

## Semantic specificity of perception verbs in Maniq

© Ewelina Wnuk 2016

Printed and bound by Ipskamp Drukkers

Cover photo: A Maniq campsite, Satun province, Thailand, September 2011

Photograph by Krittanon Thotsagool

# Semantic specificity of perception verbs in Maniq

## Proefschrift

ter verkrijging van de graad van doctor  
aan de Radboud Universiteit Nijmegen  
op gezag van de rector magnificus prof. dr. J.H.J.M. van Krieken,  
volgens besluit van het college van decanen  
in het openbaar te verdedigen op vrijdag 16 september 2016  
om 10.30 uur precies

door

Ewelina Wnuk  
geboren op 28 juli 1984  
te Leżajsk, Polen

*Promotoren*

Prof. dr. A. Majid

Prof. dr. S.C. Levinson

*Copromotor*

Dr. N. Burenhult (Lund University, Zweden)

*Manuscriptcommissie*

Prof. dr. P.C. Muysken

Prof. dr. N. Evans (Australian National University, Canberra, Australië)

Dr. N. Kruspe (Lund University, Zweden)

The research reported in this thesis was supported by the Max-Planck-Gesellschaft zur Förderung der Wissenschaften, München, Germany.

For my parents, Zofia and Stanisław



# Contents

---

<b>Acknowledgments</b> .....	<b>i</b>
<b>Abbreviations</b> .....	<b>vii</b>
<b>1 General introduction</b> .....	<b>1</b>
1.1 Aim and scope .....	1
1.2 Theoretical background to verbal semantic specificity.....	6
1.3 Types of perception verbs.....	12
1.4 Stative and dynamic verbs in the context of word class distinctions in Maniq ....	15
1.5 Relationship of verbal semantic specificity to the verbiness of Maniq .....	19
1.6 Dynamism bias and the Maniq ecological and cultural setting .....	23
1.7 Fieldwork and data collection.....	27
1.8 Structure of the thesis .....	30
<b>2 The Maniq</b> .....	<b>33</b>
2.1 Introduction.....	33
2.2 Maniq society.....	33
2.3 Ethnonyms.....	35
2.4 Ethnographic sources .....	35
2.5 Sociolinguistic survey.....	36
2.6 Knowledge about Maniq in Thailand .....	40
2.7 Rainforest ecology and its significance for the Maniq .....	41
2.8 Indigenous material culture .....	43
2.9 Indigenous beliefs and the senses.....	45
2.10 Summary .....	47
<b>3 Language background and grammatical preliminaries</b> .....	<b>49</b>
3.1 Introduction.....	49

3.2	Language name .....	49
3.3	Genetic affiliation .....	50
3.4	Prior language documentation and the scope of this thesis .....	53
3.5	Contact situation .....	54
3.6	Lexical borrowing from Malay and Thai .....	56
3.7	Idiolectal variation and bilingualism .....	59
3.8	Phonology .....	60
3.8.1	Phonemic inventory .....	60
3.8.2	Phonotactics .....	61
3.8.3	Stress and tone .....	63
3.9	Orthography .....	63
3.10	Morphology .....	63
3.10.1	Basic structural units .....	64
3.10.2	Processes .....	65
3.10.3	Vowel epenthesis .....	67
3.11	Verbs .....	68
3.11.1	Dynamic verbs .....	69
3.11.2	Stative verbs .....	71
3.11.3	Derivational morphology .....	74
3.11.4	Diagrammatic and imagic iconicity .....	89
3.12	Nouns .....	91
3.13	Pronouns .....	93
3.13.1	Personal pronouns .....	93
3.13.2	Interrogative and indefinite pronouns .....	94
3.14	Demonstratives .....	95
3.15	Prepositions .....	97
3.16	Phrase and clause structure .....	98

3.16.1	Noun phrase .....	98
3.16.2	Basic clause structure.....	99
3.16.3	Multi-verb constructions .....	100
3.17	Depictive mode of speech.....	101
3.18	Summary .....	103
<b>4</b>	<b>Ways of looking: Encoding visual paths in verbs.....</b>	<b>105</b>
4.1	Introduction.....	105
4.2	Semantics of Maniq motion verbs .....	109
4.3	Semantics of Maniq verbs of looking.....	111
4.3.1	Study 1: Translation questionnaire .....	112
4.3.2	Study 2: Picture naming .....	116
4.3.3	Summary and discussion .....	132
4.4	Visual perception vs. motion events.....	138
4.5	Semantic organizational principle in the lexicon .....	140
4.6	Conclusions.....	143
<b>5</b>	<b>Verbs of color and visual surface property .....</b>	<b>147</b>
5.1	Introduction.....	147
5.2	Basic color terminology: Color naming and focal colors.....	152
5.2.1	Method.....	152
5.2.2	Results.....	154
5.2.3	Morphosyntactic properties of color terms in Maniq .....	160
5.2.4	Discussion of the naming and focal color tasks.....	163
5.3	Non-basic color terminology.....	167
5.3.1	Exemplar listing.....	168
5.3.2	Morphosyntactic properties of non-BCTs.....	180
5.3.3	Discussion of non-BCTs.....	181
5.4	Verbal templates and diagrammatic iconicity.....	184

5.5	Tracing the causes of Maniq’s distinctiveness .....	187
5.5.1	Color in Maniq everyday life .....	187
5.5.2	Maniq’s contact situation and the color lexicon.....	190
5.6	Final discussion.....	196
5.7	Conclusions.....	197
<b>6</b>	<b>Smell.....</b>	<b>199</b>
6.1	Introduction.....	199
6.2	Language of olfaction.....	203
6.2.1	Study 1: Exemplar listing task .....	205
6.3	Organization of the smell lexicon.....	209
6.3.1	Study 2: Similarity judgment.....	209
6.3.2	Study 3: Rating task.....	217
6.4	The significance of smell in indigenous beliefs and practices .....	222
6.4.1	Odor and culture.....	223
6.4.2	Returning to smell terms.....	225
6.5	Discussion.....	227
6.6	Conclusion.....	229
<b>7</b>	<b>Conclusions .....</b>	<b>231</b>
7.1	Summary .....	231
7.2	General discussion.....	234
7.2.1	Principles of lexicalization .....	234
7.2.2	Principles of lexical structure .....	238
7.3	Outstanding issues and future directions.....	239

<b>References .....</b>	<b>243</b>
<b>Appendix 1: 'Looking' translation questionnaire.....</b>	<b>277</b>
<b>Appendix 2: Looking scenes stimuli.....</b>	<b>281</b>
<b>Samenvatting .....</b>	<b>291</b>
<b>Streszczenie .....</b>	<b>295</b>
<b>Biographical note.....</b>	<b>299</b>
<b>MPI Series in Psycholinguistics .....</b>	<b>301</b>



## Acknowledgments

---

This thesis would not have come into existence, had I been alone in my undertakings. I owe a great deal to many people who have supported and inspired me along the way.

In the first place, I would like to thank the Maniq community, in particular the group of the Manang district who I have worked with throughout the years, as well as numerous other Maniq I have crossed paths with. I shall remain forever grateful for the friendliness and hospitality I met with. I thank them for the countless hours of conversations and interviews, plant inspections, digging trips, jungle walks, and teaching me about Maniq-ness. Looking back, I am astounded by the patience of the people I interacted with, tirelessly explaining every word and concept, even though an answered question inevitably cascaded into a series of new questions, oftentimes only to reveal a great chasm between what I knew and what I needed to know to even begin to follow. That they did not just give up on me is an act of great kindness and generosity. I also feel especially honored to have been admitted to share the everyday with the Maniq, get a taste of the emotions inherent in their life, and acquire a more intimate understanding of their core values, all of which have made a deep impression on me.

Another person with a crucial role in my fieldwork who deserves special recognition is Jaroon Thotsagool, a long-standing friend of the Maniq and an enthusiastic admirer of their culture. It was Jaroon who introduced me to the Maniq and guided me in my first steps of setting up my field site. I also thank him for hours of elicitation in which he acted as interpreter, greatly facilitating the early stages of my familiarization with the language. In addition, I am indebted to his wonderful family: wife – Pee Kob, and sons – Gump, Phukao and Teen – who not only followed suit in offering any kind of help to me, but together with their husband and father made southern Thailand feel like home to me.

This PhD project also could not come to completion without the support of my supervisors: Asifa Majid, Niclas Burenhult and Stephen Levinson. Words do little

justice to conveying how much I owe to them. I'd like to thank Asifa for being there every day, for her unshakeable faith in me, and her unyielding support, no matter what. I'm grateful for the time and dedication she has put into teaching me the ins and outs of the academic art, and – above all – for challenging and pushing me to discover my independence. She has made a profound impact on my maturation as a scientist and how I came to view science, as a place for authentic, engaged contributions and thoughtful interaction. I'm also tremendously grateful to Niclas, whose trust and support have been the key to my transition to a linguistic fieldworker – a long-held dream of mine, realized for the first time under Niclas' supervision in his DOBES project. I'll never forget the thrill of my first steps in the field, and the remote back-up Niclas readily provided, instantly responding to all my queries, however basic they may have seemed. Whether remotely, or in person, during mutual visits in Nijmegen and Lund, I could always count on him, his patient and careful feedback, and wise advice on any matter. I thank him for his involvement and care, and for passing on to me his passion for Aslian linguistics. Finally, I'd like to thank Steve, who despite his busy schedule always managed to make time for me. His feedback has been illuminating and, although thorough, always truly encouraging and invigorating. I'm also especially grateful to him for his support in difficulty – with a few subtle gestures in some of the critical moments he projected a meaningful message that I had his full support, over and over again reassuring me that I'm in the best place in the world to do a PhD.

I would next like to thank my reading committee – Pieter Muysken, Nick Evans and Nicole Kruspe – and all the corona members, for taking their time to evaluate this work.

I am also deeply grateful to Edith Sjoerdsma for her assistance, not only during the intense period around rounding up the thesis and defense, but throughout the duration of my PhD. Thanks also to the IMPRS office – Rachel Sheer, Dirkje van der Aa, Els den Os and Kevin Lam – for all support.

I am indebted to those who have given up their time and energy to discuss my research with me and share feedback – Nicole Kruspe, whose vast knowledge of Aslian languages and rigorous approach to grammatical analysis have become my

model of excellence, and other Aslianist colleagues: Gérard Diffloth, Geoffrey Benjamin, and Sylvia Tufvesson. I have also benefitted greatly from the critical eye of colleagues associated with the Language and Cognition Department. I'd like to thank Nick Enfield, for his involved and selfless mentorship over the years; Elisabeth Norcliffe, for elevating discussions and inspiring me to look deeper into visual perception; Lila San Roque, for her generous feedback and great warmth; Mark Dingemanse, for countless tips and stimulating discussions; Simeon Floyd, for teaching me about linguistic anthropology; Gunter Senft, for his supportive attitude and the legendary stories from the Trobriands; Michael Dunn, for Aslian trees and discussions; as well as other L&C-ers I exchanged ideas with, including Marisa Casillas, Harald Hammarström, Séan Roberts, Sarah Cutfield, and Francisco Torreira. I was also incredibly lucky to meet and interact with the late Melissa Bowerman – I hold precious memories of our conversations and remain under the influence of her great inspirational force. I further thank all those, so far not named, who have read and commented on smaller or larger portions of my thesis: our writing support group – Rósa Gísladóttir, Rebecca Defina, and Saskia van Putten, as well as Konrad Rybka, Carolyn O'Meara, Elliott Hoey, Laura Speed, Josje de Valk, and Iske Bakker. Thanks to Saskia and Ilja Croijmans for the Dutch summary. I'm grateful to Astrid de Witt and Laura Michaelis for an insightful discussion on Maniq aspect, Katesarin Maneenoon and Rosemary Gianno for discussions and help in botanical identifications, as well as Daniel Kricheff and Lye Tuck-Po for Maniq and Aslian conversations. Thanks also to Arno de Vreng, Ludy Cilissen and Patricia Manko for lasting help with numerous practical matters, my TG/TLA colleagues, especially Paul Trilsbeek, Alex Dukers, Ad Verbunt, Han Sloetjes, Alex Koenig, and Nick Wood for technical support in archiving and software matters, as well as Peter Nijland, Emiel van den Hoven, and Frédérique Schless for assistance with creating stimuli.

I would not have been able to face the challenges of the PhD life without my wonderful peer group, in particular my dear office mate Rósa Gísladóttir, with whom I shared all the everyday joys and difficulties during the three years we spent together in 262, Rebecca Defina who like no one else could relate to my PhD, my terrific paranymphs and friends Emma Waltersson and Paul Hömke, and

so many other MPI/IMPRS-related friends of whom I can only name a few: Salomi Asaridou, Giovanni Rossi, Elizabeth Manrique, Vitória Piai, Kris Dahlslätt, Sylvia Tufvesson, Julija Baranova, Sebastian Sauppe, Saskia van Putten, Binyam Gebrekidan Gebre, Gabriela Garrido, Elliott Hoey, Tyko Dirksmeyer, Jeremy Hammond, Amaia Carrión Castillo, Varun De Castro Arrazola, Sara Busquets Estruch, Joan Lobo Prat, Agnieszka Konopka, Izabela Mikuła, Tulya Kavaklioglu, Sho Tsuji, Annemarie Verkerk, Lilla Magyari, Gertie Hoymann, Clair Hill, Lorena Pool Balam, Sarah Dolscheid, Alina Lartseva, Florian Hintz, Hedvig Skirgård, Jeremy Collins, and Iske Bakker.

The time I spent working for the Volkswagen Foundation's DOBES project was an important stage leading up to this PhD. I direct my very warm thanks to Niclas Burenhult and Jacquelijin Ringersma for giving me a chance to become part of the language documentation enterprise.

I also thank Niclas for inviting me to Lund several times during my PhD, and all friends from Lund for their hospitality during my visits – Nicole and Noah, Felix Ahlner, Juliette Huber, Jens Larsson, and Joanne Yager.

The fact that I managed to find my way in Thailand is largely thanks to the Thai classes I received from my Nijmegen teachers and friends – Sasinee Khuankaew, Sompong Boonsung, Kukiatt Tudpor, and Pee Nase, as well as continuous advice and assistance from Suwilai Premrirat, Rujiwan Laophairoj and Gump (Krittanon) Thotsagool (who also provided the cover photo). I'm grateful to Theraphan Luangthongkum and the National Research Council of Thailand for endorsing my research; Chumphol Pothisarn for exchanging thoughts; my host family – Prajoub and Somjit Kongkaew, their children Jia, J and Jame – as well as Nancy and the inhabitants of Phu Pha Phet for hospitality and assistance.

In the later stage of my PhD and when transitioning into a post-doc, I found a new home in the Meaning, Culture and Cognition group at the Radboud University, working for an NWO-funded Vici project. I'd like to thank Asifa Majid for entrusting in me again and giving me an opportunity to become part of this stimulating environment, created together with my beloved colleagues: Artin Arshamian, Laura Speed, Ilja Croijmans, Patricia Manko, Josje de Valk, Lila San Roque, Carolyn O'Meara, Saskia van Putten, Marisa Casillas, Simeon Floyd, John

Huisman, Nina Krijnen, Doris Richter gen. Kemmermann, Hilario de Sousa, Afrooz Rafiee, Feifei Zhao, Julia Misersky, Ilona Plug, and Parla Buyruk.

A place with a special significance for me during almost the entire time of my PhD were the yoga classes by Sandra Botman – I’m grateful to her for the strength, balance, and the mental space I was able to find there. Thanks also to Arno, Konrad, Kamila, Moises and Tullio, for providing me with a weekend refuge in Amsterdam. I owe an especially deep debt of gratitude to Konrad, together with whom for years I have cultivated this PhD dream; and Arno, who has always been there for me. Finally, I’d like to thank my family and close friends back home and elsewhere: my sister Jola, with Jacek, and my lovely nephews Mikołaj and Julek, as well as Magda, Zosia, Julia, Mela, Asia, and Borsunio. Lastly, I thank my dear parents – Zofia and Stanisław – and dedicate this thesis to them.



## Abbreviations

---

### Phonological and phonetic symbols

/ /	phonemic representation
[ ]	phonetic representation
'	stress
.	syllable boundary
~	allophonic variant
C	consonant
V	vowel
ʔ	creaky voice
↓↓	lowered pitch
↑↑	raised pitch
°°	lowered volume

### Tone marking in Thai transliteration

ˊ	high tone
ˋ	low tone
	mid tone (no marking)
ˆ	falling tone
ˋ	rising tone

### Morphological symbols

-	prefix boundary
~	total reduplication boundary
< >	infix boundaries

=	clitic boundary
_	word boundary
*	obsolete root

### Other symbols

1	first person
2	second person
3	third person
ASSOC	associative
CAUS	causative
CLF	classifier
COLL	collective
CONT	continuative
CONTR	contrastive
DU	dual
DEM	demonstrative
DET	determiner
EXCL	exclusive
FOC	focus
IMFV	imperfective
INCEP	inceptive
INCL	inclusive
INDF	indefinite
IRR	irrealis
INT	interrogative
LOC	locative
M	masculine
MULT	multiplicity (iterative/distributive)
MVC	multi-verb construction
NEG	negative
NMLZ	nominalizer
NOM	nominal

NP	noun phrase
NUM	numeral
P	plural
PP	prepositional phrase
PROG	progressive
PRX	proximal marker
Q	question marker
RECOG	recognitional demonstrative
RED	reduplication
REL	relative clause
S	singular
V	verb



# 1 General introduction

---

## 1.1 Aim and scope

Verbs are the critical ingredient of our sentences; the place where the gist of our message normally gets expressed. However, languages across the world assign different weight to this word class, encoding different *types* and *amount* of semantic information in verb roots. What are the factors shaping the meaning of verbs?

This thesis aims to shed light on this question by examining a language from one end of the variation spectrum – Maniq, an Austroasiatic language of southern Thailand spoken by mobile hunter-gatherers. Maniq displays a consistent preference for encoding highly specific meanings in monomorphemic verbs. Semantically specific verbs form part of the general lexicon in Maniq and are found across multiple domains. The aim of this thesis is to offer insights into semantic specificity within the verb class in Maniq, and by that deepen our general understanding of meaning-making in the verb lexicon. More specifically, this investigation attempts to uncover factors shaping distinctions in semantically specific verbs, and show that lexical elaboration is intimately and inextricably linked to society, culture and linguistic structure.

In the sense intended in this thesis, semantic specificity can be provisionally defined as *richness in meaning* – I will return to it in §1.2 to give the definition clearer theoretical content. In Maniq, specificity is pervasive in the verb lexicon and affects basic-level items, i.e. frequently-occurring monomorphemic words representing the most salient level of contrast (cf. Brown 2008). For instance, in the semantic domain of eating – in which English uses a single general verb *eat* – Maniq employs five meaning-rich items. Consider the examples in (1).

- (1) *hāw* ‘to eat mainly by chewing, as of e.g. rice, non-fibrous yams, some types of vegetables and fruit’  
*lik* ‘to eat with little biting or chewing, as of e.g. soft fruit’  
*kap* ‘to eat hard objects that require biting a lot, e.g. meat, animal fat, fish, bones, hard fruit’

<i>paŋ</i>	‘to eat fibrous foods, spitting out hard fibers, as of e.g. fibrous yams such as <i>Dioscorea laurifolia</i> and <i>Dioscorea piscatorum</i> , sugar cane’
<i>hop</i>	‘to consume nutritious and/or savory liquids, e.g. soup, honey’

Each of the verbs in (1) encodes not only the action of eating, but also the specific manner in which objects need to be ingested in order to be eaten. By indicating the manner of eating, they covertly classify objects, as they restrict the possible range of referents to those with the consistency or texture fitting the specified manner. Hence, without the need to mention the object explicitly, we find out what category the consumed item was. The specific types of foodstuffs are the *covert categories* (Bowerman 2005) or *semantically inherent arguments* (Evans 2011a) of these verbs. The verbs *hāw*, *lik*, *kap*, *paŋ* and *hop* constitute the default and neutral way of describing eating actions in Maniq. In this sense, they differ from semantically specific manner-of-eating verbs in English such as *gnaw*, *gobble*, *peck*, *devour*, etc. (Levin 1993:213–217), which are hyponyms of the basic-level *eat*. In Maniq, there is no superordinate ‘eat’ predicate, nor a more general ‘consume’ predicate. Each mention of an eating action necessarily involves one of the several eating verbs with specific meaning. Despite the semantic similarity, there is no formal relationship between the verbs. Rather than being derived from the same root, each verb is a monomorphemic item standing on its own. Semantic richness in Maniq is thus accompanied by formal non-transparency, as the multiple meaning components are packaged into non-analyzable forms. Further illustration of this point is provided by a set of motion verbs in (2).

(2) <i>tik</i>	‘to move upstream’
<i>wet</i>	‘to move downstream’
<i>patiy</i>	‘to move across water’

The three verbs refer specifically to moving upstream, downstream and across water. Again – unlike the English glosses, where separate elements correspond to separate meaning components (motion, locus of motion, and path) – it is impossible to individuate smaller meaningful units in the Maniq verbs. Each of the verbs encodes the three event components in compact monomorphemic form.

Semantic specificity in Maniq is not just a peculiarity of verbs of eating and verbs of motion, but a general feature of the language. This thesis targets perception, a field which has not received much attention in the context of semantic specificity, but which has considerable potential for shedding light onto the topic. Perception is a domain of basic human experience, and a locus of universal cross-linguistic tendencies (Viberg 1984; Sweetser 1990). However, sensory meaning is only in one part universally shared and in another part it is conditioned by culture (Classen 1997; Evans & Wilkins 2000; Majid & Levinson 2011; San Roque et al. 2014). Exploring it in Maniq – a language with a fundamentally distinct way of structuring meaning, even in domains which are presumed to be basic – can offer unique insights. More specifically, centering the investigation on perception opens up an opportunity to uncover the relative contribution of universal and culture-specific factors in the formation of linguistic categories. It also makes it possible to evaluate some long-standing claims on the possible limits of language and the existence of cognitive-architectural constraints on linguistic expressibility (cf. Majid & Levinson 2011; Levinson & Majid 2014). The study includes a varied selection of verb sets from the domain of perception, uncovering understudied and previously overlooked lexicalization patterns. I examine three lexical fields – (1) visual perception, (2) color and visual surface property, and (3) smell – for which specific predictions have been made regarding universal ineffability and the cross-cultural variability of language. In these explorations, I concentrate on the following research questions: (1) What information gets lexicalized in semantically specific verbs and why? (2) How is the verbal lexicon internally structured and what underlies such structure?

Of all the parts of the lexicon, verbs are often hypothesized to be the most semantically variable cross-linguistically (Gentner 1982; Gentner & Boroditsky 2001; Evans 2011a). Across the world's languages, there is enormous variation with respect to what information is lexicalized in verbs, and how much meaning is packaged into single forms (Talmy 2000a): from languages in which all verbs are extremely semantically general (e.g. Schultze-Berndt 2000), to those in which a large proportion of the verb lexicon is extremely specific (e.g. Levinson 1994). Although in basic vocabulary – compared to nouns – verbs are more free in terms

of the information they lexicalize (Gentner 1982), the exact limits of this freedom have yet to be charted. This thesis attempts to contribute to this enterprise by looking at some domains and conflation patterns in the “grey area”, where evidence is scarce or where misinformation dominates. It thus provides typological insights speaking to issues which are fundamental to the design of language (Evans 2000).

Aside from exploring the semantic distinctions lexicalized in verb roots, this thesis examines the internal organization of the verb lexicon. I investigate the meaning of perception verbs paying close attention to lexical relations, domain structure and the lexicon as a whole. This approach follows from the structural traditions in lexical semantics initiated by the work of de Saussure (1967) and Trier (1934), prominently developed by scholars such as Lyons (1977), Lehrer (1974) and Cruse (1986), and including the most recent advances such as the contribution by Levinson and Burenhult (2009).

Another fundamental aspect of the current approach is the grounding of lexical data in the broader sociocultural context, as advocated by Boas and his followers, and inherent in the *raison d'être* of the disciplines this thesis intends to contribute to, i.e. linguistic anthropology (Lucy 1992; Wierzbicka 1992; Enfield, Kockelman & Sidnell 2014) and semantic typology (Evans 2011b; Levinson & Evans 2010; Majid 2015a). Human language and culture coevolved and are thus adapted to each other (Levinson 2003:316–325; Evans 2003). Hence, I do not limit myself to purely linguistic observations, but also try to shed light on the sociocultural realm within which the examined semantic distinctions are embedded. Without presupposing a causal link from culture to language or the other way round, I show there is a relationship between the semantic structure of perceptual verbs and the broader sociocultural and ecological setting in which the language is spoken.

Speakers of Maniq form a small traditional society of nomadic hunter-gatherers inhabiting a tropical rainforest in the Banthad mountains of southern Thailand. Various sociocultural characteristics of the group (e.g. the size of the community, low division of labor, large shared cultural knowledge, and specific cultural preoccupations) have a non-trivial relationship to how the lexical perceptual

categories are molded. Similarly, the environment – and the way the Maniq interact with it – are crucial for discerning how the semantic distinctions in perception verbs fit the Maniq world. Wherever relevant, I draw on such extralinguistic insights, especially those relating to the way of life, beliefs and practices of the community, as well as the local ecology, observed in the course of long-term fieldwork.

Of further concern to the present investigation is Maniq's general typological profile and its broader linguistic setting, in particular the Aslian group of languages, of which Maniq is a member. The exquisite semantic elaboration in the lexicon is a penchant of Aslian, and a feature that makes the whole branch stand out in a cross-linguistic context (Matisoff 2003; Benjamin 2012), even more so when it is considered from the areal perspective of Southeast Asia (Matisoff 1986). An inter-Aslian comparison reveals Maniq's systematic preference for dense encoding of meaning did not develop in response to circumstances specific to Maniq, but is a core feature of Aslian likely inherited from the ancestral stages of the language group.

Aside from its theoretical concern with the semantic specificity of verbs, this thesis is written with the aim of documenting aspects of the Maniq language and culture. Maniq is an underdescribed endangered language from the Aslian branch of Austroasiatic with around 300 speakers. This thesis contains the most extensive grammatical description of Maniq to date, adding to the body of descriptive literature on Aslian languages (Benjamin 1976a; Diffloth 1976a; Kruspe 2004a; Burenhult 2005; Kruspe, Burenhult & Wnuk 2015; Kruspe 2015), as well as the Austroasiatic family more generally (cf. Sidwell & Jenny 2015). It is also the broadest and most in-depth dedicated inquiry into Aslian lexical semantics, following the course set by earlier lexical semantic investigations within the branch (Diffloth 1976b; Kruspe 2004a; Burenhult 2006; Burenhult 2008; Levinson & Burenhult 2009; Burenhult & Majid 2011; Tufvesson 2011; Burenhult 2012; Majid & Burenhult 2014; Wnuk & Majid 2014; Burenhult & Kruspe 2016).

## 1.2 Theoretical background to verbal semantic specificity

The previous section provided a brief intuitive definition of semantic specificity as “richness in meaning”. Here, I present a more extensive definition and discuss what specificity entails for different kinds of verbs, based on insights from previous work. I also provide a brief overview of the semantic domains in which verb specificity tends to be reported most often, and discuss its relationship to the overall shape of the language and cognitive processes accompanying language use.

According to Lyons, if words are semantically specific, they carry many “bits of information”<sup>1</sup> (i.e. components of meaning), i.e. their characterization must make reference to a wide set of attributes (1968:454). For instance, *sister* is more specific than *sibling* because its characterization requires reference to the same features as *sibling* plus the feature [+female]. In other words, *sister* is specific, and by that contrasts with *sibling*, which is general with respect to gender (Cruse 1986:51). Lyons points out more specific words have larger intensions and smaller extensions when compared to more general words. For example, *tulip* has a larger intension than *flower* because it carries more information components, but it also has a smaller extension because it refers to a narrower class of things (1968:454). Terms expressing concepts similar to *semantic specificity*, but with the additional notion of high concentration of meaning per unit, are *semantic density* and *semantic weight* (cf. e.g. Brown 2008). For example, *sister* and *female sibling* are both specific with respect to gender, but, of the two, *sister* is more dense/heavy because it encodes the same semantic features in a single morpheme. Yet another term used in similar contexts is *lexical elaboration*, applied to describe domains elaborated with semantically specific vocabulary (e.g. Haiman 1985; Burenhult & Majid 2011).

