In order to include composition as well, we may cite once more (6′). As already described in section 2.1., the head of the compound, *bulu*, spells out the taxonomic subordination to HAIR. Since the latter is a body-part concept, this is a case of dependent conceptualisation, too. So, then, Indonesian *bulu mata* displays even double dependency of conceptualisation.

Independent conceptualisation corresponds, in short, to all other types of conceptualisation, i.e., those that are not based on contiguity nor on taxonomic relations and/or those that do not involve other body parts. Accordingly, examples (2) and (7) are cases of independent conceptualisation, as related to concepts outside the human body (TO SIT or CATKIN respectively), albeit via contiguity in the case of (2). As for composition, we can take up our example (8). Swed. *ögonfrans* is based on a relation of metaphorical similarity for $C_t - C_{s1}$ (EYELASH is like a FRINGE) and on a relation of contiguity for $C_t - C_{s2}$ (EYELASH belongs to the frame EYE):

(8′)   Swed. *ögonfrans* EYELASH (= C_t)
      <metaphorical similarity.morphological composition< *frans* FRINGE (= C_{s1})
      <contiguity.morphological composition< *öga* EYE (= C_{s2})

This is dependent conceptualisation as for the modifier *öga* – exactly like in (6′) –, but it is independent conceptualisation with respect to the head *frans*, which neither involves another body part nor is based on contiguity nor on taxonomic relations.

The data collected from our samples clearly demonstrate that the overwhelming majority of denominations for the four concepts we are dealing with here are based at least in part on dependent conceptualisation. As we will see more in detail in 3.2., a first type of dependent conceptualisation consists in shifts within the frame EYE. Another solution that underlines the conceptual dependency upon the

frame EYE concerns especially compounds whose modifier – not explicitly analysed in the appendices – expresses a contiguity to the concept EYE (6', 8', 11a, 11b, 14, 16, 17), but the modifier may bring into play also one particular part of this frame, as e.g., EYELID for EYELASH (12). The languages concerned are marked by [§] in the appendices.

(12) Tamil *kaṇṇ-imai mayir* EYELASH (= C_t)
 <taxonomic subordination.morphological composition< *mayir* HAIR (= C_{s1})
 <contiguity.morphological composition< *kaṇṇ-imai* EYELID (= C_{s2})

So the concepts under consideration here are largely considered as parts of the conceptual frame EYE (via contiguity to the frame as a whole or to one of its parts).

A further type of conceptual dependency, often overlapping with the preceding, is represented by derivatives or compounds whose head[16] involves taxonomic subordination to concepts like HAIR for EYELASH (6', 12, 13) or EYEBROW (14), SKIN/FLESH for EYELID (15, 16, 17) etc. (languages displaying this type of dependent conceptualisation are marked by * in Appendices I-IV). This is well attested in our sample:

(13) Occ. *pelisson* EYELASH
 <taxonomic subordination.suffixation< *pel* HAIR

(14) Yir Yoront *mel-thorrchn* EYEBROW (= C_t)
 <taxonomic subordination.morphological composition< *thorrchn* HAIR (= C_{s1})
 <contiguity.morphological composition< *mel* EYE (= C_{s2})

(15) Occ. *pelona* EYELID
 <taxonomic subordination.suffixation< *pèl* SKIN

(16) Tibet. *mig śa* EYELID (= C_t)
 <taxonomic subordination.morphological composition< *śa* FLESH (= C_{s1})
 <contiguity.morphological composition< *mig* EYE (= C_{s2})

(17) Tzeltal *s-nuhkulel sitil* EYELID (= C_t)
 <taxonomic subordination.syntagmatic composition< *nuhkulel* SKIN (= C_{s1})
 <contiguity.syntagmatic composition< *sitil* EYE (= C_{s2})

All in all, the – sometimes double – conceptual (and perceptual) dependency of the four concepts under consideration seems to be a cognitive constant.

