

Geographic Grounding
Place, direction and landscape in the grammars of the world

30-31 May 2016
University of Copenhagen

Abstracts

Keynotes

Complementarity between meronymy and frame of reference use in Diidxa Za: perspectives from an endangered language

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Monday 30 May, 9:00-10:00

Diidxa Za readily uses body part-derived meronyms to refer to object parts. This has been described for a number of Mesoamerican languages. The analysis of Ayoquesco Zapotec (MacLaury 1989) and Tseltal Maya (Levinson 1994) raise questions about the processes that enable the semantic extension of body part terms to name object parts, whether metaphor- or algorithm-based, their level of productivity and the requirements for source to target domain mapping.

This presentation will offer a detailed analysis of the meronymic system of Diidxa Za following a Structure Mapping Theory (Gentner 1983, Gentner & Markman 1997, Gentner et al. 2001, inter alia) to show that the different degrees of productivity of body part-derived meronyms correspond to the three types of comparisons proposed by the theory: literal similarity, analogy and abstraction. This approach suggests that the proposals in MacLaury (1989) and Levinson (1994) are not incompatible but rather correspond to different points in a continuum of comparison types. This explains a problematic mismatch between properties of the source and target domains raised in Levinson (1994) about the role of metaphor in meronym assignment.

Further, this approach elucidates the complementarity between meronymy and frames of reference (FoR) use. In describing the location of a Figure in relation to a Ground, Diidxa Za speakers strongly disprefer the relative FoR (Pérez Báez 2011). Yet, in cases of abstraction and greater productivity of body part-derived meronyms the relative FoR becomes critical: the assignment of meronyms to objects of simple geometry such as a ball or a cube depends upon the relative FoR.

This study is placed in the context of the relevance of linguistic diversity for the advancement of a scientific understanding of the human language faculty. Diidxa Za is spoken in 22 municipalities of the Isthmus of Tehuantepec, Oaxaca, Mexico but only in one are children speaking it. Reflections will be offered about the contributions made by Diidxa Za and a diversity of languages to the study of spatial language and cognition over the last four decades and the loss of opportunities that would result from understudied endangered languages going silent.

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- MacLaury, R. E. 1989. Zapotec body-part locatives: prototypes and metaphoric extensions. *International Journal of American Linguistics* 55-2, 119–154.
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**Icelandic and Faroese orientation systems compared with the Greenlandic:
absolute or relative?**

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Tuesday 31 May, 9:00-10:00

Orientation systems found around the North Atlantic Rim – those of Greenland, Iceland and the Faroe islands – have much in common, although two quite unrelated language families are involved. This has more to do with comparable geographical situations than with mutual influence. Thus it is not by chance that the Norse settlers of Greenland distinguished a ‘western settlement’ from an ‘eastern settlement’ where the former actually lies due north of the latter. The actual orientation of North-South-East-West terms also varies around the coasts of Greenland. Perhaps most noteworthy, however, is the fact that all three regions display ‘absolute’ systems that function differently (though in a predictable manner) at different spatial scales, ranging from the individual house and its surroundings, via specific stretches of coast, up to the cardinal, celestially based frame applying to the whole country. The same terms are often used at all levels, disambiguated by context. The broadest scale is typically used out at sea and the narrower ones on land. There are of course also differences between the systems of the three regions, reflecting their different cultural and technological backgrounds, methods of navigation, and the geographical alignment of their convoluted coastlines – in the case of the Faroes further complicated by the mesh of waterways separating the individual islands. There is a diachronic aspect discernible too in the development from earlier to later historical stages. It is argued that the distinctions of scale are more relevant than the difference between ‘absolute’ and ‘relative’ frames of reference, since in all three regions the basic orientation parameters combine traits of both types.

Landscape and the language sciences

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Tuesday 31 May, 13:00-14:00

In recent years, landscape has become an increasingly significant target of study for the language sciences. Its spatial fundamentality and universal yet variable nature triggers a range of essential linguistic questions. How do languages select geographic objects to be labeled? Are there universal categories? What's the relationship between common and proper nouns? Which are the ontological principles of landscape categories? How and why do categorial strategies vary across languages and speakers? Landscape also creates a number of connections between the language sciences and other disciplines with a longer tradition of interest in the domain, such as geography, anthropology, archaeology, philosophy, and environmental psychology. In this talk I will discuss the linguistic landscape agenda of recent years and assess its potential for the language sciences and for interdisciplinary collaboration. I will make particular reference to work carried out in LACOLA, an ERC-funded project concerned with landscape categorization across a number of lesser-known speech communities.

Session abstracts (alphabetical order)

Direction and landscape in language and rituals:

Location conjugation in Acazulco Otomí

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If a language marks direction or associated motion in its verbal morphology, its speakers can be expected to monitor locational aspects of events routinely for communication purposes. Such grammaticalized reference to place is known from e.g. Cavineña (Bolivia, Guillaume 2000), Arrernte (Australia, Wilkins 2006) and the Otopamean family (Mexico, Hernández-Green *fc*). In Acazulco Otomí, spoken in the mountains west of Mexico City, verbal proclitics indicate translocative (1) and cislocative (2) motion, while other proclitics indicate vertical level for 3rd-person subjects:

(1) *d=ár=jǒ=ga=mbé*

1=IPFV.TRL=walk=1=PL.EXCL

‘We walk (in another direction).’

(2) *'a xǒntho ba=pǒxa ba=jǒ*

LOC mountain IPFV.CSL=ascend IPFV.CSL=walk

‘They ascend the mountain (toward us), they walk (toward us).’