Because specificity is a relative concept – words are semantically specific in comparison to other words – the topic is often raised when discussing sense relations in the lexicon (Lyons 1968:454), or in the context of cross-linguistic

---

<sup>1</sup> Lyons’ definition draws on the concept of a *bit* – the standard unit of information in information theory. His general approach to specificity, however, is different from the modern information-theoretic approaches, whereby specificity is linked to *information content*, related to the probability associated with an item and computed based on corpus frequency counts (Resnik 1995).

comparison. To provide an example from the verbal domain, the Oceanic language Longgu has several specific verbs describing carrying actions, e.g. *sulua* ‘carry something in two hands’, *papaa* ‘carry something on the back’, and no single general ‘carry’ term (Hill in press). Their specificity is apparent in comparison to English. In English, the verb *carry* is a single default descriptor of carrying actions. And while there exist a number of more specific ‘carry’ verbs encoding manner (Levin 1993:135), these are not employed in neutral contexts, but are used when manner is somehow salient. The outstanding difference between English and languages like Longgu is that in the latter the semantically specific vocabulary is the default option, even if a superordinate term exists. For example, another language with a preference for semantically specific verbs, Tzeltal, has about a dozen specific ‘eat’-verbs employed with particular objects as well as a general ‘eat’-verb, but specific verbs are normally preferred (Brown 2008). What makes the specific ‘eat’-verbs in Tzeltal outstanding then is not just their richness in meaning, but also the fact that they are *basic-level* descriptors, i.e. words which are “monomorphemic, in frequent everyday use and not specialized to a particular register” (Brown 2008:169). Basic-level verbs could also be thought of as the “most characteristic” ways of conveying particular meanings, i.e. ones which are colloquial, frequent and employing pervasive lexicalization strategies (Talmy 2000a:27).

In various descriptions of semantically specific verbs, it has been noted they often have “nouny” semantics, since they carry concrete information about entities. These have been sometimes referred as *covert categories*<sup>2</sup> (Bowerman 2005) or *semantically inherent arguments* (Evans 2011a), e.g. ‘horse’ in *neigh* or ‘dog’ in *bark* (Plank 1984). But, aside from the “nouny” components, verbs also code for various types of relational information. For instance, motion verbs can

---

<sup>2</sup> The term ‘covert category’ is used in a number of senses in the literature. It was first introduced by Whorf (1945) to refer to the grammatical categories that are usually unmarked, except for certain contexts, e.g. English gender (an alternative label employed by Whorf is *cryptotype*; see also Lucy 1992:26-31). The term is also a standard label for unnamed taxonomic categories in folk taxonomies (Berlin, Breedlove & Raven 1968). Although related, these senses of the term are distinct from Bowerman’s (2005).

lexicalize spatial information about path of motion, e.g. *ascend*, or information about manner of motion, e.g. *roll* (Talmy 1985).

Viewed from the perspective of syntactic arguments, specific verbs could be divided into those which encode details about core arguments, e.g. the subject (S), the agent (A) and the object (O), and those which provide information on oblique relations, e.g. manner, instrument, location, direction. Both *neigh* and *bark* happen to encode information about the grammatical subject (S) – they thus impose *selection restrictions*<sup>3</sup> (cf. Katz & Fodor 1963; Lehrer 1974:173–189; Altmann & Kamide 1999) on the choice of a possible subject noun phrase (NP) of a clause. Verbs imposing restrictions on grammatical objects (Os) include *smoke* (cigarettes/pipes/etc.) and *drink* (liquid). Considering only core arguments, verbs imposing restrictions on Ss and Os appear to be most common cross-linguistically. For instance, Mithun notes for Athabaskan, “The verb choice shows an absolutive basis: with intransitive verbs it is the nature of the subject that is crucial (the entity sitting or moving), while with transitives it is the nature of the object (the entity being handled)” (1999:107). The same preference is shown by Tzeltal (Mayan), which encodes information about objects and intransitive subjects (Ss) in its large set of positionals and transitive verbs (Levinson 1994; Brown 2008). What seems to be missing from these languages are verbs imposing restrictions on agents of transitive clauses (As). Indeed, such verbs seem to be less common worldwide, perhaps because the grammatical role of agent is already restrictive since it usually picks out humans. A notable exception, however, are kinship verbs, found in Australian, Iroquoian, Yuman, Uto-Aztecan, and Gunwinyguan languages, which select As (along with Os) to form a particular kinship relation (Evans 2000).

Aside from the core grammatical roles, semantically specific verbs can encode information on a number of oblique relations, e.g. manner, instrument, medium, location, direction, speed, etc. (Talmy 1985; Talmy 2000a). Probably the most

---

<sup>3</sup> Selection restrictions have originated as a concept within the generative framework (Katz & Fodor 1963; Chomsky 1965) and have since been widely adopted. In the initial formulation, they were meant to represent a lexically encoded set of semantic rules, whose violation would result in anomalous sentences.

well-known example here are the manner-of-motion verbs, extensively elaborated in some satellite-framed languages, where manner is preferentially encoded within the verb stem. In some such languages, e.g. within Germanic and Slavic (cf. e.g. Slobin 2004; Kopecka 2010; Slobin et al. 2014), manner-of-motion verbs are extremely specific and numerous, estimated to number several hundreds (Slobin 2006:71). Irrespective of the high overall elaboration, however, only some of the manner verbs are in active everyday use and are applicable in neutral contexts, while most belong to the “second-tier” lexicon (Slobin 1997), i.e. the expressive vocabulary used for stylistic or aesthetic effects.

Given the various types of specific verbs, we may ask: Which domains tend to be elaborated with such verbs? In principle any domain could contain semantically specific vocabulary. For instance, the elaboration of manner in English is not limited to motion verbs, but is found across a large number of domains, e.g. in verbs of speaking, verbs of transportation, ‘wipe’ verbs (cf. Levin 1993), or verbs of looking (Cifuentes-Férez 2014). In fact, manner elaboration in English is so common that Miller and Fellbaum (1990; 1991) proposed a specific lexical relation dubbed ‘troponymy’ (‘X is a manner of Y’) to replace hyponymy in the verb lexicon.<sup>4</sup> Despite their number, however, the majority of such manner verbs belong to the second-tier lexicon and are usually linked to a more general verb, which is used in neutral contexts (e.g. *speak*, *carry*, *wipe*, *look* etc.).

In some languages, however, semantic specificity of verbs affects the most basic, neutral level of description and is often prevalent throughout the lexicon. The semantic domains most commonly reported to contain specific verbs at a basic level include: ingestion (e.g. Newman 2009; Heath & McPherson 2009; Burenhult & Kruspe 2016), motion (e.g. Talmy 2000a; Brown & Levinson 1993; Burenhult 2008), carrying (e.g. Berman 1990; Choi & Bowerman 1991; Brown 1998; Haviland 2006; Heath & McPherson 2009; Saji et al. 2011; Hill in press),

---

<sup>4</sup> Troponymy was proposed as the basic relation type for verbs in the WordNet database representing a semantic network of English (Fellbaum 1998). As justified by Miller and Fellbaum (1991:217), “most lexicalized verb concepts refer to an action or event that constitutes a manner elaboration of another activity or event”. Note, however, that within this approach manner is conflated with other parameters, e.g. speed, medium, degree of force, etc.

handling/placement (e.g. Mithun 1999; Kopecka & Narasimhan 2012), position (e.g. Mithun 1999; Ameka & Levinson 2007), physical separation (e.g. Majid, Bowerman, et al. 2007; Heath & McPherson 2009), wearing (e.g. Choi & Bowerman 1991; Bowerman 2005; Evans 2011a; Burenhult 2012), and kinship (e.g. Evans 2000). The literature also provides more seemingly unique examples of elaborate verbs, reflecting local preoccupations or narrow specializations, which do not get reported as often, but presumably could be found in multiple cultures, e.g. harvesting verbs in Dogon (Heath & McPherson 2009), tide verbs in Iwaidja (Evans 2011a), or climbing verbs in Jahai (Schebesta 1929:151–152; Burenhult 2013).

Since the lexicon and grammar form a tightly integrated system, any kind of systematic organizational principle within a subset of the vocabulary is likely to have knock-on effects on the rest of the language. For semantic specificity, the most salient effect of this kind seems to be argument ellipsis (Brown 2008). Given that specific verbs encode the bulk of information in the verb root, the expression of arguments is often redundant.<sup>5</sup> This may affect not only core argument NPs, but also adjunct phrases, e.g. path-encoding prepositional phrases in motion descriptions (e.g. Talmy 2000a). Note, however, that – while it may be true for some languages – there is no absolute rule saying higher specificity always correlates with fewer overt arguments, since factors such as discourse genre and various typological parameters may alter the picture, too (Bickel 2003).

In addition to being linked to ellipsis, specificity of verbs is also connected to a considerable amplification of the verbal lexicon and, at least in some languages, goes hand in hand with “verbiness” (cf. Evans 2011a), or a general prominence of verbs in the language (see an in-depth discussion of the issue in Maniq in §1.5). Highly specific meanings imply more words are needed to cover a particular domain, while verby expression may occasionally pre-empt the need for some lexicalized noun concepts (Talmy 2000b; Evans 2011a).

---

<sup>5</sup> Note, incidentally, that in some languages semantically specific items are historically a result of object incorporation (e.g. Blankenship 1997). No evidence of this phenomenon has not been found in Maniq.

Although semantic specificity implies dense packaging of information in single items, it should not be taken to mean the languages under consideration do not use compositional strategies like compounding or verb serialization. Data from the available descriptions show these strategies are also in evidence and have a complementary role in the elaboration of meaning (cf. Heath & McPherson 2009; Hill in press).

Aside from the effects on the structure of the language, semantic specificity is also bound to affect cognitive processes accompanying language use, i.e. *thinking for speaking* (Slobin 1996) or perhaps even have deeper effects on non-linguistic cognition (Whorf 1956; Lucy 1992; Levinson 1996; Gentner & Goldin-Meadow 2003; Majid et al. 2004). With many specific verbs and no superordinate term, speakers are constantly forced to select between a number of fine-grained categories in their ordinary language use. The fact that the choice is obligatory or that it is the default option implies that – in order to formulate a description – speakers have to habitually pay attention to the specific semantic parameters determining verb choice. This has been demonstrated for the domain of motion by comparing satellite-framed and verb-framed languages (i.e. those which tend to encode the manner of motion within and outside the main verb, respectively). Slobin (1996; 2000; 2003) found that, because speakers of satellite-framed languages routinely encode manner in their motion event descriptions, they also pay attention to manner whenever they use language. Slobin suggests this is associated with various additional cognitive effects – e.g. richer mental imagery for manner of motion, and higher salience of manner in memory (although see Papafragou, Hulbert & Trueswell 2008; Trueswell & Papafragou 2010). Thus, encoding a particular semantic distinction frequently or making it obligatory can result in a greater attunement to that distinction in the context of language use.

Having sketched out the theoretical background to semantic specificity of verbs, I now turn to the domain which is of main interest in this investigation, namely verbs of perception. Section 1.3 below provides a first general introduction to perception verbs and outlines the basic paradigm for Maniq. Further extensive review of the pertinent literature on perceptual vocabulary is given in the relevant chapters.

### 1.3 Types of perception verbs

Verbs of perception have been looked at from various perspectives in a number of different contexts (e.g. Viberg 1984; Sweetser 1990; Evans & Wilkins 2000; Majid & Levinson 2011; San Roque et al. 2014). The main reference for the field has been Viberg’s typological study (1984), comparing the “basic paradigm of the verbs of perception” across a number of languages. The basic paradigm consists of predicates expressing three types of situations – experiences, activities, and phenomenon-oriented descriptions – in five sensory domains. Table 1.1 below illustrates an example paradigm from English.

	Experience	Activity	Phenomenon
<b>Sight</b>	see	look at	look
<b>Hearing</b>	hear	listen to	sound
<b>Touch</b>	feel		
<b>Taste</b>	taste		
<b>Smell</b>	smell		

**Table 1.1** Basic paradigm of English perception verbs (Viberg 1984:125)

The three situation types are best illustrated with examples of verbs from the domain of hearing. The experience verb *hear* and the activity verb *listen* are both employed with the perceiver as the grammatical subject, and differ only in the fact that *hear* refers to a non-controlled act, while *listen* to a controlled one. For the phenomenon-oriented verb *sound*, it is the perceived phenomenon that takes the role of the grammatical subject. In addition three predicate types are expressed with different verbs in English, but in other domains they are conflated.

As a starting point into the exploration of verbs of perception, a Vibergian paradigm was elicited for Maniq. The elicitation was carried out with the ‘Grammar of perception’ translation questionnaire (Norcliffe et al. 2010). Speakers of Maniq were presented with short scenarios in Thai, e.g. “John was sitting by the river when suddenly he *saw* a fish in the water”, and were asked to translate them into Maniq. The focus was specifically on the perception verb. The questionnaire systematically explored all the Vibergian verb types across the five sensory

domains. The task revealed Maniq has only three general perception verbs: *dɛŋ* ‘to look at, to see’, *kayɛŋ* ‘to listen, to hear’, and *ʔɔŋ* ‘to smell’, each conflating the activity- and experience-type into a single perceiver-oriented predicate, as illustrated in Table 1.2.

	Perceiver (Activity/Experience)	Phenomenon
Sight	dɛŋ	-
Hearing	kayɛŋ	-
Touch	-	-
Taste	-	-
Smell	ʔɔŋ	-

**Table 1.2** Basic paradigm of general perception verbs in Maniq

The remaining verbs elicited in the task were more specific, hence no single items corresponding to the general perceptual meanings such as ‘feel’, ‘sound’, ‘taste’, etc. could be individuated. Instead, multiple verbs were found to be used in translations of these verbs. For example, the task revealed that instances of perceiver-based ‘feel’ and ‘taste’ are normally translated with verbs denoting the activities of touching and ingesting. In addition, there is no single ‘touch’ or ‘ingest’ verb, but a range of specific terms such as *cep* ‘to touch with hand’, *cik* ‘to touch with foot’, *kap* ‘to eat meat or fish’, *hop* ‘to ingest dense liquid’, etc. A variety of different verbs were also used for translations of the phenomenon-oriented predicates like ‘to sound’ or ‘to look’. Here, Maniq employs semantically specific verbs denoting the specific perceived properties. Examples of such verbs featuring in the task include: *kadek* ‘to be bitter’, *lākīēn* ‘to be soft’, and *lspəs* ‘to be fragrant (e.g. of food, medicinal plants, and other sources)’ (see §6.2), but the lexicon of relevant property verbs is much larger (172 entries in my dictionary). A more informative representation of the Maniq system would thus include examples of the specific verbs, as in Table 1.3.

	Perceiver Activity/Experience	Phenomenon
Visual	dəŋ	bələŋ, caŋləŋ, cawāc, ...
Auditory	kayəŋ	kaŋət, ʔahaw, wəŋ ʔəhɔʔ, ...
Tactile	cep, cik	gahɛ, casit, ləkīēn, ...
Gustatory	hāw, kap, lik, paŋ, hop, buʔ, ...	gahet, pacus, kadək, ...
Olfactory	ʔɔŋ	lspəs, paʔɔʔ, haʔit ...

**Table 1.3** Verbs of perception in Maniq including semantically specific terms.

Several basic observations can be made regarding the table. The first point – already visible in the previous table, but made more apparent here – is that Maniq is insensitive to the distinction between activity and experience and does not encode it lexically. In addition, although Table 1.3 is a closer reflection of the classification of perceptual predicates in Maniq, it is still an idealization. When listing particular phenomenon-oriented predicates, it is difficult to confine them to a single cell since some of them transgress the boundaries of the traditional Western division into 5 senses. For instance, *hapuc* ‘to have no protrusions, to be plain’ is both a tactile and a visual descriptor, while *bayɔʔ* ‘to smell like old food/old shelter, to be white/gray (of hair, smoke, etc.)’ can be used for olfactory and visual experience. Thus – while being useful for cross-linguistic comparison – this paradigm in its basic form is not an optimal solution for representing verbs of perception in Maniq, as it makes distinctions that are not relevant, and does not accommodate those that do matter.

For this reason the present thesis takes a different approach. The main relevant distinction is the one between *dynamic* and *stative* verbs, which in the tables above would correspond to perceiver- and phenomenon-oriented predicates, respectively. This distinction is of central importance in Maniq in general and is especially relevant in perception. The following section elaborates this point by providing the necessary background. Since defining verbs and understanding the difference between their subtypes is strongly linked to their relationship to nouns, the discussion is placed in the broader context of word classes.

#### 1.4 Stative and dynamic verbs in the context of word class distinctions in Maniq

Verbs and nouns are the two major word classes in the world's languages. Although their status as a language universal is questionable (Evans & Levinson 2009:434), they are the most fundamental categories in languages with word class distinctions: "if a language has just two open classes, these will normally correspond to the noun and verb classes of other languages" (Evans 2000:103).

There have been many attempts to operationalize the distinction between nouns and verbs, and identify their core characteristics (e.g. Givón 1984; Hopper & Thompson 1984; Schachter & Shopen 1985; Langacker 1987; Wierzbicka 1988; Croft 1991; Stassen 1997; Wierzbicka 2000). Across frameworks, the common point regarding the noun-verb distinction is that – even within a single language – category members vary both in their semantics (the type of concept being encoded) and morphosyntax (the combinatorial/distributional potential). Verbs are only verbs to a certain degree and the same can be said about nouns. Hence, with strict formal definitions of word classes, there always remains a residue category of 'other'. Some linguists have tried to deal with exceptions by setting up more fine-grained classifications of parts of speech (see for instance "vouns" and "nerbs" in Murrinh-Patha, Walsh 1996), but as noted by Croft "there is in principle no end to the splitting that one could do" (2000:67). It has thus become generally accepted to speak of word class distinctions in terms of continua/squishes/scales and to treat individual words as more or less prototypical category members (cf. Ross 1972; Sasse 2001).

The conceptual basis of the noun-verb distinction relates to the notion of *time-stability* or *temporality*. This concept goes back at least to the 13<sup>th</sup>-14<sup>th</sup> century philosophical school of Modists (also called 'Speculative Grammarians', cf. Stassen 1997:15–16). According to this line of thought, "verbs signify in the 'fleeting mode' (*modus fluxus*); they are the signs of instability and impermanence", while "nouns signify in the 'being mode' (*modus entis*), and embody the idea of rest, stability and permanence" (Stassen 1997:16). The most well-known contemporary approach founded on the same idea is Givón's (1984) *temporal stability scale* (the scale of "rate of change over time"). Within this framework, prototypical nouns

are said to encode bundles of experience that are relatively stable over time (“If it is a chair now, it is still likely to be a chair in five minutes, an hour, or a day”; Givón 1984:51), while prototypical verbs encode bundles of experience of relatively short duration that are least stable over time (“rapid changes”; Givón 1984:52). An intermediate position in terms of time-stability is occupied by states, including one particular subtype of states – properties (e.g. *green*). States display considerable variation in encoding, i.e. depending on the language and the type of state, they may be coded as nouns, verbs, or adjectives (cf. the English example in (3)):

(3) The scale of temporal stability (adapted from Givón 1984:54)

most stable.....		.....least stable
<i>tree</i>	<i>green</i>	<i>shoot</i>
noun	adj	verb

While “noun” and “verb” are landmark categories, adjectives are far from universal (Dixon 1982; Wetzer 1996)<sup>6</sup>. Even in languages with a distinct adjective class, adjectives share morphosyntactic features with nouns or verbs. As pointed out by Wetzer (1996:3), “this class will virtually never have an independent status comparable to that of the major word classes Noun and Verb”. It is not uncommon, for instance, to classify adjectives as a subtype of verbs (cf. e.g. Semelai, Kruspe 2004a; Lao, Enfield 2004). In a large cross-linguistic survey with a sample of 115 languages, Wetzer found that languages with no separate adjective class encode adjectival *concepts* (i.e. *property concepts*) in either nouny or verby words (1992; 1996). When this occurs, they rarely pattern exactly like verbs or nouns, but usually they align with one of these categories more closely.

There are also splits within the group of adjectival concepts. For instance, some languages encode some adjectival concepts in a small distinct adjective class and the rest in verbs or nouns (Dixon 1982; Dixon & Aikhenvald 2004). In other

---

<sup>6</sup> Dixon (2004), who first denied the universality of an independent adjective class, later argued to the contrary. This position, however, has not gained wide acceptance (cf. e.g. Enfield 2004; Palancar 2006).

languages, adjectival words display switching, i.e. depending on their morphosyntactic behavior the same words get a verby interpretation if they act like verbs or a nouny interpretation if they act like nouns (Stassen 1997:162–164). In spite of the variation, a dynamic expression is considered to be primary: “verby encoding of predicate adjectives is the DEFAULT OPTION for natural languages” (Stassen 1997:571, original emphasis). Languages tend to start out with a verby encoding of property concept predicates and only begin to shift towards a non-verby encoding if there is pressure to distinguish between events and states. Such pressure is normally introduced by the development of tensedness, i.e. a morphologically-integrated tense system (not present in Maniq).

In Maniq, there are distinct grammatical categories of nouns and verbs. The prototypical verbal meanings, i.e. those lowest in time-stability, are encoded in dynamic verbs, e.g. *gɔh* ‘to hit’, *gic* ‘to burn’. The prototypical nominal meanings, i.e. those highest in time-stability, are encoded in nouns, e.g. *ɲahu?* ‘tree’, *kuy* ‘head’. Property concepts (i.e. adjectival meanings) – which occupy an intermediate position in terms of time-stability – are encoded verbally in Maniq. More specifically, property words fall into the *stative verbs* subclass. When compared to nouns and dynamic verbs, stative verbs align with nouns on a few criteria, but they are predominantly like verbs. They take almost all verbal derivational morphemes and lack core nominal features. Table 1.4 summarizes the most important morphosyntactic similarities and differences between nouns, stative, and dynamic verbs. Diagnostics such as verbal agreement or use of copula (cf. Stassen 1997:34–45) are not taken into account since Maniq does not display these properties.<sup>7</sup>

---

<sup>7</sup> Neither nouns nor verbs ordinarily take copulas. As for agreement, the cross-referencing pronoun *ʔe?* might at first sight appear similar to agreement, but it cannot be considered true agreement since its use may be pre-empted by factors related to transitivity (cf. §3.11.1.1). Note also that cross-referencing applies to 3<sup>rd</sup> person only.

Property	Nouns	Stative verbs	Dynamic verbs
Subject and object (§3.11.2.1)	+	+	-
Direct modification in NP by root form (§3.11.2.1)	+	+	-
Possessor in possessive construction (§3.16.1)	+	-	-
Head of NP (§3.16.1)	+	-	-
3 <sup>rd</sup> -person subject NP cross-referencing (§3.11.2.1)	-	-	+
Progressive (§3.11.3.4)	-	-	+
Productive causative derivation <sup>8</sup> (§3.11.3.2)	-	+	+
Imperfective (§3.11.3.3)	-	+	+
Inceptive (§3.11.3.5)	-	+	+
Multiplicity (§3.11.3.6)	-	+	+
Continuative (§3.11.3.7)	-	+	+
Independent unit in depictive mode (§3.17)	-	+	+

**Table 1.4** Relevant properties distinguishing nouns, stative and dynamic verbs in Maniq. Cell shading is used for better visualization of the patterns displayed by stative verbs and the class they align with on a given feature.

The nouny characteristics of stative verbs include their ability to fill subject and object slots, direct modification of the head in NPs by the root form, lack of 3<sup>rd</sup>-person subject NP cross-referencing by a pre-verbal pronoun *ʔεʔ* (cf. *stative clause* pattern, cf. §3.11.2.1), and inability to attach the progressive to bare roots. The verby characteristics are: inability to encode the possessor or to head an NP, productive causative derivation, the ability to take the imperfective, progressive, inceptive, multiplicity and continuative aspectual morphology, as well as the ability to be used independently in a depictive mode of speech. All these properties are discussed in more detail in Chapter 3 in the sections indicated in the table.

The distinctive morphosyntactic features of stative verbs justify their recognition as a separate subclass of verbs, distinct from dynamic verbs. However, their alignment with dynamic verbs on most parameters underscores their verbal

---

<sup>8</sup> The causative affix was found to attach to 6 nouns, but derivation with the causative does not apply productively with nominals.

character. This pattern is in line with the encoding of property concepts in the rest of Aslian (Kruspe 2004b; Benjamin 1976a; Kruspe, Burenhult & Wnuk 2015), and most languages of Southeast Asia (Stassen 1997:422–428). The following section returns to the central topic – semantic specificity – and considers it in more detail in relation to the various verb types in Maniq.

### 1.5 Relationship of verbal semantic specificity to the verbiness of Maniq

There is a general relationship between semantic specificity and the number of word roots in the lexicon – the more semantically specific lexical entries are, the more words are needed to cover a particular semantic area. Apt examples from cross-linguistic studies include body part terms (Majid 2010), containers (Malt, Sloman & Gennari 2003), cutting/breaking events (Majid, Gullberg, et al. 2007; Majid, Boster & Bowerman 2008), putting/taking events (Kopecka & Narasimhan 2012), and human locomotion events (Malt et al. 2008; Malt et al. 2014). To illustrate the point briefly, Table 1.5 compares the basic verbs of ‘carrying’ in English and Maniq:

	On back	In hand	On side/hip	Lying on shoulder	Hanging on shoulder
English	<i>carry</i>				
Maniq	<i>gales</i>	<i>yiy</i>	<i>kisiel</i>	<i>cakoŋ</i>	<i>tabek</i>

**Table 1.5** Basic-level verbs for ‘carrying’ in English and Maniq.<sup>9</sup>

Unlike English, Maniq makes specific distinctions within carrying depending on the part of the body that directly carries the load and, in some cases, type of carried object. Thus, in their default descriptions of carrying events Maniq speakers have to select one of 5 specific verbs instead of employing one all-

<sup>9</sup> *Gales* and possibly *tabek* are loanwords from Malay.

purpose verb. High levels of verbal semantic specificity may thus be connected to a language's verbiness<sup>10</sup>, which is manifested by the presence of a large number of verbs in comparison to nouns in the lexicon (cf. Evans 2011a).

An analogous point regarding lexicon size can be made about the converse of semantic density – semantic transparency. For instance, if we compare pidgins with their lexifiers, it is apparent that the semantically transparent lexica of pidgins are much smaller than the dense lexica of the lexifiers (Mühlhäusler 1974:98).<sup>11</sup> In pidgins, meanings are typically elaborated by compounding (Arends, Muysken & Smith 1995:326), e.g. Tok Pisin *nogut* 'bad' (from English *no* and *good*), *no hatwok* 'easy' (from English *no* and *hard work*) (Mühlhäusler 1974:98), hence fewer word roots in total are needed to cover the same concepts as in the lexifiers.

The specificity-to-size link can also be observed in Maniq. The Maniq verbal lexicon is not only semantically specific, but it is also remarkably large in relation to the noun lexicon when compared to many languages. For instance, the English lexicon is dominated by nouns – on various counts, its noun-to-verb ratio is 3:1, or even 5:1 (Fellbaum & Miller 1990; Chang et al. 2002). This is in line with the prediction made by Foley (1986:113) that “the set of nouns in a language is always much larger than the set of verbs”. The Maniq ratio, however, based on the count of the general Maniq lexicon is effectively 1:1 (1107 nouns: 1068 verbs; counting lexeme forms). This is similar to the noun-to-verb ratio in some other languages described as verby such as Iwaidja (Evans 2011). Obviously, there is no guarantee the ratio found in my Maniq lexicon is representative of the entire lexicon of the language. However, during the collection of entries, I used a varied selection of elicitation material, targeting not only events and properties, but also objects, notably names of plants and animals (cf. §1.7). All lexical items elicited in this way were included in the lexicon, even if they could not be identified.

---

<sup>10</sup> The terms ‘verbiness’/‘being verby’ in the sense employed here refer to language types. The same terms are also used in a related sense with reference to words. If words are ‘verby’, they display behaviour of prototypical verbs (cf. Wetzer 1996).

<sup>11</sup> See also Haiman (1985:232).

Having a large number of verbs (many of which are semantically specific) is only one of many manifestations of Maniq's verbiness. The lexicon is not an isolated element of language, but an integrated part of a system. One obvious corollary of expressing rich information in verbs is that it removes the necessity of spelling out the same information in other parts of speech. Hence, semantically specific verbs often form fully informative independent propositions by themselves. In Maniq, this is related to the special prominence of verbs in discourse. Unlike nouns, verbs are obligatory in most clauses. Nouns, on the other hand, undergo frequent ellipsis: arguments are not obligatorily expressed (cf. §3.16.2). The presence of verbs in discourse is maximized also by multi-verb constructions (MVCs) (cf. §3.16.3) encoding sometimes quite complex messages in compact meaning-rich forms. MVCs are common in narratives, conversations and elicitations (see examples (4) - (6), verbs marked in bold):

## (4) Narrative

ʔɛʔ	<b>yek</b>	<b>haluh</b>	<b>gales</b>	<b>ʔek</b>	wɔŋ,	ʔay
3	return	blowpipe	carry.on.back	give	child	game

'He came back from blowpiping carrying on his back and gave to a child, the game.'