3.2 Typical shifts within the frame EYE

There is an interesting problem with the target concepts EYELASH, EYELID, and EYEBROW: Nearly[17] every language has a denomination for these concepts, but the concepts themselves do not seem to be very salient. According to observations on several languages and dialects by different linguists[18] (and according to my personal experience as well), speakers sometimes hesitate or get confused, when they have to denominate one of these concepts, even when speaking their mother tongue. Consequently, "confusions" of denomination are not very surprising in this domain. In fact, the lower parts of the Tables in Appendices I-III document some – sometimes reciprocal – conceptual solutions that involve one of the other three concepts under consideration here. We have already noted these shifts as one type of dependent conceptualisation in section 3.1. The shifts occurring in our samples can be summarized like in figure 4 (p.124) (the direction of the arrows represents the directions of shift attested; every (pair of) arrows is labelled with the relevant cognitive relation).

As some of these shifts are exemplified in (1), (5), and (9a,b), I will confine myself here to examples that illustrate the remaining shifts (the number of each example appears as a label at the appropriate place in Figure 4):

(18) a. Tibet. *mig spu* EYELASH
 <cotaxonomic similarity.formal identity< *mig spu* EYEBROW

 b. Swahili *ukope* EYELID <contiguity.formal identity< *ukope* EYELASH

 c. Sard. *pibirista* EYELID
 <contiguity.formal identity< *pibirista* EYEBROW

 d. Tibet. *rdzi ma/gzi ma* EYEBROW
 <cotaxonomic similarity.formal identity< *rdzi ma/gzi ma* EYELASH
 (a synonym of the target item in (18a))

 e. (Northern) Sotho *thaka ya leihlô* EYELID
 <contiguity.formal identity< *thaka ya leihlô* EYEBALL

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16. Note that the Occitan examples (13) and (15) are based on a kind of derivation whose head is the lexeme and not the suffix (originally diminutives: "little hair" (13; "little skin" (15)).

17. Within the "ww" sample, there is one language, Yir Yoront, that seems to lack a word for EYELASH. Needless to say that the four concepts under examination (EYELASH, EYELID, EYEBROW, and EYEBALL), although well represented in our language sample, are not necessarily universal. They are of course lacking in Wierzbicka's 55-(or 56-) item-list of semantic primes, excluding even the more fundamental frame concept EYE (cf. Wierzbicka 1996: 35–111; Goddard 2001b: 1192). Note however that at least EYE(s) is considered as a relatively simple concept with respect to its derivation from semantic primes (cf. Wierzbicka 1996: 218f.) and that it figures on the list of 101 potentially universal "meanings" discussed in a critical survey by Goddard (2001a: 9, 16f.).

18. Cf. EDD, s.v. *bree* sb.[1]; Jaberg (1917: 98f.); DSSPIL, s.v. 4.206 *eyebrow*; Norri (1998); Grzega (2004a: 235ff.; 2004b: 22, 29). Grzega calls this effect "onomasiological fuzziness" (cf. also Blank 1997a: 388–390; 1999: 77).
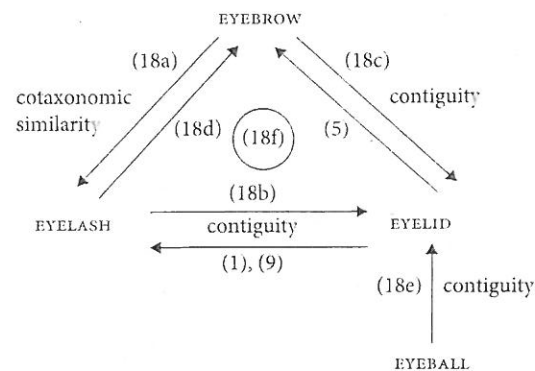
Figure 4. Qualitative overview over types of shifts of denominations around the eye.

f₁.   (Northern) Sotho *ntšhi* EYELASH
      <contiguity.formal identity> *ntšhi* EYELID

f₂.   (Northern) Sotho *ntšhi* EYELID
      <contiguity.formal identity> *ntšhi* EYEBROW

f₃.   (Northern) Sotho *ntšhi* EYEBROW
      <cotaxonomic similarity.formal identity> *ntšhi* EYELASH

