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Comparative concepts are *not* a different kind of thing

This contribution challenges the by now established notion of comparative concepts; in particular, it can be read as a (delayed) response to Haspelmath (2010a). Like Haspelmath's original paper the present one is theoretical in essence, with examples used primarily for illustration. My main point is that Haspelmath's comparative concepts are, despite his claims to the contrary, simply crosslinguistic categories. This point has been made before; however, I offer two new ingredients to the argument: first, an explicit definition of the crucial term *instantiation*, allowing, among other things, a reaction to Haspelmath's (2018b) newest defence of comparative concepts, and second, an alternative approach involving multiple monotonic inheritance. The contribution as a whole, though being theoretical, strives to argue as framework-neutrally as possible; in particular I remain agnostic about the existence and nature of Universal Grammar in any sense.

1 Introduction

Since Haspelmath's seminal paper *Comparative concepts and descriptive categories in crosslinguistic studies* (2010a), the explicit use of comparative concepts has become a standard in typology (cf. volume 20(2) of *Linguistic Typology* = *LT*). At the same time, however, many researchers have expressed discomfort with Haspelmath's radical idea that comparative concepts are completely detached from descriptive categories for individual languages (e.g.

Newmeyer 2010, Van der Auwera & Sahoo 2015, articles in *LT* 20 like Dahl 2016 or Rijkhoff 2016:338, Maddieson 2018). The present contribution sets out to argue that Haspelmath's idea is too radical indeed and suggests a reconceptualization of comparative concepts as highly abstract descriptive categories. In more detail, section 2 showcases what appears to be the main problem with Haspelmath's idea: if comparative concepts are truly independent from descriptive categories designed for individual languages, then how can they reasonably serve to compare those languages? Section 3 then goes on to demonstrate that they can, provided we conceptualize them in a new way: as high or even the highest nodes in a network of inheritance hierarchies, where each hierarchy allows for multiple but monotonic inheritance. A key issue here is ensuring that all nodes are related by instantiation, which requires an explicit notion of that relation. Furthermore, this section broadens the scope of the paper since the last subsection takes up Haspelmath's later idea of a so called Grammaticon. Section 4, finally, sums up the results of the contribution and considers future empirical applications.

2 A critical close reading of Haspelmath (2010)

The present section serves two goals. First (section 2.1), I summarize Haspelmath's paper in order to lay the ground for the objections that follow. Readers who are thoroughly familiar with the original paper can skip this part. Second (section 2.2), Haspelmath's proposal is discussed in detail, my main

point of criticism being that, contrary to his claim, comparative concepts are intimately tied to descriptive categories.

2.1 Short summary of Haspelmath (2010)

In a nutshell, Haspelmath (2010) argues that

1. crosslinguistic (let alone universal) categories are out of reach;

2. instead linguists are well-advised to use COMPARATIVE CONCEPTS, i.e. notions that are designed specifically for the purpose of language comparison and do *not* relate to categories meant for the description of any individual language (descriptive categories);

3. in practice, many linguists have been using comparative concepts successfully for quite some time, but unconsciously so.

As to 1, Haspelmath bases his claim on two lines of argument, one practical and one theoretical. On the practical side, he draws attention to what might be called "typologists' everyday problem": a given category, which has proven to be perfectly adequate for the description of a certain language, cannot be readily transferred to the description of another language (pp. 667–669). To give a simple example, if one is used to define 'subject' as 'constituent that controls agreement', one will have a hard time using this category for the description of a language that does not appear to have anything like agreement (or maybe even constituents). On the theoretical side, Haspelmath cites an

insight by Culicover (1999, ch. 2) and also Croft (2001:78–83): there does not seem to be a lower bound on the specificity of potential crosslinguistic or universal categories (pp. 669, 676).[1] In particular, Culicover (1999:40–41) argues that any universal set of categories would have to provide for any (sub-)category that might be needed in the description of some language, even if the need will arise only once. For example, if you know that 'size/importance' is an inflectional feature in Weining Ahmao (Gerner & Bisang 2010:75), then your universal grammar will need that inflectional feature too.

As to 2, this is what Haspelmath concludes from the situation sketched above: if reasonable crosslinguistic categories are virtually out of reach, then we should restrict the use of categories proper to the description of single languages and devise something different for the aim of language comparison, i.e. comparative concepts. An example for a draft of a comparative concept is given below:

> A DATIVE CASE is a morphological marker that has among its functions the coding of the recipient argument of a physical transfer verb (such as 'give', 'lend', 'sell', 'hand'), when this

[1] Culicover's and Croft's perspectives differ in important respects, which will be discussed in section 2.2.1 below.

> is coded differently from the theme argument.
>
> (Haspelmath 2010:666, small caps T.R.)

Please note that single language descriptive categories may match this concept while having additional properties. For example, the respective form in Turkish also has among its functions the marking of the causee (Kornfilt 1997:212–213). Furthermore, the concept, although containing semantic as well as formal aspects, does not refer to formal properties of individual languages like suffixing (at least not obviously so). More generally, Haspelmath (2010) stresses throughout that comparative concepts are completely independent from descriptive categories of which kind whatsoever. According to him, the latter do *not* instantiate the former and he is serious about this, as witnessed by the following quotation.

> I make a terminological distinction between comparative CONCEPTS and descriptive CATEGORIES in order to emphasize that there is **no taxonomic relationship** between them.
>
> (p. 680, boldface T.R.)

As to 3, the use of comparative concepts as best practice, Haspelmath gives general examples from morphosyntax and two more hands-on examples, one from phonetics/phonology and one from lexical semantics (p. 668). Regarding phonetics/phonology, he argues that in practice the IPA symbols have long

been used as comparative concepts: each IPA symbol represents a certain bundle of articulatory properties, which may be shared by the realizations of two phonemes from different languages although otherwise these realizations might be quite different. For example, the realization of Dutch /s/ differs from the realization of German /s/ at least in that the former realization is rather laminal while the latter is rather apical – still both match the articulatory properties represented by [s].

Regarding lexical semantics, Haspelmath argues that the "somewhat arbitrarily chosen set of standardized lexical meanings" (p. 668), which is generally needed in lexical comparison, likewise has to consist of comparative concepts: each of these standardized lexical meanings combines notions that, in an individual language, might be distributed over several lexemes or make up only one part of a lexeme's meaning. For example, a standardized lexical meaning 'time of the day that includes noon' captures both, Dutch 'middag' and German 'Mittag', although the former but not the latter includes the afternoon.

The reader might be wondering why I am, again, adducing an example from these two closely related languages. The reason is simple: I intend to make it perfectly clear that the methodological considerations leading Haspelmath to introduce comparative concepts are by no means exclusive to large scale

comparisons of widely differing languages – they can crop up as soon as one takes into account more than one language.

Concluding my short summary of Haspelmath (2010a), the core arguments for the explicit use of comparative concepts have been reported, however without going into the details of concrete comparative concepts. The only one I mentioned was the DATIVE CASE, which in the original paper serves as an introductory illustration (p. 666). Beyond that, Haspelmath suggests seven concrete comparative concepts in his central section (pp. 670–674), which I save for the discussion below.

2.2 Discussion of Haspelmath (2010)

The present section first discusses the three core arguments reported above and then comments on a selection of Haspelmath's seven suggestions for concrete comparative concepts.

2.2.1 The core arguments

1. Crosslinguistic categories are out of reach. As to the practical part of this argument: it is hard to deny, at least from a theory-neutral perspective. So long as one's theory does not universally postulate things like subjects or case, everyone has trouble defining and identifying these throughout a balanced sample of languages (e.g. Schachter 1996 on subjects in Tagalog, or Spencer 2008 on case in Hungarian). As to the theoretical part of the argument,

however, I have serious concerns, both about Croft's and Culicover's version. To be fair, Haspelmath does not cite Croft explicitly here (in stark contrast to the rest of the paper). This might be because Croft's version of the argument is restricted to parts of speech in single languages – or because it is fairly easy to counter. Croft (2001) shows that, distributionally, the adjective class of Lango splits into two subclasses (pp. 78–80) and the potential adjective, noun, and nominal-adjective classes of Japanese split into six subclasses, not even taking into account idiolectal splits or issues of graded acceptability (pp. 81–83). From these analyses Croft concludes that there is no principled rationale where to stop splitting (p. 83). Yet there is: you stop splitting when every class arrived at shows uniform distributional properties (also cf. Rijkhoff 2016:339 *et passim*). For example, a class may comprise all items that for a certain speaker are acceptable in construction x, excluded in construction y, and doubtful in construction z. These classes might be very small indeed and, here I agree with Croft, they won't look anything like traditional parts of speech. But I expect them to include more than one member each due to a simple numerical estimation: imagine each and every item in a language was distributed in its own special way – for how many items could that be true at the same time? Thus, within single language descriptions there is, in fact, a lower bound on the specificity of categories.

What does this mean for the availability of crosslinguistic categories? This is where Culicover's version of the argument – cited by Haspelmath – comes

into play. Culicover (1999:40), too, sees the need for rather specific categories in single language descriptions. However, for a category to be available in a single language, it has to be represented by universal grammar, according to classical generative thinking (pp. 40–41). So universal grammar would be populated with a multitude of specific categories *from* and *for* every language (ibid.). I agree with Culicover that this is not what universal grammar is meant to be. However, I fail to see the inevitability of promoting every single language category, including subcategories, to universal grammar. True, classical generative thinking requires any lexical or functional category to fall within the bounds of some rather broad universal lexical or functional category (Culicover 1999:36–37), for example within the bounds of the lexical category adjective (in the sense of [+N, +V]). This requirement is motivated by reasons of learnability (ibid.). But as far as I am aware, nobody has ever argued that the language learner needs anything beyond this fairly coarse orientation. For example, if an item can be identified as falling within the bounds of the universal category adjective, it does not matter whether it is preposed or postposed. Thus, if the language learner does not need fine-grained prewiring, then there is no motivation for overpopulating universal grammar with such highly specific categories. So the UG-argument Haspelmath refers to does not appear to be conclusive.

As a side note, Haspelmath (2010) cites Culicover as "coming from a generative background" (p. 669). This is correct, as witnessed by the preceding

paragraph; however, it might invite the implicature that Culicover represents mainstream Generative Grammar and, accordingly, that "even those generativists have lost faith in universalism". This impression, however, would be misguided. In the first chapter of his 1999 book cited above, Culicover explicitly commits to central statements from a competing paradigm, i.e. Construction Grammar: idioms are anything but peripheral (p. 32) and there is a lexicon-grammar continuum (pp. 33–35). Needless to say that Culicover is perfectly aware of the connection (p. 15). In sum, thus, he does not make a very good crown witness for mainstream Generative Grammar (if there is anything like that at all).