## (5) Conversation

mɔh	<b>kɛn</b>	<b>kɔs</b>	<b>kic</b>	<b>pi-dɛŋ</b>	sunaʔ
2s	take	peel	grind	CAUS-see	wild.yam( <i>D.daunea</i> )

'Show how to peel and grind *D.daunea*.'

## (6) Elicitation

ʔɛʔ	<b>kɛn</b>	<b>ʔek</b>	<b>pi-yek</b>
3	take	give	CAUS-return

'He gave back.'

The various aspects of verbiness discussed, including verbal semantic specificity, reflect Maniq's underlying preference for encoding information in verbs and the limited role of nouns. This is further substantiated in a number of ways in the language:

- As shown in §1.4, Maniq encodes property concepts in verbs. This contributes significantly to the overall number of verbs and the verbal “feeling” of the language.
- Many concepts expressed nominally in other languages are expressed by default as verbs in Maniq. This is especially true of abstract notions like “language” (in Maniq one needs to use the verb *biyɔh* ‘to speak’ to convey a similar meaning), but is also attested with concrete concepts like “hole” (in Maniq, expressed by the anticausative verb *hok* ‘to enter, to have an entrance’, *ʔɛʔ hok* “it has an entrance” (3SG-to.enter)).
- Unlike many standard European languages, Maniq avoids reifying complex abstract structures into bounded entities (cf. Gentner 1982; Mühlhäusler 2001), e.g. *war*, *blame*, *environment*, so the number of abstract nouns is limited – only about 2% of all nouns. No exact figure is available for English, but certainly it is much higher, given the extreme productivity of abstract noun suffixes such as *-ity*, *-ion*, *-ness*, etc.<sup>12</sup>
- A number of seemingly basic physical entities (instruments, objects, places) are conceptualized via activities – they are nouns derived from verbs (cf. similar observations for Atsugewi; Talmy 2000), e.g. *haluh* ‘to blowpipe’ → *h<m>aluh* ‘bamboo sp. used for blowpipes’ (blowpipe<NMZ>), *təbuy* ‘to put a basket on one’s back’ → *tə<n>buy* ‘basket strap’ (put.on.back<NMZ>), *sij* ‘to place rafters in the roof frame’ → *s<n>ij* ‘rafter’ (place.in.frame<NMZ>). At present, the Maniq lexicon contains about 30 forms which can be categorized as physical entity nominalizations (for examples, see §3.11.3.1).
  - The majority of morphological processes involve verbal derivational bases. Maniq thus displays typical characteristics of a

---

<sup>12</sup> For instance, in the Oxford English Dictionary (<http://www.oed.com/>) just the nouns formed with the suffix *-ness* constitute 5% of all nouns. The total number of abstract nouns is of course much higher and may even exceed the number of concrete nouns.

verb-based language (Nichols 2010; Nichols 2015), suggesting that events are rarely conceptualized via physical entities. Noun-to-verb derivation is rare (only 6 cases in total attested in my lexicon) and there is no dedicated verbalizing morpheme. Instead, the 6 attested examples of verbalization employ the causative, e.g. *h<i>ɔ̀p* ‘to face’ (front.side<CAUS>). Conceptualization of physical entities via events or properties, on the other hand, is more common. Nominalization is carried out with one of the two nominalizers – the semi-productive *n* and the obsolete unproductive *m* (§3.11.3.1). In addition, stative verb roots are sometimes employed as nouns with zero derivation (§3.11.2).

Given the conceptual basis for the noun-verb distinction discussed earlier (cf. §1.4), the consistent preference for encoding information in verbs is indicative of the dynamism underlying Maniq construals. Verbal encoding is associated with concepts lowest in time-stability, hence Maniq’s verbiness suggests an important role of dynamic conceptualizations. In the following section, I focus on dynamism more generally and attempt to link it to non-linguistic aspects of the Maniq ecological and cultural setting.

### 1.6 Dynamism bias and the Maniq ecological and cultural setting

According to Talmy (2000b), humans are biased towards dynamism in their conceptualization of the physical world. We often talk about static phenomena in dynamic terms, whereas the opposite – talking about dynamic scenes as if they were static – does not happen as often. Talmy (2000b:172) provides the following illustration:

(O)n viewing a picture hanging on a wall at an angle, a person may more readily *ceive*<sup>13</sup> the picture as a square that has been tilted out of true and that calls for righting, whereas he may require a special effort to *ceive* the picture statically as a diamond.

---

<sup>13</sup> Talmy (2000b) uses a self-coined term “*ceive*”, which is meant to incorporate the meaning of both ‘perceive’ and ‘conceive’.

In a similar vein, Leyton (1989) notes that people have a remarkable ability to infer the causal history of natural objects from their shapes. As he points out: “A shape is simply a single state, a frozen moment, a step outside the flow of time; and yet it can be used as a window into the past” (Leyton 1989:357).

The idea that a dynamic world view is somehow more primary than a static one resonates also among anthropologists. Ong (1969:634) expresses the opinion that among the oral or nonwriting cultures the “‘world’ is not so markedly something spread out before the eyes as a ‘view’ but rather something dynamic and relatively unpredictable, an event-world rather than an object world”. People are thus naturally biased towards dynamicity, according to Ong, and it is only with literacy that they become more object-oriented. Writing underlies the visual bias, which in many modern cultures is linked to a tendency to transform dynamic contexts into static objects (Classen 1990). For instance, Classen (1990) notes that in our attempts to document and describe foreign cultures we often reduce dynamic and multi-sensory input into static visual objects and texts.

Aside from these general observations, there have been proposals of culture-specific factors predisposing particular groups to favoring dynamic conceptualizations. For example, the Navajo hold a belief that everything is in motion and is subject to constant change (Pinxten 1983:16). Even purely spatial concepts have “a special dynamic aspect, which – from a Western viewpoint – makes them different, less strictly or purely “spatial” than, for example, Euclidean geometrical notions” (Pinxten 1983:163). This has often been connected to the linguistic fact that Navajo is a verby language (Reichard 1949; Hoijer 1951; Witherspoon 1977). Similarly, Whorf (1940) noted for Hopi that many of the nominal concepts in English such as ‘flame’ are verbal in Hopi, implying a distinct classification of events.

Obviously, it is difficult to provide evidence for either language-to-culture or culture-to-language causal link in such cases, and both the Navajo and Hopi examples have been debated (cf. Lucy 1992). Although many would agree the study of meaning, also grammatical meaning, can gain a lot by being accompanied by cultural context, there also seems to be agreement on the need for clear evidence if causal relations between the two are to be implied. For instance, the

recent proposal on language being constrained by culture in Pirahã has met with considerable controversy, partly because many scholars feel relevant evidence was missing (Everett 2005 and the accompanying comments).

Language and other cultural systems interact at multiple levels. Demonstrating clear influences between them is a difficult process fraught with methodological pitfalls (Enfield 2002:14–22). However, it is possible to point out elements in the cultural and ecological setting of a community that fit with a given grammatical feature, without presupposing causality. This approach is couched within the functionalist perspective in anthropology, whereby culture is seen as an organic unity, in which each part “represents an indispensable part within a working whole” (Malinowski 1929:864). In the following, I focus on Maniq speakers, attempting to enumerate aspects of their life that are congruent with a dynamic expression in grammar.

To begin with, the ecological “sensorium” of the Maniq is the tropical rainforest (cf. §2.7), a place with dense and lush vegetation, where direct perception is often impossible or momentary: “all that is visible may be a quick flash of moving color, the tip of a tail, an indistinct part of body, or worse, the shuffling of leaves or rocking of branches” (Lye 2004:150, on the perceptual world of the closely-related neighboring Batek). In this environment, the perceived objects are ephemeral and *passing*, both in time and in space, i.e. objects are perceived in motion and often only for a short time. An example illustrating such dynamicity expressed in language involves an ordinary daily situation in which a Maniq woman describes a snake she saw moving under her shelter. She utters the following sentence in an attempt to direct her male relative to the snake who intends to chase it away.

(7) ?ε?      b<m> <i> lεɲ  
           3      be.grue<PROG> <CAUS>  
           ‘It’s making itself grue<sup>14</sup> (green/blue).’

---

<sup>14</sup> The term ‘grue’ is commonly used in linguistic anthropology to refer to a single color category which includes green and blue hues. This sense differs from the original one coined by Nelson Goodman,

The grammatical construction employed in this description involves a dynamicized property verb *bələŋ* ‘to be grue’, reflecting the motion/temporal aspect of the scene and capturing the dynamic nature of the perceptual experience.

Aside from constraining perceptual experiences, the rainforest is also an environment where natural processes of change thrive. Humid conditions cause deterioration of houses and material culture (cf. §2.8), which are mostly bamboo-based. Blowpipes, quivers, and pandanus baskets wear out quickly, lean-tos dry out and collapse. The non-durability of man-made physical objects is thus yet another facet of changeability, inherent in the daily life of the Maniq.

Another locus of dynamism is the hunting and gathering subsistence economy of the Maniq, which is best described as an *immediate-return system* (Woodburn 1982). It is based on the practice of consuming food soon after being obtained and not storing it for longer periods. Nomadism, which is strongly linked to this type of economy, also promotes non-permanence and flexibility. Like other hunter-gatherer cultures, Maniq have “no fixed dwellings, fixed base camps, fixed stores, fixed hunting or fishing apparatus – such as stockades or weirs – or fixed ritual sites to constrain movement” (Woodburn 1982:435). Within such a lifestyle, change is seen as an ordinary part of the natural life cycle. In addition, the Maniq have a flexible social structure in which individuals move freely between groups. Such flexibility accommodates the idea of the naturalness of change. In fact, a change-oriented mindset typical for hunting-gathering societies such as the Maniq can be seen as a crucial adaptation that allowed them to successfully occupy their ecological niche. As pointed out by Benjamin,

That they (the Semang) have managed to maintain their independence for so long is a tribute to their readiness to pull out at a moment’s notice and move on (...) This is tactics, not shyness: by eschewing the amassing of material possessions, by dwelling in lean-to windcreens that can be built from readily available materials in half an hour, and by not letting any of their various subsistence activities (not even their occasional but long-established swidden-planting) keep them waiting in one place

---

whereby ‘grue’ is defined as one that is green before, and blue after, a particular time *t* (Cohnitz & Rossberg 2014).

for more than a few days, the Semang have managed to confront the world until very recently on their own terms (1985:240–241).

The above examples illustrate the notion of non-permanence or changeability is pervasive in the Maniq ecological and cultural setting. It is an essential prominent characteristic which defines the Maniq environment, dwellings and material culture, mobility patterns, social structure, subsistence and economy. The Maniq embrace changeability and do not attach themselves to objects and places in the same way as commonly found among Western communities. This, combined with the lack of visual bias of literate societies, provides a possible non-linguistic background to the dominance of verbs in Maniq and enables us to see that verbiness is not an idiosyncrasy, but rather an element harmonious with the larger context in which it is found.

### 1.7 Fieldwork and data collection

This thesis is based on data collected during five field trips to Thailand between 2009 and 2014 of one to two months' duration each. The total time in the field was 8 months. The first field trip was carried out within the language documentation project *Tongues of the Semang* funded by a Volkswagen Foundation DOBES grant. I was introduced to the Maniq by Jaroon Thotsagool – a long-standing friend of the community and an enthusiastic admirer of Maniq culture.<sup>15</sup> Prior to the establishment of a field site, together with him, I conducted a survey of Maniq-speaking groups (§2.5). The population estimate as well as insights regarding the sociolinguistic situation of the Maniq are based on this survey and previous surveys by Bishop and Peterson (1993; 2003). The fieldsite where most of the data was collected was the area of the Phu Pha Phet and Kuan Din Dum villages (Manang district, Satun province). The total number of speakers who provided linguistic data at this locality was about 20-30, but only about half of them participated in this interaction on a more regular basis. The regularly

---

<sup>15</sup> Apart from being Maniq's close friend, Jaroon Thotsagool is an ethnographic expert on Maniq culture, occasionally acting as a spokesperson on their issues. He does it on his own initiative, without institutional affiliation or support. His help in setting up the field site, conducting the survey as well as later fieldwork has been of immense value to this project.

participating speakers varied slightly year-to-year because of the changing group composition.

The Maniq living in this area are nomadic hence the locations of settlements varied across the years. The composition of the group fluctuated over time as various families and individuals either joined or left the group. At the peak, the group numbered 32 people, but most of the time the size was 15-20 people. The campsites were usually located in the forest and by outcrops within a convenient walking distance to the village. The altitude of camps, as measured with a Garmin GPS device, was most often slightly above 100 meters above sea level, but occasionally settlements were higher. The highest of the recorded sites was 480 meters. Occasionally, the Maniq settled in the deep forest, but none of the fieldwork overlapped with that period. The group camped most often in the area of the forest referred to with the indigenous name *tie? caŋen*, literally meaning 'land of *caŋen* palm tree'. Other indigenous names of the various camp locations were *tie? hmapie?* 'land of *hmapie?* tree', *cane* '(plant sp.)' and *gɔha? ʔatah* 'ʔatah rock overhang' (also called *gɔha? hamic bak* 'young bee rock overhang'). I myself was based in the immediate vicinity of the settlements. Most data was collected within campsites, but a significant portion came also from forest walks, yam digging trips, and other outside-camp activities. All elicitation was conducted in the Maniq setting.

First elicitations were carried out in Southern Thai primarily with the help of Jaroon Thotsagool, and intermittent assistance from Jia and J Kongkaew. In this initial period, I also relied largely on visual stimuli, mainly videos and pictures of simple scenes as well as zoological field guides. With every week, as my Maniq skills improved, gradually more and more of the questioning was done in Maniq, until all communication took place exclusively in Maniq and with no intermediaries (except for translation questionnaires, which involved the help of Southern Thai speakers).

Data collection was most often accompanied by audio recording, and sometimes captured on video, in either case with consent of speakers. The corpus consists mainly of recorded elicitation sessions, interviews, procedural texts, 40 minutes of a transcribed oral narrative, and some spontaneous conversation

between Maniq speakers. Transcription was complicated by the fact that native speakers are non-literate and could not participate in the annotation process. Hence, it was not possible to include a full transcript of a spontaneous conversation because of considerable difficulty of transcribing this genre of text, characterized by rapid and reduced speech. However, portions of conversations which are easier to follow were included. Transcriptions of recordings were carried out mainly in the field on a laptop using ELAN (Wittenburg et al. 2006). Text input of orthographic characters based on IPA standard was done with Tavultesoft Keyman Desktop.

A lexicon of Maniq was set up in Excel and later exported into other lexical database tools (FLEX, Lexus). The lexicon was first established with an elicitation of a basic 200-item Swadesh-type wordlist based on Benjamin (1976b) and an extended 400-item list. It was then gradually expanded by adding botanical and zoological terminology elicited with picture guides, names of objects encountered in the field and new vocabulary encountered during interviews and elicitation sessions. The lexicon currently numbers c. 2300 entries.

The study took a multi-method approach. Given the broad focus of the investigation and the fact that no grammatical description of the language was available, a triangulation of methods was employed to achieve the desired objectives. Standard elicitation techniques were supplemented by stimulus-based methods, systematic interviewing, as well as informal interaction and observation. These approaches yielded complementary types of data (cf. Hellwig 2006), and allowed for a more thorough understanding of the researched subjects. The traditional linguistic elicitation techniques – e.g. word list elicitation, grammatical/lexical translation questionnaires, paradigm elicitation – were combined with stimulus-based methods, e.g. naming, video description, and director-matcher tasks. Questionnaires for translation were prepared beforehand in standard Thai. Since Southern Thai differs from the standard variety by tone, certain sounds, and some lexical items (Diller 1979; Kaewkhao & Kiatboonyarit 1986), questionnaires were checked and adjusted by speakers of the local dialect of Southern Thai, Jaroon Thotsagool and Prajoub Kongkaew, who also assisted during elicitation. I made extensive use of multi-modal stimulus-based elicitation

material and tasks developed in the Language and Cognition Department of the Max Planck Institute for Psycholinguistic<sup>16</sup>, e.g. Language of Perception (Majid 2007; Majid 2008a), Grammar of Perception (Norcliffe et al. 2010), Put Project (Bowerman et al. 2004), Topological Relations Picture Series (BowPed) (Bowerman & Pederson 1992), etc. I also employed a selection of methods from cognitive psychology and anthropology: exemplar listing, off-line rating, similarity judgment by triadic comparison and pile sorting (Weller & Romney 1988). In addition, a large portion of data was collected informally through ethnographic methods: observation, interviews, and participation in the daily practices of the community. I also collected extensive ethnobiological notes, focusing in particular on key plant and animal species for the Maniq community. Animal identifications were carried out with photographic guides for the region (Cox, Paul & Thirukhupl 1998; Francis 2001; Braack 2010), and the CD *Birds of Thailand, Songs and Calls vol. 1* by Tony Ball (1998). Plant species were identified via the Maniq vernacular labels recorded in Maneenoon (2001; 2008), and Maneenoon et al. (2008), or via Thai vernacular labels. In addition, several specimens were inspected and identified by the botanist Katesarin Maneenoon from the Prince of Songkla University in Hat Yai.

### 1.8 Structure of the thesis

Having set the scene for the current investigation, I now turn to Maniq and the investigation of semantic specificity in the selected lexical sets of perception verbs. The remainder of the thesis consist of the following elements.

Chapter 2 provides background into the Maniq society, detailing general information about the group, a sociolinguistic survey of Maniq-speaking communities and general information about the Maniq in Thailand. I give an overview of the local ecology, the indigenous material culture as well as aspects of the belief system, all of which will help illuminate the linguistic categories examined in later chapters.

---

<sup>16</sup> For the field manuals and stimulus materials, see <http://fieldmanuals.mpi.nl/>.

Chapter 3 gives background into the Maniq language. More specifically, I introduce the basic facts about Maniq: the language name background, genetic affiliation, prior work, and contact situation. The central part of the chapter provides grammatical preliminaries to Maniq with a focus on the word class of verbs. This material is intended as a reference for the main chapters of the thesis and a general overview of the structure of the language.

Chapter 4 is a case study of semantic specificity in dynamic verbs – verbs of looking which encode gaze trajectory. A close examination of the semantic distinctions in this set indicates the resulting pattern of lexicalization is an outcome of multiple pressures, i.e. universal constraints such as earth-based verticality and the mechanics of the human body, and culture-specific factors such as the environment and culturally salient activities. In addition, a comparison with other lexical sets encoding spatial notions reveals looking verbs in Maniq follow a systematic organizational principle. This indicates language – more specifically, its characteristic way of organizing meaning – has an important role in shaping verb categories.

Chapter 5 focuses on a subset of stative verbs from the visual modality: semantically general verbs encoding color and semantically specific verbs encoding more fine-grained distinctions in color and visual surface. Despite not having developed advanced color technology (often evoked as a prerequisite to linguistic codability of color), the language is well-equipped in color expressions, allowing speakers to talk about color with precision. The factors contributing to high codability are: a rich set of verbs, conciseness of color descriptions and high agreement in color naming.

Chapter 6 explores the domain of smell, commonly considered to be resistant to lexicalization. Unlike familiar Western languages, the domain of smell in Maniq is well-lexicalized with everyday words encoding abstract odor qualities. These items form a coherent field structured by two dimensions – pleasantness and dangerousness, as revealed by speakers' similarity judgments. The linguistic elaboration of smell is further found to reflect the elaboration of smell in culture, since smell plays an important role in the Maniq indigenous knowledge and belief system.

Chapter 7 concludes this thesis by summarizing the major points emerging from the individual chapters and synthesizing them into a set of theoretical implications. The main findings relate directly to the questions posed at the beginning of this chapter regarding the semantic content of specific verbs, the factors underlying lexicalization patterns and the structure of the verb lexicon. The data shed new light on verb specificity, pointing to the central role of society, culture and linguistic structure in lexical elaboration. The final discussion of the major findings is followed by an identification of the outstanding issues and directions for future research.

## 2 The Maniq

---

Where they have gone or where from the huge forests they will again emerge, and when, no man knows.

(Brandt 1965:43)

### 2.1 Introduction

This chapter briefly introduces to Maniq society and culture, focusing especially on aspects relevant to this thesis. It starts with a presentation of basic facts about Maniq society (§2.2), continues with an overview of ethnonyms (§2.3) and previous ethnographic sources (§2.4). Following this, it reports briefly on a sociolinguistic survey of Maniq-speaking groups (§2.5) and discusses the general knowledge about the Maniq in Thailand (§2.6). Finally, it outlines those aspects of the environment (§2.7), indigenous material culture (§2.8) and indigenous beliefs and practices (§2.9) that are significant in the context of the senses. For the aspects not covered here, or treated only briefly, the reader is referred to the relevant literature cited throughout.

### 2.2 Maniq society

The Maniq are a population of about 300 people inhabiting the Banthad mountain range of southern Thailand. They live in small groups scattered across the provinces of Trang, Satun, Phatthalung and Songkhla<sup>17</sup> (cf. Figure 3.1). Maniq speakers are traditionally hunter-gatherers and forest product traders, who lead a nomadic or semi-nomadic life. Nomadism is still practiced by a large proportion of the population, but today there are also Maniq groups that have settled and embraced agriculture and waged labor.

The Maniq belong to a cluster of hunter-gatherer populations in the Malay Peninsula referred to in the ethnographic literature as the ‘Semang’. The Semang,

---

<sup>17</sup> No linguistic data is available on the Maniq group of Songkhla (Rattaphum District). However, the group reportedly speaks the same language as the Maniq of Trang, Satun, and Phatthalung.

together with the Senoi and the Aboriginal Malay, are collectively named ‘Orang Asli’ in Malaysia (Malay for ‘original people’) (Benjamin 1985). Owing to their short stature, curly hair and dark skin, the Semang are sometimes called ‘Negritos’ – a label referring to a phenotypically distinct group of Southeast Asian populations hypothesized to be descendants of local pre-Neolithic groups (Hill et al. 2006; Oppenheimer 2011; cf. Burenhult in press for a review).

The subsistence system of the traditional Maniq groups relies to a large extent on hunting forest game and gathering wild plants (cf. §2.7). An important additional source of livelihood is small-scale trade of forest products (e.g. honey, petai beans, herbs), which are exchanged for money and various commercially sold goods such as rice. It is an *immediate-return system* (Woodburn 1982), whereby resources are consumed within a short period after they have been procured. Because of frequent contact with outsiders, the Maniq often set up camps in lowland forests within convenient walking distance from Thai villages. However, there are also extended periods during which the Maniq remain in the deep forest, often at higher altitudes, without contact with the outside world.

Like other Semang peoples, the Maniq are traditionally an egalitarian society with a strong ethic of reciprocity and sharing, individualism and almost no social stratification or individual specialization (Lukas 2004; Endicott & Adem 2009). Groups generally do not have formal leaders and decision-taking is based on personality traits and informal authority in the group. Particular individuals might be designated as ‘headmen’ in interactions with outsiders, but they do not have the official status of leaders in the group. The basic social unit is the conjugal family. The groups formed by the Maniq have a flexible structure with no fixed membership (cf. Endicott 1979; Benjamin 1985). The Maniq are also a peaceful culture and, as is typical among Aslian groups, do not approve of violent resolution of conflict (cf. e.g. Dentan 1979; Endicott 1979).

Almost all Maniq speakers are fluent in Southern Thai, which they use in contact situations with Thai villagers and forestry officials. However, Maniq is the most important language used within the group, and it is the first language learnt by children (Bishop & Peterson 2003).

### 2.3 Ethnonyms

The endonym *Maniq* comes from the word *maniʔ* [ma'niʔ] ‘indigenous person’. The final *q* indicates a glottal stop sound [ʔ], in accordance with the convention for Aslian language names (e.g. Ceq Wong, Menriq, Semaq Beri).<sup>18</sup>

*Maniq* is used as an endonym also by other groups: speakers of Kensiw and Kentaq of the Thai-Malay border area (cf. Figure 3.1). These groups, however, are distinct from speakers of Maniq. They not only speak different languages, but also form geographically separate communities, and are not routinely in contact with the groups of the Banthad mountain area.<sup>19</sup> For the purposes of this thesis, the term ‘Maniq’ is to be understood as an ethnolinguistic denomination, hence referring exclusively to speakers of Maniq, and not speakers of Kensiw or Kentaq.

Several exonyms referring to the Maniq are commonly employed by the Thais, all of which carry pejorative overtones. The first one – *Sakai* meaning ‘slave’ or ‘servant’ – is an older Malay term previously used in Malaysia, but now common only in Thailand. Another one – *ηʂʔ* or *ηʂʔ pàa* – means literally ‘rambutan’/ ‘forest rambutan’ in Thai and makes reference to the alleged similarity between the hair covering the rambutan fruit and the Maniq’s curly hair. Finally, the Maniq are also simply referred to with the Thai expressions *Khon pàa* or *Chaaw pàa*, which mean ‘forest people’.

### 2.4 Ethnographic sources

The earliest published ethnographic notes on the Maniq appear in Skeat & Blagden (1906), Evans (1927; 1937), Schebesta (1925; 1929), Schebesta & Blagden (1926), Bernatzik (1938) and in the preface of King Chulalongkorn’s story (1907). Accounts focusing specifically on Maniq as well as other groups found in Thailand are found in Brandt (1961; 1965). The most recent references include Bishop &

---

<sup>18</sup> Note that this convention is only employed with language names. The standard representation of a glottal stop in Aslian orthographies is the IPA symbol ʔ.

<sup>19</sup> Given that Maniq and Kensiw speakers reside in Thailand and are similar at a general level, some anthropological literature discusses them together referring to them as ‘Maniq’ (e.g. Hamilton 2006). Others, however, employ the term ‘Maniq’ referring specifically to the groups of the Banthad mountains (i.e. speakers of Maniq) (Kricheff & Lukas 2015).

Peterson (1993; 2003); Hamilton (2001; 2002; 2006); Porath (2001; 2006); Benjamin (2002); Lukas (2004); Anong & Chanthachon (2009); Choosri et al. (2011); Rattanakrajangsri, Maneerat & Colchester (2013); Wnuk & Majid (2014); Chapter 6 of this thesis), and Kricheff & Lukas (2015).

## 2.5 Sociolinguistic survey

This section reports on the survey of the Maniq groups in the Banthad mountain region that I carried out in collaboration with Jaron Thotsagool in October–November 2009.<sup>20</sup> It contains a general overview of Maniq-speaking groups, including the population count and information on the settlement patterns. While this survey is not exhaustive – due to the difficulty of locating the Maniq, at least three groups<sup>21</sup> could not be contacted – the emerging observations are likely representative of the population as a whole. Previous surveys of Maniq groups carried out by Bishop and Peterson (1993; 2003) included extensive data (a 400-item wordlist and a broad sociolinguistic questionnaire), but they involved fewer sites (four for the 1993 survey, and seven for the 2003 survey) in comparison to this survey.

The present survey includes twelve Maniq groups: four in Trang, three in Phatthalung, and five in Satun. The sites were located between 7° 1' and 7° 21' N and between 99° 45' and 100° 2' E, in the 73–638m altitude range. Altogether, the groups numbered 239 Maniq speakers (including 10 Maniq-Thai children from mixed marriages). Six of the groups lived in temporary settlements consisting of palm lean-to shelters and/or rock shelters. Six groups lived in permanent or semi-permanent houses, either within a Thai village or, more commonly, in a separate settlement inside the forest. The groups numbered from 3 to 54 Maniq people, with the average group size being approximately 20 members. Table 2.1 lists each

---

<sup>20</sup> The survey was carried out prior to the start of my PhD project, within the DOBES project *Tongues of the Semang* funded by the Volkswagen Foundation.

<sup>21</sup> These were the groups associated with the following approximate locations: Thung Nui (Kuan Kalong district, Satun province), Nam Phut (La-ngu district, Satun province), Khao Phra (Ratthaphum district, Songkhla province).

of the visited sites, their altitude, the date of the visit, the number of households, the number of people and information about the settlement type.