The relationship between verb conjugation, lexicon and Frames of Reference (FoR) was investigated through space games (Man & Tree, Levinson et al. 1992) and narratives of pilgrimages and processions. For the director-matcher tasks, speakers relied on a geocentric FoR, employing two crossing axes: *'a rígwani-'a ríthót'i* (uphill-downhill) and *'a xǒntho-'a mbatǔdi* (‘at mountain’-‘where pines stand’). Using the environment as anchor also for microscale location predications could thus reinforce the awareness of position in landscape needed for verbal conjugation. Moreover, these distinctions play a structuring role in the lexicon, which offers several pairs of verbs differing only in direction toward/away from speakers or uphill/downhill, e.g.: *ndǒ'ts'e* (‘look uphill’), *hě't'i* (‘look downhill’), *tsǒni* (‘arrive uphill’), *tsǒt'i* (‘arrive downhill’). This ubiquitous linguistic pointing to position and movement may be motivated and sustained by the community’s collective ritual practices. All year round, the inhabitants walk together in processions and multiday pilgrimages through landscapes with large altitudes differences

(1700-3400 m.a.s.l.) and distinct climates. A host of shared activities (praying, eating, sleeping, bathing etc.) thus have travelling as recurring backdrop, supporting the relevance of reference to place and direction in Acazulco Otomí.

Guillaume, A. 2000. Directionals versus associated motions in Cavineña. In A. Melby & A. Lommel (eds.), *Proceedings of LACUS Forum XXVI: The lexicon, Edmonton (Alberta, Canada), August, 3-7*, 395-401.

Hernández-Green, N. Forthcoming. Movimiento asociado en otopame. Memorias del VII Congreso de Idiomas Indígenas de Latinoamérica, University of Texas in Austin.

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Anticipated Paths in Fictive Motion in Caac (Oceanic language, New Caledonia)

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In Oceanic languages, spatial terms based on some salient landmarks present in the environment of the speakers often play a major role in spatial reference, and Caac, an endangered language of New Caledonia, is no exception. The location, orientation or motion of an entity on both small and large-scales is most frequently expressed in Caac by two sets of directionals: (i) three absolute directionals: *da* ‘upward/inland/windward’, *de* ‘downward/seaward/leeward’, (*z*)*in* ‘transverse’, and (ii) five deictic directionals which specify the absolute direction in addition to the movement away or towards the deictic centre.

As English speakers, Caac speakers can make use of directionals to refer to a static scene where no actual motion takes place: (1) *E-ra da*. ‘They (the children) are upwards [inland]’ (be.at-3PL upwards). This strategy – labelled *Access paths* by Talmy (1996, 2000) – enables the speakers to identify the location of a particular entity (the Figure) by expressing the potential path the addressee could take to find the entity in question.

However, Caac speakers can alternatively describe the same spatial configuration by using the opposite absolute directional (here, *de* ‘downward’) in combination with a centripetal directional (= *ve* ‘CENTRIP.down’): (2) *E-ra de=ve*. ‘They are upwards [inland] (literally, down [seaward] towards here).’ In this case, the location of the Figure is inferred from the imaginary trajectory that the Figure can follow to reach the speech participants (called here Anticipated/Return paths).

It has been argued that Fictive Motion reflects a general “cognitive bias towards dynamism” (Talmy, 1996:270, Matlock, 2004), i.e. a tendency for our mind to treat static phenomena in terms of dynamic representations. In this paper, I will examine the use of directionals in Anticipated Path descriptions and discuss the possible motivations, i.e. external (e.g. culture) and internal (e.g. cognition), for such a representation of a static scene.

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- Talmy, Leonard. 2000. *Towards a Cognitive Semantics*. Vol.1. Cambridge, MA: MIT Press.
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Expressing Relative and Absolute [ALIGNMENT] in Traditional aṣ-Šāniʿ Arabic

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Spatial Frames of Reference (FoRs) are conceptual and semantic coordinate systems (Intrinsic, Relative, Absolute) used to establish projective relations between an object to be located (Figure, F) and the reference object (Ground, G). In Traditional aṣ-Šāniʿ Arabic (TAA) – North Western Arabic, nomadic Ḥijāzi – all three FoRs are used for small-scale location, selected according to a domain-related and culture-based ontology of Gs. Intrinsic and Relative FoRs are used only for the Front/Back Axis: Intrinsic FoR is restricted to mobile, shaped objects of the traditional life (horse, dog, tent, coffee pot); Relative FoR is applied by Translation, with unshaped Gs, when G, F and Observer (O) are in [ALIGNMENT]: ‘F min G wjāy’, ‘F (is) from G and coming (toward O)’ means ‘F is closer to G than O’; ‘F min G wġād’, ‘F is from G and on the farther side (with respect to O)’, means ‘F is farther from O than G’. Absolute FoR – anchored on cardinal directions (CaDs), north šimāl, east šarg, south giblih and west ġarb – always replaces Right/Left and both Front/Back and Right/Left of unfamiliar Gs. CaDs are highly grammaticalized, showing a prepositional morpheme (-íy, F šargíy G, ‘F (is) east of G’) and path-encoding verbs (šarrag ‘to go east’). Nominal forms (used also adverbially) have different origins: šarg/ġarb are verbal nouns (the rising/setting of the sun), šimāl/giblih are place names. CaDs manifest in two types of locative expressions: 1. ‘F šargíy G’, 2. ‘F min G wšarg’, both meaning ‘F (is) east of G’. In fact, 1. contains no information about the position of O, while 2. entails [ALIGNMENT] among G-F-O. The construction F min G w+adverb expresses G-F-O’s [ALIGNMENT] both in Relative and Absolute FoRs. Grammatical distinctions based on G-F-O’s [ALIGNMENT] are found in other South Semitic languages.