To conclude the discussion of Haspelmath's (2010) first core argument (= crosslinguistic categories are out of reach), I agree that there are practical problems with crosslinguistic categories but I doubt that the problems go back to a fundamental unavailability of such categories.

2. Comparative concepts are better because they are independent from descriptive categories. This is Haspelmath's own conclusion from his first core argument (= crosslinguistic categories are out of reach). Above I argued against this argument's theoretical part but had to accept its practical part i.e. "typologists' everyday problem". So my task here is to show that the practical part alone does not warrant the conclusion. To this end, I will discuss the dative example and generalize my objections in the process.

Recall Haspelmath's draft for a comparative concept DATIVE CASE:

> A DATIVE CASE is a morphological marker that has among its functions the coding of the recipient argument of a physical transfer verb (such as 'give', 'lend', 'sell', 'hand'), when this is coded differently from the theme argument. (Haspelmath 2010:666, small caps T.R.)

I will not discuss the premises involved here like having a definition of morphology or a sufficient set of semantic roles since Haspelmath is well aware of these premises (p. 666) and especially the issue of semantic roles has received intensive treatment in Newmeyer's (2010:689–690) reply as well as in Haspelmath's (2010':696–697) reaction to it. Let's suppose that the premises are justified. Then Haspelmath (2010: 665–666) is happy to note that certain forms from Finnish, Korean, Russian, and Turkish all match the concept despite having additional properties. Thus, the comparative concept DATIVE CASE can be applied to forms in all four (and presumably more) languages without requiring them to show completely identical properties. Up to this point, I fully agree with Haspelmath that the comparative concept under scrutiny is extremely useful. However, I fail to follow him when he writes:

> Note that we can**not** say that the Russian Dative and the Finnish Allative '**instantiate**' the 'dative

> case' concept, because these categories have many **more** properties than are contained in the definition […]. (Haspelmath 2010:666, boldface T.R.)

Thus, Haspelmath seems to imply that the sole way for a category to instantiate a concept is to be fully identical to it, copying each and every property from it (cf. also Dahl 2016:429, 431). Whether this implication is warranted can only be checked by applying explicit definitions of the terms *instantiation*, *category*, and *concept* to the quotation. Alas, the definitions remain largely implicit in Haspelmath's paper. To be sure, he does define explicitly the complex terms ***descriptive*** *category* and ***comparative*** *concept*; however in the lines quoted above he uses the nouns alone and we do not know if the original terms are compositional. In fact, it is not easy to come up with convenient notions of all three terms: neither 'category' nor 'concept' appears to be distinguished routinely and consistently in any discipline, while 'instantiation' is a primitive in Philosophy (McGinn 2012:167)[2] and rarely fully defined in Information science. When it is (e.g. Stock & Stock 2013:557–558), the definition appears too narrow for current purposes in allowing as instances only individual items, here: fragments of real speech events. Note, however,

[2] To be sure, philosophers do discuss, from quite disparate perspectives, what it fundamentally means for particulars to have properties (cf. the rest of the McGinn chapter or Armstrong 2004), but consensus seems to be far away.

that these authors explain 'instantiating a concept' as being an element to which the concept applies, independently of the difference between hyponymy and meronymy (557) and, notably, with instances being capable of having more than one hyponym (558). Against this background I propose the following working definitions:

- category = concept: set of at least one property
- instantiation = a certain relation between two categories A and B (or between a category A and a particular B): iff B has all the properties that A has (i.e. at least one) plus at least one additional property, then B is said to instantiate A.

Some comments are in order. Equating category with concept might seem like begging the question. However, the original motivation for keeping them apart seems to be distinguishing natural kinds from man-made groupings (cf. also Haspelmath 2010:665, 678–680). And I take it that *all* classes are created by humans from the continuous stream of consciousness (cf. also Van der Auwera & Sahoo 2015:137, Moravcsik 2016:418, Rijkhoff 2016:342 citing Locke).[3] To put it bluntly: it is the observer's decision to see, for example, a cat and a fox or, instead, two bird predators (or two mammals, for that matter). If, however, all classes are artificial, then it is pointless to single out the more

[3] A reviewer remarks that this alone "is another reason there can't be universally applicable cross-linguistic categories". As far as I can see, this is a *non-sequitur*.

artificial ones, as Haspelmath (2010:665, 678–680) tries to do by introducing comparative concepts. Moreover, even for that enterprise the term comparative *concepts* might have been a misnomer from the beginning, since the denoted entities are explicitly *not* meant to be psychologically real (665). So when I equate concept with category here I maintain Haspelmath's terminological usage, even if it is infelicitous.

As to the notion of instantiation proposed here, it does not require full identity between the relata (cf. also Van der Auwera & Sahoo 2015:138–139, Moravcsik 2016:418, 420, Lehmann 2018:4) and both the relata may be categories. This flexibility allows for multiple layers of instantiation on different levels of generality, for which examples will follow, e.g. figure 3. On a side note, I take *instantiation* to be synonymous with *taxonomic relationship*, another term used by Haspelmath as well as in the present paper. A taxonomy is then a given network of such relationships.

With these definitions in mind, it appears that certain forms from Russian and Finnish *instantiate* the concept DATIVE CASE: they share all the properties

bundled in the DATIVE CASE concept plus having other properties as well, that is: in spite of instantiating other concepts as well, cf. figure 1.

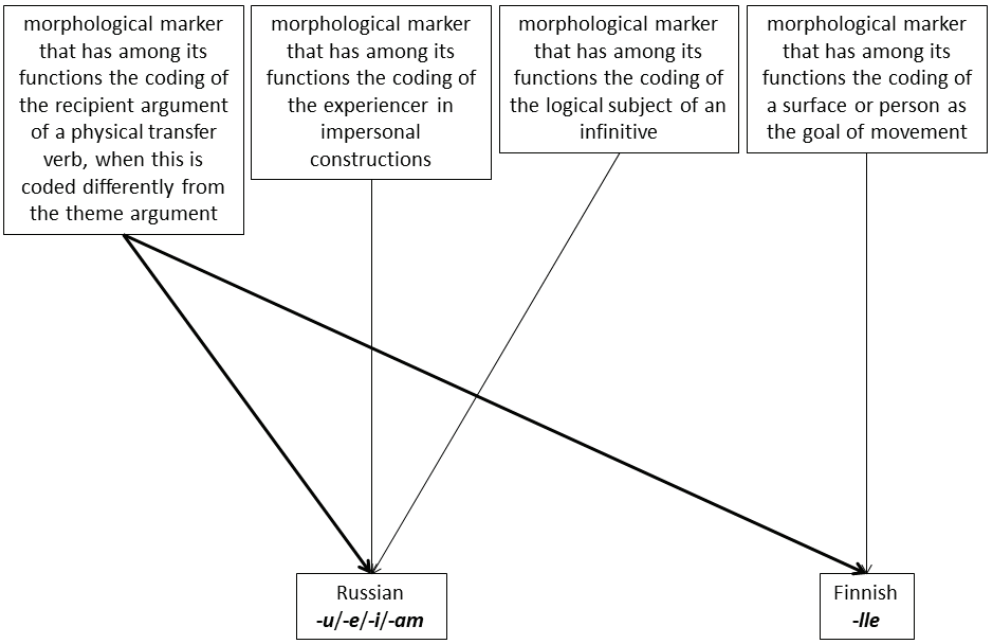

figure 1: instantiation (sources for Russian: Brown & Hippisley 2012:30–33, Wade 1992:86,100–103; source for Finnish: Karlsson 2015:119, 143–144)[4]

[4] Please note that the forms at hand might instantiate further categories, notably less general ones outside of the verbal domain, e.g.: "morphological marker for complements of the preposition *k*" with an arrow to the Russian forms (Wade 1992:417).

More importantly, all text boxes above the bottom level are quasi-citations from Haspelmath (2010a); the same holds for the two following figures.

The same goes for certain forms in Korean and Turkish, i.e. the two other languages that Haspelmath mentions with respect to the comparative concept DATIVE CASE, cf. figure 2.

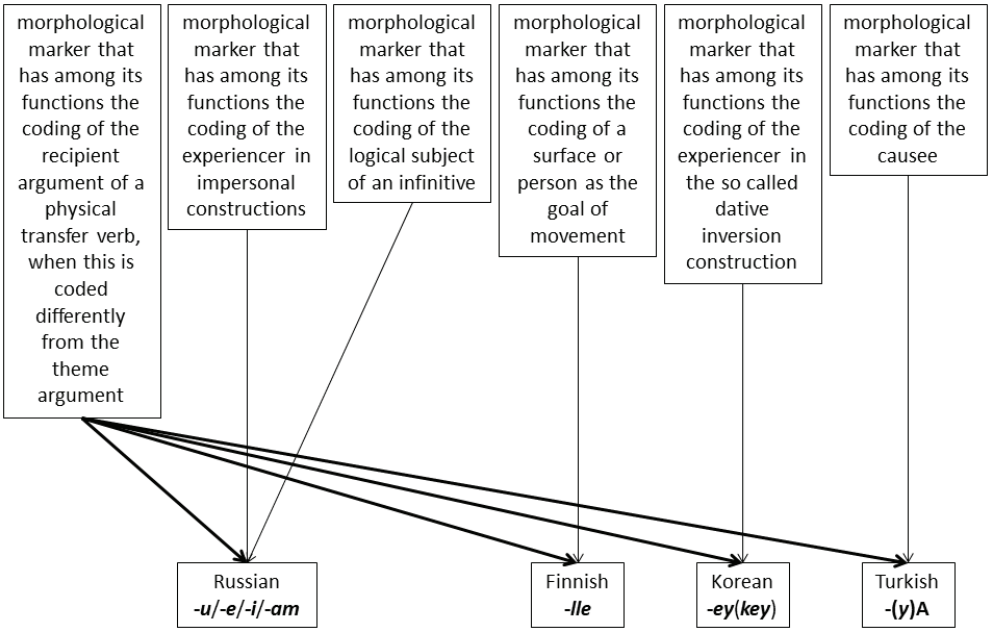

figure 2: instantiation, more languages (sources for Russian and Finnish: cf. figure 1, sources for Korean: Kim 2016:47–49, 72; Lee 1997:25, source for Turkish: Kornfilt 1997:212–213)

The crucial point is that the (comparative) concept does not exclude additional properties at all. Moreover, the hierarchy may be expanded. In the preceding figures, for example, one could add a further level at the top, consisting of a comparative concept ‘morphological marker that has among its function the coding of event participants’. This is done in figure 3.