Site	District	Province	Altitude	Date of visit	Number of households	Number of Maniq speakers	Type of settlement
Round Pla (Huan Nom Sao)	Thung Wa	Satun	> 161m	11-Oct-09	1	14	Temporary camp with lean-tos and rock shelters
Chong Ngap	Thung Wa	Satun	96m	12-Oct-09	1	5	Permanent settlement with a wooden house
Wang Sai Thong #1	La-ngu	Satun	199m	14-Oct-09	5	21	Temporary camp with lean-tos
Wang Sai Thong #2	La-ngu	Satun	–	14-Oct-09	1	5	Permanent house within a Thai village
Thungnaree (Khao Chan)	Pa Bon	Phatthalung	271m	17-Oct-09	2	10	Temporary camp with lean-tos
Khlong Tong	Palian	Trang	189m	18-Oct-09	6	54	Permanent settlement with wooden houses
Phu pha phet (Kuan Din Dum)	Manang	Satun	101m	24-Oct-09	14	32	Temporary camp with lean-tos
Chao Pa (Kao Hua Soom)	Palian	Trang	146m	25-Oct-09	c. 7	20	Permanent settlement with wooden houses
Ton Te	Palian	Trang	77m	1-Nov-09	12	25	Temporary camp with lean-tos
Hui Tang Mae	Palian	Trang	153m	1-Nov-09	c. 6	26	Permanent village with wooden houses
Tamot	Tamot	Phatthalung	73m	21-Nov-09	1	3	Permanent house within a Thai village
Baan Pood	Kong Ra	Phatthalung	638m	21-Nov-09	c. 5	24	Temporary camp with lean-tos

**Table 2.1** Maniq sites visited during the 2009 survey

The economy of the sedentary groups was based primarily on waged labor, trade and cultivation of their own crops, including rice and rubber trees. The economy of the nomadic groups, by contrast, relied mainly on hunting, gathering, trading forest products, and occasional contact with tourists. Differences in settlement patterns also corresponded to differences in degree of contact with the Thai population. The more sedentary groups maintained regular contact with the Thais (with some intermarriage), and used modern technologies like motorbikes and cell phones more often. Conversely, the nomadic groups had infrequent contact with the Thais, and had a more basic material culture. Although the issue of Thai fluency was not examined in this survey, other researchers have compared multiple Maniq groups and noted that the sedentary Maniq groups are more fluent in Southern Thai and have some knowledge of Central Thai (Choosri et al. 2011). Across all groups, however, Maniq was the primary language of communication and the first language acquired by children (see also Bishop & Peterson 2003). With regard to formal schooling, neither the nomadic nor the sedentary groups participated in the Thai education system. At the time of the survey, only a handful of Maniq children attended schools<sup>22</sup> (see the earlier survey by Bishop & Peterson 2003 for similar observations).

It is important to note that the observations provided by this survey can provide only a snapshot at a particular moment in time. Some Maniq occasionally shift between nomadic and settled life, for instance, and groups are in constant flux, frequently splitting from or joining with other groups. Consequently, the groups are composed of individuals with diverse histories, varying levels of proficiency in Thai, and differing degrees of interest in Thai culture. In that sense, there are no purely acculturated or purely isolated groups.

In addition to variation in group composition, there is idiolectal (and possibly dialectal) variation in the Maniq speech community. While the brief character of the survey did not permit systematic exploration of linguistic variation across

---

<sup>22</sup> Although at the time of the survey almost no Maniq followed education in school, some Maniq in their 20s or 30s (mostly male) have had the experience of attending a Thai school for a limited period of time. No exact figure can be provided here, but given the low number of such reports, it does not seem to have been common.

groups, it has been observed over an extensive period within a single fieldsite (see also §3.7).

This thesis is based primarily on research carried out with the Maniq group of the Manang district in Satun. It is a nomadic group with strong ties to the surrounding rural population. For details about the fieldsite and the group, see §1.7. The account of the various aspects of Maniq life in the following sections is based mainly on interactions with this group.

## 2.6 Knowledge about Maniq in Thailand

In the multicultural landscape of Thailand, the Maniq are but one of several dozen distinct ethnolinguistic groups (Suwilai 2004). As a small community living in Thailand's far south, away from the central government's seat, they have attracted relatively little attention from the state and general public. Most Thais have heard about the Maniq via the popular story *Ngo Paa*, which was written in the early 20<sup>th</sup>-century by the Thai King Chulalongkorn (1907) and features Maniq characters (cf. Hamilton 2006:307–308). Besides this, however, there is little awareness among the Thai general public of the current status or whereabouts of the Maniq.

Though Thai authorities have tried to maintain a population record of the group, their attempts have been undermined by the high mobility of some Maniq. As Bishop and Peterson (2003:2) put it: "It is readily admitted that no one really knows for sure what the actual population figures are as some Maniq may have been counted more than once and others not at all". Unlike the Kensiw speakers of Baan Thaanto in Yala (Phaiboon 1984), the Maniq were not part of a government resettlement program. Most Maniq are also not officially registered as Thai citizens. A notable exception are the Maniq of the Khlong Tong village in Trang – the largest settled Maniq community – who have recently received ID cards and are therefore officially considered citizens. Most Maniq, however, do not believe citizenship would be beneficial for them, but instead regard it as a road to state subjugation (cf. Rattanakrangsri, Maneerat & Colchester 2013).

## 2.7 Rainforest ecology and its significance for the Maniq

The Maniq inhabit a mountainous region in the interior of peninsular Thailand. The area is covered by tropical evergreen forest, and experiences heavy rainfall (more than 2000 millimeters annually on average), interrupted by a dry season from January till May. In the last few decades, this part of Thailand has been undergoing rapid transformation. Strong agricultural expansion and infrastructure growth has reduced forest cover and restricted the traditional foraging area of the Maniq forcing some of them to adopt a sedentary lifestyle (Rattanakrangsri, Maneerat & Colchester 2013).

Despite these changes, the forest remains the primary residence for most Maniq today. The outstanding feature of their environment is its dense vegetation, which provides protection from the strong equatorial sun. Among the dominating tree families are dipterocarps (*Dipterocarpaceae*), characterized by smooth straight trunks, high canopy (often beginning as high as at 50 meters above ground), and buttressed bases (Primack & Corlett 2005:58) (Figure 2.1). These botanical features contribute to the creation of a relatively stable forested environment with particularly dense and dark structures.

The forest is also characterized by an immense diversity of flora and fauna. Plants and animals form the basis of Maniq subsistence, medicine and indigenous material culture. Of the animal kingdom, particularly worthy of mention are the hunted animals, most of which live in trees. These include various primates like leaf monkeys, macaques, and gibbons, as well as other vertebrates such as squirrels, civets, bearcats, colugos, birds and lizards. The most common hunting technique involves the use of a blowpipe with poisoned darts (cf. §2.8). Examples of important ground-dwelling and water-dwelling species are wild pigs (*Sus scrofa*), hog



**Figure 2.1** A dipterocarp nearby a Maniq campsite.

badgers (*Arctonyx collaris*), several kinds of monitor lizards, and a variety of chelonians. As for invertebrates, of key importance to the Maniq are honey bees, which during the several months of the honey season provide large amounts of honey, a prominent product in the Maniq exchange economy.

In their daily lives, the Maniq make use of the rich variety of trees, vines, shrubs and herbs found in their environment. Plants are not only used for food and medicine, but also as a source for construction and manufacturing material. Central to the Maniq diet are wild yams from the genus *Dioscorea*, traditionally the main staple food. Thirteen species of *Dioscorea* have been found to be consumed by the Maniq (Maneenoon 2008; Maneenoon, Sirirugsa & Sridith 2008), the most characteristic being tubers of *Dioscorea orbiculata* (Maniq: *takop*). The Maniq locate *Dioscorea* tubers growing underground by their climbing stems found on tree trunks. Once found, the tubers are dug out with digging sticks and collected into pandanus baskets. The Maniq also consume a range of wild fruits and vegetables. A particularly important one is petai (*Parkia speciosa*), with edible beans that grow in the canopy. Petai is notable not only for its role as a food, but also due to its value in commercial exchanges. It is a popular southern Thai food sought-after by the local Thai population. With regard to medicinal plants, two of the most important groups are the wild ginger (*Zingiberaceae*, e.g. *Zingiber montanum*, *Ellettariopsis* sp.) and laurel families (*Lauraceae*, e.g. *Cinnamomum cf. subavenium*), both of which are valued for their pleasant fragrances, and considered to have healing effects (cf. §2.9). The key materials used for construction and manufacturing, are various kinds of wood, bamboo, palm trees – including rattans – and pandanus (cf. §2.8). Trees are also the source of important resins (e.g. *Canarium* sp., used in blowpipe production) and latex (e.g. the ipoh tree *Antiaris toxicaria*, used as poison).

With intimate knowledge of the forest, the Maniq exhibit great skill in navigating it and exploiting its resources. In addition to being excellent trackers and climbers, they also have expert knowledge of the forest's ecological relationships. Their close familiarity with their environment has allowed them to develop strategies to avoid dangers endogenous to the forest, like tigers, poisonous snakes, centipedes, and the like. Various medicinal plants employed by them are

meant to both cure and prevent illnesses, while careful selection of campsite ground helps decrease the chance of being affected by thunderstorms and violent wind.

Though the Maniq spend most of their time in the forest, they also visit villages when camping nearby. They meet villagers to exchange goods and shop at local stores. In addition, some Maniq pay casual visits to befriended households to, for example, charge flashlight batteries or watch TV. Similarly, when camped not too far from the main road, the Maniq receive visitors, including villagers, forestry officers and tourists. If visits become too frequent, or for some reason turn into a nuisance, the Maniq might abandon their camp and move deeper into the forest, where they are out of reach for most outsiders. Decamping like this poses few practical problems, as the Maniq have few possessions to transport and can set up a new camp within a couple of hours. Thanks to such flexibility, the Maniq are able to adjust quickly to fluctuating environmental conditions.

## **2.8 Indigenous material culture**

The material culture of the Maniq is simple, as is typical for a Semang group (Schebesta 1929), and generally expected of a nomadic community. Apart from shelters and resting places which make up the household, the Maniq produce objects such as blowpipes, darts, quivers, baskets, mats, simple kitchen utensils, and mouth harps. They also make use of objects acquired via commercial exchanges, for example, knives, machetes, axes, digging tools, and cooking pots.

As noted in the previous section, most of objects manufactured by the Maniq are made of wood, bamboo, palm, and pandanus. Since most of these materials are not particularly durable – especially in the humid rainforest conditions – many objects are replaced every few weeks or months. Artifacts are typically made following a simple style; they are not dyed or carved with patterns, nor do they bear any other ornamental elements. This material practice contrasts with similar objects made by other Semang communities, for instance, the patterned blowpipes made by the Kensiw and Jahai (Brandt 1961). Earlier accounts and museum deposits from the 19<sup>th</sup> century suggest that this simplicity has typified Maniq manufacture for a long time (Taylor 2015). Like the visual arts, music also appears

simple. The only frequently encountered instrument is the mouth harp, though – when asked – people claim to use or have used other instruments also, like musical bows.

In the remainder of this section, I describe briefly a few of the key objects that the Maniq make: lean-tos and other types of shelters, blowpipes, darts, and quivers. Lean-tos are the most commonly constructed types of shelters by the nomadic Maniq. They consist of a single windscreen wall (*hapɔy*) leaning against vertical supports. The wall is made of a wooden skeleton and a palm thatch. Inside the lean-tos are inclined beds made of wooden sticks, and spots designated for fire. If a group is planning a longer stay at a single site, they might build more enduring constructions like wooden huts on stilts. Unlike lean-tos, which only take an hour or so to erect, these huts normally take a few days to build and require better tools (nails, axes, etc.). When camping by rock overhangs – if no extra protection from rain and wind is needed – the Maniq do not build lean-tos, but only make beds and places for fire.

Blowpipes (*balaw*) and poisoned darts (*bilah*) are the main hunting weapons. Blowpipes are typically made from specific types of straight and sturdy small-diameter bamboo that are typical of higher mountain areas (known among the Maniq as *laju?* and *hmaluh*). The blowpipes consist of two roughly 2-meter long tubes, one nested inside the other. Blowpipe darts are carved out of sticks of *talien* (*Pinanga* sp.), notched at the tip and furnished with a balancing element at the end. Several types of plants are used for obtaining dart poison, typically the ipoh tree (*Antiaris toxicaria*) (*dɔk*), but also *Strychnos* sp. (*ba?ɛl*) and other vines. Ipoh latex used for the poison is tapped by making a cut in the bark and collecting it into a small receptacle. The process of dart-making involves hardening the darts over fire, during which they become black, and putting the poison on the tips. Because of the strong overpowering smell of the poison, some Maniq avoid it for fear of headaches and dizziness. Hunters store their darts in a quiver (*mani?*) made of thick bamboo tubes that are coated with beeswax, which gives the quiver a characteristic orange/brown color.

## 2.9 Indigenous beliefs and the senses

There is no comprehensive account of the Maniq belief system at present, but some of its elements have been discussed in various places (Brandt 1961; Brandt 1965; Hamilton 2002; Hamilton 2006; Lukas 2004; Rattanakrajangsri, Maneerat & Colchester 2013; Kricheff & Lukas 2015). Since some aspects of the belief system are shared across the Semang and Orang Asli groups more broadly, useful insights can also be gained from the pertinent literature (e.g. Schebesta 1929; Evans 1937; Benjamin 1967; Endicott 1979; Lye 2004; Dallos 2011; Dentan 1979). This section focuses more narrowly on the beliefs and practices as viewed from the perspective of the senses. I discuss in particular issues such as health, disease, safety and danger, targeting two of the most prominent elements of the sensory environment in this context – temperature and smell – both of which are fundamental to the Maniq approach to health and disease.

Healthy bodies and healthy environments are believed to be cool and pleasant-smelling. Consequently, many of the medicinal practices employed by the Maniq are based on the idea of cooling down the body or treating it with a fragrant odor. For instance, machetes and metal dust from sharpening machetes are applied to ailing body parts so that they ‘become cool’ (*ha<m>ɲɛc*, be.cool<INCEP>) and heal. The Maniq – similar to other Semang (Benjamin 1985; Endicott 1979; Lye 2004) – attach great value to cool environments and dislike open, tree-cleared areas. In their view, the forest is the safest of all places – its coolness commonly given as a reason for inhabiting it (cf. Endicott 1979:53; Benjamin 1985:240). Huts and lean-tos also have the status of being ‘cool’ (*haɲɛc*) safe places, in particular, if they are freshly built. Old shelters with withered roofs, by contrast, are ‘hot’ (*baket*) and therefore unsafe.<sup>23</sup> Coolness of a shelter typically comes together with a particular smell – described with the verb *lspəs* ‘to be fragrant, as of wild yams, bearcat, new shelter, etc.’ – which is beneficial to health (for

---

<sup>23</sup> In the context of health, the words *haɲɛc* and *baket* have an evaluative component (positive in the case of *haɲɛc*, and negative for *baket*). Despite this, they can also be used as purely descriptive terms with no intrinsic evaluation or evaluation depending on the context of use.

Chapter 6). This belief is concisely expressed in (8), uttered by a Maniq speaker sitting in a recently built lean-to.

- (8)            ʔɔʔ     hiy     m-ŋək                    ʔɛn     ʔɛʔ     lspəs,  
                   REC     1DU.INCL PROG-to.sit            DEM     3           to.be.fragrant  
                   ʔɛʔ     baʔɛt,                    ʔɛʔ     haŋɛc  
                   3           to.be.good                    3           to.be.cool  
                   ‘The place where we’re sitting, it’s fragrant, good and cool.’

*Lspəs* is also the odor of medicinal plants considered to have a disease-curing power (for a detailed account, see §6.4).

Just as cool temperatures connote health and well-being, intense heat from sunlight – indicates a potential health hazard. This association also extends to the olfactory domain. In a prototypical scenario, the dangerous heat from the sun co-occurs with an odor described by the verb *hamis* ‘to smell (e.g. as of the sun and hot air from the sun)’, also believed to cause illness (cf. Chapter 6). This is why the Maniq prefer to build shelters in relatively shaded places. If a place they chose to inhabit turns out not to give enough shade, this could provide sufficient motivation to decamp. For example, excessive heat and sunlight were named as reasons to move by the Manang group, which in September 2011 shifted their camp from a small forest clearing to a shaded spot situated about 50 meters away. Note, however, that the group had camped in the cleared spot for several weeks before moving, and decided to leave only when several Maniq became ill. This suggests that – even though the heat is talked about as a source of danger – the Maniq do not take an uncompromising stand towards it, but balance it against other factors.

Another danger greatly feared by the Maniq are violent storms with thunder, lightning, and wind. According to the Maniq, storms are sent by the thunder god *Kaʔey* – a superhuman being punishing them for various offenses, like cooking incompatible types of food on one fire (for other examples of common offenses, see Kricheff & Lukas 2015:148–149). Appeasing the anger of *Kaʔey* has traditionally been accomplished through blood offerings in blood-throwing ceremonies (cf. Schebesta 1929), but nowadays the practice appears not to be

followed. There is, however, another ritual which is believed to help ease strong wind and dissipate storms. It involves burning dried rhizomes of the *kasay*<sup>24</sup> plant (*Dianella ensifolia*) (cf. Kricheff & Lukas 2015). Both blood-throwing as well as *kasay* burning involve communication with the deity via the distal sensory channels: vision, audition and – most notably – olfaction (cf. Burenhult & Majid 2011). In either case, the specific smell of the offering – *paleŋ* in the case of blood and *lspəs* in the case of *kasay* – is believed to reach *Kaʔey* and appease him.

### 2.10 Summary

This concludes this brief introduction into Maniq society and aspects of their sociocultural and ecological setting. As previewed in the first chapter of this thesis, these issues bear a relationship to the semantic distinctions made in perception verbs and are crucial for understanding their fit within the larger cultural system. They thus constitute a necessary background to the ensuing discussion.

---

<sup>24</sup> Two quite different plants have been associated with the Maniq name *kasay*: (1) *Dianella ensifolia* – (Maneenoon 2001:30), and (2) *Boesenbergia rotunda* (Kricheff & Lukas 2015:149). My own inspection of a fruiting specimen of *kasay* and a comparison with the records of the botanical database *Tropicos* accords with the identification as *Dianella ensifolia*.



## 3 Language background and grammatical preliminaries<sup>25</sup>

---

### 3.1 Introduction

This chapter provides background information on the language, and some grammatical preliminaries of Maniq. It has two major aims. First, it contextualizes Maniq in the Aslian/Austroasiatic setting, and gives a general overview of its basic structural properties. These include essential aspects of phonology, morphology, syntax and selected word classes, with a special focus on verbs. It thus provides the crucial introduction to the ensuing analyses allowing the reader to follow the examples and explications regarding the formal aspects of the language. Second, it gives a detailed characterization of the verb class, including topics such as stative-dynamic distinction in verbs, derivational morphology and iconicity in the verb lexicon, all of which are of central importance to the discussions in the following chapters of the thesis.

### 3.2 Language name

The term *Maniq* is adopted here in accordance with the speakers' own usage to refer to their language. Previous literature on the language contains several alternative names, including Tonga and Mos (used e.g. by Schebesta & Blagden 1926; Bishop & Peterson 2003), Trang Kensiw (Bauer 1991), and Tean-ean (Phaiboon 2006), Ten-edn (Peterson 2012) or Ten'en (Dunn et al. 2011). None of these alternative names is known to the speakers of the variety discussed here.

---

<sup>25</sup> Sections 3.2, 3.3, 3.8.1, and 3.8.3 or their parts also appear in Wnuk & Burenhult (2014). This includes: information about language name, genetic affiliation, phonemic inventory, and the statement about stress and tone. Sections 3.11.3, 3.12, 3.13, 3.14, 3.16.3, 3.17 or their parts also appear in Kruspe, Burenhult & Wnuk (2015). This includes: the general distributional properties of nouns, description of nominal compounds, collective compound forms of personal pronouns, demonstratives, prepositions, examples of noun phrases, some observations on basic clause structure, as well as a revised and extended treatment of derivational morphology (3.11.3), interrogative and indefinite pronouns (3.13.2), multi-verb constructions (3.16.3), and depictive mode of speech (3.17).

As mentioned in Chapter 2, the word *Maniq* [ma'ni?] denotes 'indigenous person' and is also used as an ethnonym. Several other groups – e.g. speakers of Kensiw and Kentaq of the border area between Thailand and Malaysia – use similar terms as ethnonyms (Phaiboon 2006; Burenhult 2009), but speak distinct languages (i.e. Kensiw and Kentaq) (Dunn et al. 2011). Whenever the term *Maniq* is used as a group name in this thesis, it is meant to refer exclusively to the Maniq of the Banthad mountains, i.e. speakers of the Maniq language.

### 3.3 Genetic affiliation

Maniq belongs to the Northern Aslian division of the Aslian branch of the Austroasiatic language family. Aslian languages, spoken in the Malay Peninsula, form the southernmost group of Austroasiatic. The name *Aslian* derives from the term *Orang Asli* 'aboriginal people' introduced in Malaysia as a collective term to refer to the local indigenous populations. Classifications of Aslian based on lexicostatistical comparison (Benjamin 1976b) and evidence from historical phonology (Diffloth 1975) divide Aslian into three branches: Northern, Central and Southern. Later accounts propose also a fourth branch consisting of a single language – Jah Hut (e.g. Diffloth & Zide 1992). A division into Northern, Central, Southern and Jah Hut is also supported by the most recent work employing computational phylogenetic methods (Dunn et al. 2011).

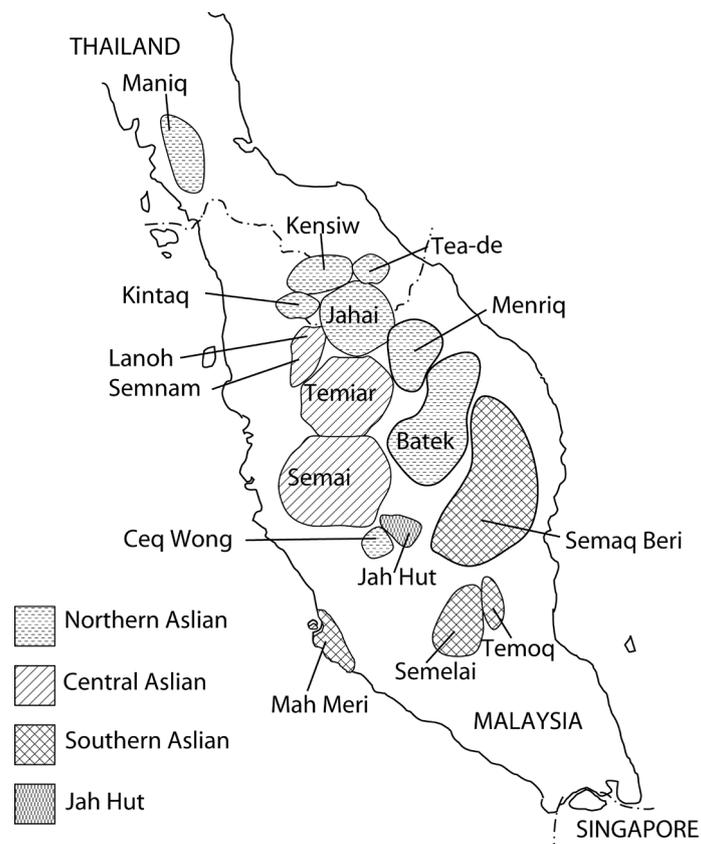
Within Northern Aslian, Maniq falls under the Maniq subclade, together with Kensiw and Kintaq (Dunn et al. 2011). This subclade and its sister subclade Menraq-Batek (which includes Jahai, Menriq and Batek) form a Maniq/Menraq-Batek (MMB) grouping, which represents the portion of Northern Aslian spoken by Semang foragers (Burenhult, Kruspe & Dunn 2011) (§2.2). Figure 3.1 is a map showing the geographical distribution of Aslian languages (Dunn et al. 2011; Wnuk & Burenhult 2014).

Figure 3.2 illustrates the Aslian family tree generated using the lexical data from Dunn et al. (2011) and the Maniq variety this thesis focuses on – Maniq Manang.<sup>26</sup> The modifiers used with language names – 'Palian', 'Paborn', 'Manang'

---

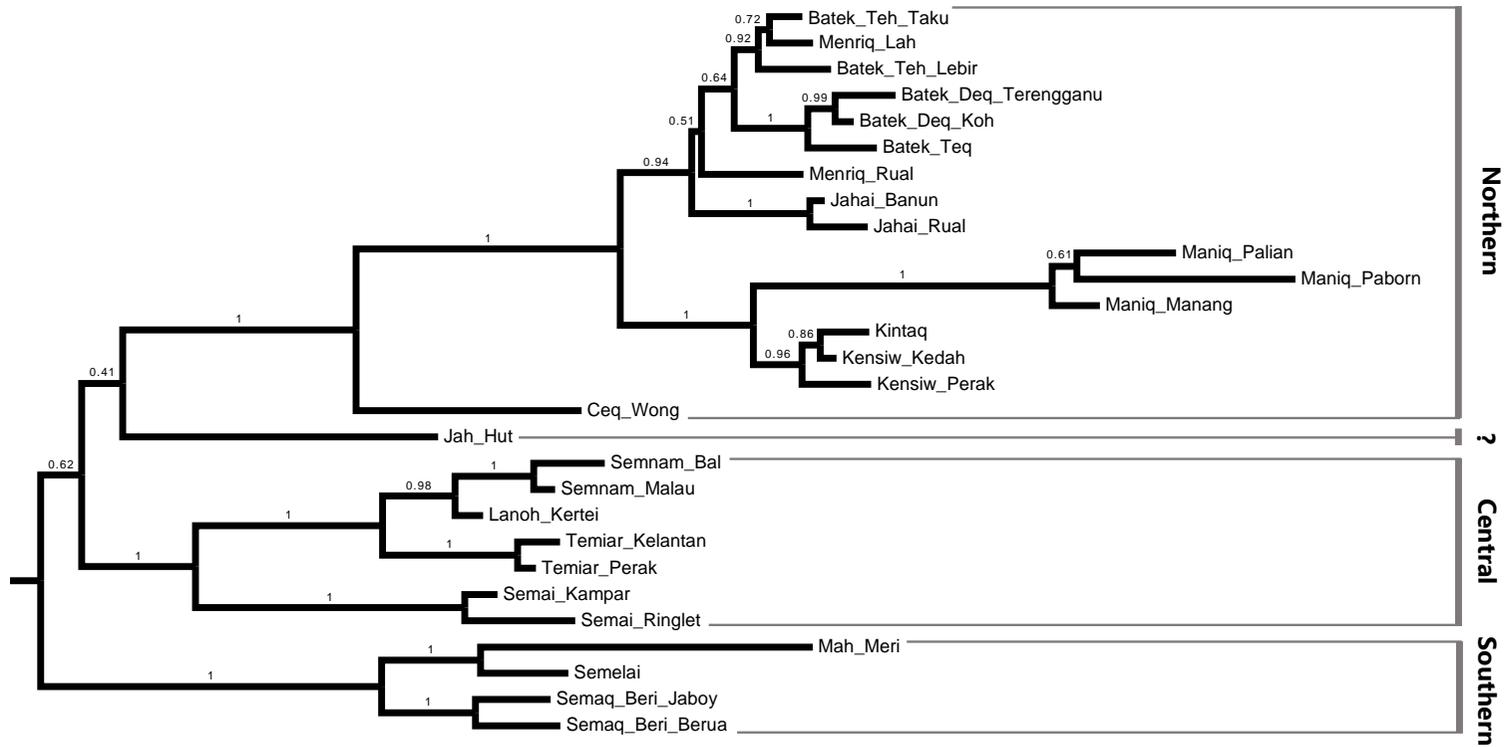
<sup>26</sup> I would like to thank Michael Dunn for generating the extended tree.

– indicate the different sites where the data were collected.<sup>27</sup> Paborn and Palian are districts in the Trang province, and Manang is a district in the Satun province. Note that the label *Maniq* is used instead of *Ten'en* used in Dunn et al. (2011). As is visible in the tree, most of Northern Aslian languages – especially *Maniq* – are lexically divergent from other Aslian branches. This is discussed further in §3.5.



**Figure 3.1** Aslian languages; adapted from Benjamin (1976b) and Burenhult (in press).

<sup>27</sup> The data from the Manang variety were collected by me, and those from the Palian and Paborn varieties were collected by Neele Becker.



**Figure 3.2** Aslian family tree. Branch length indicates the *amount of diversification* (reflecting “rate of change and time of separation”; Dunn et al. 2011:314), while numbers indicate *posterior probability* (confidence of the branching; Dunn et al. 2011:307).

### 3.4 Prior language documentation and the scope of this thesis

The first sources citing Maniq linguistic data date back to at least the beginnings of the 20<sup>th</sup> century. Among them is a word list obtained by King Chulalongkorn around 1905 from a Maniq boy – Kanang – from the Phatthalung area. The list of approximately 80 words recorded in Thai script forms part of the ethnographic introduction to the king's story *Ngo Pa* featuring Maniq characters (cf. Chapter 2). Brief comments on Maniq appear in later ethnographic sources discussing the indigenous groups of the British Malaya and Peninsular Siam, e.g. Evans (1927; 1937) and Schebesta (1929). Evans (1927:8–11) also includes a word list of 150+ items. General impressions of the language are also included in Brandt (1961). None of these early sources attempt a grammatical description. The reference to Maniq is brief, general, and is mostly restricted to issues like presence of loanwords and numerals, relation to other languages spoken in the peninsula, and the level of multilingualism in the community. The more recent sources include more extensive word lists (Bauer 1991; Phaiboon 2006; Becker 2008); and word lists with a sociolinguistic questionnaire (Bishop & Peterson 1993; Bishop & Peterson 2003). Some preliminary comments on the phonological structure are found in Bauer (1991), and a discussion of loanwords appears in Peterson (2012).