Language and place in Komnzo

Christian Döhler

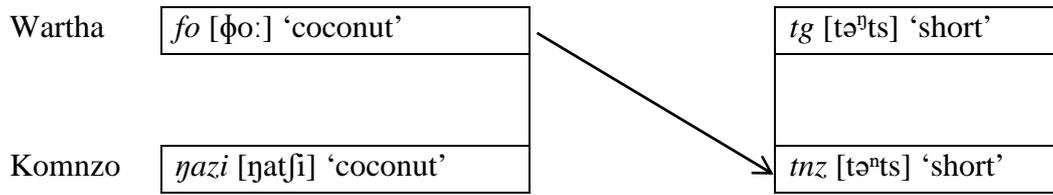
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Komnzo is a language spoken in the Morehead District in Papua New Guinea by around 200 people. Until recently, the Southern New Guinea area has received very little scientific attention. This paper offers an ethnophysiographic case study of Komnzo. I will describe and analyse the factors at work in the conceptualisation of landscape. These are geographical, socio-cultural and mythological. Below I give a short introduction to the deictic system, landscape terminology and double-language place names.

Komnzo has a four-way distinction in its deictic system: proximal, medial, distal and ignorative. While such systems are quite common cross-linguistically, for example in English (*here, there, yonder, where*) or Japanese (*kō, sō, ā, dō*), Komnzo seems to be special in the number of constructions sensitive to these categories. There are adverbial demonstratives (in neutral, allative and ablative case), demonstrative pronouns, demonstrative verbal proclitics and special demonstrative-copula-constructions. Additionally, there are directional verbal affixes. Thus, the amount of deictic reference in daily discourse is remarkably high.

Komnzo landscape terminology conceptualises small geographic details. These are of high practical importance during the annual cycle as large parts of the land are inundated by rising water during the wet season. The basic distinction is between *tōna* ‘high ground’ and *zra* ‘swamp’. The former is that part of the land which is virtually never covered by water, whereas the latter refers to stagnant pools of water which dry up only during the height of the dry season. Beyond this two-fold distinction there is a host of specialised terms which encode vegetation type, elevation and human or animal interaction.

The cultural importance of locality in the Morehead district has been addressed by ethnographers in the past, for example by FE Williams (1936) and Mary Ayres (1983), who have described the system of sister-exchange between people of different places. This system results in quasi-linguistic exogamy fostering a high level of multilingualism. In my own fieldwork I found that this cultural feature has had an effect on place names. Many place names are composed of words from two languages. The basic principle of double-language names is shown below with the place name *fofnz* ‘short coconut’, which can be parsed as one word from Wartha (*fō*) and one word from Komnzo (*fnz*).



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Williams, F. E. 1936. *Papuans of the Trans-Fly*. Oxford: Clarendon Press.

Preposition names. An endangered system of place-names

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In the 16th and 17th centuries, it was quite common in Denmark to use preposition names as *På Bakken* ‘On the Hill’, and *På Hjørnet* ‘On the Corner’ for farms and houses. This type of place-names can be traced in the islands of Læsø and Bornholm and in other areas dominated by single farm settlement.

Preposition names are rare in Denmark today; the name-type only survives in street names and very few farm names. This is caused by the names’ structure not fitting the more common type of place-names in Denmark consisting of a generic element which states what kind of location it denotes, i.e. *Holt* ‘small wood’ and *Vestergård* ‘Western Farm’, and the fact that they are difficult to identify in the written sources where it is seldom obvious if a preposition belongs to a name or not.

The preposition names are unusual by only describing the surroundings of the denoted place, and not saying anything about what kind of location it refers to. Thus, most of the names found in the 16th and 17th centuries have changed during the 18th century into common place-name types, i.e. *På Bakken* ‘On the Hill’ > *Bakkensgård* ‘The Farm of the Hill’, and *På Hjørnet* ‘On the Corner’ > *Hjørnet* ‘The Corner’. These changes in the names must be seen as a result of standardization caused by an increased use of farm names by the authorities, i.e. for mapping or to list taxation. It seems that the preposition names are only suitable for use in a limited context such as the local community, and not in a wider context, such as for people outside of the community.

Absolute spatial cognition without Absolute spatial language

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Australian languages are famed for having complex and frequently-used Absolute (or geocentric) directional terms, calculated with respect to axes anchored in the landscape. Exceptionally, however, the non-Pama-Nyungan language Murrinhpatha furnishes its speakers with only Intrinsic terminology, in the absence of either Absolute or Relative (egocentric) terms. This paper considers how Murrinhpatha speakers communicate about locations and directions in the absence of ternary spatial terminology. It also explores how Murrinhpatha speakers solve linguistic and non-linguistic experimental tasks which force participants to attend to Absolute or Relative cues.

In more natural communicative settings, Murrinhpatha speakers are found to rely heavily upon gesture to add directional information to non-oriented deictic expressions (Blythe et al., forthcoming). In more specialized problem-solving tasks, we find that Murrinhpatha speakers in aggregate favour Absolute solutions, while also drawing on the Relative frame of reference (in proportions not unlike those documented for speakers of so-called ‘Absolute languages’ such as Tzeltal; Majid et al. 2004: 110). In other words, Absolute cognition does not depend on Absolute language. Further light is shed by the qualitative analysis of language use in tasks such as the ‘Man and Tree’ (Pedersen et al. 1998). Here, Murrinhpatha speakers are shown to coerce Intrinsic spatial terminology and landmark terms into ‘quasi-Absolute’, ‘quasi-Relative’, and even ‘quasi-Intrinsic’ uses. These findings help elucidate the complex interrelationships between language, culture and cognition. Moreover, they may even offer a window on the origins and development of Absolute and Relative frame of reference terminology.

Blythe, Joe, Kinngirri Carmelita Mardigan, Mawurt Ernest Perdjert & Hywel Stoakes. Forthcoming. Pointing out directions in a “directionless” language. *Open Linguistics*.

Majid, Asifa, Melissa Bowerman, Sotaro Kita, Daniel Haun & Stephen Levinson. 2004. Can Language Restructure Cognition? The Case for Space. *Trends in Cognitive Sciences* 8.3: 108–114.