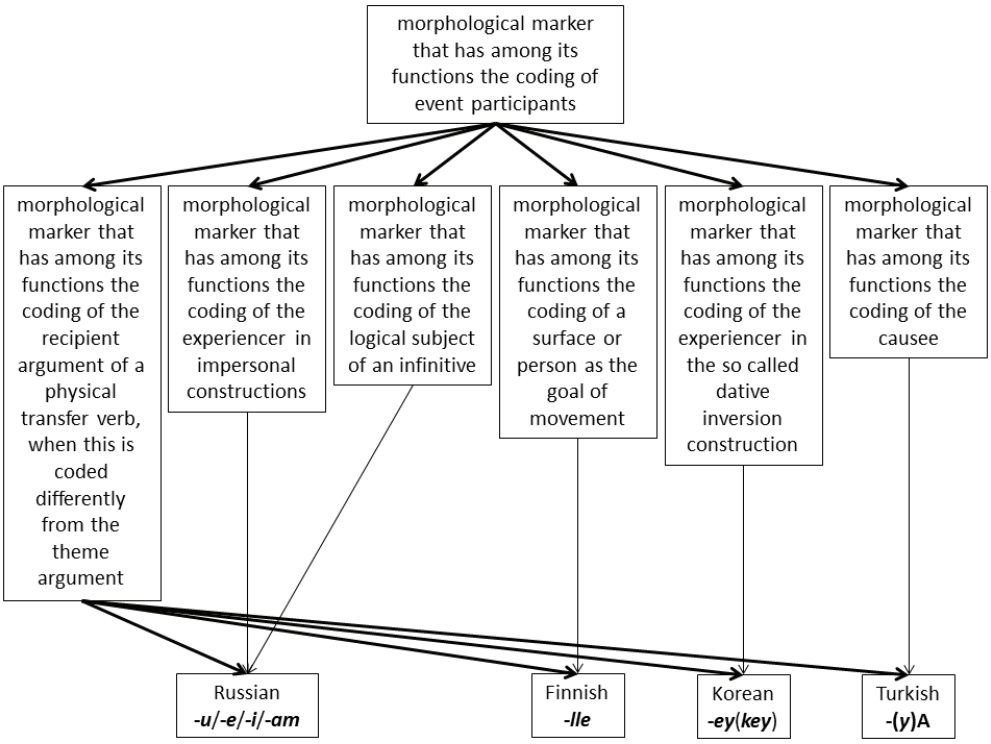

figure 3: figure 2 with one more level

Here it becomes particularly clear that the comparative concept is nothing more than a special category: it is a category since it is a set of at least one property (cf. the definition above), and it is special since it is the one category that happens to get instantiated in *all* lower classes under scrutiny, hence in all descriptive categories under scrutiny. So the comparative concept is not only a category but it is also applicable to more than one language – in other words: it is a crosslinguistic category.[5] Crosslinguistic categories in this sense – examples beyond DATIVE CASE can easily be imagined – are simply

[5] The relation between 'crosslinguistic' and 'universal' will be addressed briefly in section 3.3.1 (last paragraph).

abstractions from descriptive categories. To be sure, as such they are less rich in properties than the original categories.

Please note that even when re-conceptualized as crosslinguistic categories, comparative concepts keep their well-known benefits: picking out a common property like "[…] coding of the recipient […]" does not depend on language-specific criteria and anyone is free to look for common properties in order to check their usability as a comparative concept/crosslinguistic category. Most importantly, re-conceptualizing comparative concepts as crosslinguistic categories solves the most pressing problem associated with Haspelmath's (2010) comparative concepts, i.e. how to compare phenomena in two or more languages if *the tertium comparationis* hardly relates to these languages (cf. also Lander & Arkadiev 2016:404–406, Moravscik 2016:419 (iii), Alfieri this volume, Lieb this volume). Thanks to instantiation, comparison can simply be pictured as a trip through diagrams like figure 3: you go all the way up from a phenomenon in one language to a property shared with at least one other language and then all the way down to a phenomenon in that language.

Certainly, in actual fact matters can become more complicated than in the DATIVE CASE example and I will deal with the complications in section 3.3. My general point here is this: we cannot escape instantiation. And pretending that we could does not save us from serious decisions, as I will demonstrate below with respect to Haspelmath's suggestion for a comparative concept

ERGATIVE CASE. Before, however, Haspelmath's third core argument has to be addressed.

3. The use of comparative concepts is de facto best practice. As support for this argument, Haspelmath (2010:666–668) claims that many researchers have been using comparative concepts successfully for quite some time, as it were *avant la lettre*. His most hands-on examples appear to be the use of IPA symbols and the use of standardized lexical meanings. I will address both examples in turn and try to show that they offer merely weak evidence for claiming that comparative concepts have a latent basis in academic history.

With respect to the IPA symbols, frankly speaking, I do not know which unconscious notion(s) of their true nature might have been hidden in the minds of phoneticians and phonologists for the last few decades – and admittedly Haspelmath's (2010:668) quotations suggest that for some of them the introduction of comparative concepts is indeed a welcome reification of their previously unconscious ideas. However, I will argue that, in fact, comparative concepts in Haspelmath's sense are not at stake here, since, again, there is a relationship of instantiation, this time between what is represented by an IPA symbol and the sound types from single languages. Moreover, I will argue that even if the IPA symbols (more precisely: their contents) could be conceived of as comparative concepts in Haspelmath's sense, nothing would be gained by this shift in perspective.

Consider the example mentioned in section 2.1: laminal realization of Dutch /s/ vs. apical realization of German /s/. Stating that [s] is merely a comparative concept, which is "matched" by the two realizations, amounts to stating that [s] is not instantiated by them. However, it most obviously is: being an [s], i.e. being a voiceless alveolar fricative, is their common property while they differ in the value of an additional feature, which could be called "part of the tongue". The relationships are depicted in figure 4.[6]

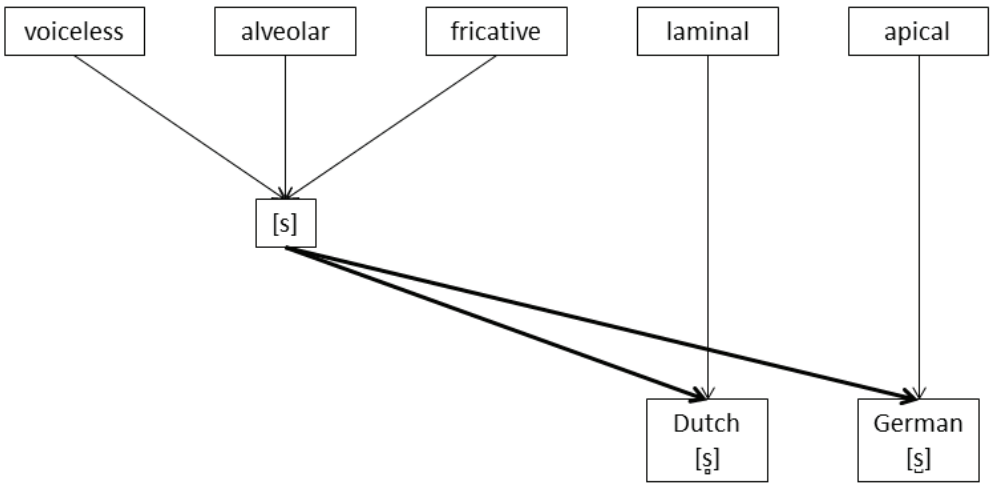

figure 4: phonetic instantiation

Please note that the difference (laminal vs. apical) is still accounted for but judged irrelevant to the question of instantiating the category [s]. Crucially, this does not mean that the difference is irrelevant in *all* respects – to use an example from another domain: there are certainly relevant differences between

[6] For the sake of simplicity I only depict the values, not the features; the latter can be added at an additional level of abstraction, cf. figure 11 and, indirectly, Halle et al. (2000:389).

Chomsky (1957) and Croft (2001), still for library purposes both instantiate the category ‘linguistic monograph’.

Thus, if Haspelmath intends to claim that certain shortcomings of the IPA alphabet (like representing the laminal vs. apical distinction by diacritics only) can be overcome by conceiving of the symbols’ contents as comparative categories then I do not see why the same goal could not be met by using categories and instantiation (as defined above, p. 14).

To be sure, I do not intend to defend those shortcomings. A more general issue that the IPA alphabet has been criticized for is upholding and at the same time blurring the line between phonetics and phonology: on the one hand, the alphabet is declared “phonetic”, on the other hand, there seems to be a tendency that a given bundle of phonetic feature values gets its own symbol only if it aligns with a phoneme in some languages (which ones is another issue, to be discussed below). For example, voiceless, dental plosives do not have a separate symbol. Whatever one’s stance might be on this problem, it will not be solved by calling the old categories by a new name. The only benefit I can imagine is increased awareness for the fact that categories, concepts, and classes of all kind are man-made, lacking default psychological reality (see references above, p. 14). In order to tackle the phonetics/phonology issue, I suggest, again, simply using categories and instantiation. For example, figure 5 depicts the situation in English vs. Maori,

where *all* alveolar plosives are voiceless (Biggs 1961:9).[7] As can be seen, there is just no need for any IPA symbol on the right hand side, that is: no need for what Haspelmath regards as a comparative concept.

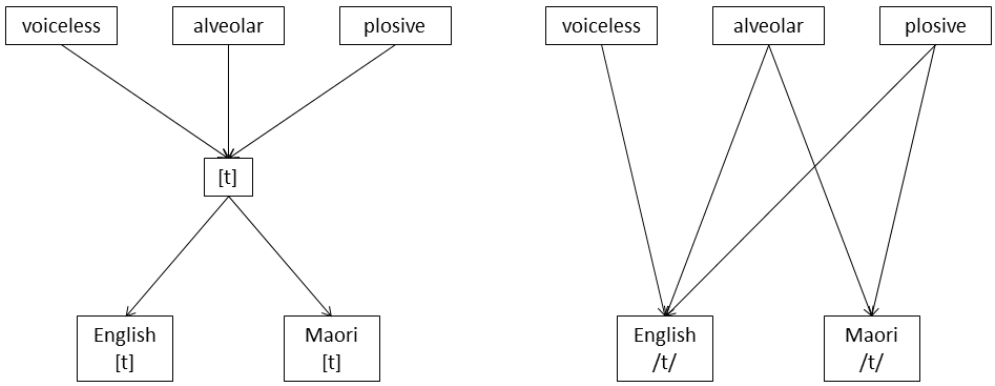

figure 5: phones vs. phonemes

(source for Maori: https://phoible.org/inventories/view/42#tipa)

Something else the IPA alphabet has been criticized for is a certain amount of eurocentrism, connected with the phonetics/phonology issue: if English had a phonological contrast between dental, alveolar and postalveolar plosives, then presumably there would be three symbols (or six with voice contrasts).[8] In fact, pre-stopped nasals, which are phonemic in the Australian Pama-Nyungan language Kaytetye (Koch 2006:170) do not appear at all in the IPA alphabet's

[7] If I understand Biggs correctly, they approximate but do not equal dentals.