At the time when I began fieldwork among the Maniq, there were no published descriptive resources on the Maniq grammar. My published descriptive work consists of the following contributions: (1) a phonological analysis of Maniq, first written in the form of a Master's thesis (Wnuk 2010), and later revised and contextualized within the broader contact situation of Maniq (Wnuk & Burenhult 2014); and (2) selected aspects of Maniq grammar in the grammatical sketch of Northern Aslian (Kruspe, Burenhult & Wnuk 2015) in the recently-published *Handbook of the Austroasiatic Languages*. This source also includes an extended Swadesh word list I collected from speakers of the variety described here (Sidwell & Jenny 2015:1266–1290). The present thesis incorporates some of this earlier work, elaborating on a number of grammatical issues and adding lexico-semantic case studies. The current chapter contains the most extensive account of Maniq grammar to date, significantly expanding the description in Kruspe, Burenhult &

Wnuk (2015), in particular with respect to the word class of verbs and the associated topics.

### 3.5 Contact situation

Since at least the early 1900s, Maniq has been geographically isolated from other Aslian languages and has therefore not been in contact with them (Schebesta 1929:15). The group currently lives in a northern enclave separated by at least 150 kilometers from the rest of the Semang cluster. While most Semang groups are in intense contact with each other and various dialects of Malay (Austronesian family), the Maniq community is in regular contact with speakers of Southern Thai (Tai-Kadai family).

The history of contact with Southern Thai goes back to at least 1600AD, as suggested by a subset of Thai loanwords with initial /h/+sonorant clusters. These clusters correspond to simple sonorants in present-day Thai, but historically they were voiceless sonorants *\*hm*, *\*hn*, *\*hl*, *\*hw*, e.g. /hmu?/ ‘group, collection’ (Thai *mùu*), /hleʔ/ ‘iron’ (Thai *lèk*), /hja/ ‘grass’ (Thai *yâa*) (Wnuk & Burenhult 2014). The proposed date is in line with the phylogenetic and phylogeographic models of Aslian history, whereby Maniq is thought to have split off from its sister branch Kensiw/Kentaq some several hundred years ago (Dunn, Kruspe & Burenhult 2013). Similar reflexes in Thai loans have not been reported in these varieties, so this may be taken to indicate that Maniq is the only surviving Aslian language to have experienced early and sustained contact with Thai.

Given the history of southern Thailand and the abundance of Malay loanwords in Maniq, it can be presumed Maniq was previously also in contact with Malay. In the most recent period it was likely Kedah Malay, as until 1909 the Malay-speaking Sultanate of Kedah included the province of Satun (which forms part of the present-day Maniq territory) (Parks 2009), and was adjacent to Trang and Phatthalung, i.e. the two other main provinces inhabited by the Maniq. Early 20<sup>th</sup>-century ethnographic sources report the Maniq in Trang and Phatthalung did not know Malay (Schebesta 1925:24; Evans 1927:2), but the situation could have been different further south, i.e. in Satun and Songkhla, if indeed any Maniq groups inhabited these areas at that time. Further matters, such as the time depth of

Malay influence and the possibility of contact with other Malay dialects (e.g. Pattani Malay), could be explored further by a systematic analysis of Malay loans in Maniq.

Maniq has undergone considerable lexical change in relation to much of the rest of Aslian. According to a recent computational phylogenetic analysis of Aslian basic vocabulary by Dunn et al. (2011), most of the Northern Aslian division (specifically those Northern Aslian languages which are spoken by Semang foragers, the Maniq/Menraq-Batek (MMB) clade) is lexically highly divergent from other Aslian languages, as indicated by the greater branch length of the MMB clade in Figure 3.2. Branch length in phylogenetic trees shows the *amount of diversification* and reflects “rate of change and time of separation” (Dunn et al. 2011:314). Compared to the rest of Aslian, the MMB languages have experienced an unusually high rate of change to their basic vocabulary (i.e. a 146-item Swadesh list adapted for Aslian; Benjamin 1976b:53). This can be attributed to the distinct patterns of contact within the Semang forager sphere, involving high mobility and a social structure promoting dispersal and flux (Dunn et al. 2011; Burenhult, Kruspe & Dunn 2011). As a representative of the MMB clade, Maniq displays the same pattern. In fact, the pattern is even more pronounced in Maniq, which might be related to the fact that the Semang group dynamics mentioned above are said to be most pronounced in the northern parts of the range (Benjamin 1985:243–244, 261–262), of which Maniq represents the northernmost extreme.

Despite Maniq’s distinctiveness in basic vocabulary, its general typological profile is mostly Aslian-like. It exhibits typical Aslian characteristics, some of which set Aslian apart from other Austroasiatic languages (cf. Matisoff 2003). For instance, it has resisted the common trend in Mainland Southeast Asia and did not develop tone or contrastive phonation (Wnuk & Burenhult 2014). Furthermore, it has preserved the typically Aslian rich productive verbal morphology (§3.11.3), and has not adjusted to the isolating profile typical of Mainland Southeast Asia. Like other Aslian languages (and Austroasiatic more broadly), Maniq displays a large phonemic inventory, including relatively large sets of both initials and finals (§3.8). In addition, typical of an Aslian language, it displays a consistent

preference for encoding specific information in monolexemic items, and extensive lexical borrowing (§3.6).

There are also aspects where Maniq diverges from its close relatives. For example, its consonant inventory contains an aspirated stop series. Although aspirated stops are found in Southern Aslian, their presence in Maniq is due to contact with Thai since they occur only in Thai loanwords (Wnuk & Burenhult 2014). In addition, Maniq possesses multi-verb constructions, which are uncommon in Aslian, and might be due to contact with Thai (see further §3.16.3). Finally, while exhibiting extensive borrowing from Malay, Maniq differs from the rest of Aslian in its lexical borrowing patterns. The issue is discussed in the following section in relation to the whole lexicon, as well as in §5.5.2 in relation to color terms.

### 3.6 Lexical borrowing from Malay and Thai

Lexical borrowing identified in Maniq is associated with two main sources: Malay and Southern Thai. Malay loans are generally older than Thai loans and are often similar to Malay loans in other Aslian languages (e.g. Kruspe 2004b; Kruspe 2009; Burenhult 2009; Kruspe 2010), e.g. *tasik* ‘lake/sea’, *ʔuyan* ‘rain’, *nasiʔ* ‘rice’, *kukɔʔ* ‘nail/claw’, suggesting they might already have been borrowed in the ancestral stages of the language group. Thai loans, on the other hand, appear to be more recent and largely (though not solely) consist of names of non-indigenous objects introduced via contact, e.g. *biye* ‘money’ (from *bîa*), *hut<sup>hiem</sup>* ‘garlic’ (from *hũa thiam*) (cf. also Peterson 2012). Another point of difference between Malay and Thai loans is the fact that speakers are usually aware of the loanword status of the Thai, but not Malay loans (note that the Maniq speak Thai, but not Malay, §3.7).

Some Malay loans are words with presumed basic meanings, in the sense that they form part of the basic 146-item Swadesh list adapted for Aslian (cf. Benjamin 1976b), e.g. *kukɔʔ* ‘nail/claw’ (Malay *kuku*), *pasi* ‘sand’ (Malay *pasir*), *batuʔ* ‘rock’ (Malay *batu*). Under some approaches, these would be considered *core loans*, i.e. words which “duplicate or replace the existing native words” (Haspelmath 2009:48), but this is not presupposed for these items here as it is difficult to determine whether replacement took place. Even loans covering seemingly basic

meanings may have filled gaps in the vocabulary (which are due to a distinct way of categorization in the language; cf. Burenhult 2008; Kruspe 2009), rather than replaced indigenous terms.

Table 3.1 below provides an overview of Malay and Thai loans with items from the Swadesh list singled out in a separate row. The list is meant to be representative of the types of meanings encoded in Malay and Thai loanwords, but it does not reflect the overall ratio between Malay and Thai. The number of Thai loans identified so far is 6% of the total word list, which is approximately three times as large as the number of Malay loans (2% of the total word list).

	Malay loan	Source term	Southern Thai loan	Source term	
Loans in the Swadesh list	<i>ʔuyan</i> ‘rain’	<i>hujan</i>	<i>cet</i> ‘wipe’	<i>chét</i>	
	<i>kilāt</i> ‘lightning’	<i>kilat</i>			
	<i>kukɔʔ</i> ‘nail/claw’	<i>kuku</i>			
	<i>pasi</i> ‘sand’	<i>pasir</i>			
	<i>batuʔ</i> ‘rock, stone’	<i>batu</i>			
	<i>ʔiket</i> ‘tie’	<i>ikat</i>			
Remaining loans	<i>bacən</i> ‘shrimp paste’	<i>belacan</i>	<i>hwɔ̄</i> ‘banteng/ cow’	<i>wua</i>	
	<i>bayuʔ</i> ‘shirt’	<i>baju</i>	<i>cakey</i> ‘lemongrass’	<i>takhráj</i>	
	<i>badil</i> ‘shotgun’	<i>bedil</i>	<i>kʰɔn</i> ‘hammer’	<i>khɔn</i>	
	<i>cəbãŋ</i> ‘be bifurcated’	<i>cabang</i>	<i>lɔŋien</i> ‘school’	<i>rooŋrian</i>	
	<i>padis</i> ‘be spicy’	<i>pedas</i>	<i>ran</i> ‘shop’	<i>ráan</i>	
	<i>ʔisiʔ</i> ‘body’ (also used as a classifier)		<i>isi</i>	<i>kʰanom</i> ‘sweets’	<i>khanǒm</i>
				<i>kahwɛ</i> ‘coffee’	<i>kaafɛɛ</i>
				<i>hmuk</i> ‘hat’	<i>mùag</i>
				<i>kanbit</i> ‘fishing rod’	<i>khanbèd</i>
				<i>tʰaŋ</i> ‘bucket’	<i>thãŋ</i>
				<i>biye</i> ‘money’	<i>bîa</i>
				<i>si</i> ‘buy’	<i>sýy</i>
				<i>tamhãn</i> ‘to work’	<i>thamjaan</i>
				<i>hmin</i> ‘be the same’	<i>mýan</i>
				<i>tʰaw</i> ‘of a size’	<i>thâw</i>
				<i>pĩn</i> ‘be/have’	<i>pen</i>
				<i>hwanhwɛn</i> ‘be round’	<i>wɛn</i>
				<i>hutʰiem</i> ‘garlic’	<i>húa thiam</i>
				<i>canam</i> ‘wooden house’	<i>khanãm</i>

**Table 3.1** Selection of Malay and Thai loanwords in Maniq

Although Maniq is often similar to other Aslian languages in its borrowings from Malay, there are some conspicuous differences in some domains. For instance, some basic color terms from Malay, e.g.  *kuning* ‘yellow’, are found in most Aslian languages, whereas these are absent in Maniq (cf. §5.5.2). This

suggests these loans might be more recent in these languages than items borrowed by both Maniq and other Aslian languages. Further systematic comparison might reveal more mismatches of this type and provide clues as to the chronology of some borrowings in Aslian.

### 3.7 Idiolectal variation and bilingualism

Maniq is characterized by considerable idiolectal variation. In the Aslian context, this phenomenon has been associated most strongly with the Semang groups (Benjamin 1976b; Benjamin 1985; Burenhult 2005; Benjamin 2012), and attributed to their characteristic societal patterns: nomadism, intermarriage across widely dispersed groups, and the continuous flux of individuals between groups (Benjamin 1985:234–235; Burenhult 2005:6–7). These patterns have been thought to encourage mixing of varieties and prevent the establishment of a rigid standard.<sup>28</sup> This has not been explored systematically for Maniq; however, given the geographical isolation of the Maniq from other Semang groups, it is likely that intermixing occurs on a smaller scale.

Idiolectal variation in Maniq is manifest at multiple levels – it affects both the grammar and the lexicon. In the current chapter, I do not attempt to incorporate idiolectal variation into the discussion, but rather try to extract the structural patterns most evident in the data. For a detailed impression of the variation within one structural domain – phonology – see Wnuk & Burenhult (2014).

Almost all Maniq speakers are bilingual. Aside from being native speakers of Maniq, they are fluent in Southern Thai, although proficiency in Thai varies across individuals as a function of the amount of contact with the Thai population (cf. §2.5). Since Maniq speakers are isolated from the rest of Aslian, they do not speak other Aslian languages. This is relatively uncommon in the context of the Semang, who often form multilingual communities (Benjamin 1985:234–235; Burenhult 2005:6–7).

---

<sup>28</sup> The high degree of individual variation is typical not only of the languages, but also appears to be a fundamental characteristic of other cultural subsystems of the Semang, e.g. religion (Schebesta 1957; Endicott 1979:26–32).

### 3.8 Phonology

#### 3.8.1 Phonemic inventory

Maniq has 23 consonant phonemes, which are for the most part consistent with typical Aslian and Austroasiatic consonant inventories (Kruspe 2004b:58–60). The places of articulation are bilabial, alveolar, alveolo-palatal, palatal, velar and glottal. The segments include voiceless stops, voiced stops, a series of voiceless aspirated stops occurring exclusively in loanwords, nasals, voiceless fricatives, approximants, the lateral liquid /l/ and the rhotic /r/. Table 3.2 provides the inventory.

	bilabial	alveolar	alveolo- palatal	palatal	velar	glottal
<b>stop</b>	p / b	t / d		c / ɟ	k / g	ʔ
<b>aspirated stop</b> <sup>29</sup>	p <sup>h</sup>	t <sup>h</sup>			k <sup>h</sup>	
<b>nasal</b>	m	n		ɲ	ŋ	
<b>fricative</b>	ɸ		ç			h
<b>rhotic</b>				r		
<b>lateral</b>		l				
<b>approximant</b>	w			j		

**Table 3.2** Maniq consonant phonemes.

Many consonants display a high degree of allophony, mostly in free variation (for details, see Wnuk & Burenhult 2014).

There are 18 distinctive vocalic nuclei in Maniq: 9 basic oral vowel qualities, a slightly smaller set of 7 nasal vowels, the opening diphthong *ie* with a nasal counterpart *ĩẽ*. Table 3.3 lists the full inventory.

<sup>29</sup> Aspirated stops are found in a set of 26 loanwords.

	ORAL			NASAL		
	front	central	back	front	central	back
high	i	ɨ	u	ĩ	ĩ	ũ
close-mid	e		o			
open-mid	ɛ	ə	ɔ	ẽ	ẽ	õ
open		a			ã	
diphthongs	ie, iẽ					

Table 3.3 Distinctive vocalic nuclei in Maniq.

### 3.8.2 Phonotactics

All syllables begin with a consonant. The most common syllable types are /CVC/ and /CV/. Other attested syllables are /CCVC/ and /CCV/ with complex onset. Attested complex onsets are sequences of two consonants from the following set: stop + *l* (*bl-*, *pl-*, *kl-*, *p<sup>h</sup>l-*), stop + *r* (*br-*, *pr-*, *kr-*), stop + *w* (*pw-*, *kw-*, *mw-*, *ŋw-*), or *h* + sonorant (*hm-*, *hn-*, *hl-*, *hw-*, *hr-*, *hy-*). Complex codas are not attested.

Most roots are either monosyllabic or disyllabic. There is a handful of trisyllabic roots, most likely loanwords or compounds, e.g. /kəmaʔaw/ ‘dry season’ (from Malay *kemarau*). The Maniq data do not offer any clear evidence for a category of sesquisyllabic (“one-and-a-half syllable”) roots (Matisoff 1973), i.e. roots with a predictable epenthetic vowel in the penultimate syllable, otherwise commonly posited for Aslian languages. The following examples illustrate the attested root structures:

#### Monosyllabic

/CV/	/ce/	‘to dig’
/CVC/	/cas/	‘hand’
/CCV/	/hyã/	‘grass’ (Thai <i>yâa</i> )
/CCVC/	/bles/	‘to hit a surface’

#### Disyllabic

/CV.CV/	/haŋu/	‘body louse’
---------	--------	--------------



segments are not attested in the coda, i.e. rhotic /r/, voiced and voiceless aspirated stops /b, d, ʒ, g, p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>/. In the penultimate syllable, the aspirated stops /p<sup>h</sup>, t<sup>h</sup>/, bilabial fricative /ɸ/, velar nasal /ŋ/, and palatal approximant /j/ are not attested in the onset. In the penultimate syllable, the coda is restricted to nasals, and also marginally the velar fricative /h/ and palatal approximant /j/.

### 3.8.3 Stress and tone

Stress invariably falls on the final syllable. Maniq does not employ any suprasegmental features like tone or register for lexical contrast (cf. Wnuk & Burenhult 2014). These characteristics are in accordance with the common Aslian pattern.

## 3.9 Orthography

In line with the orthographic convention commonly employed for other Aslian languages (cf. Benjamin 1976a; Diffloth 1976a; Kruspe 2004b; Burenhult 2005), the practical orthography used for Maniq is based on the phonemic representation and largely adheres to IPA standard. However, in a few cases it diverges from the IPA. Thus, the voiced palatal stop /ɟ/ is represented as *j*, the palatal approximant /j/ is represented as *y*, while the alveolo-palatal fricative /ç/ is represented as *s*. Epenthetic vowels accompanying some derivational processes, e.g. the imperfective derivation for monosyllabic verbs: /dŋ-dɛŋ/ [dɛŋ-dɛ<sup>ə</sup>ŋ] ‘to be looking’ (IPFV-look), are predictable and thus omitted in phonemic representations.

## 3.10 Morphology

This section lays out the most important structural units and processes of relevance for Maniq derivational and post-derivational morphology. In Maniq it is possible to derive: (1) verbs from verbs with causative and aspect/aktionsart affixes; (2) nouns from verbs through nominalization; (3) marginally, verbs from nouns (6 attested cases); and (4) a verb from the numeral *nay* ‘one’. Section 3.11 contains a review of the most important and productive derivations, i.e. verb-to-verb and verb-to-noun types. An account of the remaining derivations, as well as

examples of compounding in Maniq, can be found in Kruspe, Burenhult and Wnuk (2015).

### 3.10.1 Basic structural units

The morphological analysis presented here employs the following structural units: lexeme, root, base, affix and clitic. These are the units of word formation in Maniq relevant for the subsequent analysis. The definitions have been adapted from Kruspe (2004b) and Burenhult (2005).

- *Lexeme* is a synchronically minimal form that can occur independently. Lexemes are forms employed as entries in the Maniq dictionary.
- *Word* is any representation of a lexical category. Words can be roots, as well as derived and cliticized forms, e.g. *yk-yek* ‘to be returning’ (IPFV-return), *biʔ=wɔŋ* ‘children’ (PL=child).
- *Root* is a synchronically and diachronically monomorphemic form. Most roots are also lexemes, although there are also instances of obsolete roots (marked with \*). Obsolete roots are not attested synchronically, but their identity may be inferred from attested lexemes, e.g. \**lh* in *piʔlh* ‘to thatch’ (*pi-* ‘CAUS’).
- *Base* is the form to which morphological units attach. Bases can be either bare roots or derived forms.
- *Affix* is a phonologically bound morpheme whose domain of attachment is a word. There are two types of affixes in Maniq: prefixes and infixes. The morpheme boundary is marked by a hyphen (-) for prefixes and arrows (< >) for infixes.
- *Clitic* is a phonologically bound morpheme attaching to the left edge of a word or phrase. In contrast to affixes, clitics are insensitive to the syllabic structure of the base. In addition, they are unstressed and do not influence stress assignment of the host. The morpheme boundary for clitics is marked with an equals sign (=). Cliticization represents a post-derivational layer of morphology.



The imperfective derivation of closed-syllable monosyllabic verbs involves an onset copy occurring in tandem with coda copy.

(11)	<i>dɛŋ</i>	→	<i>CC-dɛŋ</i>	→	<i>dŋ-dɛŋ</i>
	‘look’		look-IMFV		‘be looking’
					[dəŋ'de <sup>9</sup> ŋ]

### ***Total reduplication***

- *Total reduplication* involves copying of the entire base and concatenating it at its left edge.

(12)	<i>ɲɔt</i>	→	<i>ɲɔt~ɲɔt</i>	→	<i>ɲɔt~ɲɔt</i>
	‘shiver’		shiver~CONT		‘keep on shivering’
					[ɲɔt'ɲɔt']

### ***Prespecified affixation***

- *Prespecified prefixation* involves adding a morpheme with a prespecified phonological form at the left edge of a monosyllabic base.

(13)	<i>tiek</i>	→	<i>pi-tiek</i>	→	<i>pi-tiek</i>
	‘sleep’		CAUS-sleep		‘put to sleep’
					[pi'tiek']

- *Prespecified infixation* involves adding a morpheme with a prespecified phonological form and syllabic identity at the left edge of a disyllabic base.



past. Because pre-final syllable vowels are not predictable, they are analyzed as phonemic and included in the orthography.

### 3.11 Verbs

Verbs function as sentence predicates. They typically fill the slot immediately to the right of the subject (following the canonical SVO constituent order). They may be modified by adverbs, enter multi-verb constructions (§3.16.3), and modify nouns (§3.16.1). Maniq verbs undergo a number of derivational processes: *nominalization*, *causativization*, as well as processes involving a series of aspect/aktionsart derivational categories – *imperfective*, *progressive*, *inceptive*, *distributive*, and *continuative* (§3.11.3). In addition, verbs may function as independent units in a depictive mode of speech (§3.17).

Verbs in Maniq do not place strict requirements on argument realization in order to form grammatical clauses, as arguments are not obligatorily expressed (§3.16). What is more, syntactically transitive (A-O) and intransitive (S) constructions are not associated with special formal marking. Valency can be increased with the causative (§3.11.3.2), but not all of its uses result in increased valency. A broader notion relevant for the causative (and verbs more generally) is transitivity, defined as the semantic parameters affecting the “effectiveness with which an action takes place” (Hopper & Thompson 1980).

Most lexeme forms of verbs are morphologically simplex. However, there are verbs, both among the dynamic as well as the stative subclasses, which contain frozen exponents of the imperfective, causative or the multiplicity affix, e.g. *dda* (\**da*) ‘to move on the lateral axis’, *piloh* (\**loh*) ‘to thatch’. Since they are not synchronically analyzable, they are treated as lexemes.

An important distinction within Maniq verbs is the one between dynamic and stative verbs. My present lexicon of Maniq currently contains 744 dynamic and 271 stative verb lexemes. The two subtypes can be straightforwardly distinguished on the basis of their formal properties – presence or absence of the ability to take the progressive and ability to directly modify nouns within the NP. They also differ in their basic semantics, i.e. whether or not the situation they encode involves change. Formal and semantic characteristics of dynamic and stative verbs

are discussed in detail in §3.11.1 and §3.11.2. The last two subsections on the verb concern deverbal derivations (§3.11.3), and iconic structures (§3.11.4).

### 3.11.1 Dynamic verbs

#### 3.11.1.1 Formal properties

Dynamic verbs are defined on formal grounds and distinguished from stative verbs by the following properties: they can attach the progressive morpheme *mV* directly to the root (as in (16) and (17)), and they need to be relativized or derived with the progressive to modify nouns in NPs (as in (18) and (19)).

- (16) wa → m-wa  
walk PROG-walk  
'walk' 'be walking'
- (17) kanɔm → k<m>a<m>nɔm  
urinate urinate<PROG><IPFV>  
'urinate' 'be urinating'
- (18) baŋka? ?ɛ? wa katie?  
Asian.forest.scorpion 3 walk on.ground  
pã?  
be.different  
'Baŋka? (scorpion) which walks on the ground is different (from a baŋka? plant).'
- (19) ?ey m-<y>bay takop  
father PROG-<IPFV>dig yam(*D.orbiculata*)  
kuy b<m><i><ϕ>ȳϕ̄  
head be.white<PROG><CAUS><IMFV>  
'The tuber-digging father had hair that was whitening itself.'

In addition, dynamic verbs are distinguished from stative verbs by the default structure of 3<sup>rd</sup> person clauses. In dynamic clauses – unlike stative ones – the 3<sup>rd</sup> person subject NP is cross-referenced by the bound pre-verbal pronoun ?ɛ? (3<sup>rd</sup>

person, number-neutral). This is true for positive (20) and negative statements (21), as well as questions (22).

- (20) təmkal ?ε? cəh batew  
 man 3 pour water  
 ‘The man is pouring water.’
- (21) taʔʔ? hic ?ε? dɔy  
 tiger NEG 3 come  
 ‘The tiger doesn’t come.’
- (22) kaləw ?ε? k < m > < i > hey?  
 what 3 cry < PROG > < CAUS >  
 ‘What is making the crying noise?’

Cross-referencing does not take place when the subject is expressed with one of the 3<sup>rd</sup> person free pronouns: *gin* ‘3’ and *ʔu?* ‘3s’, a proper name, or the noun *mani?* (often shortened to *mi?*) ‘indigenous person’ functioning as an indefinite pronoun (23) (see §3.13.2). It may also be pre-empted by factors related to transitivity, e.g. a non-dynamic construal, indefiniteness, or lack of participant individuation in generic or context-detached statements as in (24).

- (23) ɲεʔ, mi? cah kamləʔ  
 left INDF cut cannot  
 ‘The left (arm), one can’t cut (with it).’
- (24) hami? ɲək da? kayəm  
 non-Maniq sit LOC down  
 ‘The Thais live at the bottom.’

The above criteria distinguish dynamic verbs from stative verbs. An additional observation regarding the dynamic-stative division relates to their tendency to associate with particular phonological structures. Unlike stative verbs – which are predominantly disyllabic roots with /a/ or /ə/ in the penultimate nucleus (cf. §3.11.2.1), dynamic verbs do not exhibit one predominant type of phonological structure, but display a range of structures representative of possible word structures, e.g. *bu?* ‘to drink’, *minəŋ* ‘to itch, to sting’, *yəseh* ‘to polish’, *patiy* ‘to cross water’, *ʔulu* ‘to follow (animal or tuber root)’.

### 3.11.1.2 Semantics

Dynamic verbs encode dynamic situations, i.e. situations involving change over time, including motion. Change can be viewed as the complement of stasis (cf. §3.11.2.2). In addition, dynamic situations *happen* (or *occur*, or *take place*) rather than hold (Lyons 1977:483; Smith 1997:22). Dynamic situations are by definition more changeable than states and objects, and represent the least time-stable extreme on the temporal stability hierarchy (Givón 1984) (cf. §1.4).

Dynamic situations are subdivided into processes and events. Processes are characterized by being non-agentive, durative, and involving a scalar change, e.g. *gíc* ‘to burn’ (Declerck 2006:67). Events, as defined here, include both agentive situations, e.g. *gɔh* ‘to hit’, and non-agentive non-scalar situations, e.g. *hěc* ‘to fall (of rain)’. Events are thus a broad class, subsuming what in some classifications is a separate category of actions (Lyons 1977:483; Declerck 2006:67).

### 3.11.2 Stative verbs

#### 3.11.2.1 Formal properties

Stative verbs are defined on formal grounds and distinguished from dynamic verbs by the following properties: their root form directly follows the noun when acting as modifier in an NP (as in (25) and (26)), and they require causativization in order to attach the progressive (as in (27) and (28)).

- (25)    *nahu?*    *?ahaw*  
          tree    be.big  
          ‘big tree’
- (26)    *mɔh*    *cawãc*  
          nose    be.striped.lengthwise  
          ‘lengthwise-striped nose’
- (27)    *kape?*    →    *k<m> <i> <?>pe?*  
          be.flat            be.flat <PROG> <CAUS> <IPFV>  
          ‘be flat’            ‘be making oneself flat’

- (28)   cankun →       c < m > < i > < n > kun  
          be.slow        be.slow < PROG > < CAUS > < IPFV >  
          ‘be slow’       ‘be making oneself slow’

In addition, stative verbs form *stative clauses*, and differ from dynamic clauses because the 3<sup>rd</sup> person subject NP is not cross-referenced by the bound pre-verbal pronoun *ʔeʔ*. This is true for positive (29) and negative statements (30), as well as questions (31). However, under some conditions situations denoted by stative roots can be construed dynamically, in which case a dynamic clause is used instead.