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Adaptation or non-adaptation of location markers as strategies for colonial settlement

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The world has seen a large number of migrations over the centuries. Some of these are what may be termed colonial settlements – i.e. settlement in a territory under the immediate control of a state or sovereign, distinct from the home territory of the state/sovereign. This paper will focus on colonial settlement through time and look at how changed mental perspectives have affected the incoming explorers and settlers' attitudes to location markers and location marking. When and under which circumstances did they take up existing indigenous location markers – and possibly reusing them in a different context – and when and why did they invent their own location markers. An example of the former is the country name *Canada*, which is originally a Saint-Lawrence Iroquoian word *kanata*, meaning “settlement, village”, whereas *Derby* in England is an example of the latter. Here the Scandinavian-origin location marker has superseded an indigenous Old English *Norðwordige*.

The areas investigated in this paper includes the Viking-Age colonies in the British Isles, the early settlement of North America, the time of discovery and settlement of Australia and 19th-20th century settlement in Greenland. These areas have been carefully chosen so as to cover periods with different historical mindsets, such as the early historical period, the renaissance, the enlightenment period and the modern period.

Part of the paper will also be exploring a model for Acquisition or non-acquisition of location markers, in order to establish a theoretical framework for this research field. The model will show how location marking strategies can be applied to locations with greatly varying results and how this may change existing perception of landscape.

Semantic parameters and geomorphic frames of reference in Kalasha

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In the Indo-Aryan language Kalasha, spoken by 4000 people in three narrow valleys in the Hindu Kush mountain range in Northwest Pakistan, three adverbial strategies are used to express location: object-centered (*the ball is in front of the chair*), geomorphic (*the ball is upstream from the chair*) and deictic (*the ball is here/there*) (O'Meara & Pérez Báez 2011: 7; Heegård Petersen 2006: 177–187, 2015: 49–52). This paper zooms in on the geomorphic strategy, i.e. location in relation to the stream of the river and in relation to the inclination of the mountain side.

Location in relation to the river is expressed by a set of three bound morphemes, *wě* 'upstream', *prě-* 'downstream' and *payran* 'across-stream'. Location in relation to the inclination of the mountain side is expressed by two free morphemes, *buchum* 'uphill' and *ondru* 'downhill'. For location across a mountain ridge, i.e., out of sight, a location verb *bihoṭik* is used: *se bihoṭai parau* 'he went over the mountain' (3SG + 'cross over.PTC' + 'went.PST.3S'). (There is no separate adverb that denotes location *along* the mountain (i.e., horizontally), instead, the river is used as a reference.) Thus, these adverbs express semantics that emphasize location or motion along an up-down-across axis. Similar contrasts are found in the set of the deictic adverbs (*and-* 'here', *at-* 'there' vs. *anden-* 'across a barrier from here' and *aleṭ-* 'across a barrier from there'), and the relational adverbs (*thar-* 'up, on', *no-* 'down, under', *tad-* 'to something's or someone's side').

The use of the verb *bihoṭa-* has the connotations that someone or something is (far) away, or beyond reach, and thus not to be located with determinacy, in contrast to actually being reachable on the mountain slope, which implies that the location of someone is determinable. The semantics of determinacy is also expressed by derivations of the river adverbs, for example, *wěa* 'far (away) upstream' vs. *wěhak* 'a little upstream'. Furthermore, it is also encompassed by a contrast expressed by the deictic adverbs, *aya* 'exactly here' vs. *andai* 'somewhere around here'.

Semantic contrasts with respect to crossing vs not crossing and with respect to 'determinacy' are also found elsewhere in the lexicon and grammar of Kalasha. For example, 'carry' verbs distinguish between carrying something across a barrier or not, and determinacy, or certainty, is the decisive, overall semantic parameter for uses of the local suffixes on nouns.

The paper will give examples that support the relevance of these spatial semantic parameters, and it will discuss to what extent we can speak of over-arching semantic parameters, or ‘semplates’, following Burenhult & Levinson (2009).

Burenhult, N. & S.C. Levinson. 2009. Semplates: A new concept in lexical semantics? *Language* 85: 153–174.

Heegård Petersen, Jan. 2006. Local case-marking in Kalasha. University of Copenhagen, PhD thesis.

O’Meara, C. & G. Pérez Báez. 2011. Spatial frames of reference in Mesoamerican languages. *Language Sciences* 33(6): 837–852.

Direction Metaphors in English

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Geographical direction is a scientific reality, but human perception varies. One strand of the *Cognitive Toponymy* Research Network (2014-2016) explores ways in which place-names reflect the ‘mental compass’ used by individual speech communities to orientate themselves in space. Building on this, the present paper draws on another project, *Mapping Metaphor with the Historical Thesaurus* (2012-2015), which has produced a freely-available, interactive online Map of metaphor throughout the history of the English language.

This presentation will demonstrate the online resource, and offer an analysis of direction metaphors. The Map divides semantic space into 415 categories, organised under the three main Thesaurus sections of the External World, Mental World and Social World. Category 1L07 ‘Direction’ has metaphorical links with 38 other semantic categories in Old English, and over 70 in later English. In many instances, it is the source category, as with 1I13 ‘Hearing and Noise’ (*up*; metaphor instantiated from Old English). In others, it is the target category, as with 1E08 ‘Reptiles’ (*serpentine, snake*; metaphor instantiated from 17th century). Some links are bidirectional, as with 1L07 ‘Hell’ (*nether, hellward*; metaphor instantiated from Old English). As with these examples, more than a third of all links are with other categories in the External World. Also numerous are links with categories in the Mental World, as with 2A05 ‘Psychology’ (*extrovert, introverted*) and 2E03 ‘Willingness and Desire’ (*backward(s), forward*). Fewer but still well-represented are links with categories in the Social World, as with 3D01 ‘Command and Control’ (*direction, well-guided*) and 3F05 ‘Moral Evil’ (*obliquely, tortuousness*).

Some direction metaphors contribute to well-known conceptual metaphors such as LANDSCAPE IS A BODY, LIFE IS A JOURNEY and TIME IS SPACE. Others were previously unrecognised.