      [Sotho *ntšhi* meaning additionally, and perhaps originally, BRINK OF A
      RIVER, SHORE, EDGE]   (18f₁ to 18f₃ all comparative data in polysemy)

As shown by these examples, the main cognitive relation triggering these shifts is contiguity (1, 5, 9, 18b, 18c, 18e, 18f). The local "neighbourhood" within the frame EYE provides speakers with a means of denomination where they are uncertain. It is only in the case of EYELASH – EYEBROW that cotaxonomic similarity seems to be more salient (18a, 18d, 18f₃). Both body parts similarly constitute a kind of hair, while there is no immediate "neighbourhood". But as the concepts EYELASH and EYEBROW nevertheless belong to the same frame EYE, their (loose) contiguity may also have a role to play here. In several cases, we also have a triple linking between EYELASH, EYELID, and EYEBROW, as illustrated for synchronic polysemy by examples (18f).

The shifts represented in Figure 4 have a considerable impact on the lexical data of the two samples that can be quantified as follows:[19]

19.   "1 ww" means "1 attestation in the "ww" sample", etc. "1 rom" means "1 attestation in the "rom" sample", etc. "=" indicates attestations of reciprocal shifts/identical denominations between the three concepts EYELASH, EYELID, and EYEBROW.

Table 1. Quantitative overview over types of shifts of denominations around the eye

Target concept (C_t)	Source concept (C_s)			
	EYELASH	EYELID	EYEBROW	EYE(BALL)
EYELASH		3 ww, 3 rom	3 ww, 1 rom	
		2 ww = 2 ww		
EYELID	2 ww	=	1 rom	2 ww
	1 ww		1 ww	
EYEBROW	3 ww, 1 rom	3 ww, 2 rom		
		1 rom = 1 rom		

The polygenetic frequency of the shifts between EYELASH, EYELID and/or EYEBROW is due to a fundamental cognitive fact: the relatively low degree of salience of these interwoven concepts. The concept EYE(BALL), occurring only as a source concept in this context – and only with respect to EYELID – stands rather apart as being considerably more salient.

3.3   Redundant compounds

Another phenomenon that seems to be related to problems of salience concerns the cognitive, and at the same time, formal make-up of compounds figuring as denominations in the domain under consideration. Everywhere in our sample, there are examples of the two types of compound illustrated in (6′) and (8′):

(6′)   head: C_{s1} based on taxonomic subordination (Indon. *bulu* HAIR)
       modifier: C_{s2} based on contiguity (Indon. *mata* EYE)

(8′)   head: C_{s1} based on metaphorical similarity (Swed. *frans* FRINGE)
       modifier: C_{s2} based on contiguity (Swed. *öga* EYE)

Cross-linguistically, these are two of the most common cognitive types of composition (cf. Blank 1997b; Gévaudan 1999: 18–20). Now let us consider the following example:[20]

(19)   Est. *silmaripse* EYELASH (= C_t)
       <identity.morphological composition< *ripse* EYELASH (= C_{s1})
       <contiguity.morphological composition< *silma* EYE (= C_{s2})

In this case, the contiguity relation introduced by the modifier surprisingly concurs with an identity relation represented by the head (cf. Gévaudan 1999: 20f.; Mihatsch 2006: 85). From a strictly logical point of view, these are "redundant compounds", since the head is conceptually identical to the whole compound and the modifier simply explicates frame knowledge already inherent in the head (one of the cases of dependent

20.   At an earlier stage Est. *ripse* meant PANICLE (cf. 2.1. and Appendix I).

conceptualisation explained in 3.1.). Surely, in some cases redundant compounds may serve to remedy homonymy or polysemy:

(20)   Engl. *eyelid* EYELID (= C_t)
    <identity.morphological composition< *lid* EYELID (= C_{s1})
    <contiguity.morphological composition< *eye* EYE (= C_{s2})

Engl. *lid* having survived in its non-metaphorical, central sense "that which covers an opening", a clear distinction between the two senses of this (polysemous? homonymous?) word is desirable.