- (29)   tieʔ     pasel  
          ground be.dry  
          ‘The ground is dry.’
- (30)   ʔuʔ     ʔen     hic     haʔit  
          3s     DEM    NEG    stink  
          ‘This one doesn’t stink.’
- (31)   toʔ                məh    ʔahaw, toʔ                məhʔ  
          older.sibling   2s     be.big older.sibling   2s  
          ‘Is your older sibling big?’

Stative roots are nominalized with zero-derivation and metonymically refer to the physical object whose property they describe. They are then glossed as ‘the X one’ and occur in subject (32) and object (33) slots of the sentence. The same is not true for dynamic verbs, which cannot refer to subjects or objects in an underived form.

- (32)   hatiek ʔeʔ     cək     pintes  
          be.long 3     pierce go.through  
          ‘The long one pierced through.’
- (33)   ʔijɲ    kəs     pək     haŋət, ʔijɲ     hāw    paliek  
          1s     cut     discard be.black 1s     eat     be.white  
          ‘I cut off the black. I eat the white.’

Stative verbs have more homogenous phonological structures than dynamic verbs. They are predominantly<sup>32</sup> disyllabic roots with /a/ or /ə/ in the penultimate nucleus, reflecting the template *Ca/ə(C)CV(C)*, e.g. *cəmaʔ* ‘to be sharp’, *bahut* ‘to be bland’, *təmkət* ‘to be very cold’, *gahε* ‘to be smooth, to be slippery’.

### 3.11.2.2 Semantics

Stative verbs encode static situations, also referred to simply as *states*. States are characterized by stasis – “motionless or unchanging equilibrium” (Oxford English Dictionary). They *hold* (or *obtain*, or *exist*) rather than happen (Lyons 1977:483; Smith 1997:22). States occupy an intermediate position on the time-stability hierarchy (Givón 1984), being more time-stable than events and processes and less time-stable than typical objects (cf. §1.4).

A large majority of stative verbs encode one particular type of state – *properties*, i.e. predicates that “characterize objects” or those that “objects instantiate or exemplify” (Swoyer & Orilia). Among property verbs, one can further distinguish a number of semantic types (following the typology of Dixon 2004):

(34)	DIMENSION:	<i>hatiek</i>	‘to be long/tall’
	AGE:	<i>kaseŋ</i>	‘to be old’
	VALUE:	<i>baʔεt</i>	‘to be good’
	COLOR:	<i>baḡīēc</i>	‘to be red’
	PHYSICAL PROPERTY:	<i>cakōŋ</i>	‘to be hard’
	HUMAN PROPENSITY:	<i>gəbaʔ</i>	‘to be angry/bad’
	SPEED:	<i>cənkun</i>	‘to be slow’
	QUALIFICATION:	<i>naki</i>	‘to be real’
	QUANTIFICATION:	<i>bem</i>	‘to be many’
	POSITION:	<i>ʔamet</i>	‘to be far’ (from Malay <i>amat</i> )

Aside from property verbs, stative verbs also include a very small subset of *existential verbs*: *ley* and *weʔ*, both glossed as ‘to exist’, the equative copula *pīn* ‘to

---

<sup>32</sup> In the list of 271 stative verbs in Maniq, 228 items have that structure, i.e. 84% of stative verbs.

be, to have' (from Thai *pen*), and the negative existential *hic* 'to not exist' (which also functions as a simple negator).

### 3.11.3 Derivational morphology

Table 3.4 contains a summary of the verbal derivations in Maniq. With each derivational morpheme, allomorphs for different syllabic structures of the base are provided. In the accompanying examples, the affix appears in bold. There are no trisyllabic verb roots in Maniq so the discussion of formal patterns will relate to monosyllabic and disyllabic roots.<sup>33</sup> All derivations apply to dynamic as well as stative verbs. Roots may take combinations of maximally three affixes. The possible combinations are discussed in the relevant sections. Underived verbs are not associated with a specific aspectual meaning and can be used to report states and events in the present, past or future. The purpose of the table is exclusively to illustrate the formation of words under derivations. For the semantic effects of the derivations, see the relevant subsections below.

---

<sup>33</sup> Also missing from this discussion are words with complex-onset syllables. These items are infrequent and currently there is not enough data to make appropriate generalizations.

	Monosyllabic open	Monosyllabic closed	Disyllabic open/closed
	CV	CVC	CVCV(C)
	<i>wa, pɛ</i>	<i>kap, ɲɔk</i>	<i>kapa, cakah</i>
<b>Nominalization</b>	<i>n-</i> <b>n-da</b>	<i>nC-</i> <b>nk-yek</b>	< <i>n</i> > <b>ka &lt;n&gt; pa</b>
<b>Causative</b>	<i>pi-</i> <b>pi-tɔ</b>	<i>pi-</i> <b>pi-kɔp</b>	< <i>i</i> > <b>c &lt;i&gt; kah</b>
<b>Imperfective</b>	<i>C-</i> <b>p-pɛ</b>	<i>CC-</i> <b>cs-cis</b>	< <i>C</i> > <b>gə &lt;ɲ&gt; tuŋ</b>
<b>Progressive</b>	<i>m-</i> <b>m-wa</b>	<i>m-</i> <b>m-kap</b>	< <i>.m</i> > <b>b &lt;m&gt; iyɔh</b>
<b>Inceptive</b>	<i>ʔam-</i> <b>ʔam-wa</b>	<i>ʔam-</i> <b>ʔam-ɲɔk</b>	< <i>m.</i> > <b>la &lt;m&gt; wɛc</b>
<b>Multiplicity</b>	<i>l-</i> <b>l-wa</b>	<i>l-</i> <b>l-ɲʔɔɲ<sup>34</sup></b>	< <i>l</i> > <b>k &lt;l&gt; atis</b>
<b>Continuative</b>	<i>CV-</i> <b>pɛ-pɛ</b>	<i>CVC-</i> <b>ɲɔt-ɲɔt</b>	<i>CV(C)CV(C)</i> <b>balɛk-balɛk</b>

Table 3.4 Derivations applicable to Maniq verbs

### 3.11.3.1 Nominalization

In monosyllabic bases, the nominalizing *n* surfaces as a prefix, and – if the syllable is closed – a coda copy. In disyllabic bases, the nominalizing *n* surfaces as an infix.

<i>wɛ</i>	‘to search for game’	→	<i>n-wɛ</i>	‘hiding place during hunting’
<i>dda</i>	‘to move across’	→	<i>n-da</i>	‘lateral direction’
(* <i>da</i> )				

<sup>34</sup> The multiplicity morpheme applied to dynamic verbs is almost always accompanied by the imperfective infix. The example given here involves both the multiplicity prefix *l-* and the imperfective infix <*ɲ*> since there are no attested examples of multiplicity-only derivation for this base type.

kəŋ	‘to sieve’	→	nŋ-kəŋ	‘sieve’
yek	‘to return’	→	nk-yek	‘act of returning’
yak	‘to be complete’	→	nk-yak	‘everything/everyone’
kapa	‘to carry a child’	→	ka<n>pa	‘cloth used as child carrier’
paʔɛc	‘to rise (of sun)’	→	pa<n>ʔɛc	‘the east’
kabit	‘to fish’	→	ka<n>bit	‘fishing rod’
katem	‘to cut firewood’	→	ka<n>tem	‘firewood’
kəsbas	‘to clean the inside of	→	kə<n>bas	‘tool for cleaning the inside of
(*kəbas)	a blowpipe’			blowpipes’
təbuy	‘to put a basket on	→	tə<n>buy	‘basket strap’
	one’s back’			
paŋaŋ	‘to fix supports for	→	pa<n>ŋaŋ	‘support for boiling over fire’
	boiling over fire’			

**Table 3.5** Examples of nominalization

This is the most common and synchronically productive pattern of nominalization. A less common and unproductive pattern for monosyllabic bases involves infixation instead of prefixation, e.g. *kɪc* ‘to grate tubers’ → *k<n>ic* ‘grating stick’ (grind<NMLZ>), *siŋ* ‘to place rafters in the roof’ → *s<n>iŋ* ‘rafter’ (place.rafter<NMLZ>), *tip* ‘to add burnt leaves to tuber mash’ → *t<n>ip* ‘leaves added to tuber mash’ (add.leaves<NMLZ>). This pattern is productive in other Aslian languages, e.g. in Temiar (Benjamin 1976a).

Additional exceptions to the basic nominalization patterns include the lack of coda copy in *nlen* ‘waistband’ (from *len* ‘to tie a waistband’) and stem alternation in *bandis* ‘the west’ (from *balis* ‘to set (of sun)’), both of which could be due to a phonotactic constraint on *\*nl* cluster, and a vowel suppression in an *h*-initial disyllabic item in *hnapek* ‘tuber stuck under a rock’ (from *hipek* ‘to fix, to make stable’) (cf. vowel suppression in *h*-initial progressive-derived forms in §3.11.3.4).

Apart from *n*, there is a minor *m*-nominalization, attested in a handful of forms, e.g. *haluh* ‘to blowpipe’ → *h<m>aluh* ‘bamboo sp. used for blowpipes’

(blowpipe <NMLZ>), *bakɛt* ‘to be hot’ → *m-ukɛt* ‘heat’ (NMLZ-be.hot), *?antij* ‘to fear’ → *m-atij* ‘coward’ (NMLZ-fear). Both *n* and *m* are common nominalizing segments in Aslian (e.g. Diffloth 1976a; Kruspe 2004b; Burenhult 2005).

Nominalizations in Maniq typically derive physical entity nouns, i.e. instruments, objects and places. Action and manner nominalizations, common in other Aslian languages, are infrequent in Maniq (Kruspe, Burenhult & Wnuk 2015). Nominalizations of this kind are possible to elicit, yet they are rarely attested in spontaneous speech.

Nominalized forms do not feed further derivation. Overall, nominalizations appear to have largely the same syntactic properties as ordinary nouns, e.g. they function as arguments of predicates (35), they can be modified (36), or themselves modify other nouns (37). However, due to the rare occurrence of action/manner nominalization, their full syntactic scope has not been explored in detail.

- (35) nk-yek            ?ɛ?        hiyɛn  
       NMLZ-return        3        soon  
       ‘We’re going back soon (lit. return is soon).’
- (36) k<n>ic                                seɲseɲ  
       grind.tubers <NMLZ>        type.of.shrub  
       ‘A *seɲseɲ* grinding stick’
- (37) ɲahu?    n-we  
       tree        NMLZ-search.for.game  
       ‘A tree which is a hiding place during hunting’

### 3.11.3.2 Causative

The causative has two allomorphs determined by the syllabic structure of the base: (1) the prefix *pi-* applied to monosyllabic bases; and (2) the replacive infix <*i*> replacing the nucleus of the pre-final syllable in disyllabic bases. The causative in Maniq is a transitivity-increasing device. Examples of causatives include the following:

tiək	‘to lie, to sleep’	→	pi-tiək	‘to put s.o. to sleep’
tət	‘to burn’	→	pi-tət	‘to roast in fire’
dəŋ	‘to see, to look’	→	pi-dəŋ	‘to show’
yek	‘to go back’	→	pi-yek	‘to give back’
cakah	‘to tear’	→	c < i > kah	‘to tear’
gətuŋ	‘to hang’	→	g < i > tuŋ	‘to hang’
kəwēt	‘to coil’	→	k < i > wēt	‘to coil’
haməʔ	‘to cover oneself’	→	h < i > məʔ	‘to cover’
hatiek	‘to be long’	→	h < i > tiək	‘to make long’
yəkiah	‘to be shaped like teeth’	→	y < i > kiah	‘to show teeth’
lətə	‘to be in a line’	→	l < i > tə	‘to form a line’
hayəl	‘to go straight’	→	h < i > yəl	‘to direct sth straight’
haŋɛp	‘to be dark’	→	h < i > ɛp	‘to darken, to dim’
taləw	‘to have no protrusions’	→	t < i > ləw	‘to fold’
hayet	‘to be yellow’	→	h < i > yet	‘to rub in medicine (lit. to make yellow)’

**Table 3.6** Examples of causative

Some dynamic roots in Maniq exhibit a structure formally identical to causative-derived roots, e.g. *pihal* ‘to spread (cloth)’, *biləh* ‘to insert’, *piłəh* ‘to thatch’, *bikāt* ‘to cry’. All such roots are regarded as instances of frozen causatives.

Increases in transitivity induced by the causative can be achieved in a way characteristic of prototypical causatives – via the addition of new participants expressed as syntactic arguments – or by affecting other transitivity components, e.g. increasing dynamicity, attributing agency and/or volitionality to the subject and increasing object individuation. The causative derivation does not have to be accompanied by increases in verbal valency. This has been noted before for causatives in other Aslian languages (Kruspe 2004b:130–134; Burenhult 2005:106), as well as in a broader cross-linguistic context (Kittilä 2009).

Among the transitivity components of highest significance in Maniq is dynamicity. The causative is frequently used to increase the dynamicity of the situation – this particular use of the causative is applied mostly with stative verbs and it results in the transition from the stative to dynamic class. The stative-to-

dynamic transition can be accompanied by an introduction of an agent, as in (38), but it can also occur without it, as in (39).

- (38) (A man telling off a child whose shadow is obstructing visibility of an object in his hands)

hat h<i>ɲɛp  
NEG be.dark<CAUS>  
'Don't dim (the light)!'

- (39)

- a) (static situation, no causative)

lətɔ  
be.in.line  
'(They) are positioned in a line.'

- b) (dynamic situation involving motion, causative used)

?ɛ? bas l<i>tɔ  
3 run be.in.line<CAUS>.  
'They ran "lining themselves".'

The causative is obligatory with stative verbs with the progressive. This is related to the fact that the progressive is compatible exclusively with dynamic situations. Thus, in such cases the causative facilitates the progressive derivation, by shifting the verbs from the stative into the dynamic class and introducing an eventive reading (cf. §3.11.3.4).

Causative bases feed further derivation of the imperfective (§3.11.3.3) and progressive (§3.11.3.4), as illustrated by the following examples:

- (40) h<i><k> tiek 'to be lengthening' (be.long<CAUS><IMFV>)  
p-<m>ihək 'to be jabbing' (CAUS-<PROG>jab)  
g<m><i><ɲ>tuj 'to be hanging'  
(hang<PROG><CAUS><IMFV>)

### 3.11.3.3 Imperfective

The imperfective is formally realized in one of the following ways: (1) in monosyllabic open bases – by prefixing a copy of the onset C-; (2) in monosyllabic

closed bases, by prefixing a copy of the onset and coda *CC*-; (3) in disyllabic bases – by infixing the copy of the final coda  $\langle C \rangle$  into the penultimate syllable (see Table 3.7). Disyllabic bases with no final codas are defective and cannot take the imperfective. Discourse data suggest that in contexts where imperfective forms predominate, defective verbs are derived with the progressive instead. The imperfective is used for describing situations which are in progress. In Comrie’s words, the imperfective makes an “explicit reference to the internal temporal structure of a situation, viewing a situation from within” (1976:24).

pɛ	‘to shake off’	→	p-pɛ	‘to be shaking off’
yek	‘to return’	→	yk-yek	‘to be returning’
yɔp	‘to look down’	→	yp-yɔp	‘to be looking down’
dɛŋ	‘to look’	→	dŋ-dɛŋ	‘to be looking’
pak	‘to slap’	→	pk-pak	‘to be slapping’
cun	‘to bump’	→	cn-cun	‘to be bumping’
wãŋ	‘to swing’	→	wŋ-wãŋ	‘to be swinging’
bilan	‘to do one by one’	→	b < ŋ > lan	‘to be doing one by one’
gətuŋ	‘to hang’	→	gə < ŋ > tuŋ	‘to be hanging’
pɛ	‘to shake off’	→	p-pɛ	‘to be shaking off’
yek	‘to return’	→	yk-yek	‘to be returning’
yɔp	‘to look down’	→	yp-yɔp	‘to be looking down’

**Table 3.7** Examples of imperfective with dynamic verbs

The imperfective in Maniq is associated with lowered transitivity manifested through the omission of arguments. This has been reported for a number of Aslian languages (Diffloth 1976a:96; Benjamin 1976a:171–172; Kruspe 2004b:111), and is common cross-linguistically (Hopper & Thompson 1980). In Maniq, the omission of arguments in clauses with the imperfective does not occur systematically, yet speakers tend to show preference for leaving out arguments in imperfective clauses and expressing them in clauses with a root form of the verb, cf. (41).

- (41)    ʔɛʔ       yp-yɔp,               tawɔh ʔɛʔ       yɔp  
           3       IPFV-look.down   gibbon 3       look.down  
           daʔ       katieʔ  
           LOC       ground  
           ‘It is looking down, the gibbon is looking down to the ground.’

The imperfective, unlike the progressive, can be attached to the root forms of stative verbs (see Table 3.8). Stative verbs derived with the imperfective denote transient or non-inherent properties construed as events<sup>35</sup>, e.g. *ha<t>yet* ‘to be temporarily yellow’ (be.yellow<IPFV>). In addition, the imperfective on stative verbs may imply non-totality of the degree by which the undergoer is affected with respect to the state/property encoded in the verb (42). A similar observation was made by Hopper and Thompson (1980), who found that atelicity, characteristic of imperfectives, correlates cross-linguistically with the partitive case and a lower degree of object affectedness. This is consistent with the frequent co-occurrence of the Maniq imperfective with adverbs of incomplete degree such as *p<sup>h</sup>ɔ* (from Thai *phɔɔ*) and *wɔŋ* ‘a little, a bit’.

Imperfective forms do not feed further derivation.

- (42)    (Describing a photo of an angry face)  
           gəbaʔ ʔɛʔ       ʔuʔ       ʔɛn,   p<sup>h</sup>ɔ       ba<t>ʔɛt  
           be.angry 3       3       DEM   a.bit   be.happy<IPFV>  
           ‘This one is angry, and a bit happy.’

---

<sup>35</sup> The capacity to coerce, i.e. construe states as events, is atypical of imperfectives (Michaelis 2004). This could be an argument for treating it as a progressive instead. However, the label ‘imperfective’ is preferred here in accordance with the Aslian descriptive tradition (there are cognate imperfectives in the three major branches of Aslian, e.g. Kruspe 2004, Burenhult 2005, Benjamin 2011) and to distinguish this derivational category from the progressive *m*.

hayet	‘to be yellow’	→	ha < t > yet	‘to be temporarily/a bit yellow’
batēŋ	‘to be black’	→	ba < ŋ > tēŋ	‘to be temporarily /a bit black’
bələŋ	‘to be green’	→	bə < ŋ > ləŋ	‘to be temporarily /a bit green’
paliek	‘to be white’	→	pa < k > liek	‘to be temporarily /a bit white’
bakēŋ	‘to be bald’ <sup>36</sup>	→	ba < ŋ > kēŋ	‘to be a bit bald’
halāk	‘to be white’	→	ha < k > lāk	‘to be temporarily /a bit white’
baʔet	‘to be good/happy’	→	ba < t > ʔet	‘to be temporarily/a bit good/happy’

**Table 3.8** Examples of imperfective with stative verbs

#### 3.11.3.4 Progressive

The progressive morpheme is a prespecified affix consisting of the segment *m*, predefined as syllable onset. It is prefixed to monosyllabic, and infixes to disyllabic bases. The progressive, like the imperfective, is used to describe ongoing situations. According to Comrie (1976:28), the progressive is a subtype of imperfective. Its use, thus, necessarily implies the establishment of an “imperfective viewpoint” on a situation, i.e. a situation-internal view. It adds to the general sense of ongoingness, a *processual* meaning, approximated by the gloss ‘to be in the process of X-ing’. By indicating the mid-stage of a process, it necessarily implies the presence of situational boundaries in the background (which is not the case with the imperfective proper, cf. De Wit & Brisard 2014). This results in a different interpretation of telic predicates derived with the progressive vs. imperfective. The imperfective can cancel out the telicity of such predicates, but the progressive always implies the presence of a situational endpoint (cf. §4.3.3.2). For convenience, the progressive is glossed with the simplified gloss ‘to be X-ing’ throughout the thesis, except for contexts where situational boundaries are discussed or where it is explicitly juxtaposed with the imperfective.

Consistent with the close relationship of these two aspects, the Maniq progressive often co-occurs with the imperfective. Despite the relatedness,

---

<sup>36</sup> Baldness is referred to metonymically by the term *bakēŋ*, which encodes the quality of having visible and pronounced bones (e.g. *bakēŋ məh* ‘nasal bone’) or by a color term *halāk* denoting white.

however, the progressive differs from the imperfective in some parameters, the most significant of which is its incompatibility with stative verbs (see further below).

The list of examples in Table 3.9 illustrates the progressive derivation. Since most attested examples of progressives also contain imperfectives, progressives are given in bold for ease of reading.

kap	'to bite'	→	<b>m</b> -kap	'to be biting'
wa	'to go'	→	<b>m</b> -wa	'to be going'
bas	'to run'	→	<b>m</b> -<s>bas	'to be running'
buʔ	'to drink'	→	<b>m</b> -<ʔ>buʔ	'to be drinking'
cep	'to grasp'	→	<b>m</b> -<p>cep	'to be grasping'
dɛŋ	'to look'	→	<b>m</b> -<ŋ>dɛŋ	'to be looking'
ʔɔŋ	'to smell'	→	<b>m</b> -<ŋ>ʔɔŋ	'to be smelling'
kibuŋ	'to hunch'	→	k< <b>m</b> >ibuŋ	'to be hunching'
biyɔh	'to speak'	→	b< <b>m</b> >iyɔh	'to be speaking'
kiwɔŋ	'to coil'	→	k< <b>m</b> >i<ŋ>wɔŋ	'to be coiling'
kanɔm	'to urinate'	→	k< <b>m</b> >a<m>nɔm	'to be urinating'
kalɔc	'to jump'	→	k< <b>m</b> >a<c>lɔc	'to be jumping'
taɣoh	'to hold fast'	→	t< <b>m</b> >aɣoh	'to be holding fast'
cadum	'to embrace'	→	c< <b>m</b> >a<m>dum	'to be embracing'

**Table 3.9** Examples of progressive

As pointed out at the beginning of the section, the Maniq progressive attaches to dynamic but not stative verbs, while the imperfective is compatible with both dynamic and stative verbs. This is in accordance with the general restrictions on situation types combining these two aspects (De Wit 2014:25).

The progressive is a stativizing device. As pointed out by Michaelis, progressive denotes “a state which holds during the time that a particular activity goes on” (2004:39). Progressive derivation in Maniq thus imposes a stative reading on the predicate, which is reflected by the fact that progressive-derived verbs display some syntactic properties of stative verbs. Namely, progressive-derived verbs used

as modifiers in the NP modify the noun directly, and do not require relativization (as is the case for dynamic verbs) (§3.16.1).

Finally, the progressive differs from imperfectives in its behavior within multi-verb constructions (MVCs). Progressive-derived verbs in a verbal complex co-occur with other progressive-derived verbs. The same is not true for imperfective-derived verbs, which most often enter multi-verb constructions with underived verbs. See two alternative descriptions of the same videoclip in (43) and (44) offered by the same speaker.

- (43)    ?ε?       m-?εk               m-<η>woŋ  
           3        PROG-give        PROG-<IPFV>go.around  
           ‘They are giving each other (objects) in a circle.’
- (44)    ?ε?       ?εk       wŋ-woŋ  
           3        give        IPFV-go.around  
           ‘They are giving each other (objects) in a circle.’

Progressive forms feed further derivation of the imperfective (§3.11.3.3), e.g. *m-<s>bas* ‘to be running’ (PROG-<IMFV>run).

#### **Progressive on causativized stative verbs**

The progressive *m* attaches to stative verbs derived with the causative morpheme <*i*>. This is possible because causativized stative verbs are construed as dynamic. Forms derived with the progressive and causative are glossed as ‘to be making oneself *x*’, where *x* is the state or property expressed by the verb.

pəsut	'to be soft'	→	p<m><i>sut	'to be making oneself soft'
baḡiēc	'to be red'	→	b<m><i><c>ḡiēc	'to be making oneself red'
basah	'to be itchy'	→	b<m><i>sah	'to be making oneself itchy'
hatiek	'to be long'	→	h<m><i><k>tiek	'to be making oneself long'
məna?	'to be glad'	→	m<m><i><?>na?	'to be making oneself glad'
gəba?	'to be bad/angry'	→	g<m><i><?>ba?	'to be making oneself bad/angry'
kucēw	'to be curly'	→	k<m><i><w>cēw	'to be making oneself curly'
cəbaŋ	'to be bifurcated'	→	c<m><i><ŋ>baŋ	'to be making oneself bifurcated'
kape?	'to be flat'	→	k<m><i><?>pe?	'to be making oneself flat'

**Table 3.10** Examples of progressive on causativized stative verbs

The function of this derivation is to zoom in on the situation. It results in foregrounding of the state/property that is being talked about against all other possible elements of the scene, as in (45) and (46). It can thus be used to draw the listener's attention to a particular element of the scene, as in (46).

(45) (Describing a picture of an angry face)

?ε? m-hah ?ε? g<m><i><?>ba?  
 3 PROG-open.mouth 3 be.angry<PROG><CAUS><IPFV>  
 'He is opening his mouth, he is making himself angry.'

(46) (Describing leaves of a wild yam plant (*Dioscorea pentaphylla*))

A: hali? ?ε? pəsut  
 leaf 3S be.soft  
 'The leaf is soft.'

B: da? ?a pəsut?  
 LOC Q be.soft  
 'Where is it soft?'

A: na? ?ε? p<m><i>sut, ka?ɔ?  
 FOC 3S be.soft<PROG><CAUS> back  
 p<m><i>sut  
 be.soft<PROG><CAUS>  
 'It's making itself soft, the upper side is making itself soft.'

### 3.11.3.5 Inceptive

The inceptive is expressed by *?am-* prefixed to monosyllabic bases, or *<m>* infixing into disyllabic bases (see Table 3.11). It indicates “the beginning of a situation, or entrance into a state” (Bybee 1985:147). Depending on the meaning of the verb, inceptive expresses the meaning ‘to begin X’ or ‘to become X’.

tiək	‘to lie/sleep’	→	?am-tiək	‘to begin lying/sleeping’
ŋək	‘to sit/live’	→	?am-ŋək	‘to begin sitting/living’
wa	‘to go’	→	?am-wa	‘to begin going, to head off’
həs	‘to disappear/heal’	→	?am-həs	‘to be gone/to be healed’
dəŋ	‘to look/see’	→	?am-dəŋ	‘to begin looking/to notice’
kawēk	‘to break’	→	ka <m> wēk	‘to become broken’
paləŋ	‘to smell (blood)’	→	pa <m> ləŋ	‘to begin smelling (blood)’
padis	‘to be spicy’	→	pa <m> dis	‘to become spicy’
haŋec	‘to be cold’	→	ha <m> ŋec	‘to become cold’
bakət	‘to be warm or hot’	→	ba <m> kət	‘to become warm or hot’
bahi?	‘to be full (satisfied)’	→	ba <m> hi?	‘to become full (satisfied)’

**Table 3.11** Examples of inceptive

- (47) bɔ?    mi?    tɔ                    ?am-ŋək  
 just    INDF    marry                    INCEP-sit/live  
 ‘When someone has just gotten married, they begin to live (together with the partner).’
- (48) ?iŋ    pit    ?ɛ?    ha <m> ŋec  
 1S    blow    3    be.cold <INCEP >  
 ‘I blow and it cools down.’

The surface form of the disyllabic inceptive morpheme *<m.>* is similar to the disyllabic progressive morpheme *<.m>*. However, the inceptive normally surfaces in the coda while *m* in the progressive is predefined as syllable onset (as indicated by syllable boundaries marks “.” before of after *m*). This distinction may sometimes be blurred by vowel epenthesis occasionally affecting the inceptive form and displacing the inceptive *<m>* into the onset, e.g. /ha <m> ŋec/ [hamŋec ~ hamaŋec] ‘to cool down’ (be.cold <INCEP >). However, additional cues

help distinguish between the progressive and inceptive. Namely, the inceptive does not feed further derivational morphology while the progressive frequently co-occurs with the imperfective. In addition, the inceptive can attach directly to the root forms of stative verbs, while the progressive does not attach to stative roots.