Cognitive Toponymy: <http://cogtop.org/>

Historical Thesaurus of English: <http://historicalthesaurus.arts.gla.ac.uk/>

Mapping Metaphor with the Historical Thesaurus:

<http://mappingmetaphor.arts.gla.ac.uk/>

Landscapes and spatial situation types

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Danish directional adverbs (DDA) (*op* ‘up’/*ned* ‘down’/...) are used extensively to locate an object (thing, person, institution) in dynamic and static motion events (Talmy 2000), encoding spatial characteristics about the path (with the preposition): *vandet løber ned i afløbet* ‘the water is running down into the drain’. This use is found in all spatial settings, from micro- to macrolevel, cf. *hun løber ned i køkkenet* ‘she runs down into the kitchen’.

However, the use of DDAs in different spatial settings is not a question of pure scale (cf. Mark et al. 2011), the uses seem to cluster around different, prototypical spatial situation types anchored in routinised social practice in physical and socio-cultural landscape (Tuan 1991, Hovmark 2011), and each type coming with a certain amount of conceptual restrictions and typical lexical content (cf. the conference website: “table-top”, “in-house”, “in-village”, “macroscale relations on a geographic level”; cf. also collostructional analyses). For instance, the common macro-scale use of DDAs is typically used to refer to motion and location in physical or socio-cultural landscapes, the deictic viewpoint often being a prototypical ‘home’ and the goal often being persons or places of activity or residence: *hun går op/ned/over/om/... til skolen (og tilbage/hjem igen)* ‘she is going up/down/over/around/... to the school (and back/home again)’. The landscape use also strongly profiles the goal, cf. *om i skolen* (‘around in the school’) vs. *om bag gardinet* (‘around behind the curtain’).

Furthermore, the landscape use not being confined to “natural” physical surroundings, but also to city landscapes etc. (*de gik ud til universitetet* ‘they went out to the university’) invites to a further discussion of the definition and use of the terms ‘landscape’, ‘ecology’ and ‘the natural world we inhabit’ (Levinson 2011).

Hovmark, Henrik. 2011. Omkring *omme*. Torben Arboe & Inger Schoonderbeek Hansen (eds.), *Jysk, øsmål, rigsdansk m.v. Studier i dansk sprog med sideblik til nordisk og tysk*, 167-184. Aarhus: Peter Skautrup Centret for Jysk Dialektforskning.

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Place-Intensive Narratives in the Dene Ethnogeographic Research Program

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The cornerstone of an ethnogeographic research program is the cumulative drainage-based place names list. For Alaska Dene languages the shared constantly informative rule-driven generative geography can be reconstructed by the cultivation of archival sources and by repeated reviews of place names lists with the most expert speakers. The place names database promotes editorial consistency and cross-disciplinary research options. When we have recorded place-intensive narratives by experts who know the geography of the Dene band territory really well, these recordings should be the highest priority for specialized language work.

In recent projects for Western Ahtna and Upper Kuskokwim place-intensive narratives on travel and land use by Jake Tansy (Ahtna) and Miska Deaphon (Upper Kuskokwim) are being advanced through editorial stages. The narratives reconfirm and refine the place names lists and maps for each language. When Tansy's or Deaphon's *travel routes* can be translated and mapped, we glimpse Dene landscape cognition in its most rarified and specialized register.

Depending on the investment of editorial time, it is possible to track Tansy's or Deaphon's orchestration of place names, inflected riverine directional words, landscape descriptors, as well as directional affixes in verbal derivations. There are interesting translation conundra: when mentioning some proximate ridges is the expert using place names or offering highly technical geomorphological descriptions?

In the Tansy and Deaphon texts the constant awareness of the flow of water is conspicuous. The Dene riverine directional system is showcased in a distinctive grammatical category; nine roots occur in a mini-verb-like complex: PREFIX-ROOT-SUFFIX. Tansy and Deaphon adjust and clarify geographic views by combining place names with one to three directionals in a sentence.

This nine-root directional system can be reconstructed for Proto-Dene, and should be viewed as the Dene semplate, viz. the semantic theory of Levinson and Burenhult (2009). The nine roots appear in distinct word categories such as the disjunct verbal prefixes, postpositions, the noun lexicon (e.g. parts of houses or boats, anatomy, and especially place names).

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Landscape, spatial coding and semantic extensions in the Hindukush with special reference to Indo-Aryan Palula

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Palula [phl] is an Indo-Aryan language spoken by a community of 10,000 in the southern part of Chitral Valley in northern Pakistan (Liljegren 2008; Liljegren & Haider 2015), an environment characterized by sharp altitude contrasts (the permanent settlements located at 1,300-2,000 meters above sea level), and where the traditional economy was dominated by animal husbandry, involving transhumance, i.e., the taking of one's sheep and goats to cool and green pastures at a considerably higher elevation for several months at a time, and with a subsequently high dependence on spatial orientation and a shared and detailed reference system encompassing various spatial dimensions. The present study aims at describing the rich and fine-graded coding of places, directions and distances in a number of linguistic subsystems of Palula, such as those found in deictic expressions (including degrees of remoteness, emphasis and visibility), sets of locational adverbs and postpositions (with horizontal and vertical – or as-the-river-flows – specifications), and verbs specified for direction and verticality. The extended use of such coding in temporal and discourse-related differentiation is also noted and discussed. These findings are further related to and compared to previous descriptions of similar phenomena in individual neighbouring languages (Bashir 2000; Heegård Petersen 2006) as well as to features that are tentatively identified as of wider areal significance in an ongoing areal-linguistic investigation of the 50+ language varieties spoken in the greater Hindukush-Karakoram region, the mountainous area at the north-western fringe of the Indian subcontinent.