[8] Voice is another famous topic in discussions on the representation of phonetics vs. phonology in the IPA alphabet. I assume here that [+ voice] is a genuinely phonetic feature value indeed, no matter if the vibration of the vocal folds holds for the full length of a realization and no matter where it comes from. So, for example the initial sound of English *bowl* would be considered [b] here, although the vibration of the vocal folds is merely the result of an early VOT (voice onset time) of the following vowel.

latest version (2018). And they vanish all the same when the alphabet is conceived of as a set of comparative concepts in Haspelmath's sense. Again, thinking in terms of categories and instantiations instead prompts us to pose the relevant questions: are we happy just knowing that the category of nasals, which is visible in the IPA alphabet, has an instantiation that is not visible there but appears crucial in a certain language? Or should we revise the alphabet?

Incidentally, there is a parallel to the UG argument by Culicover discussed above: working with rather coarse categories is often sufficient but does not require anyone to leave it at that. For instantiation is virtually unbounded towards the lower end and only stops at individual sounds in a speech event.

Following the usage of IPA symbols, Haspelmath's second hands-on example for the use of comparative concepts as best practice is employing standardized meanings in lexical semantics research. Recall the Dutch vs. German example adduced above: 'time of the day that includes noon' would make a good comparative concept, matched by both, Dutch 'middag [12–6 p.m.]' and German 'Mittag [12–3 p.m.]'. However, again, merely assessing a "match" misses the fact that both notions are instantiations of the more general one, cf. figure 6.

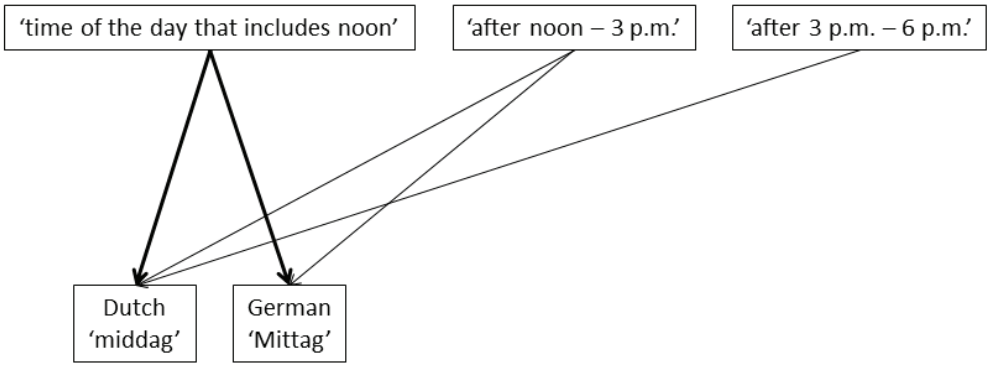

figure 6: lexical instantiation

To be sure, if one is not interested in the two additional general categories visualized at the top on the right then it is not necessary to depict them and, more importantly, instead of the general category 'time of the day that includes noon' any other common property could be chosen as well, e.g. 'times of the day that are culturally associated with breaks' or 'times of the day that are culturally associated with eating', possibly each with different subcategories. Thus, reconceptualizing comparative concepts as categories with instantiations preserves their flexibility.

To take an example from large scale typological research, the WALS chapter *Hand and arm* (Brown 2013) distinguishes the following types of languages:

- identity: there is a single word in the language that denotes both 'hand' and 'arm' (whether or not there are specialized words too)

- differentiation: one word in the language denotes 'hand' and another, different word denotes 'arm' (there is no comprehensive word)

In the running text of the chapter, Brown gives various examples from languages around the world and assigns each language to one of the two values:

- identity
    - Czech: *ruka* 'hand', 'arm'
    - Gurma (Niger-Congo, Burkina Faso)[9]: *nu* 'hand', 'arm'
    - Lonwolwol (Oceanic, Vanuatu): *va:* 'hand', 'arm'
    - Kadazan (Austronesian, Borneo): *hongon* 'hand', 'forearm', 'arm'
    - Bambara (Mande, Mali):
        - *bolo* 'hand', 'arm'
        - *tègè* 'hand', 'palm', 'foot'
    - Jicarilla Apache (Athabaskan, New Mexico):
        - *gan* 'hand', 'arm'
        - *l-lá* 'hand'

[9] I was not able to verify this piece of language information, since the WALS gives as ISO code 639-3 grm, which cannot be found on https://glottolog.org/.

        - *ganí* ‘arm’

    - Semai (Mon-Khmer, Malay Peninsula):

        - *tek* ‘hand’, ‘arm’

        - *kengrit* ‘arm’

- differentiation

    - English:

        - *hand*

        - *arm*

    - Ngawun (Pama-Nyungan, Australia):

        - *marl* ‘hand’

        - *palkal* ‘arm’

    - Chai (Nilo-Saharan, Ethiopia):

        - *síyó* ‘hand’

        - *múní* ‘forearm’

        - *yíró* ‘upper arm’

- Indonesian:
    - *tangan* ‘hand’, ‘forearm’
    - *lengan* ‘arm’

Let’s try to picture these examples as instantiations of the two values, viewing the latter as categories (Brown himself uses neither of the terms *category* or *concept*). Please note the additional complication that this means grouping not only phenomena, but also languages. The result can be found on the next page, figure 7. It is worth mentioning that the top-level categories on the left are *not* categories lexicalized in English, so I am not imposing English lexical categories onto other languages.

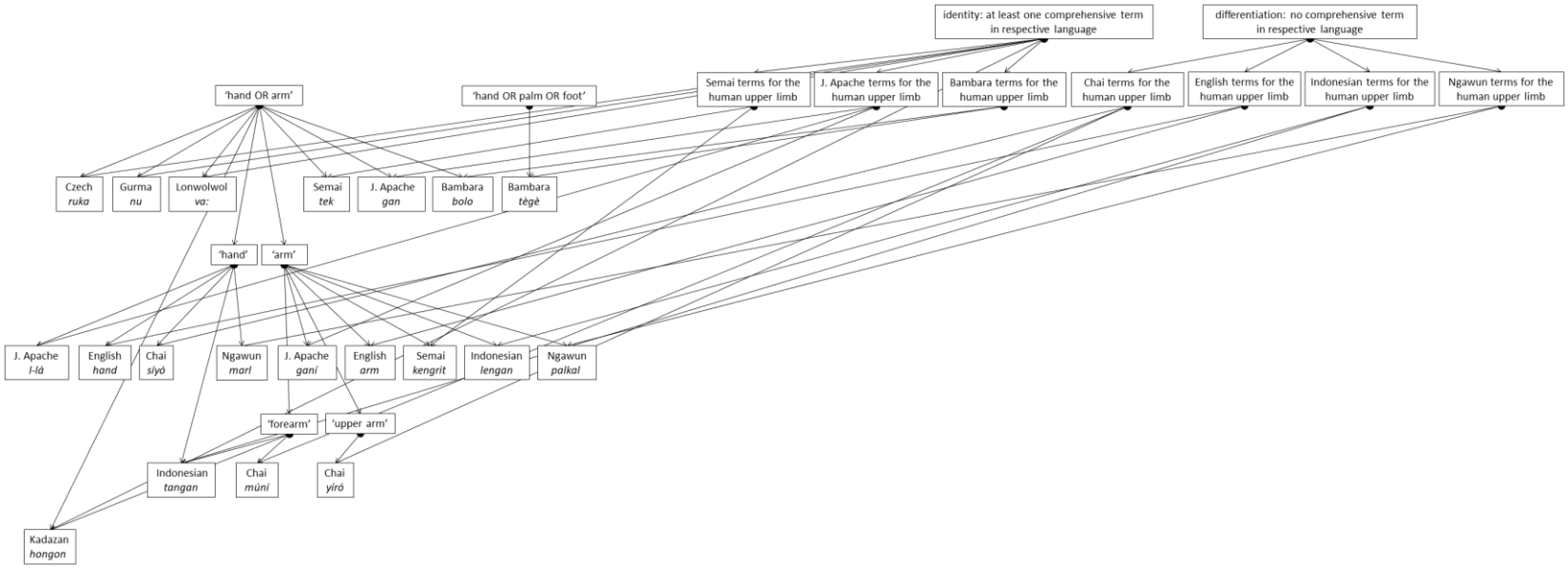

figure 7: lexical instantiation, more languages (source: Brown 2013)[10]

[10] In contrast to the preceding figures, here the beginnings of arrows are marked by dots in order to indicate whether a given arrow starts at a box or just happens to run through it.

Thus, even seemingly messy lexical data may be captured by categories and instantiation. In particular, the aim of the WALS to group languages and not just phenomena actually calls for a combination of broad categories and successive refinements – free-floating comparative concepts just won't do.

As a side note, the preceding remarks on lexical semantics might be brought closer to the paragraphs on phonetics/phonology by adopting an approach based on feature-like universal semantic building blocks, i.e. Natural Semantic Metalanguage (e.g. Goddard & Wierzbicka 2002, for a critique cf. Riemer 2006).

To sum up my review of Haspelmath's third core argument, the use of comparative concepts as best practice: if this is best practice indeed, it is so unjustifiably. This concludes the discussion of Haspelmath's core arguments, none of which was able to convince me. Next is an investigation of his suggestions for concrete comparative concepts.

2.2.2 Haspelmath's suggestions for concrete comparative concepts

Of Haspelmath's seven suggestions for concrete comparative concepts I would like to discuss three: ADJECTIVE, FUTURE TENSE, and ERGATIVE CASE.