### 3.11.3.6 Multiplicity (iterative/distributive)

The multiplicity morpheme is encoded with the affix *l*, prefixed to monosyllabic and infixal in disyllabic bases (see Table 3.12). Depending on the lexical aspect of the verb, it expresses either temporal multiplicity, i.e. repetition/iterativity, or a distribution of a state/action over several locations. Cognate *l*-morphemes in other Aslian languages have a narrower specialization, functioning either as iteratives or distributives (Burenhult 2005; Kruspe 2010). In Maniq, the morpheme usually functions as iterative with dynamic verbs and as distributive with stative verbs. However, there are uses where it is the other way round or uses where it could be interpreted either way (cf. (49) - (51)). The multiplicity marker is frequently accompanied by the imperfective infix <C>, in particular when expressing an action with a temporal structure, i.e. in its iterative sense.

wa	'to walk'	→	l-wa	'to walk repeatedly'
wāŋ	'to swing'	→	l-<ŋ>wāŋ	'to swing repeatedly'
giŋ	'to get stuck'	→	l-<ŋ>giŋ	'to get stuck repeatedly'
cih	'to place'	→	l-<h>cih	'to place repeatedly'
ŋɔk	'to sit'	→	l-<k>ŋɔk	'to sit repeatedly'
ɲup	'to be soft'	→	l-<p>ɲup	'to feel soft repeatedly'
cakip	'to bow one's head'	→	c<l>a<p>kip	'to bow one's head repeatedly'
haŋɔt	'to be black'	→	h<l>aŋɔt	'to be black (here and there)'
katū?	'to have protruding spots'	→	k<l>atū?	'to have protruding spots'
baŋtēŋ	'to be blackening'	→	b<l>aŋtēŋ	'to be blackening (here and there)'

**Table 3.12** Examples of multiplicity (iterative/distributive)

- (49) (Description of a gibbon who saw a tiger)  
 ?ɛ? l-<ŋ>wāŋ ya ?iŋ yek bas  
 3 MULT-<IPFV>swing IRR 1s return run  
 ‘It (gibbon) swings repeatedly and I run back.’
- (50) lɛs ?ɛ? l-wa met  
 ants 3 MULT-walk eyes  
 ‘Ants are walking repeatedly around the eyes.’ / ‘Ants are walking around the eyes (here and there).’
- (51) na? hay məh m-<n>k<sup>h</sup>ien  
 FOC like 2S PROG-<IPFV>write  
 ?ɛ? h<l>aŋɔt~h<l>aŋɔt  
 3 be.black<MULT>~CONT  
 ‘It’s like you’re writing, it’s black here and there.’

Multiplicity-derived forms feed further derivation of the imperfective (§3.11.3.3), e.g. *l-<ŋ>giŋ* ‘to get stuck repeatedly’ (MULT-<IPFV>get.stuck), and continuative (§3.11.3.7), e.g. *h<l>aŋɔt~h<l>aŋɔt* ‘to be black (here and there)’ (be.black<MULT>~CONT).

### 3.11.3.7 Continuative

The continuative is derived by means of total reduplication of the stem. It is semantically related to the multiplicity (iterative/distributive) affix; it also expresses temporal or spatial multiplicity. However, contrary to the multiplicity morpheme, the continuative has an iconic effect, created by the fully reduplicated form. With dynamic verbs, it marks continuation of an event over time and is translated with the roughly equivalent English expression ‘to X and X’.

- (52) ŋɔt ‘to shiver’ → ŋɔt~ŋɔt ‘to shiver and shiver’  
 balek ‘to lick’ → balek~balek ‘to lick and lick’

- (53) (Description of a video clip featuring a bearcat)  
 ?ε? hah, ?ε? balek~balek  
 3 open.mouth 3 lick~CONT  
 ‘It’s opening its mouth, it keeps on licking itself.’

With stative verbs, the continuative results in a spatial multiplicity reading. For lack of a good English equivalent with a similar iconic effect, it is glossed like the distributive – ‘to be X (here and there)’.

- (54) paliek ‘to be white’ → paliek~paliek ‘to be white (here and there)’  
 jaŋɔl ‘to be spotted’ → jaŋɔl~jaŋɔl ‘to be spotted (here and there)’
- (55) (Description of a dead monitor lizard, the speaker points on the skin)  
 nay jaŋɔl~jaŋɔl, batɛŋ~batɛŋ  
 FOC be.spotted~CONT be.black~CONT  
 ‘It’s spotted here and spotted there, it’s black here and black there.’

The continuative never involves more than a single reduplication. It is also not marked by special prosody and is uttered within a single intonational unit. These properties of continuative reduplication distinguish it from reduplication used in the depictive mode of speech (cf. §3.17).

#### 3.11.4 Diagrammatic and imagic iconicity

Iconicity refers to non-arbitrary sound meaning correspondences. Two types of iconicity are in evidence in the Maniq verbal lexicon – *diagrammatic* and *imagic iconicity*. Each of them will be discussed in turn.

*Diagrammatic iconicity* is a language-internal phenomenon whereby similar linguistic forms come to be associated with similar meanings (Peirce 1955). In Maniq, it is represented by *verbal templates*, i.e. sets of usually two, but sometimes three verbs with related meanings whose forms differ only in the final-syllable vowel. Templates are found among stative and dynamic roots from different semantic domains. Table 3.13 presents some instances illustrating templatic sets.

The templates themselves, i.e. the shared phonological material, are in bold. The capital *V* marks an active slot that can be filled by any vocalic nucleus of Maniq. The semantic differences between the verbs are sometimes relatively evident (e.g. *cuwyaw* ‘to be crumbly’ vs. *cuwyuw* ‘to be crunchy’), but they can also be elusive, in which case speakers are not able to spell them out (e.g. *ʔūt* vs. *ʔīt*, both glossed as ‘to make a sound, of wasps’). Note that the alternating vocalic nuclei are template-specific, meaning there are no consistent vowel patterns across multiple templates.

<b>bkbVk</b>		<b>ɲəsVŋ</b>	
<i>bkbək</i>	‘to boil (of water)’	<i>ɲəsēŋ</i>	‘to be thin (e.g. stick, game)’
<i>bkbik</i>	‘to boil (of meat juices)’	<i>ɲəsāŋ</i>	‘to be thin (e.g. insects’ legs)’
<b>hVp</b>		<b>haʔVŋ</b>	
<i>hɔp</i>	‘to ingest smoke from fire’	<i>haʔuŋ</i>	‘to be yellow (e.g. mud)’
<i>hop</i>	‘to ingest nutritious liquid’	<i>haʔōŋ</i>	‘to be brown (e.g. tubers)’
<b>ʔVt</b>		<b>cuwyVw</b>	
<i>ʔūt</i>	‘to make a sound (of wasps)’	<i>cuwyaw</i>	‘to be crumbly’
<i>ʔīt</i>	‘to make a sound (of wasps)’	<i>cuwyuw</i>	‘to be crunchy’
<b>hitVt</b>		<b>paʔVʔ</b>	
<i>hitōt</i>	‘to attach to a vertical surface (of inanimate entities)’	<i>paʔōʔ</i>	‘to smell like rotting or wet bamboo, urine, petai, etc.’
<i>hitut</i>	‘to attach to a vertical surface (of animate entities)’	<i>paʔeʔ</i>	‘to smell like soil in caves and by rock overhangs’

**Table 3.13** Examples of verbal templates

Maniq verbal templates bear resemblance to ideophonic/expressive templates found in other languages, notably the Aslian language Semai (Tufvesson 2011), and vowel alternation expressing subtle meaning variation in Semelai expressive verbs (Kruspe 2004b). They seem to differ from them, however, by their high

degree of lexicalization, i.e. the words substantiating the Maniq templates have fairly fixed meanings. In addition, Maniq speakers do not appear to use them productively in ad-hoc descriptions, and reject newly coined words fitting existing templates.

Finally, Maniq also displays another type of iconicity – the more commonly-known *magic iconicity* or onomatopoeia (Peirce 1932), whereby the linguistic sound imitates the real-world sound. For instance, Berlin (1992:250–255) suggested *r* and *l* occur in names for frogs and toads across a large sample of languages because from among the phonemes common across languages these sounds approximate croaking most closely. An example of an onomatopoeic sound in Maniq is the bilabial fricative  $\phi$ , realized finally as  $[\phi]$  and initially as  $[p^h]$ . Both allophones are characterized by a sound of blowing accompanying their articulation. The meanings associated with the sound include phenomena which relate to air in motion. The same iconic association for the bilabial fricative  $\phi$  has been described for Jahai (Burenhult 2005:28). The sound is generally infrequent in the Maniq lexicon (attested in only 1% of all recorded lexemes). Among its occurrences, the majority of words display this iconic form-to-meaning link. Examples include: *ci?a $\phi$*  ‘to buzz’, *ti $\phi$*  ‘to spit’, *?e $\phi$*  ‘to blow’, *li $\phi$*  ‘to breathe’,  *$\phi$ ik* ‘to smash, to hit’, *hy $\phi$ hy $\epsilon$  $\phi$*  ‘to whistle (of some birds)’,  *$\phi$ up $\phi$ up* ‘to flap wings briskly’,  *$\phi$ p $\phi$ op* ‘to make a sound (of Pallas’ squirrel (*Callosciurus erythraeus*))’.

### 3.12 Nouns

Since nouns are marginal to the core of this thesis, this section outlines only the core properties of this word class. Nouns function as arguments of predicates, subjects and complements of verbless clauses, heads of NPs, complements of PPs, and as clause adjuncts. They may be modified by other nouns, stative verbs, relative clauses, demonstratives, and quantifiers. Although nouns and verbs are distinct word classes, many verbal roots, especially stative verbs, may be used as nouns with zero derivation, e.g. *hatiek* ‘to be long’ used in the subject or object slot stands for ‘the long one’. Most nouns are morphologically simplex, but complex forms with traces of onset, coda copying or fully reduplicated syllables are

occasionally attested, e.g. *cankan* ‘palate’ (\**cakan*), *dkdok* ‘throat’ (\**dok*), *bɲbiŋ* (\**biŋ*) ‘spider’, *seŋseŋ* ‘kind of shrub’ (\**seŋ*).

Plural can be expressed lexically by means of quantifying expressions and/or plural marking with a pluralizing proclitic *bi(?)=*, which can attach to nouns, quantifiers and numerals, e.g. *bi=can* ‘feet’ (PL=foot), *hapɔŋ bi?=bɛm* ‘many flowers’ (flower-PL=many). Plural marking is not obligatory. Nouns can be quantified with a numeral preceding the noun, as in (56), or a classifier NP following the noun, as in (57). Quantification with numeral classifiers is relatively infrequent and seems to be employed mostly for emphasis.

- (56) *kamam katɔ?*  
 two day  
 ‘two days’
- (57) *kadie?.sit kamam hati?*  
 civet.sp. two CLF(lit. “tail”)  
 ‘Two civets (lit. two tails of civets)’

In contrast to many other Aslian languages (Diffloth 1976c; Diffloth 1976a; Kruspe 2004b; Burenhult 2005), no unitizing morpheme has been attested in Maniq. Mass nouns do not require an overt expression of unit in order to be pluralized, but may attach the pluralizing enclitic directly, e.g. *bi?=batew* ‘multiple units of water’ (PL=water). As in other Aslian languages, there is no gender distinction for nouns.

Nominal compounds are well attested in the lexicon, e.g. in botanical and zoological terminology. Among common heads of such compounds are the life form taxa, e.g. *ŋahu?* ‘tree’, *kawaw* ‘bird’, as well as generic taxa, e.g. *gale* ‘shrub (*Uvaria*)’, *wac* ‘Beautiful squirrels (*Callosciurinae*)’. The semantic head, which is the first element in a compound, is sometimes elided and only the second element is used, e.g. (*wac*) *kukeh* ‘Pallas’ squirrel (*Callosciurus erythraeus*)’. The same does not happen if the non-generic element of the name is in itself a word with a distinct meaning, e.g. *wac ʔɔs* ‘plantain squirrel (*Callosciurus notatus*)’, but not \*(*wac*) ʔɔs (ʔɔs ‘fire’).

### 3.13 Pronouns

The class of pronouns includes personal (§3.13.1), interrogative (§3.13.2), indefinite (§3.13.2), and demonstrative pronouns (discussed in a general ‘Demonstratives’ section (§3.14)). Other types of pronouns such as reflexive, reciprocal or emphatic have not been attested in Maniq.

#### 3.13.1 Personal pronouns

Personal pronouns distinguish singular, dual, and plural numbers. There is a distinction between inclusive and exclusive for 1<sup>st</sup> person dual and plural. In addition, a 3<sup>rd</sup> person singular pronoun *ʔuʔ* has a male human as the referent. The same pronoun is also used with non-human referents (gender-neutral ‘it’), usually modified by a demonstrative pronoun, e.g. *ʔuʔ ʔen* ‘this one’ (3S DEM).

	SINGULAR			DUAL		PLURAL	
	MASC	FEM	NEUT	INCL	EXCL	INCL	EXCL
1	ʔijɲ			hiy	yɛh	siyɛʔ	yam
2	mɔh			hiyum		gin	
3	gin / ʔuʔ	gin	ʔuʔ	wih			

**Table 3.14** Maniq personal pronouns

Personal pronouns are often modified by the proximate marker *kaw*, e.g. *ʔijɲ kaw* ‘me here’ (1SG PRX), *wih kaw* ‘the two of them here’ (3DU PRX)<sup>37</sup>.

Two pronouns have alternative, less frequent forms ending in *-um*, i.e. 2<sup>nd</sup> person singular *mɔhum* and 2<sup>nd</sup>/3<sup>rd</sup> person plural *gum*. It is unclear at the moment what types of contexts trigger their usage, but they might be related to the special *m*-final pronouns for irrealis constructions attested in Menriq and Batek (Kruspe, Burenhult & Wnuk 2015).

<sup>37</sup> The proximate marker *kaw* in conjunction with pronouns and nouns may express spatial proximity as well as conceptual access (‘the one that is known to be referred to’). At the phrase level, *kaw* is used to indicate temporal proximity, e.g. *ʔijɲ hāw kaw* ‘I just ate’ (1S eat PRX), or experience *ʔijɲ hāw kaw* ‘I’ve eaten (this) before’ (1S eat PRX).

Maniq has special collective compound forms consisting of a pronoun and kin term or personal name, e.g. *wih to? kaw* ‘elder siblings here’ (COLL elder.sibling PRX), *wih ?a=Pɔ* ‘?a Pɔ and the group with him’ (COLL [personal.name]). The pronoun is the third person dual *wih* ‘3DU’, but the collective may denote more than two individuals. Similar terms can be created with *yɛh* ‘1DU.EXCL’, forming first person collectives, e.g. *yɛh ?ay=Wang* (1DU.EXCL personal.name) ‘?ay Wang and all of us’.

### 3.13.2 Interrogative and indefinite pronouns

Interrogative pronouns (WH words) make distinctions for thing, person, place, reason, manner, and time, as shown in (58) below. The unique forms among the pronouns include: the general interrogative *?a* ‘INT’, *kaləw* ‘what’ (possibly a borrowing of the Malay *kalau* ‘if/when’), and *?at<sup>hiem</sup>* ‘what time’. Other pronoun forms are composed of *?a* or *kaləw* (or its reduced versions *kəw* and *ku?*), e.g. *ku? cɔ?* ‘who’ (from *kaləw cɔ?*: what name), *da? ?a* ‘where’ (LOC INT), *katɔ? ?a* ‘what day’ (day INT).

(58)	THING:	<i>kaləw ~ kəw</i>	‘what/which’
	PERSON:	<i>ku? cɔ?</i>	‘who’
	PLACE:	<i>da? ?a (da?) ~ ki? ?a (da?)</i>	‘where’
	REASON:	<i>da? kaliw ~ da? kəw</i>	‘why’
	MANNER:	<i>?a na?</i>	‘how’
	TIME:	<i>?athiem</i>	‘what time’
		<i>katɔ? ?a</i>	‘what day’

Although specific forms exist, often only the general interrogative *?a* is used. This is true especially for ‘where’-questions. Examples below include the use of *?a* in the function of ‘where’ (59), ‘what/which’ (60), and ‘who’ (61).

- (59) *?a las?*  
 INT yam.sp  
 ‘Where is the yam (*las*)?’
- (60) *kabi? ?a?*  
 fruit INT  
 ‘What fruit?’

- (61)    ʔum    ʔa,    ʔuʔ    ʔumʔ  
           DEM    INT    3s    DEM  
           ‘Who is that, that one?’

Polar questions do not require interrogative pronouns and are marked solely by intonation, as in (62).

- (62)    naʔ    məh    dəy    kaŋ    yəbacʔ  
           FOC    2s    to.come when [fruit.sp.]  
           ‘So will you come in the [yəbac] season?’

Maniq indefinite pronouns include: *miʔ* ‘one, someone’ (reduced form of *maniʔ* ‘indigenous person’) and *nkyak* ‘everyone, everything, everywhere’ (nominalization of *yak* ‘to be finished, to be exhausted’).

### 3.14 Demonstratives

Maniq has a set of six demonstratives distinguishing referents based on distance and a broadly conceived notion of accessibility (both physical and epistemic). Several forms specialize in the management of addressee’s attention.

- (63)    ʔih    accessible and usually proximal to speaker, presentative,  
           attention drawer  
           ʔen    accessible to both speaker and addressee  
           ʔun    inaccessible or new to addressee, attention drawer  
           ʔum    inaccessible and usually distant from speaker, often out of sight  
           ʔom    distant in space or time, employed as intensifier in *ʔamet ʔom*  
           ‘very far’ (*ʔamet* ‘to be far’)  
           hiyun    identification of referent established in discourse, attention  
           confirmer

*Hiyun* is a specialized pronoun used to confirm that the addressee’s attention is on the referent. It is also used when referents established in discourse become identified in space, as in the (64).

- (64) (A group of Maniq are watching a video in which Batek men are climbing trees to get petai. There's a brief argument as to what the Batek are actually getting. When in the final scene it turns out it was petai, those who were right utter simultaneously)  
 Hiyun  
 Here  
 'Here.'

In most situations, more than one demonstrative is applicable. For instance, *ʔih* and *ʔen* can both refer to proximal objects and in most contexts they appear to be interchangeable. However, speakers show a preference for *ʔih* in situations involving pointing or demonstration of an object/feature, often involving object manipulation.

- (65) (Picking up various organs while butchering a monitor lizard)  
 ʔih rus  
 this liver  
 'This is the liver.'

Demonstratives may be employed adnominally (66) and pronominally (67).

- (66) hic yak hayāʔ ʔen  
 NEG finish house this  
 'This house is not finished.'
- (67) ʔiŋ pək.key ʔun  
 1s to.dislike that  
 'I don't like/want that (one).'

All demonstrative pronouns may also be employed as locative demonstratives. In this function, they normally occur with locative prepositions *daʔ* or *kiʔ* (except for *hiyun*), as in (68).

- (68) hic gōp kiʔ ʔen  
 NEG hog.badger LOC DEM  
 'There are no badgers here.'

### 3.15 Prepositions

Maniq makes use of a small set of prepositions to indicate a number of semantic distinctions. Prepositions form syntactic constituents with nominals, including relational nouns such as *kapin* ‘upper side’. The notions expressed by prepositions include:

(69)	LOCATION/GOAL:	<i>da?</i> / <i>ki?</i> / <i>nij</i>
	SOURCE:	<i>nataŋ</i>
	COMITATIVE:	<i>ko?</i>
	INSTRUMENTAL:	<i>ki?</i>
	POSSESSIVE:	<i>kɔŋ</i>
	COMPARISON:	<i>hay</i>

There are three locative prepositions: *da?*, *ki?*, and *nij*. The semantically general *da?* and *ki?* combine with relational nouns without restrictions, e.g. *da?* *kapin* ‘at the top’ (*kapin* ‘upper side’), *ki?* *kaʔʔʔ* ‘at the back’ (*kaʔʔʔ* ‘back’). *Nij* is restricted to ‘on’ and ‘in’-types of relations, hence its combinatorial properties with relational nouns are limited, e.g. *nij* *nɛy* ‘inside’ (*nɛy* ‘inside’). The use of relational nouns usually pre-empts the use of locative prepositions, e.g. *kapin batu?* ‘on a rock’ (upper.side rock) (cf. also Jahai, Burenhult 2012:25). All locative prepositions are also used to encode goals. Both location and goal may be introduced without any locative elements, especially if spatial information is encoded in the verb.

(70)	ʔanci?	ʔɛ?	tul	cɔŋ
	tubers	3	to.be.in	basket
	‘Tubers are in the basket.’			

Although prepositions for instruments and possessors are available, they are normally introduced without prepositions. The possessive preposition *kɔŋ* is a loanword from Thai (*khɔŋ* ‘of, belonging to’). Also several words contain the locative *\*ka-* which is no longer used productively in Maniq, e.g. *katie?* ‘on the ground’ and *kahip* ‘forest’. The locative meaning of these words is partially

bleached since they are often introduced by other locatives, e.g. *da? katie?* ‘on the ground’.

### 3.16 Phrase and clause structure

#### 3.16.1 Noun phrase

The Noun Phrase in Maniq has the following structure:

(71) (NUM) NOM (ASSOC) (V/REL) (DEM/PRX)

NP heads are typically nouns, but they can also be personal pronouns or the recognitional demonstrative *?ɔ?* ‘the one’. Numerals precede the head nominal, e.g. *kamam katɔ?* ‘two days’ (two day). Nominal compounds form the associative construction, in which the head noun is followed by a modifier noun or pronoun. The associative construction may express a number of relations such as possession, kinship, part-whole, etc. For instance, *hayã? mɔh* ‘your house’ (house 2s), *wɔŋ ?iŋ* ‘my child’ (child 1s), *kuy bəwac* ‘pig-tailed macaque’s head’ (head pig-tailed.macaque). Stative verbs can be used as NP modifiers in underived form and directly follow the noun, as in (72). Dynamic verbs need to be in the progressive, as in (73), or embedded in a relative clause, as in (74) and (75). Both verbs and relative clauses follow the noun directly.

- (72) *ləntak*                      *bakɛɸ*  
*yam(D.glabra)*      be.fibrous.and.dry  
‘a dry (non-glutinous) and fibrous tuber’
- (73) *?ey*                      *m-<y>bay*      *takop*  
father                      PROG-<IPFV> dig tuber(*D.orbiculata*)  
*kuy*      *b<m><i><ɸ>yɔɸ*  
head      to.be.white<PROG><CAUS><IMFV>  
‘The tuber-digging father had a head that was whitening itself.’
- (74) *?ɔ?*      *?ɛ?*      *h<i>dep*  
RECOG 3      front.side<CAUS>  
‘the one facing (us)’



Complex predicates with several verbs are also common. These are referred to as multi-verb constructions (cf. §3.16.3).

### 3.16.3 Multi-verb constructions

Multi-verb constructions (MVCs) are common in Maniq. They are defined as strings of verbs forming single prosodic units. Another term, serial-verb constructions (SVCs), is frequently used to describe similar constructions in other languages (e.g. Aikhenvald & Dixon 2006). However, *multi-verb constructions* is preferred here in order not to exclude the types of verb complexes not prototypically associated with that label, e.g. adverbial constructions. Most often, verbs in MVCs are in root forms so there is no explicit marking of the relationships (subordination or coordination) between verbs in these constructions. The maximal number of verbs attested in a verbal complex is four.

- (79)    ?ɛ?     kɛn     hok     bayu?  
           3       get     enter   shirt  
           ‘He put on a shirt.’
- (80)    mɔh     kɛn     kɔs     kic     pi-dɛŋ   suna?  
           2S     take   peel   grind   CAUS-see wild.yam.(*D. daunea*)  
           ‘Show how to peel and grind the tuber (*D. daunea*).’
- (81)    taʔɔʔ   ?ɛ?     kap     pantɛs  
           tiger   3       bite   be.quick  
           ‘The tiger bites quickly.’

MVCs are distinct from concatenated clauses, where each verb is preceded by a pronoun.

- (82)    ?ɛ?     kap     ?ɛ?     sɔʔ     taʔɔʔ  
           3       bite   3       kill     tiger  
           ‘The tiger bites and kills.’

MVCs have not been reported for other Northern Aslian languages. Their presence in Maniq is possibly the result of contact with Thai. It is important to note, however, that the Maniq MVCs are distinct from Thai SVCs. For instance, in Maniq there are usually no constituents intervening between verbs in MVCs, and

MVCs are not used as a means of increasing valency or introducing oblique arguments (cf. Semelai, Kruspe 2004). Thai, on the other hand, allows intervening valency-increasing constituents between verbs (Diller 2006).

MVCs in Maniq include a small number of lexicalized verb compounds. These always consist of two verbs, e.g. *pək key* ‘to dislike, to not want, to put aside’ (*pək* ‘to remove, to discard’; *key* ‘(meaning unclear)’), *kac sey* ‘to discard soil by throwing it to the side’ (*kac* ‘to scrape’; *sey* ‘to throw soil to the side’).

### 3.17 Depictive mode of speech

Unlike many Aslian languages of the Central and Southern branch (Benjamin 1976a; Diffloth 1976b; Kruspe 2004b; Tufvesson 2011), and Austroasiatic languages more generally (Diffloth & Zide 1992), Maniq does not have a dedicated word class of expressives. The characteristic functions normally associated with this class are carried out by other means. One such important function is depiction, i.e. invoking sensory experiences in listeners (Kruspe 2004b; Dingemans 2011). Instead of having a dedicated class of expressives used for depictive speech, Maniq exhibits depiction in discourse by deploying what is referred to here as the *depictive mode of speech*. The main function of depictive mode is to provide a vivid representation of a perceptual experience and give the listener an opportunity to partake in it (Clark & Gerrig 1990).

There are several markers signaling the depictive mode in Maniq. Not all are necessary in order for an utterance to be understood as depictive, but a combination of several is usually employed. The following example provides an illustration.

- (83) hali?    ?ε?    cawāc,  
 leaf    3    be.striped.lengthwise  
 V↓°yaaa    cawāc~cawāc~cawāc...°↓V  
           IRR    be.striped.lengthwise.RED  
 ‘The leaf is striped lengthwise: *yaa cawāc cawāc ...*’

The depictive portion in the above utterance begins with the irrealis-marking particle *ya*, here marked as *yaaa* to represent the prolonged pronunciation of the vowel. This marker, aside from introducing some types of irrealis clauses<sup>38</sup>, is conventionally used for introducing depictive elements.

Another characteristic of depictive utterances is their prosodic foregrounding, making them stand out from other utterances. This can be achieved in multiple ways, e.g. by a marked voice quality, intonation, volume, etc. Here, the foregrounding effect of the relevant fragment is brought about by several elements: (1) creaky voice (marked by *ʏ*), (2) a noticeably lower pitch as compared to the directly preceding fragment (marked by *↓*), and (3) a lowered volume (marked by *°*). What often accompanies this type of foregrounded prosody is an iconic gesture (cf. (83)). Both elements increase the sense of performance and make it clear that the utterance is distinct from ordinary speech. Also typical for depictive utterances is lengthening and reduplication, in this case applied to the particle *ya* and the stative verb *cawāc*, respectively. Depictive portions of utterances typically occur as clausal adjuncts.

As discussed above, the role of the depictive mode – instead of simply describing something – is to allow the listener to experience it. The various formal devices just illustrated have the function of flagging the utterance as non-ordinary speech and providing an iconic representation of the percept.

The use of depiction is not restricted to a particular type of utterance. In fact, different syntactic chunks can be uttered in depictive mode. Attested examples include verbs (both stative and dynamic), and entire phrases. Example (84) illustrates a dynamic verb and example (85) a repeated verb phrase followed by a prepositional phrase. In both cases, the foregrounding effect is achieved with an upward pitch excursion. In addition, example (85), taken from a video corpus, is aligned with an iconic gesture involving the speaker hitting her own shoulder.

---

<sup>38</sup> *Ya* introduces imaginary or hypothetical situations.

- (84)    ʔɛʔ    yp-yɔp,            tawɔh ʔɛʔ    yɔp  
           3        IPFV-look.down   gibbon 3        look.down  
           daʔ    katieʔ,            ↑ya    yɔɔp↑  
           LOC    ground            IRR    look.down  
           ‘It’s looking down, the gibbon is looking down to the ground: ya yɔɔp.’
- (85)    ʔɛʔ    pak    may,    ↑yaaa    pak    may  
           3        hit    shoulder IRR    hit    shoulder  
           pak    may            daʔ    ʔum↑  
           hit    shoulder        LOC    DEM  
           ‘She hit (his) shoulder: yaa pak may pak may daʔ ʔum.’

Many features of Maniq depictions point to their resemblance to expressives (cf. Diffloth 1976b; Dingemanse 2011). However, unlike expressives, words uttered in a depictive mode are not depictive in essence, but only *become* depictive by virtue of the special way in which they are delivered.

### 3.18 Summary

This chapter has presented a general overview of the Maniq language, including basic background information as well as the grammatical preliminaries most relevant to the rest of the thesis. The main focus was on the word class of verbs, including elements such as the distinction between dynamic and stative verbs, verbal derivational morphology, and iconicity in the verb lexicon. This information constitutes the essential reference for the coming chapters, in which specific sets of verbs are examined in detail: verbs of looking (Chapter 4), verbs of color and visual property (Chapter 5), and verbs of smell (Chapter 6).