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Setting stars: disappearing systems of spatial reference in Dhivehi

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Dhivehi (Indo-Aryan) is spoken throughout the Maldives, an Indian Ocean archipelago comprising nearly 1200 islands in 26 atolls. Although Dhivehi is not currently endangered, radical social, technological, and environmental changes in the Maldives loom as serious threats to the future of the language, including massive internal migration to the capital, Malé, the introduction of English-medium schooling, and rising sea levels (the Maldives is the world's lowest country, with almost all of its land less than two metres above sea level (Woodroffe 2008: 88)). While Dhivehi overall may survive the abrupt changes to the social and physical environment in which it is spoken, several traditional features of spatial reference in Dhivehi are being lost. This paper reports on these, drawing on data collected in nine months of recent fieldwork.

One of these features is a 32-point sidereal compass originally borrowed from medieval Arab traders. The names of the 32 points refer to the rising and setting points of various stars and constellations, e.g., *agurabu īrān* 'Scorpio rising' (i.e., SE by E or 123.75 degrees). However, although most old men still remember the sidereal compass and can point out the 32 directions accurately, very few younger speakers are even aware that such a system exists. Other endangered features include an inland-beachward directional axis; horizontal senses of the directional verbs *aranī* 'going up' and *erenī* 'going down'; and an unusual application of terms for 'front' and 'back' to the inner and outer sides of items in ring-like formations. These features of Dhivehi spatial language appear to be disappearing under the influence of urbanization, bilingualism, and modern technologies such as GPS navigation that make the traditional systems redundant. In addition, the use of (non-sidereal) Absolute cardinal terms is increasingly being replaced by terms invoking Intrinsic and Relative frames of reference, and the use of ad hoc landmarks. The paper concludes by underlining the value of documenting traditional systems of spatial reference even in widely spoken languages, given the sweeping social, technological and environmental changes taking place in many communities.

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Evidence of binarism in Mexican Spanish spatial deixis

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Contrary to the range of studies which affirm that adverbial demonstratives in Spanish is organized in a ternary basis (Alonso 1968; Hottenroth 1982; Anderson & Keenan 1985; Alarcos Llorach 2001; RAE 2009), this study presents data suggesting that they operate in a binary manner in Mexican Spanish. The classic opposition, that in which *aquí* and *acá* indicate nearby distances or the speaker's domain, *ahí* indicates medial distances or the hearer's domain, and *allí* and *allá* indicate far away distances, is refuted by a system wherein *ahí* is a generic form with access shared by speaker and hearer while other forms are contrasted by proximity and distance.

Using a 3D game displayed on virtual-reality headset Oculus Rift, two experiments were conducted to test the base values of each deictic adverbial form. The test design was based on the dyads of Jungbluth (2005) to analyze distance-oriented and person-oriented deixis. The first experiment checked the interpretation of each demonstrative for interference between physical distance and discourse. The interactions showed that the base value of *ahí*, as opposed to what had been affirmed in prior studies, is not distance-oriented like *aquí*, *acá*, *allí*, and *allá*, but rather a locative attenuation was observed in this particle favoring anaphora. The second experiment sought to test if the hearer's location interferes with adverbial demonstrative selection in Mexican Spanish, a hypothesis that could not be corroborated.

The study allows for the conclusion that the deictic system of Mexican Spanish has a binary base, not a ternary one, extending the external role from adverbial demonstratives to *ahí*. The binary opposition is distributed with internal variations in distance and focus between the forms *aquí*, *acá*, *allí* and *allá*. No distinct variation for intermediate distances was observed for this variety of Spanish.

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domains therefore counts as evidence in support of my thesis and against the notion of a general dispreference for geocentric descriptions.

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Shua spatial language and cognition: A prolegomenon

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This paper is concerned with one aspect of the linguistic representation of spatial relations in Shua (Khoe-Kwadi, Northeastern Botswana): frames of reference (FoRs), the coordinate systems used for providing angular specifications of figures with respect to grounds. There are two main aims. The first is to outline the range of FoRs available in the language and their usages; it is revealed that, contrary to expectations, speakers of Shua employ a range of different FoRs within the same-“sized” spatial domains. The second is to make some preliminary remarks on the styles of spatial cognition employed by speakers of the language. I focus on a set of standard rearrangement tasks in which speakers are requested to replicate arrangements on one table onto another table that is oriented at 90° or 180° to the former. The results of the latter investigation do not yield support for Whorfian effects of the Shua language on spatial cognition of its speakers. Rather, the results lend support for the notion that speakers deploy various linguistic strategies – a range of different FoRs – to convey the spatial meanings they opt to make.

**The effect of topography on spatial language and cognition:
Ethnophysiology in Isthmus Zapotec**

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This paper presents an examination of topography as a potential factor influencing reference frame use in language and cognition, as proposed by Li & Gleitman (2002) and Palmer (2015), described by ANON (2011) and Wassmann & Dasen (1998), and quantitatively evaluated by ANON et al (2014, 2015, 2016, ms). ANON et al (2014, 2015, ms.) report topography to be a significant predictor of egocentric and geocentric frame use in discourse and recall memory in a sample of languages within and beyond Mesoamerica.

In this paper, data is presented from three communities of Isthmus Zapotec speakers. Pérez Báez (2011) discusses speakers' use of reference frames in recall and discourse describing two-dimensional stimuli in one Isthmus community. ANON (2016) presents an expanded examination of frame use in discourse in describing three-dimensional stimuli in two communities, and finds that significant variation exists between neighboring communities. Variation also exists in degree of preference for geocentric over egocentric encoding in memory. Frame use variation in discourse is not captured by the coarse-grained classification in terms of large-scale geomorphic provinces used by ANON et al (2014, 2015, 2016, ms). The current paper therefore explores factors contributing to the differences in frame use observed between communities. Where variation occurs between neighboring communities of speakers that are otherwise similar (e.g. in L1 and L2 use, education, literacy), a finer-grained classification of environmental factors must be explored.

Community-specific practices evolve around salient environmental gradients. An ethnophysiological study conducted by the first author sheds light on such practices. For example, the prevailing North-South winds of one community appear salient for only this community and can be interpreted as influencing that community's increased preference for absolute reference frames in discourse and cognition.