1. ADJECTIVE. As a definition of the term *adjective*, Haspelmath suggests the following comparative concept:

> An adjective is a lexeme that denotes a descriptive property and that can be used to narrow the reference of a noun. (Haspelmath 2010:670)

The design of this concept is motivated by the well-known observation that lexemes denoting properties and capable of narrowing down a noun's reference (rather, denotation) are an interesting set for typological generalizations but do not cohere as a distributional class in every language. One of the clearest examples appears to be Eastern Ojibwa (Algonquian, Eastern Canada/United States), which Haspelmath (2010:670) alludes to via a reference to Dryer (2005 ≙ Dryer 2013):

(1) n-ginooz (Dryer 2013)[11]

1SG-tall

'I am tall.'

(2) n-nagam (Dryer 2013)

1SG-sing

'I am singing.'

[11] Abbreviations in the present paper that were adopted from WALS glosses: NOM = nominative, REL = relative, SG = singular. Furthermore, Dryer treats *ginooz* in (1) and *gnoozi* in (3) as identical, so I assume that the difference is merely phonological.

(3) nini e-gnoozi-d (Dryer 2013)

man REL-tall-3SG

'a tall man'

(4) nini e-ngamo-d (Dryer 2013)

man REL-sing-3SG

'a man who is singing'

Thus, *ginooz*/*gnoozi* matches the comparative concept ADJECTIVE without being any different from verbs on the level of single language distributional patterns. Please note that this match is only possible because the comparative concept does not require the lexeme to accomplish the noun-modifying function all by itself (cf. the relativizer in (3)). Thus, strictly speaking, the English lexeme *exceed* likewise matches the comparative concept ADJECTIVE, although it is classified as a verb within the system of English – an outcome that certainly would not surprise Haspelmath. Coming back to Eastern Ojibwa and taking stock: the language does not have adjectives and yet it does have elements like *ginooz*/*gnoozi* that match the comparative concept ADJECTIVE. Both assertions can be true at the same time (always provided that we can indeed tell what the basic meaning of an element is as well as its function in context, recall Quine's 1960 *gavagai* example). All of that said, however, I do not see why "matches the comparative concept" is any better than "instantiates

the category": the double classification of *ginooz*/*gnoozi* or *exceed* can be captured in both ways (cf. figure 11 in 3.3).

Moreover, there is a more specific problem. As argued above, the Eastern Ojibwa example works out only thanks to a quite liberal interpretation of the comparative concept's wording: the lexeme under scrutiny is allowed to require extra measures for fulfilling the noun-modifying function. This move is in line with the WALS chapter Haspelmath refers to:

> […]: a word is treated as an adjective, regardless of its word class in the language, as long as it denotes a descriptive property. The map also ignores the question of whether the adjectives are modifying nouns directly or whether they are the predicate of a relative clause which is modifying the noun. (Dryer 2005:354–355, same in Dryer 2013).

Such a move, however, has unwelcome consequences: if we allow relativization as an extra measure, we have to allow other extra measures as well (assuming that there are no good reasons to privilege relativization). For example, also English *beauty* – which Haspelmath (2010:670) wants to exclude – matches the comparative concept ADJECTIVE for the simple reason that together with *of* it can modify a noun (*women of beauty*). So this is the

slippery slope that Hengeveld (e.g., 1992:58) has at least implicitly been warning against for a long time. To be fair, the problem specifically concerns Haspelmath's wording of the comparative concept ADJECTIVE, not comparative concepts as such.

2. FUTURE TENSE. As a definition of the term *future tense*, Haspelmath suggests the following comparative concept:

> A future tense is a grammatical marker associated with the verb that has future time reference as one prominent meaning. (Haspelmath 2010:671)

And he writes further:

> […], the Spanish Future tense […] is also used to express probability, but not habituality […], while the Lezgian Future tense […] is also used to express habituality, but not probability […]. […] **they cannot be 'the same category' in any sense**. (ibid., boldface T.R.)

This wording is revealing and I take the opportunity to repeat my main point: most certainly there is a sense in which they are the same category, viz. both

instantiate the abstract category encompassed by the comparative concept, cf. figure 8.

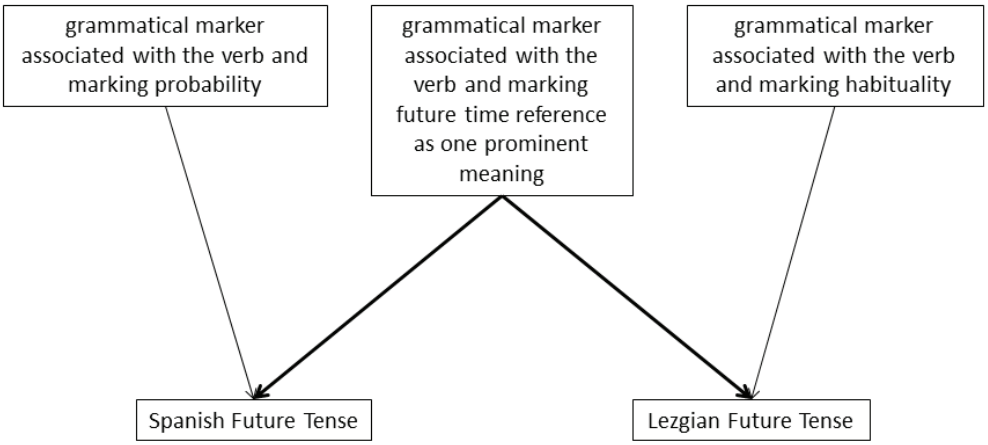

figure 8: instantiation, Future Tenses[12]

The relations might become even clearer when another kind of visualization is used; cf. the intersecting sets in figure 9.

[12] I adopt the convention of capitalizing the names of single language categories in this figure in order adhere to Haspelmath's example as closely as possible.

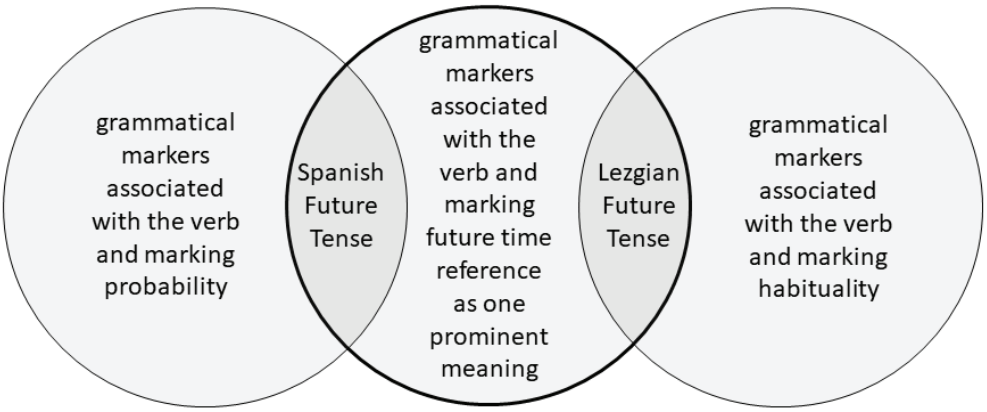

figure 9: instantiations, visualized as intersections

Please note that figure 8 and figure 9 are equivalent: the fact that the two sets depicted to the left and right in figure 9 include but are not limited to their common property is enough for saying that they both instantiate the category consisting of this property (cf. the definitions introduced in section 2.2.1, p. 14).

3. ERGATIVE CASE. As a definition of the term *ergative case*, Haspelmath suggests the following comparative concept:

> An ergative case is a morphological marker that has among its functions the coding of the agent of typical transitive clauses, when this is coded differently from the single argument of intransitive clauses. (Haspelmath 2010:673)

And he writes further:

> […] the definition [is] neutral with respect to the competing analyses of split ergative systems: Dixon's, according to which languages like Dyirbal have an ergative-absolutive case system coexisting with a nominative-absolutive case system (in the 1st and 2nd person pronouns), and Goddard's (1982), according to which such languages have a tripartite ('ergative-accusative-nominative') system. On the latter analysis, 'Ergative' has a different meaning as a descriptive category, but the comparative concept [is] not affected. (ibid.)

True, the comparative concept is not affected. Yet at the same time it is far from neutral with respect to the two analyses, as I intend to show in the rest of this section. Let's have a closer look at the meaning of the term *ergative* as a descriptive category on the latter analysis, i.e. Goddard's (1982). Goddard writes:

> […] for most of them [= Australian languages] we should recognise three core cases – a case of the transitive subject (A), a case of the transitive object (O), and a case of the intransitive subject

> (S) or citation – and I propose to call these cases respectively ergative, accusative and nominative. (Goddard 1981:169)

Crucially, Goddard adduces two criteria for the nominative without taking into account that these may yield different extensions of the nominative and, indirectly, also of the ergative. For example, this is the case in the Yankunytjatjara dialect of Western Desert, which Goddard discusses extensively. Consider the system of Yankunytjatjara case endings in table 1.

	common nouns	proper nouns, kin names	pronouns, anaphoric
A	*-ngku*	*-lu*	ø
S	ø	*-nya*	ø
O	ø	*-nya*	*-nya*

table 1: Yankunytjatjara case endings, vowel final stems (Goddard 1982:179, shading T.R.)[13]

If the criterion for nominative is being a marker of S, then the dark shaded cell hosts a nominative and accordingly the light shaded cell hosts an ergative (the criterion of marking A is fulfilled). Applying this criterion is consistent with the gloss in Goddard's (1982:181) example (26), although there the gloss is chosen for reasons of agreement. The example is rendered below as (5) with emphasis added.

[13] For a more comprehensive account of Yankunytjatjara case endings cf. Goddard (1985:25).

(5) Wati-ngku/**tjana** nguḻu-ngku pu-ngu.
man-ERG/**3PL(-ERG)** afraid-ERG hit-PAST[14]

'The man/**They** hit (it) in fear.'

The descriptive category ergative in this sense does not match the comparative concept ERGATIVE CASE, since the former is the same for the single argument of intransitive clauses as regards anaphoric pronouns (cf. table 1).

If, however, the criterion for nominative is being in citation form (which I take to be the zero-marked form), then both, the dark and the light shaded cells in table 1 must host a nominative. Applying this criterion is consistent with the gloss in Goddard's (1982:181) example (27), although, again, there the gloss is chosen for reasons of agreement. The example is rendered below as (6) with emphasis added.

(6) Wati/**tjana** nguḻu wala-ri-ngu.
man(-NOM)/**3PL(-NOM)** afraid(-NOM) run.away-INCHO-PAST

'The man/**they** ran away in fear.'