But even if the denomination of one of these concepts is totally isolated in synchrony, as for instance Germ. *Braue* (that nowadays simply has no other sense than EYEBROW),[21] we observe redundant compounds:

(21)   Germ. *Augenbraue* EYEBROW (= C_t)
    <identity.morphological composition< *Braue* EYEBROW (= C_{s1})
    <contiguity.morphological composition< *Auge* EYE (= C_{s2})

So the reaction to these "accidents" of polysemy, homonymy or lexical isolation are only a by-product of a more general problem with the concepts EYELASH, EYELID and EYEBROW. Their relatively low degree of salience produces a to-and-fro of demotivation and remotivation. Their denominations, be they of metaphorical or of a different origin, tend to become opaque with respect to their metaphorical – or whatever – conceptual origin as well as to the concept EYE. The conceptual access will then be facilitated anew by a redundant compound that remotivates the denomination by spelling out the frame involved, i.e., EYE.

The high degree of salience of the concept EYEBALL, by way of contrast, nearly everywhere stimulates vivid metaphorical creations (cf. section 2.2.) that remain strongly motivated and therefore have to be (re)settled, through non-redundant compounds, in the frame EYE in order to avoid confusion with the still perceptible literal meaning of the metaphorized word:

(11b′)   Quechua *ñahui lulun* EYEBALL
    <metaphorical similarity.morphological composition< *lulun* EGG
    <contiguity.morphological composition< *ñahui* EYE

These reflections underline the fact that the difference in salience between EYEBALL on the one hand and EYELASH, EYELID and/or EYEBROW on the other is decisive. In fact, the denomination of the much more salient concept EYEBALL is never remotivated by redundant compounds in our two samples, whereas this procedure is fairly widespread for the other three concepts:

Table 2.   Redundant compounds

Target concept (C_t)	Attestations of redundant compounds
EYELASH	3 ww, 1 rom
EYELID	3 ww, 1 rom
EYEBROW	3 ww
EYEBALL	–

(cf. also Appendices I–III, where redundant compounds are indicated by "! identity", which is totally lacking in Appendix IV).

4.   Typology and lexical change

We have seen in section 2. that certain types of source concepts for certain target concepts are attested cross-linguistically so that a polygenetic origin is probable. This would point to fundamental cognitive constants. At the same time, we had to recognize that there will never be a unique overall solution and that we will get, at best, different options that are attested polygenetically in several languages.

Now the question arises whether such polygenetically distributed concurring options of conceptualisation are totally random. Mihatsch (2005) has shown on the basis of the "ww" sample, used here as well, that different options of this kind may be explained by typological parameters. In the domain under consideration these are related to the problem of object classification.

Imai & Gentner (1997) have demonstrated in psycholinguistic experiments that the results of object-classification tasks partly depend on the conceptualisation "style" of different languages. It is well known that in languages like English *count* nouns prevail, whereas in languages like Japanese and Chinese all nouns are *transnumeral*. Indeed, in object-classification tasks American speakers tend to classify simple objects such as wooden cubes or glass pyramids mainly in terms of *shape*, whereas Japanese speakers give preference to a classification in terms of *substance*.