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Linguistic routines in joint problem-solving respond to environmental factors

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Language plays a predominant role in social interactions where communities of agents face collective problems (Tylén et al. 2010). It has thus been argued that linguistic meaning is grounded in concrete usage situations and continuously evolves as it is coordinated between agents (Steels 2008). It has been repeatedly observed how shared task-specific linguistic strategies emerge and stabilize in experimental contexts, where agents have to solve joint coordinative tasks (Garrod & Doherty 1994). In such usage situations, the task environment provides agents with a set of affordances that call for different types of actions (Gibson 2013). From this follows the prediction that different communicative strategies will evolve adaptively in response to varying environmental affordances.

The hypothesis was addressed in an experiment, where subjects had to communicate positions to guide each other through virtual mazes. In three conditions, these varied in their layout (e.g., being highly regular or resembling figural shapes) and afforded different conceptual strategies. Results indicate that, as predicted, different linguistic strategies became routinized in response to these environmental conditions. This suggests that linguistic interactions and routines are not only the result of automatic priming mechanisms as suggested in the Interactive Alignment Model (Pickering & Garrod 2004). Rather, linguistic adaptations between interlocutors are highly sensitive to factors of the shared task environment. This is in line with empirical findings suggesting correlations between linguistic features and ecology (e.g., Everett, Blasi & Roberts 2015; Lindsey & Brown 2002; Majid et al. 2004). It is therefore conceivable that grammars, just like routines in an existing language, are also motivated by external factors. Some possible future experiments to assess this role of the environment in cultural language evolution will be discussed.

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Topography and Frame of Reference in the threatened ecological niche of the atoll

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This paper reports on extensive field-based research testing the Topographic Correspondence Hypothesis (Palmer 2015). TCH proposes predictable correlations between topographic environment and both spatial Frame of Reference choice and details of Absolute systems. These correlations demonstrate a process where response to salient environmental features and human interaction with those features prompts construction of a spatial conceptual representation, which then motivates cross-modal spatial behaviour including linguistic structure. Cultural and linguistic manifestations of conceptual representation then reinforce elements of conceptualisation. For example the calm accessible lagoonside of atoll islands prompts settlement on that side, reinforcing cultural perceptions of the lagoonside as within social control (e.g. Hoëm 1993).

We test TCH, applying the Environment Variable Method (Palmer 2015) in the ecological niche of atolls (Palmer 2007): holding environment constant but varying language by comparing atoll-based Marshallese (Austronesian, Marshall Islands) and Dhivehi (Indo-European, Maldives); and holding language constant but varying environment by comparing Marshallese on atolls, on non-atoll islands, and in urban Springdale Arkansas, using maximally comparable data from established and newly-devised experimental tasks (Levinson et al 1992; Levinson & Wilkins 2006; Wilkins 1993; Lum & Schlossberg 2015; Schlossberg et al 2015).

In both languages, intrinsic strategies are widely used. In Marshallese, Absolute FoR is common on islands, with a primary terrestrial (*i*)*ar-lik* axis crossed by a cardinal axis. (*I*)*ar* typically translates as 'lagoon side', but on non-atoll islands refers to the leaside, suggesting underlying reference to an island's accessible side. *Lik* translates as 'ocean side', but 'back' in Intrinsic contexts, suggesting underlying reference to the side opposite that affording interaction. Relative strategies are available but rarely used in island Marshallese. In Springdale, however, Relative FoR dominates and Absolute is not used. In all environments, reference to landmarks were tightly integrated. However, while large scale landmarks predominated in islands, even in tabletop space, in Springdale immediate landmarks (windows, TVs) were common in elicitation tasks.

In Dhivehi distribution of available strategies varies according to demographic variables including age, gender, and home island. Absolute cardinals are common among older speakers, men, and residents of fishing islands, while younger speakers, women, and residents of non-fishing islands tend to use Relative

FoR, suggesting FoR preference influenced by interaction with environment, rather than environment alone. Less common strategies include an Absolute inland-beachward axis, and reference to landmarks including lagoon and ocean shores.

These findings show a preference for Relative over Absolute in urban environments (see Majid et al 2004; Pederson 1993), and Absolute systems correlating with key environmental features, but preference for cardinals versus terrestrial systems varying between languages. They also show choice of FoR and nature of Absolute depending on interaction with environment, both degree of interaction (Dhivehi fishing versus non-fishing communities correlating with FoR choice), and affordance and nature of interaction (Marshallese accessibility/calmness interpreted as lagoonside on atolls and leaside on non-atoll islands). We conclude these findings weakly support TCH.

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Experimental cognitive toponymy: A new approach to understanding the origins of place-names

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Research in place-name studies tends to focus on linguistic and historical aspects of the chosen toponyms. In *cognitive* toponymy, however, we focus instead on the role of cognitive psychology (i.e. perception, memory and learning) in these choices. Our particular interest is in the role of visual perception – the way things look – on place names. It has been argued, for example, that early English place-names represent highly nuanced descriptions of landscape features, revealing a vocabulary more subtly differentiated than present-day English (Gelling & Cole, 2000, *The Landscape of Place-Names*). A more modern example is the array of names given to the rock formations in the Grand Canyon, such as “The Alligator”, “Diana Temple” and “The Battleship”. Why is it that certain names are chosen, and persist, while others are not? An approach to investigating this question is to perform experiments where human observers are asked to describe, or name, photographs of geographical features. These descriptions are recorded and then compared to existing names in order to explore the relationship with historical names. In our research so far, conducted with 19 young observers describing 60 pictures of landscapes, it has been remarkable how persistent colour terms are, featuring approximately 60% more often in descriptions than the next most common category, geographical classification (e.g. “hill”, “mountain”, “cliff”, “ridge”), and more than twice as much as the other common categories: composition (“dusty”, “rocky”, “scree”), shape (body parts, animals, geometric), slope (“flat”, “steep”), texture (“bumpy”, “jagged”, “smooth”) and vegetation (“grassy”, “mossy”, “forested”). Whilst obviously limited by the lack of historical context and the limited range of images available (which to some extent determines the descriptions chosen), this method allows us to begin to unravel the cognitive processes which underlie place-name decisions. Furthermore, by combining these data with historical contextual information, such as the locations of viewpoints, the structure of the landscape at the time of naming and the known priorities of the historical namers, we can also gain insight into historical naming puzzles.