In this case, there is no descriptive category ergative that could match the comparative concept ERGATIVE CASE. The descriptive category nominative

[14] Abbreviations in the present paper that were adopted from Goddard (1982): ERG = ergative, INCHO = inchoative, NOM = nominative, PL = plural.

does not match either (which, in principle, it could), since it codes both, the agent of transitive clauses and the single argument of intransitive clauses.

Thus, on both versions of Goddard's analysis, Yankunytjatjara A-/S-markings for anaphoric pronouns do not stand a chance of matching the comparative concept ERGATIVE CASE. Yankunytjatjara A-/S-markings for common nouns, though, do match it (cf. table 1). This overall situation might be considered desirable by many; however it shows that the comparative concept draws exactly the same line as Dixon's well-known analysis does. So, contra Haspelmath's claim (2010:673), it is *not* neutral, hence fares no better than the crosslinguistic category it is supposed to replace. Please note that in order to make this point I did not even have to refer to instantiation.

To conclude, Haspelmath's suggestions for concrete comparative concepts reveal difficulties too. That is, on the whole, neither these nor the core arguments have convinced me of using comparative concepts as special tools, different from crosslinguistic categories. What are the alternatives?

Excursus

Before presenting any alternative, however, I would like to add a comment on Haspelmath (2018b), which is to date his newest contribution to the discussion about comparative concepts (apart from Haspelmath this volume). Here he gives some new arguments in favour of using comparative concepts as special

tools. If I understood the essence of his article correctly, the new arguments can be rendered by the following simile: the relation between a comparative concept and a given phenomenon is like the relation between a yardstick and the object being measured – the two things are qualitatively different from each other and the former has been invented only to show a property of the latter (cf. especially p. 88, also cf. Haspelmath this volume). However, recall a comparative concept like DATIVE CASE: "a morphological marker that has among its functions the coding of the recipient argument of a physical transfer verb […], when this is coded differently from the theme argument" (Haspelmath 2010:666, small caps T.R.). As far as I can see, this is less like the yardstick and much more like the property. To be sure, being a dative (i.e. instantiating DATIVE CASE) in Russian is different from being a dative in Turkish – like being an entity of 100 m height in the mountains is different from being an entity of 100 m height in the lowlands. Still, both are datives and both are entities of 100 m height. And we will not get an idea of height variation in the world by generalizing about yardsticks.

A more vital new argument, however, is hidden in this general picture and revealed in a core section of the paper (Haspelmath 2018b:94–97). Every descriptive category is defined distributionally, while no comparative concept can be defined in this way. Rather, a comparative concept is defined by its substantive properties. Thus, descriptive categories and comparative concepts may happen to overlap *extensionally* but they can never be the same

intensionally – they are ontologically different, as Haspelmath has emphasized more than once. Does this finally convince Moravcsik, Lehmann, and many others, including the author of the present paper? I think, it does not and I will show why in the rest of this excursus.

Things get a bit complicated here, since in actual practice, language-specific descriptive categories are rarely pure distributional classes. It is well known that they often have an additional substantive component, especially when we are dealing with part of speech categories. Let's take as a purer example three potential classes of Hawaiian expressions: those that in actual use more often follow the element *ua* than they follow the element *ka*, those with the opposite preference, and those with no preference (Elbert & Pukui 1979, Weber 2019). If, for example, the members of the *ua*-class can independently be shown to denote events and, at the same time, denoting (non-reified) events is what defines our comparative concept VERB, then the *ua*-class and the comparative concept *share a property* – regardless of how the two sets have come into being. Importantly, the comparative concept does not have any other properties besides the shared one whereas the *ua*-class does have such properties. So the former is instantiated by the latter according to the definitions introduced above (section 2.2.1, p. 14). More generally, and independently from any peculiarities of the Hawaiian example: [15]

[15] E.g., does the premise „If […] the members of the *ua*-class can independently be shown to denote events" hold?

ontologically different objects can share properties and thus entertain a relationship of instantiation. As Lieb (this volume) aptly puts it: "the difference […] is methodological not ontological".

3 An alternative: monotonic, multiple inheritance

3.1 Background

Strictly speaking, the preceding figures already embody an alternative to the use of comparative concepts, and to be fair, this alternative has been anticipated by Haspelmath:

> Every linguistic category would instantiate a multiplicity of more abstract 'comparative categories', and a 'comparative category' could be instantiated multiple times in a single language. With such rampant many-to-many relationships, a taxonomic conceptualization, while logically possible, only obscures matters. Comparative concepts are simply a different kind of general notion from linguistic categories. (Haspelmath 2010:680)

Against this background and recalling that the quotation's last sentence was shown to be false in section 2.2.1, p. 13, my task here is to show that,

generally, a taxonomic conceptualization does not obscure matters. In fact, it is apt for neat formalization.

3.2 Blueprint

The knowledgeable reader might have noticed that the preceding figures display not just any kind of instantiation, but monotonic, multiple inheritance (Daelemans et al 1992:208). Inheritance is a certain kind of structure, which can best be described by one of the ways to create it (Daelemans et al 1992, Kaplan 2003:88): from different categories (and particulars, if any) sets of common properties are extracted and represented as categories in their own right; if the new categories, too, share some properties, these are again extracted, yielding a new layer etc. Thus a hierarchy unfolds in which every category is a node – called *daughter* in relation to any node where its non-exclusive properties have been stored and *mother* in relation to any node whose properties (at least one of them) it stores. The metaphor is that properties are "inherited" as traits from mothers to daughters and accordingly the hierarchies are usually drawn in such a way that properties are transferred in downward direction. Particulars, finally, can be daughters, but not mothers and the highest mother is called *root*. Now that inheritance has been defined, also the two qualifications – monotonic and multiple – require a brief definition. *Monotonic* means: feature values are passed down from mother nodes to daughter nodes without the possibility of overwriting; *multiple*

means: a daughter node may have more than one mother node (and it is not excluded that there is more than one root). I chose this combination for the following reason: only in the case of monotonic inheritance it seems to be clear that one can speak of instantiation; but then, without overwriting, the only way to map diversity appears to be multiple inheritance (cf., for instance, the dative example in figure 3). There are two problems with this choice. First, any particular hierarchy has to be designed in such a way that it will not involve any conflict of feature values. To take a simple example, once more going back to figure 3, it would not be a good idea to let a daughter node inherit from both, one mother node "morphological marker that has among its functions the coding of the recipient […] but not the coding of the causee" and another one "morphological marker that has among its functions the coding of the causee". This is different when overwriting is an option, since in that case one of the feature values may be cancelled (although there are different ways to decide which one, cf. Daelemans et al 1992:209 *et passim*). Second, diagrams can become quite large, cf. the lexical example in figure 7. I embrace both problems, assuming that these are merely matters of practical diligence.

Inheritance hierarchies of various kinds have been used for decades in both computational linguistics and general linguistics, e.g. in HPSG (Kaplan 2003:88) or, in a sense, also in phonological feature geometry (Clements 1985), which in turn inspired applications to pronominal features (Harley & Ritter 2002). A relatively recent example is Network Morphology (NM,

Brown & Hippisley 2012). The authors employ *non*-monotonic, multiple inheritance and I borrow their introductory example from Russian noun morphology as a blueprint for designing hierarchies. In fact, the blueprint has already been applied implicitly in the preceding figures (except figure 9) and will be applied in a more general way in section 3.3. Please note that the original example had to be modified in order to involve monotonic inheritance only.

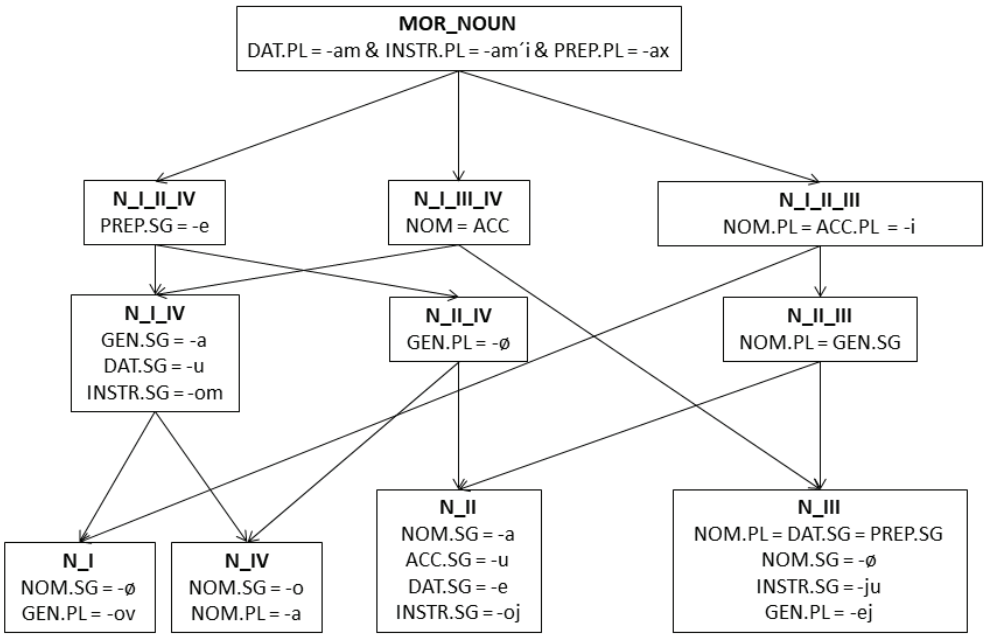

figure 10: Russian noun morphology (adapted from Brown & Hippisley 2012:30–33)

This hierarchy is meant to capture the forms given in table 2.

	class I	class II	class III	class IV
singular				
NOMINATIVE	*zakon*	*kart-a*	*rukop´is´*	*bolot-o*
ACCUSATIVE	*zakon*	*kart-u*	*rukop´is´*	*bolot-o*
GENITIVE	*zakon-a*	*kart-i*	*rukop´is´-i*	*bolot-a*
DATIVE	*zakon-u*	*kart-e*	*rukop´is´-i*	*bolot-u*
INSTRUMENTAL	*zakon-om*	*kart-oj*	*rukop´is´-ju*	*bolot-om*
PREPOSITIONAL	*zakon-e*	*kart-e*	*rukop´is´-i*	*bolot-e*
plural				
NOMINATIVE	*zakon-i*	*kart-i*	*rukop´is´-i*	*bolot-a*
ACCUSATIVE	*zakon-i*	*kart-i*	*rukop´is´-i*	*bolot-a*
GENITIVE	*zakon-ov*	*kart*	*rukop´is´-ej*	*bolot*
DATIVE	*zakon-am*	*kart-am*	*rukop´is´-am*	*bolot-am*
INSTRUMENTAL	*zakon-am´i*	*kart-am´i*	*rukop´is´-am´i*	*bolot-am´i*
PREPOSITIONAL	*zakon-ax*	*kart-ax*	*rukop´is´-ax*	*bolot-ax*

table 2: Russian noun morphology (source: Brown & Hippisley 2012:30)

= forms to be captured by figure 10

I conceive of figure 10 as a blueprint for designing hierarchies because it embodies all the important characteristics of monotonic, multiple inheritance very clearly (despite involving just one language):

- Common properties are combined into classes so that they do not have to be stated more often than necessary. Accordingly, only the lowest level is fully specified.
- A given item on the lowest level may share some properties with one sister node and others with another sister node. For example, N_I shares the genitive, dative, and instrumental singular with N_IV, but the nominative and accusative plural with N_II and N_III.
- All of the nodes instantiate the top-most category: they are all nominal inflections (“MOR_NOUN” in NM-style). This even holds

for quite abstract categories like NOM = ACC (read: all nominal inflections that are the same in both cases).