Mihatsch (2005) found out that something similar can be observed on the basis of the diachronic and comparative data concerning the denominations of the concepts EYELASH, EYELID, EYEBROW, and EYEBALL within the "ww" sample. She divides the languages of the sample into three classes according to typological-conceptual differences

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21.   The case of Engl. *eyebrow*, though being similar from the point of view of word-formation (not on etymological grounds: cf. OED, s.v. *brow*[1]!), is different from Germ. *Augenbraue*, because *brow* has developed additional senses (especially "forehead", which in the meantime has even overridden the old sense "eyebrow"). So there has been the problem of distinguishing different – old or new – senses, just like with Engl. *eyelid*. But all these details are secondary with respect to the problem of conceptual salience that will be discussed in the following.

in the noun system (the corresponding abbreviations figure in Appendices I-IV to characterize (groups of) languages):[22]

[+PL]   languages with an obligatory plural marking
[−PL]   languages without obligatory plural marking
[±PL]   mixed cases (they require further analysis and are not included in Mihatsch's evaluation)

As represented in Table 3, [+PL] languages conceptualise EYELASH, EYELID, and EYEBROW nearly exclusively in terms of shape (6 attestations for EYELASH, 8 for EYELID, 7 for EYEBROW, against only one attestation in terms of substance, namely for EYELASH). The shape solutions typically are based on metaphorical similarity to concepts such as FRINGE (example 8), EDGE (example 10), etc.

Table 3. Conceptualisation in [+PL] languages

[+PL] languages	EYELASH	EYELID	EYEBROW	EYEBALL
conceptualisation in terms of *shape*	6	8	7	8
conceptualisation in terms of *substance*	1	0	0	0

In contrast to this, [−PL] languages, as represented in Table 4, conceptualise EYELID, EYEBROW, and EYELASH preferentially in terms of substance (7 attestations for EYELASH, 6 for EYELID, 6 for EYEBROW, against only 2 attestations in terms of shape, namely for EYELID). The substance solutions typically are based on taxonomic subordination to concepts such as HAIR (examples 6, 12, 14), SKIN (example 17), etc.

Table 4. Conceptualisation in [−PL] languages

[−PL] languages	EYELASH	EYELID	EYEBROW	EYEBALL
conceptualisation in terms of *shape*	0	2	0	9
conceptualisation in terms of *substance*	7	6	6	0

Very differently, the extremely salient concept EYEBALL (cf. 2.2., 3.2., 3.3.), whose salience resides just in its shape (ROUNDNESS), is actually conceptualised in terms of shape by *both* classes of languages (8 attestations for [+PL] and 9 for [−PL]: cf. Tables 3 and 4). The data do not display any case of conceptualisation in terms of substance here.

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22.   The Romance languages are throughout characterized as [+PL] in the appendices, but they are not part of Mihatsch's study.

These results suggest that conceptualisation preferences inherent to grammatical systems may have a considerable impact on fundamental options for lexical conceptualisation, which, consequently, can not be considered as totally random. These insights are also a contribution to the discussion concerning linguistic relativity.

5. Conclusion

As we have seen, it is possible to detect cognitive constants that induce polygenetic patterns of lexical change.

In order to get valid results, we have to establish criteria in advance: a well-defined sample of languages, an onomasiological starting point, and a (domain of) target concept(s). A given target concept C_t leads us to the corresponding denomination in a given language, a lexical item L_n. Thanks to our two-dimensional lexicological grid (Fig. 3), we are able to identify, on the one hand, the formal relation R^f holding between L_n and its diachronic antecedent L_0 and, on the other hand, the cognitive relation R^c linking C_t to the source concept C_s expressed by L_0. From the perspective of polygenesis, it is important to discover – for a given C_t, and independently of different formal relation R^f linking L_n to L_0 – triples of the form R^c (C_t, C_s) that occur cross-linguistically in the sample, without genetic kinship or linguistic contact explanations of this parallelism (C_s corresponding to a specific concept or to a more abstract type of concept). According to this method, we have actually detected, for the conceptual domain around the EYE, some cognitive constants.

Our data revealed several typical relations holding between one of the target concepts and particular (types of) source concepts, such as taxonomic subordination to HAIR for EYELASH and EYEBROW, metaphorical similarity with FRINGE or the like for EYELASH, metaphorical similarity with s.th. HAIRY for EYELASH, metaphorical similarity with BALL (or something else characterized by its ROUNDNESS) for EYEBALL, etc. (section 2.).