Naruwana and Atoana: Saaroa Toponyms in the context of grammar and ethnicity

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Saaroa people have populated the valley along the upper flow of Laonong river and the hills around it in southern Taiwan for many centuries, if not for thousands of years. Their life, traditions, ceremonies and all their narratives are embedded in and pegged down to that geographical fauna and flora, their geographical and clan names clearly and concretely referring to that particular physical environment.

Saaroa is at the top of the sub-grouping tree of Austronesian, among the Tsouic languages, and Taiwan is considered as the homeland of these languages. Seen together with neighboring Tsou and Kanakanavu, they provide an authentic case of Austronesian spatial deictic and naming system, including the directional morpheme components of verbs and their derivations.

During a lexical documentation project extending over the past 20 years, we were able to find the most complete record of all toponyms possible, comprising hundreds of items.

In my presentation, intend to give an overview of the place-naming strategies and their contribution to the lexicon of Saaroa. I also wish to show an initial categorization of place-names arising from myths, memorable events, geographical peculiarities or describing the particular flora of a place. Several clan names are derived from locations, while some locations carry the name of the family who moved there. Besides, the names show a referring system among themselves, items frequently connect/refer to a place, people and plants concurrently.

The derivation of such names involve reduplication, suffixation, but frequently (and surprisingly) syllable elisions from regularly formed words. The enumeration of these items may bring up some roots hitherto unknown for Austronesian scholars (in both senses of the word). While researchers of grammatical systems used to pay less attention to these toponyms, their preservation and possible explanation in the context of grammar and culture are needed for the understanding and survival of the language.

We have found that all the place-names have their own stories (as far as still recoverable) and are therefore meaningful when used in the ceremonies and traditional tales, they are “speaking names”, and the presentation also plans to give an overview of this work done.

Chinese settlers have been moving into the area over the past century and they have created new names for the places we see on the maps now. Their written characters are pronounced phonetically similar to the original names, however their meanings

are products of romantic projections of phantasy on the perceived “wild” aboriginal life before. I wish to show examples of this, so as to emphasize the importance of understanding and preservation of the original, contextually evolved place-names and illustrate, how they manage to survive under this stratum.

Wayfinding in West Greenlandic

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In West Greenlandic the orientation system demonstrative stems denote absolute directions, north, south, west and east, but also near, distant, uphill, downhill etc. directions. In wayfinding these directional demonstratives are used as adverbial nominal phrases in allative, ablative or vialis case and as incorporated stems in verbalized motion verbs. Motion verbs in general are agentive and in motion of vehicles, where the subject is the vehicle, the verb stem *ingerla-* ‘move’ is used.

The present study is based on a pilot project, where the informant, 82 years of age, tells two sailing routes from a settlement, Kangersuatsiaq, to a small city, Upernavik, situated to the north of Kangersuatsiaq, on the west coast of Greenland. A route in the sheltered waters used in bad weather, and a route on open waters used in good weather. While the route on open waters shows ‘a simple’ orientation along the coast from south to north relying on the absolute directions to north and east (coastline), the route in the sheltered waters shows a complex map, where the sailor has to remember landmarks and place names. The lexical items used in this description include demonstrative adverbs showing an orientation relying on the ‘front side’, ‘back side’, ‘along the shore’ of an island etc., where ‘front side’ seems to be to the west, and the ‘back side’ is to the east. The demonstratives used can be modified by nominal modifying affixes as *-kanneq* ‘more or less’, as in *avannamu-kanneq* ‘more or less to the north’. Verbs for movement include verb stems as *ingerla-* ‘move’, and verbalizing affixes as *-qqup-* ‘pass by, move through’, which incorporates the landmarks as in *ikerasa-qqil-* ‘move through the strait’. This presentation will show that the landmarks and place names are very important for the navigation in the sheltered waters.

Organization of spatial information in motion expressions of Finnish

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The domains of space and motion are closely related and intertwined in language. My presentation focuses on coding strategies that Finnish speakers use to express spatial categories like place and direction in the context of motion. Finno-Ugric languages have usually been just incidentally mentioned in typological descriptions of expressing motion (e.g. Talmy 2000).

The data was collected with elicitation tools containing video clips (*Trajectoire*, Ishibashi et al. 2006) and pictures (*Fictive motion*, Blomberg 2014). Elicitations were provided by 50 adult natives. This relatively large data allows us to ask how much individual coding strategies vary and to what extent we actually can define the typical patterns of a given language. The study is based on an ongoing cross-linguistic project.

The variation of motion expressions boils down to deviations from the classic principle ‘one meaning – one form’: which meanings are fused into one form and which spread over many forms in a sentence (e.g. Zlatev 2007)? Our analysis shows the accuracy and redundancy of spatial information characteristic to Finnish. In example (1), the verb *nousta* fuses upward direction with motion. Yet the directionality is reinforced with the optional adverb *ylös*. In both (1) and (2), the travelled path could be expressed with the partitive case (marking imperfective aspect) alone but the adposition *pitkin* is also added. Example (2) displays *ääri*, one of the several relational nouns that together with locative cases create interesting patterns on the border of grammar and lexicon.

- (1) Nainen **nous-i** pien-tä **polku-a** **pitkin ylös**
woman rise-3SG-PST little-Partitive path-Partitive along up
‘Woman rose up along a little path.’
- (2) Nainen kävel-ee lamme-n **ääre-lle** kivis-i-ä
woman walk-3SG-PRS pond-GEN edge-ALL rocky- PL-Partitive
rappus-i-a **pitkin**
stairs- PL-Partitive along
‘Woman walks to the edge of a pond along stone stairs.’

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