- The hierarchy would look different if we were not interested in inflectional classes but in, e.g., overt vs. covert marking, syncretisms as such, or exclusively cases.

These are exactly the characteristics we saw in figure 1 to figure 8 (section 2.2), i.e. from datives to futures, and we will see them again within a broader context in section 3.3. To be sure, the original purpose of figure 10 is capturing the information in table 2. If one wishes to check whether this purpose is fulfilled, the easiest way is to play a game: try to reproduce the table by using only and all the boxes in the figure. Please note that it is not even necessary to employ the combined headlines (e.g. N_I_II_IV), since these are merely mnemonic, repeating information from the branching structure. For example, the category of nominal inflections with the prepositional singular in *-e* eventually splits in three classes with certain additional properties and the category of nominal inflections with nominative-accusative syncretism also eventually splits in three classes, two of which are identical to two of the aforementioned classes. Put differently: for each category at the bottom, one can follow the arrows in the opposite direction and "collect" the category's properties. Besides, if in the process one starts wondering how the category "GEN.PL = ∅" can possibly inherit from the category "PREP.SG = -e", the answer is simple: the category of

nominal inflections that has a zero-marked genitive plural is a subset of the category of nominal inflections that has a prepositional singular in *-e*.

Incidentally, branching structures like in figure 10 are one way to motivate the name *Network* Morphology. Another one is orthogonality, which I will address briefly in the following section (3.3). The primary function of that section, however, is going one step beyond the blueprint's previous use in the present paper (figure 1 to figure 8 in section 2.2): I intend to exploit it for a more general framework of categories and relate these to patterns or rules. In the process we will meet again two of the crosslinguistic examples discussed in section 2.2, i.e. the role of IPA symbols and the term *adjective*.

3.3 Implementation

Anyone who criticizes an established notion and suggests an alternative is obliged to show that the alternative does not only do better in some respect but also preserves the advantages of the original. I attempted to do so in the preceding paragraphs; however, there is a (planned) implementation of Haspelmath's comparative concepts, which I have been ignoring up to now: a huge "Grammaticon" compiled from comparative concepts (Haspelmath 2018a, last sentence). Such a framework could be used as a general reference for language comparison; thus it would be extremely valuable for typologists. Is something similar conceivable for crosslinguistic categories, using the blueprint from Network Morphology?

I claim that it is; figure 11 on the following page presents a first draft, which will be explained in detail below. Please note that of the examples discussed in section 2.2.2 (dative case, adjective, future, and ergative case) only adjective could be included for reasons laid out in section 3.3.2. However, I added one of the examples addressed in section 2.2.1: the use of IPA symbols.

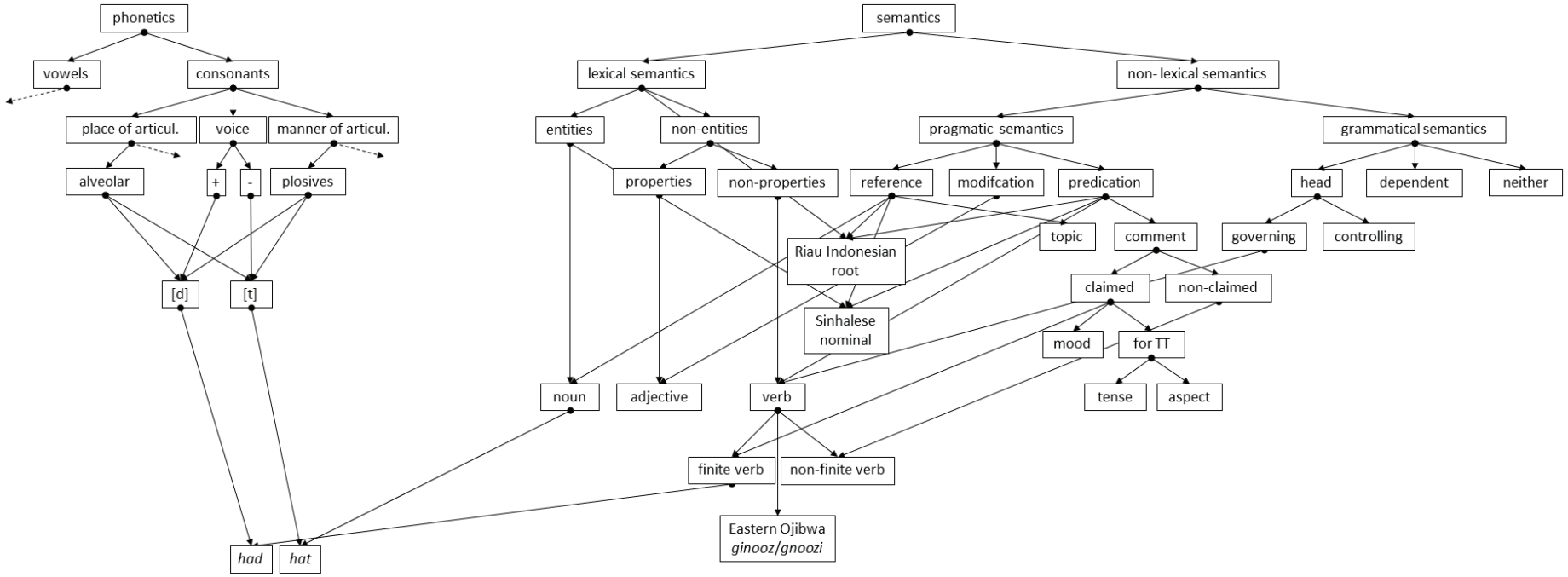

figure 11: crosslinguistic categories in an inheritance hierarchy (with monotonic, multiple inheritance)[16]

[16] The manner of presentation is the same as in figure 7 (cf. footnote 10). As to the voicing of plosives in English: in word-final position, too, vocal fold vibration is restricted; however, for present purposes it is only required that there is some of it (cf. footnote 8). Abbreviations: TT = topic time in the sense of Klein 1994.

3.3.1 A guided tour through figure 11

At the top, there are two roots, phonetics and semantics, which is plausible if we think that language is about relating sounds and meaning (it will be addressed in section 3.3.2 where phonology, morphology, and syntax are). The phonetics node immediately splits into the categories of the IPA alphabet, some of which are plotted here. Generally, not all necessary branches have been depicted in the diagram for reasons of space. Where it seemed reasonable, their absence was indicated by a dashed arrow.

It is via individual items like the minimal pair *had* vs. *hat*, which is given here as an example, that the phonetics tree is connected to the semantics tree. The semantics root at the top splits into lexical and non-lexical semantics. Obviously this only works for those linguists who believe in such a split. I do (Reiner 2014) and, perhaps surprisingly, Haspelmath at the very least does not embrace continuous categories/concepts either:

> In order to express universal claims in an explicit and readily testable way, one needs **discrete** comparative concepts […]. Appeal to gradience or prototypicality often has a useful heuristic role, […], but in the end, the big picture has to be dissolved into fine-grained **discrete**

> comparative concepts. (Haspelmath 2010:697, boldface T.R., also cf. Haspelmath this volume)

Lexical semantics, in turn, splits into two kinds of lexical concepts, i.e. entities and non-entities with the latter being divided in properties and non-properties. So the last node reads 'category of non-entities that are at the same time non-properties', also known as events.[17] Certainly, the precise structure depends on one's favourite ontology in this domain (cf., e.g., Zaefferer 2007:204–205) and I am not committed to the one chosen here.

The different kinds of lexical concepts hand down their properties to three part of speech categories (noun, adjective, verb); however the latter also inherit from the other subtree of semantics, i.e. from non-lexical semantics. Non-lexical semantics splits into pragmatic and grammatical semantics – again a division that not everybody would subscribe to. I presuppose it here.

Pragmatic semantics is divided into reference, modification, and predication, more precisely: *potential for* reference, modification, and predication. The respective properties are then transferred to the part of speech categories, which we first met on our tour down the lexical semantics branch. For example, according to figure 11 a noun is something that expresses an entity concept and has the potential for referring (without further measures being

[17] In the broad sense including states, which are different from properties in that they concern *having* a property.

taken, cf. Hengeveld 1992:58). In principle, this could be a string of sounds as well as a gesture or a pictogram. Only when there is a connection to the phonetics tree via individual items (cf. *hat* above) it has to be a string of sounds. Furthermore, I suggest splitting predication in a way that is explained in detail in Reiner (2019:303–307). The interested reader is referred to that publication, whereas here it seems sufficient to note that the node "(comment) claimed" is used to characterize a subcategory of verb, i.e. finite verb.

Before treating the more concrete examples (Riau Indonesian root, Sinhalese Noun, and Eastern Ojibwa *ginooz*/*gnoozi*), the rightmost subtree, i.e. grammatical semantics, has to be addressed briefly. It splits into several well-known categories, i.e. head vs. dependent, with the former in turn splitting into government and control. These categories are considered semantic here, since they involve abstract meanings instead of material units and their arrangement (very much in line with classical Cognitive Linguistics thinking). Crucially, the only part of speech category that inherits from this subtree is verb: it is here defined as something that *always* governs (not excluding that additionally it *is* governed), while nouns and adjectives are permitted more flexibility.

What is also flexible is the integration of single languages' part-of-speech categories into the hierarchy, as will be shown in the following paragraphs. In principle even a full Hengeveldian approach (e.g., Hengeveld 2013:32–37) could be translated into inheritance hierarchies with multiple, monotonic

inheritance. One of the reasons I refrain from doing so here is an issue with adverbs to be addressed in section 3.3.2.