In general, we observed, for all four concepts, a tendency to dependent conceptualisation, especially within the frame EYE (section 3.1.). A remarkable type of conceptual dependency emerges in the form the reciprocal shifts and confusions between EYELASH, EYELID, and EYEBROW that do not seem to be very salient concepts, whereas EYEBALL is clearly more salient and independent from the other three concepts (section 3.2.). The general lack of salience of EYELASH, EYELID, and EYEBROW was confirmed by the existence of redundant compounds denominating these concepts (section 3.3.).

The considerably higher degree of salience of EYEBALL, due to the ROUNDNESS of this body part, also strikingly interferes with typological facts: whereas the conceptualisation of EYELASH, EYELID, and EYEBROW in terms of shape vs. substance seems to depend largely on the conceptualisation "style" of a given language, inherent in its

nominal system as a whole (count vs. transnumeral nouns), the shape-induced conceptualisation of EYEBALL rules out these typological options (section 4.).

To sum up, cognitive onomasiology is able to contribute decisively to the investigation into typology and universals in the lexicon and to our understanding of cognitive constants in particular conceptual domains.

Appendix I: target concept (C_t): EYELASH
(as for the indices * and §, cf. section 3.1.)

Cognitive relation	Source concept (C_s)	Languages worldwide	Σ "ww"	Romance languages [+PL]	Σ "rom"
stability?				Catalan = Galician = Portuguese = Spanish	1
taxonomic subordination	HAIR (cf. (6), (12), (13))	Swedish*§ [+PL] Bambara*§ Hausa*§, Hopi* [±PL] Bahasa*§ Chinese*§ Japanese*§ Lahu*§ Nahuatl*§ Tamil*§ Tzeltal*§ [−PL]	11	Engadinian*§ Occitan*	2
metaphorical similarity	s.th. HAIRY (cf. (17))	Estonian§ (cf. n. 20) Russian Swahili [+PL] Quechua§ Tibetan§ [±PL]	4 (5)		
	FRINGE etc. (cf. (18))	English§ Sotho Swedisch§ [+PL] Nepali [±PL]	4		
contiguity	EYELID (cf. (1a), (1b=9b), (1c), (9a), (18f₁))	Albanian Gaelic [+PL] Hopi [±PL]	3	Engadinian =French=Friulian =Italian=Ladin =Occitan =Portuguese =SardinianCamp. Galician=Occitan Romanian	3
↓	↓	Gaelic Sotho [+PL]	2		
↑	↑				
cotaxon. similarity	EYEBROW (cf. (18a))	German [+PL] Hopi Tibetan [±PL]	3	Sardinian	1
! identity (cf. 3.3.)	EYELASH (cf. (19))	Estonian§ [+PL] Tibetan [±PL] Hungarian§ [−PL]	3	Friulian§	1

Appendix II: target concept (C_t): EYELID
(as for the indices * and §, cf. section 3.1.)

Cognitive relation	Source concept (C_s)	Languages worldwide	Σ "ww"	Romance languages [+PL]	Σ "rom"
taxonomic subordination	SKIN, FLESH (cf. (15), (16), (17))	Bambara*§ Hausa*§ Quechua*§ Tibetan*§ (2x) [±PL] Chinese*§ Hungarian*§ Lahu*§ Nahuatl*§ Tzeltal*§ YirYoront*§ [−PL]	11	Occitan* Sardinian*§	2
metaphorical similarity	STRIP OF LEATHER	Nepali§ [±PL]	1		
	BARK, PEEL	Bambara§ [±PL]	1	Engadinian§	1
	VEIL, WRAPPER, LID	Albanian English§ (cf. 3.3.) Gaelic§ German§ (cf. 3.3.) Russian Swedish§ [+PL] Bahasa§ Japanese§ [−PL]	8	Engadinian§ =Ladin§ =Sardinian§	1
(diverse)		Estonian§ Sotho (2x) [+PL]	3	SardinianLog.§	1
onomatopœia				Romanian	1
contiguity	TO PALPITATE			Catalan =Engadinian =French =Friulian =Galician =Occitan =Spanish	1
	TO SLEEP	Hopi [±PL]	1		
	EYE, EYEBALL (cf. (18e))	Gaelic Sotho [+PL]	2		
	CHEEK			Romanian	1
	EYELASH (cf. (18b))	Gaelic Swahili [+PL]	2		
↓	↓	Sotho [+PL]	1		
↑	↑(cf. (18f₂/f₃))				
cotaxon. similarity	EYEBROW (cf. (18c))			Sardinian	1
! identity (cf. 3.3.)	EYELID (cf. (20))	English§ German§ [+PL] Tamil§ [−PL]	3	Engadinian§	1