The part of speech categories in figure 11 give the impression of being rather narrow. So how can we accommodate broader part of speech classes? Certainly, the most famous (potential) example for a language without even a noun-verb distinction is Riau Indonesian (Gil 2013 and much previous work by the same author). Assuming that Gil is right, the Riau Indonesian root can be integrated into the hierarchy quite easily: the respective node is *not* a daughter of any part of speech category but inherits directly from lexical semantics as well as from reference and predication. Note that inheriting from entities as well as from events (*non*-entities & non-properties) is not an option, since this would generate a contradiction and overwriting is not possible given monotonic inheritance. In any case, there is no contradiction involved in inheriting from both the nodes "reference" and "predication", since the two terms are, as mentioned earlier, meant as short forms of *potential for reference* and *potential for predication*. Presumably, also a line from "modification" could be drawn; however for the time being it does not appear in the figure since I am not an expert in Riau Indonesian and the pertaining literature concentrates heavily on the noun-verb distinction (which makes sense considering the hierarchy in Hengeveld 2013:35).

In this sense, the Riau Indonesian root is precategorial in the sense of Van Lier & Rijkhoff (2013:5–6). There is much more to say about this line of research, rooted in the tradition of Hengeveld (1992), and one issue appears to be particularly important in the context of the present paper. Approaches such as Hengeveld's (1992) – or more recently Rijkhoff's (2016) – that start from pragmatic categories like reference, modification, and predication have been famously criticized for ignoring shifts in root meaning (Croft 2001:67–75). According to Croft, the meaning of a root in context and the pragmatic function it has in that context do not combine freely: entity meaning in reference function, property meaning in modification function, and event meaning in predication function.[18] If this is right, then, admittedly, the correlation is not shown in figure 11. A way to integrate it would be the following: remove the arrow from "governing" to "verb", so that the three part of speech categories represent exactly the correlation that Croft has in mind; then move the node "Riau Indonesian root" (deleting all arrows pointing to it originally) below the part of speech categories and let it inherit from all of *them* at the same time.

[18] When, elsewhere, Croft (2005:438) speaks of a merely prototypical mapping he takes into account the fact that there are in total three dimensions: root meanings in the lexicon map onto root meanings in context prototypically, while the absolute relation is between the latter and pragmatic functions. Schematically:

root meanings in the lexicon - - - root meanings in context — pragmatic functions

One reason for doubting Croft's correlation, however, is the existence of so called zero copula constructions, i.e. entity expressions independently functioning as predications. An example from Sinhalese (Indo-Aryan, Sri Lanka) is given in (7).

(7) unnæhee **huňgak prəsidə kene-k** (Gair 1970:45)[19]

he very famous person-NOM

'He is/was a very famous person.'

It seems hard to believe that the nominal as such does not mean 'famous person' (entitiy) in the context at hand but 'being a famous person' (non-entity). Ultimately, though, the identification of meanings and speech act potentials without the help of overt linguistic markers remains a matter of careful empirical work; so I do not take a stance on this issue here. In any case, (7) provides another example for what can be modelled by monotonic, multiple inheritance: if the meaning does not shift, the node "Sinhalese nominal" inherits from the nodes "entity" and "predication"; if it does shift, the node "Sinhalese nominal" inherits from "(non-entities &) non-properties" (= events) and "predication". The former version is shown in Figure 11 (in addition to an arrow from "reference").

[19] Glossing and translation from Stassen (2013).

Conversely, there seems to be no reason to suspect that Eastern Ojibwa *ginooz*/*gnoozi*, as discussed in section 2.2.2, undergoes a shift in meaning. The data snippet presented there is consistent with the (presumably most simple) assumption that *ginooz*/*gnoozi* just means 'being tall'. That is, the lexeme as such denotes a state, not a property. So it does not inherit from "properties" in figure 11, but only from "verbs" (assuming that it always governs). This classification is at variance with the one implied by Haspelmath (cf. section 2.2.2), although his comparative concept ADJECTIVE seems equivalent to the crosslinguistic category adjective according to figure 11: something that expresses a property concept and has the potential for modifying. How can that be? The reason is that the equivalence is only superficial: I do not adopt the liberal reading according to which the element under scrutiny may qualify as a match/instance by help of another element. Thus, Eastern Ojibwa verbs stay verbs in the approach advocated here. That is: in this case, using crosslinguistic categories and instantiation appears to involve less "levelling down" of language diversity than using comparative concepts and matching. However, this is not due to the nature of comparative concepts but just to Haspelmath's way of dealing with one specific comparative concept.

Considering all the nodes in figure 11, they are abstractions from their daughter nodes (mostly *not* shown in the figure) and in this sense they represent categories that are applicable to their daughters, e.g.: noun is applicable to English *hat*. Roughly speaking, the higher a node, the greater the

plausibility that the category is universally applicable (e.g. place of articulation, entity meaning, or headhood if the latter is considered sufficiently general). Whether it is indeed, remains an empirical question: the hierarchy as a tool neither tags any level as universal nor does it prevent us from splitting categories until they are particulars. What it does is providing the possibility of membership in a category without the members having to share all their properties – thus solving the classical problem presented by Gross (1979:859–860). When tackling the empirical question of universal applicability, anyone has to decide for themselves if trivial applicability (where applying a category c to a language L might come down to stating that L *does not have* c) is enough or not. Crucially, universally applicable nodes in both senses would qualify as comparative concepts à la Haspelmath (2010), except that they are now nicely integrated into a hierarchy.

3.3.2 Beyond figure 11

The hierarchy in figure 11 provides an inventory of categories. Presumably, however, every linguist wants to have further categories at his/her disposal and some of them are hard to capture in the hierarchy. For example, if adverb is defined differently from adjective as 'dependent of verb with a non-entity meaning and modifying potential' then there is a problem in depicting the dependent-of relation within the hierarchy. Certainly the node "dependent" could split into various "dependent-of" daughters, among them "dependent of

verb". But, strictly speaking, at this position the information on what constitutes a verb is not available. Thus, some categories have to be derived from the hierarchy as a whole and in this sense they are second order categories. Another, more complex example would be: 'dependent of [dependent of verb with entity-meaning and referring potential], specifying the entity as carrier of semantic role x'[20] = case (in a broad sense including particles). In the long run, even more complex categories could be designed in this way, for example a version of Role and Reference Grammar's general notion 'privileged syntactic argument' (Van Valin & LaPolla 1997:274–285, Van Valin 2005:94–101), which seems to be a good candidate for replacing 'subject' but figures only rarely in pertinent discussions (e.g., Haspelmath 2018b:96–97).

So there is phonetics and semantics, providing first order categories and in addition there are second order categories. But what about phonology, morphology, and syntax? Not even pragmatics proper is covered by figure 11, since only speech act *potentials* are involved. In fact, all of these missing levels of description have something in common: they are not mere inventories of categories but they comprise *things to do with categories*. For example, phonology takes as input minimal pairs from the hierarchy and extracts

[20] Semantic roles could be included in figure 11 somewhere below the entities node. So they would be part of lexical semantics, which might seem odd but is in accordance with the definitions of lexical and non-lexical semantics adopted in this paper.

phonemes from them, which may then form morae, syllables, and foots. Syntax, understood as a superset of ordering restrictions, arranges categories from the inventories (or instances of those categories). Like different phonemes, certain ordering differences cause a change in meaning without actually carrying meaning. Morphology is more difficult to accommodate since its traditional definition hinges on a universal notion of word, which has proven much more elusive than the notions discussed in the present paper (Haspelmath 2011). It seems to me that nowadays theorists, in particular proponents of autonomous morphology, understand morphology as the totality of phenomena that can only be reasonably described by reference to paradigms, for example the so-called L- and N-patterns in Romance (Maiden 2009). In this view, morphology is about relating categories and subcategories, i.e. features and their values, to one another. These relations might differ from language to language, e.g.:

tense – past/present/future
– past/non-past
– …

case – nominative/accusative/dative
– absolutive/ergative/dative
…

Thus, morphology, too, belongs to those levels of description that capture things to do with categories. The same is true, and more obviously so, for pragmatics proper: it describes how speakers (inter-)act by using nouns, verbs and so on.

As an interim summary, monotonic, multiple inheritance directly or indirectly supplies the categories within phonetics and semantics, while all other levels of description (phonology, syntax, morphology, pragmatics) account for what can be done with those categories. This is similar to but different from the solution adopted in Network Morphology, i.e. orthogonality. Orthogonality means that every level of description (lexicon, morphology, syntax) receives its own hierarchy and the hierarchies are connected by default associations (Brown & Hippisley 2012:36–37). Nodes, at least morphological ones, can be conceived of as rules (p. 34). A full comparison of the two approaches is beyond the scope of this paper; however their relationship had to be mentioned.

With respect to my approach as a whole, two questions remain to be answered. First, is this pretty? Second, are description and explanation kept apart? The first question is more serious than it appears to be since I set out to show that monotonic, multiple inheritance does not obscure matters. Still, what appears to be lucid remains, to a certain extent, a matter of personal taste and intended applications. Consider, for example, intricate HPSG analyses or gigantic

WordNets, both of which may look cluttered to the human eye but are perfectly machine-readable. The second question, however, is as serious as it sounds. In particular, Haspelmath has repeatedly emphasized that description and explanation have to be kept apart (e.g. 2008:93). I respond: in a strict sense, they *cannot* be kept apart. Every (crosslinguistic) category and every (comparative) concept comprises not only its instances/matches that have been witnessed so far but also all its other possible instances/matches (this is why we create them). Hence, every category that is integrated into a taxonomy and also every concept that entertains any relation with other concepts comes with an inbuilt prediction: all its instances/matches that have not been witnessed so far can occupy the same position in the taxonomy or entertain the same relations with other concepts, respectively. As far as prediction counts as explanation (to be sure, boring top-down explanation), there is explanation in any description using crosslinguistic categories or comparative concepts.

4 Conclusion and outlook

The present contribution scrutinized Haspelmath's notion of comparative concepts and offered an alternative view. In a nutshell: on closer consideration, comparative concepts in Haspelmath's sense do not exist. Rather what have been called comparative concepts *are* crosslinguistic categories, participating in taxonomies just like any other category.

The taxonomies presented here were inheritance hierarchies with multiple, monotonic inheritance. So the next step would be using this tool to model the whole range of variation found within one category in a given language sample.

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