Appendix III: target concept (C_t): EYEBROW
(as for the indices * and §, cf. section 3.1.)

Cognitive relation	Source concept (C_s)	Languages worldwide	Σ "ww"	Romance languages [+PL]	Σ "rom"
	stability	Russian [+PL]	1		
taxonomic subordination	HAIR (cf. (14))	Hopi*(§) (3x) Tibetan*§ [±PL] Bahasa*§ Chinese*§ Japanese*§ Lahu*§ (2x) Nahuatl*§ YirYoront*§ [−PL]	11		
metaphorical similarity	WOOL	Quechua§ [±PL]	1		
	FRINGE, LINE, EDGE, etc. (cf. (8),(10))	Albanian Gaelic Sotho Swahili Swedish§ [+PL] Bambara§ Quechua§ [±PL]	7		
	COCKSCOMB			SardinianLog.	1
	PEPPER			Sardinian	1
contiguity	VISOR			Occitan	1
	EYEHILL	Estonian [+PL]	1		
	EYE	Hungarian [−PL]	1	Portuguese	1
cotaxon. similarity	EYELASH (cf. (18d))	Hopi Tibetan [±PL] Tzeltal [−PL]	3	Occitan	1
↓ ↑	↓ (cf. (18f₂/f₃)) ↑	Sotho [+PL] Hausa [±PL]	2		
contiguity	EYELID (cf. (5a), (5b))	English German [+PL] Hopi [±PL]	3	Catalan=Friulian =Galician=Italian =Ladin=Occitan =Portuguese =SardinianLog. =Spanish Engadinian =French =Galician =Italian=Occitan =Portuguese	2
	× (cf. (5c))			Romanian	1
! identity (cf. 3.3.)	EYEBROW (cf. (22))	English§ German§ [+PL] Tibetan Nepali§ [±PL]	4		

Appendix IV: target concept (C_t): EYEBALL
(as for the indices * and §, cf. section 3.1.)

Cognitive relation	Source concept (C_s)	Languages worldwide	Σ "ww"	Romance languages [+PL]	Σ "rom"
taxonomic subord.	s.th. ROUND			SardinianLog.*§	1
metaphorical similarity	BALL, GLOBE (cf. (11a))	English§ Swedish§ [+PL] Hopi§ [±PL] Bahasa§ Hungarian§ Japanese§ [−PL]	6	Latin§ (and calques in many Rom. lang.) Friulian§ =Italian§	2
	EGG (cf. (11b))	Estonian§ [+PL] Quechua§ [±PL]	2		
	FRUIT, PLUM, APPLE	German§ Russian§ [+PL] Tibetan§ [±PL]	3	Occitan§	1
	NUT, PIP, GRAIN	Albanian Sotho§ [+PL] Bambara§ Tibetan§ [±PL] Nahuatl§ Lahu§ Tzeltal§ [−PL]	7	Friulian§	1
	(PRECIOUS) STONE etc.	Gaelic§ [+PL] Chinese§ Tamil§ [−PL]	3		
	PROTUBERANCE OF A PLANT			Latin§ (and calques in many Rom. lang.) Galician§	2
	FULL MOON	Yir Yoront§ [−PL]	1		
	CIRCLE	Nepali§ [±PL]	1		
contiguity	PUPIL	Hausa [±PL]	1		

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