## 4 Ways of looking: Encoding visual paths in verbs

---

### 4.1 Introduction

Lexicalization patterns in verbs vary widely across languages since verbs are free to encode different aspects of an event in their semantics (Gentner 1982; Talmy 1985; Gentner & Boroditsky 2001; Evans 2011a). While nouns are often claimed to be “given” by the world in the sense that they represent stable and “cohesive collections of perceptual information”, verbs carry complex relational meanings that can be construed in a multitude of different ways (Gentner 1982:46). Thus, for instance verbs of motion – aside from the fact of motion – can lexicalize a number of distinct components of the motion event, e.g. path, manner, figure (moving entity), and ground (reference entity) (Talmy 2000a). Verbs of physical separation, i.e. cutting and breaking, can encode manner, instrument, or type of separation (Majid, Bowerman, et al. 2007; Majid, Boster & Bowerman 2008). Verbs of ingestion, in turn, may code for the type of ingested matter, manner of ingestion, but also speed and intensity of ingestion, or the consumed quantity (Newman 2009; Burenhult & Kruspe 2016). In domain after domain, denotations of verbs show great cross-linguistic variability and malleability of the underlying concepts. Still, despite the rampant variation, the packaging of meaning in verbs is not random as there are a number of factors which contribute to shaping the lexical verb categories (Malt & Majid 2013).

One such factor is related to the recurring *patterns* of lexicalization exhibited by specific languages (Talmy 1985; Talmy 2000a). For instance, two main language types have been distinguished based on their characteristic way of describing motion events: *verb-framed* and *satellite-framed* languages. Verb-framed languages such as Spanish are characterized by their consistent preference to lexicalize path of motion in the main verb (e.g. *bajar* ‘to descend’). Satellite-framed languages such as English, on the other hand, tend to lexicalize manner information in the main verb (e.g. *roll*) (see also §1.2). Lexicalization patterns in one domain are also frequently instantiated in other domains. For example, manner in English is

encoded not only in motion verbs, but also in verbs of speaking, verbs of transportation, and others (Levin 1993). While this type of cross-domain systematicity across verb sets is generally expected within a particular language (Gentner 1982:47), it is not always attested. Looking events have been identified as one area where the expected cross-domain systematicity does not hold. It has been noted that both verb- and satellite-framed languages use the same basic lexicalization strategy in descriptions of looking events. Thus, both English and Spanish (contrary to what one might expect based on its motion typological profile) employ the general ‘look’ verb in combination with directional adverbs (e.g. *look up*; *mirar para arriba* ‘look toward up’) (cf. Slobin 2009). Matsumoto (2001) found the same pattern by comparing English, Spanish, Hindi, Japanese, Korean, and Thai, and refers to this situation as a “typological split”, noting that “The verb-framed nature of verb-framed languages tends to be lost” in descriptions of looking events (cited in Slobin 2009:205).

The “typological split” has been observed in the better-known verb-framed languages, but – as will be shown here – it does not represent a universal lexicalization constraint. Other mentions of verbs of looking encoding trajectory of gaze (i.e. visual path) appear in the literature (Klein 1981; Evans & Wilkins 2000), but the pattern appears to be typologically rare and, as of yet, it has not received systematic treatment. This chapter contains the first detailed documentation of the semantics of such verbs. Thus, aside from investigating verb specificity, the present study makes a descriptive and typological contribution to the verbs of perception literature. The central phenomenon examined here are the verbs of looking which encode visual path in Maniq. Consider the following two spontaneous descriptions of looking events, illustrating the use of an upward-directed looking verb *balay* (86) and a downward-directed *yɔp* (87).

- (86) (Description of a tiger hunting for gibbons)  
 ?ɛ?    balɔt                    balay    cey    tawɔh  
 3        be.under.sth    look.up    bum    gibbon  
 ‘It’s underneath, and looks up at the gibbon’s bum.’

- (87) (Narrative about Maniq ancestors)
- |        |       |             |     |                |
|--------|-------|-------------|-----|----------------|
| ya     | wəŋ   | ʔeʔ         | bah | yp-yəp,        |
| IRR    | child | 3           | go  | IMFV-look.down |
| ʔey    | kaw   | m-<y>       | bay |                |
| father | PRX   | PROG-<IMFV> | dig |                |
- ‘The child went looking down, the father was digging.’

Both *balay* and *yəp* carry specific meanings and – in addition to lexicalizing the looking activity itself – carry information about the trajectory of looking. Such meaning specialization is in line with Maniq’s general profile of a verby language with a semantically specific lexicon (cf. Chapter 1). Maniq has many semantically specific verbs, and exhibits a consistent preference for verbal encoding of information in a number of lexical fields. Thus, for instance, Maniq expresses specific properties of objects such as colors (Chapter 5) or smells (Chapter 6) predominantly in monomorphemic stative verbs, rather than packaging this information in other word classes or multimorphemic structures. The elaboration of the lexicon in the case of smell and color is not accidental, but can be shown to be linked to cultural preoccupations and indigenous expert knowledge. The question here is whether a similar culture-language link might exist for verbs of looking. What pressures are shaping this vocabulary? And, related to that, what could be the possible communicative advantages of encoding path in verbs?

Following earlier explorations (e.g. Slobin 2009; Cifuentes-Férez 2014), the present discussion of visual perception draws parallels to the domain of motion. Visual perception and motion have been noted to display a number of similarities. In Talmy’s terms, visual perception is an example of *fictive motion* – “motion with no physical occurrence” (2000b:99), more specifically categorized as *emanation*, i.e. “fictive motion of something intangible emerging from a source” (2000b:105). This observation rests on linguistic evidence showing motion and vision enter similar syntactic frames and occur with the same spatial expressions such as *to* and *from* (Gruber 1967; Jackendoff 1983; Slobin 2009; Gisborne 2010). Evidence for the fictive motion conceptualization of vision is found in numerous languages across the world and has been proposed to be universal (Slobin 2009:199).

While visual perception and motion display similarities, they are also clearly different from each other. Slobin (2009:204–205) makes the following observation:

An act of looking doesn't bring about a change of locative state of the fictive agent or of the gaze as an extended entity. That is (at least from the point of view of an English speaker), when I look into another room, my gaze is still anchored at my eyes, and has not left me and achieved a new state of containment on the other side of the threshold. But if my dog goes into that room, he is no longer here at my side, but there, having crossed the boundary. That is, boundary-crossing is a change of state event for physical motion, but not for visual motion.

Such fundamental differences between visual perception and motion could well result in different sets of constraints shaping the lexical categories across these domains, and ultimately help account for why visual paths in many verb-framed languages are resistant to verbal encoding. Maniq does lexicalize path information in verb roots in both verbs of motion and visual perception. However, the question remains whether the distinctive nature of the two types of events results in specific differences as to the types of lexicalized paths. What paths do verbs of motion and verbs of vision encode?

To address the above points, this chapter explores in detail the expression of visual paths in Maniq and the extent of their parallelism to motion paths. To prepare the ground for comparison, I start with a brief outline of the domain of motion event descriptions in Maniq (§4.2). Following that, I introduce the central part of the present investigation – the verbal encoding of visual paths, explored by means of a translation questionnaire (§4.3.1) and a picture naming task (§4.3.2). These two tasks probe the distinctions of potential relevance to the domain of visual perception and bring out the semantic subtleties of the featured verbs. This information – contextualized within the local ecological and cultural setting – sheds light onto the organizing principles of the visual perception lexicon and the communicative utility of encoding path in verbs. The final sections contain a comparison of paths encoded in verbs of motion and verbs of vision (§4.4). The data show there is a core set of spatial distinctions lexicalized across the two

verbal lexical sets. A broader look across the Maniq lexicon reveals parallel cases of such encoding (§4.5), thus demonstrating a pervasive systematicity in the packaging of meaning in verbs.

#### 4.2 Semantics of Maniq motion verbs

Maniq has a wide repertoire of motion verbs (as do other Aslian languages, e.g. Burenhult 2008; Kruspe 2010). This section focuses on a general delineation of the distinctions lexicalized in motion verbs. In particular, it provides an inventory of the commonly encoded semantic components of motion events and lists the types of motion paths encoded in verbs. The data presented here are based on non-elicited use as well as stimulus-based elicitation with ‘Motion verb stimulus’ clips (Levinson 2001).

Based on the criterion of path encoding, Maniq can be classified as a verb-framed language, since it lexicalizes path of motion in independent verbs (Talmy 1991). Consider examples (88) and (89) below with monomorphemic path-encoding verbs *cən* ‘to move along the top of an object’, *ciday* ‘to move uphill’ and *sa* ‘to descend’.

- (88) Ball rolls up ramp  
 ?ɛ?      cɛ-cɛn, (...)                      ?ɛ?      ciday  
 3            IMFV-move.along.on.top    3            move.uphill  
 ‘It’s moving along the top, (...) it’s moving uphill’
- (89) Ramp slides under ball  
 hayet    ?ɛ?      sa  
 yellow 3            descend  
 ‘The yellow one (the ramp) is descending.’

Manner information is frequently omitted in descriptions of these kinds, as is typical of verb-framed languages. When mentioned, manner is most typically lexicalized in independent verbs, occurring either in separate clauses or within multi-verb constructions, as in (90).

- (90) Ball bounces over dyke  
 laŋkah kalɔc  
 go.over jump  
 ‘(It) jumps over.’

This example suggests Maniq could be classified as a “complex verb-framed language” (otherwise called equipollently-framed), characterized by the encoding of path and manner in two grammatically equivalent verbs (Slobin & Hoiting 1994; Slobin 2004). However, a systematic investigation of motion events is needed to identify the predominant patterns and provide a nuanced typological characterization (cf. Slobin 2004; Levinson & Wilkins 2006). The relevant fact for now is that path of motion is routinely lexicalized in verbs.

Aside from path and the fact of motion itself, some of the basic motion verbs in Maniq also lexicalize the component of ground (cf. Jahai; Burenhult 2008), e.g. *wet* ‘to move downstream’. Such verbs are among the most semantically heavy items in the lexicon carrying multiple semantic components. Table 4.1 shows the motion verbs applying to different types of path and ground. All listed verbs lexicalize change of location, and none encode manner.

Ground \ Path	UP	DOWN	HORIZONTAL
	HILL	ciday	sa
VERTICAL SURFACE (TREE, ROCK WALL)	lawec	cɛn	
SHORT OBJECT (E.G. FALLEN TREE, SMALL ROCK)	ciwɛh	yəbəy	patiy
RIVER	tik	wet	

**Table 4.1** Motion verbs for various types of ground and path

Note that among the categories in the table, some verbs lexicalize a specific type of ground (e.g. *wet* ‘to move downriver’), while others are more general (e.g. *sa* ‘to descend (general)’). Depending on the type of ground, the ‘horizontal’ category corresponds to ACROSS, e.g. *patiy* ‘to go across a river’, or ALONG, e.g. *cɛn* ‘to move

along the top of an object'. In addition to the distinctions given in the table, some categories, notably the arboreal motion verbs, also lexicalize manner, e.g. *tanbɔn* 'to climb a tree with a "walking" style'<sup>39</sup>.

Aside from UP, DOWN and ACROSS/ALONG, the following object-anchored paths have been found to be encoded in verbs:

(91)	INTO/UNDER:	<i>hok</i> 'to enter/to go under'
	OUT	<i>yes</i> 'to exit'
	BACK	<i>palij</i> 'to turn back, to change direction of motion'
	SIDEWAYS	<i>kapoŋ</i> 'to turn sideways, to change direction of motion'
	OVER	<i>laŋkah</i> 'to go over an obstacle'
	NEXT TO/AROUND	<i>gagie</i> 'to move around or next to the edge of an object'

The list is most likely not exhaustive since the domain has not been fully explored, but irrespective of the actual number of existing verbs, the crucial observation is that object-anchored paths of motion are frequently lexicalized in verb roots.

### 4.3 Semantics of Maniq verbs of looking

Having outlined the general distinctions relevant for the motion domain, I now turn to the domain of vision. Of major interest to this investigation is the question of path-encoding. What path distinctions are encoded in verbs of looking? And how do verbs of looking compare to verbs of motion and verbs in other semantic fields?

In order to survey the visual perception domain, two tasks were carried out with Maniq speakers: a translation questionnaire and picture naming. The translation questionnaire provided a first general indication of the available distinctions lexicalized in verbs of looking. Picture naming explored them further by establishing the exact extensional range of the verbs and testing which spatial frames of reference they are associated with.

---

<sup>39</sup> "With foot placed flat against tree, climber leans back to generate counter-pressure, advancing arms and feet alternately" (Kraft, Venkataraman & Dominy 2014:4, see also figure 1H on p. 3).

### 4.3.1 Study 1: Translation questionnaire

#### 4.3.1.1 Method

The initial probing of the distinctions encoded in verbs of looking was carried out with the use of a translation questionnaire. Two male speakers of Maniq in the approximate age range of 35-45 took part in the task.

The questionnaire was composed of 59 sentences in Thai containing simple descriptions of looking events. The sentences examined a broad selection of visual paths as judged by gaze direction. It included paths which are known to be relevant for verbs of motion (§4.2), as well as several other paths expressing spatial distinctions of high salience in the Maniq community (e.g. east, west). Note that some spatial distinctions are ambiguous with respect to the spatial coordinate system ('frame of reference') they typically associate with (i.e. egocentric vs. absolute). This could not be explored systematically in this task, but the issue is treated more extensively in §4.3.2.

- Horizontal: STRAIGHT, SIDEWAYS, BACK
- Vertical: DOWN, UP
- Horizontal + Vertical AROUND
- Object-anchored: AT, INTO, OUT, UNDER, OVER, THROUGH, ALONG, ACROSS
- Absolute: EAST, WEST

Example sentences are provided in (92). The full questionnaire (in English and Thai) is included in Appendix 1.

- (92) The man *looked up* the tree in search of leaf monkeys.  
 The deer *looked back* when it heard a noise coming from behind.  
 I couldn't find my machete so I *looked under* the bed to check if it was there.

In addition to the selected types of paths, the stimulus set varied parameters such as the type of ground object (e.g. tree, stream), the type of viewed object, i.e. endpoint of visual path (e.g. person, animal, thing), identity of the experiencer (human, animal), position of the body (e.g. standing, sitting, lying), and position

of the eyes (neutral, up, down, sideways). The purpose of this broad selection of stimuli was to identify the relevant parameters lexicalized in verbs of looking and to eliminate irrelevant ones.

The first half of the questionnaire was administered to both participants interviewed together in a single session. The second half was administered on another day to the older participant. The focus of the elicitation was not an exact translation of the entire scenario described in the sentence, but only of the target descriptions of looking events and visual paths. In addition to providing translations, the participants answered questions and judged the acceptability of alternative descriptions provided by the experimenter. This information was used as additional evidence supplementing the results from translation. The Thai sentences were read out by a native speaker of Southern Thai, while the additional probing was carried out in Maniq by the experimenter. The section below contains a summary report of the main results.

#### 4.3.1.2 Results

The translations yielded a total of eight verbs used as independent descriptors of the looking actions (93). Seven of them encoded specific horizontal and vertical gaze directions, and one – *dɛŋ* – was a direction-neutral general looking verb. All listed verbs are monomorphemic, except for *wwɛ*, which contains an imperfective affix. In addition, *ciyək* and *cikiey* – though synchronically non-analyzable – appear to share a fossilized prefix \**c-* and the causative infix <*i*>.

(93)	<i>balay</i>	look up
	<i>pəntɛw</i>	look up/straight
	<i>ciyək</i>	look sideways
	<i>cikiey</i>	look sideways/back
	<i>wwɛ</i>	look around
	<i>pədəp</i>	look around (of birds)
	<i>yɔp</i>	look down
	<i>dɛŋ</i>	look (direction-neutral)

The elicitation revealed further that distinctions such as absolute directions (east-west), type of ground (e.g. tree, stream), and type of viewed object (e.g. liquid-solid) were not lexicalized in verb roots, but were expressed by other lexical means. Object-anchored paths (e.g. to look under something) were also not associated with dedicated verbs, but were either unexpressed or expressed periphrastically. Except for one case (i.e. *pədep*, see below), the identity of the experiencer was not lexicalized in the verb. There were some indications that parameters such as body posture and position of the eyes had a meaningful influence on the verb choice, but – given that no clear generalizations emerge – the issue was explored further in the picture naming task.

The most semantically general looking verb was *dɛŋ* (featuring also in the ‘Grammar of perception’ task in Chapter 1). Rather than being associated with one specific type of path, it was employed with a variety of paths. *Dɛŋ* was in most cases attested in a bare root form (94). Only in one case, did it surface in the imperfective form *dŋdɛŋ*. The imperfective – signaling the ongoingness of the action – was used to express ‘looking around’ (95).

- (94) #20 looked inside the blowpipe  
 dɛŋ niŋ hanɾɛŋ balaw  
 look.at in hole blowpipe  
 ‘(He) looked inside the blowpipe’
- (95) #10 looking sideways from time to time  
 ?iŋ dŋ-dɛŋ  
 1s IMFV-look.at  
 ‘I was looking around’

*Balay* was used to express looking up. It was attested both with simple UP paths (96), as well as complex ones, e.g. UP INTO, and paths with a specific ground such as UPHILL.

- (96) #2 looked up the tree  
 mi? sawe balay yut  
 INDF search look.up stump-tailed.macaque  
 ‘The person searched for stump-tailed macaques looking up.’

Another verb expressing the meaning of looking up was *pəntɛw*. Example (97) below was elicited with a sentence involving a woman looking out from a house. In this case, the participants presupposed the house was on a slope and explicitly stated *pəntɛw* would be appropriate if the woman was looking upwards (while looking downwards would require the verb *yɔp*, see below). *Pəntɛw* refers to looking up, but it seems to differ from *balay* since the two verbs occurred in different contexts. This difference is examined further in the picture naming task (§4.3.2). Additional probing revealed *pəntɛw* is also associated with looking straight ahead. This suggests the verb covers a range of gaze directions encompassing straight level and upward paths.

- (97) #24 looked out from the house  
 ?ɛ? pəntɛw  
 3 look.up/straight  
 ‘She looked up (ahead of her)’

The verbs *ciyək* and *cikiey* were both employed to express looking sideways, e.g. *ciyək* in (98). *Cikiey* was additionally employed with BACK, as in (99).

- (98) #12 turned her head sideways and looked  
 ?ɛ? ciyək  
 3 look.sideways  
 ‘She looked sideways’
- (99) #16 looked over his shoulder  
 ?ɛ? wa cikiey gana?  
 3 walk look.back companion  
 ‘He walked looking back at his companions’

Two other verbs – *wwe* and *pədep* – were used to express looking around. *Wwe* – like *djdeŋ* mentioned above – is an imperfective form (derived from *wε* ‘to walk around looking for food’) and indicates an ongoing looking activity. *Pədep* also expresses the activity of looking around, but it is specific to birds and lexicalizes the birds’ characteristic manner of looking involving sudden jerky movements.

- (100) #14 began looking around  
 ?ε? w-wε ha, ?ε? doh ha  
 3 IMFV-look.around path 3 lose path  
 ‘He was looking around for the path, he lost the path.’
- (101) #15 (bird) was looking around  
 kawaw ?ε? pədep  
 bird 3 look.around(of.bird)  
 ‘The bird was looking around’

*Yɔp* was used to express looking down. It was employed in translations of sentences explicitly specifying a downward gaze trajectory, as well as those where it was presupposed based on sentential context, e.g. looking into a basket (102), or under a bed.

- (102) #18 looked into (basket)  
 ?ε? yp-yɔp cɔŋ  
 3 IMFV-look.down basket  
 ‘She looked down (into) the basket’

To summarize, ‘looking’ was translated into a number of specific verbs encoding visual path and – in a few cases – other semantic detail. The path distinctions identified in the core set of verbs are explored further in a systematic investigation carried out with a picture naming task.

#### 4.3.2 Study 2: Picture naming

Picture naming involved descriptions of a selection of looking scenes. It focused on distinctions which were difficult to test with verbal stimuli, but were relatively easy to depict using visual representations, e.g. small variation in angle of gaze,

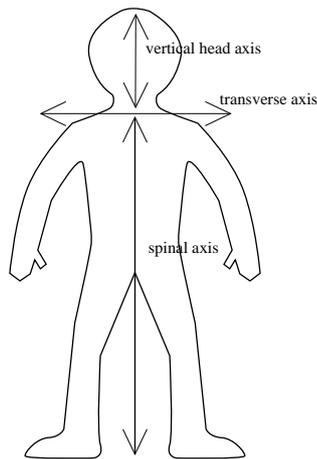
presence/absence of an endpoint object, varying body posture, and position of the eyes. This was done to establish the exact extensional range of the verbs and identify their distinctive features (especially since some of them seemed to overlap in denotation, e.g. *balay* and *pəntəw*). In addition, this task set out to determine what spatial coordinate systems ('frames of reference') the looking verbs are associated with. The translation task revealed that, for instance, *yɔp* refers to looking down and *cikiey* to looking sideways, but it is unclear whether these directions are determined with respect to the viewer's body or the environment. Since the issue of frames of reference is of importance to this task, the following section introduces it briefly, situating it in the context of looking events.

#### 4.3.2.1 Frames of reference in looking events

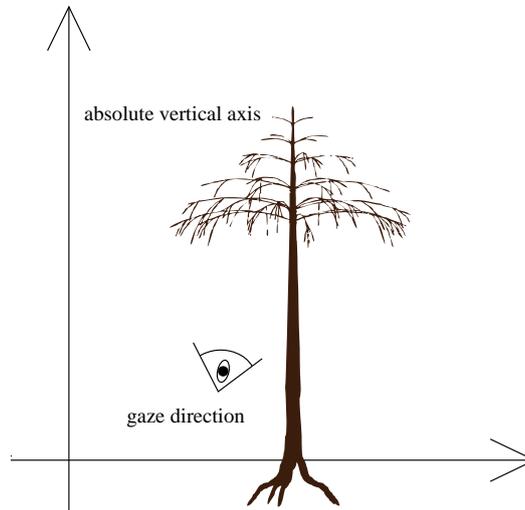
Frames of reference are coordinate systems applied for computing spatial relationships between objects (Levinson 2003; Majid et al. 2004). In the context of looking events, different frames of reference are associated with different ways of determining the trajectory of gaze. Two types of frames of reference will be relevant to the ensuing discussion: *egocentric* (or viewer-centered) and *absolute* (or environment-centered) (cf. Carlson-Radvansky & Irwin 1993).<sup>40</sup> The egocentric frame is viewer-centered, i.e. the defining relation is based on the alignment of viewer's bodily axes with respect to one another. The relation which will be critical here is the angle between the head and the spine resulting from head rotation (turning), and head flexion (bowing). An additional parameter of relevance is the position of the eyes with respect to the face. The absolute frame, in contrast, is environment-centered, i.e. the defining relation is specified by the angle between gaze direction and the absolute vertical axis, determined by gravity and salient environmental features. Figure 4.1 and Figure 4.2 illustrate the distinction.

---

<sup>40</sup> For a review of the frame-of-reference distinctions applied across different disciplines, see Levinson 2003:25–34.



**Figure 4.1** The egocentric frame: body axes.



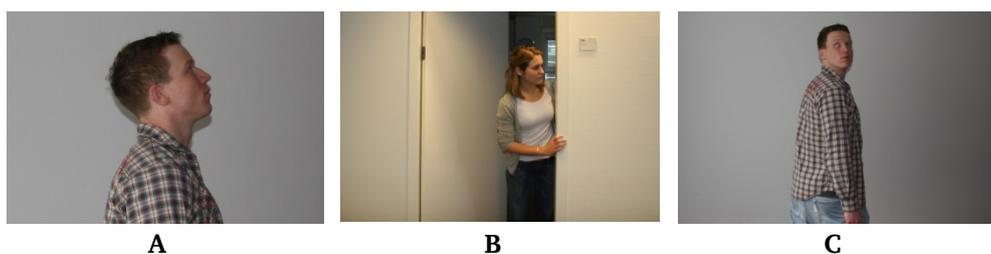
**Figure 4.2** The absolute frame: gaze direction and absolute axes.

Normally, bodily and absolute axes align. So, in canonical instances of various looking acts, there is no need to pick between frames of reference in order to select which verb to use. However, in non-canonical cases – where bodily and absolute axes do not align, e.g. when lying down – the speaker is forced to assume either an egocentric or absolute perspective, as either choice will require the use of a different verb. Misalignment of frames of reference is a common problem in spatial language, since languages typically do not have dedicated strategies for non-canonical cases. For instance, the English preposition *above* is applied with the absolute or intrinsic (i.e. object-centered) frame of reference, depending on which perceptual cues are used to define the vertical axis (Levelt 1984; Carlson-Radvansky & Irwin 1993). The picture naming task tackles this problem directly by introducing experimental manipulations teasing apart egocentric and absolute frames via non-canonical body postures accompanying looking scenes.

### 4.3.2.2 Method

Eight participants (4 male) in the approximate age range of 27-65 took part in the picture naming task. All were native speakers of Maniq.

The stimuli were 54 photographs: 50 looking scenes and 4 closed-eyes scenes (see examples in Figure 4.3; and the full set in Appendix 2). Because the closed-eyes scenes were added later, they were administered with only 4 of the 8 participants. The remaining 50 scenes were described by all 8 participants. Each looking scene involved one person (either male or female) looking in a particular direction. Most photographs were taken indoors against a neutral background to maximize the focus on the looking act and discourage inferential descriptions such as “He is searching for animal tracks”.



**Figure 4.3** Example images from the picture naming task.

The stimuli explored four types of visual paths as judged by gaze direction:

- Horizontal: STRAIGHT, LEFT, RIGHT, BACK
- Vertical: LEVEL, DOWN, UP
- Diagonal: DOWN-and-LEFT, DOWN-and-RIGHT, DOWN-AND-BACK, UP-and-LEFT, UP-and-RIGHT, UP-AND-BACK,
- Object-anchored: AT, INTO, OUT, UNDER, OVER, THROUGH, ALONG, ACROSS

To address the issue of frames of reference, the scenes also varied parameters such as position of the body (e.g. standing, lying on belly/back/side, leaning) and position of the eyes (neutral, up, down, right, left). An additional manipulation

consisted of scenes with and without physical endpoints. This was done to examine whether presence of endpoints influenced the choice of verb and if the relevant verbs can surface with direct objects. Some scenes additionally varied type of ground object (e.g. stairs, mound, tree), since some grounds are culturally more salient and might be associated with special strategies. Finally, to probe the scope of the verbs, SHARP ( $\sim 90^\circ$ ) and NON-SHARP ( $\sim 45^\circ$ ) angle variants of LEFT, RIGHT, DOWN and UP were included.

Participants saw photographs one by one in a fixed random order on a 14-inch laptop. The task was to answer the question *?ε? di? kaləw* “What is he/she doing?” (3 do what) for each image. The length of the response was not restricted so speakers were free to use as many verbs as they wished in their descriptions. If no reference to the looking act was made, the experimenter provided descriptions for judgment or asked additional questions. The prompted answers were not included in the main count, but were occasionally used as auxiliary evidence to support a particular analysis. The whole procedure was carried out in Maniq.

In addition to the picture naming task, the Maniq verbs of looking were explored by having a few speakers enact them. These re-enactments were done on a separate occasion and were used as additional evidence for the interpretation of the results presented below.

#### 4.3.2.3 Results

The stimuli successfully elicited descriptions of the looking acts from the majority of participants. The provided descriptions were generally short, often consisting of a single clause or several clauses (maximally 5). Example responses are given in (103) and (104) below.

- (103) ʔεʔ m- <p> yɔp  
 3 PROG- <IMPF> look.down  
 ‘He is looking down’
- (104) ʔεʔ t <m> <i> <ʔ> paʔ  
 3 lie.on.belly <PROG> <CAUS> <IMPF>  
 m- <p> yɔp, p <m> u <w> tɛw,  
 PROG- <IMPF> look.down look.straight <PROG> <IMPF>  
 mɛt daʔ ʔɛn  
 eyes LOC DEM  
 ‘He is lying on belly and looking down, (he’s) looking straight ahead, eyes here.’

Most clauses were brief and typically consisted only of the subject and predicate. Subjects were occasionally omitted, in which case the description was minimal, i.e. consisting of the predicate only. Predicates were either simple and formed by single verbs, or complex and formed by multi-verb constructions, e.g. *tmiʔpaʔ mpyɔp* in (104). Most verbs were derived with the progressive morpheme (and sometimes also the imperfective), suggesting the looking events were encoded as ongoing (cf. §3.11.3.3, §3.11.3.4).

As in the translation task, in most looking scene descriptions the information about the visual path was encoded solely in verbs (see Table 4.2 below). The verb was sometimes accompanied by overt expressions of visual path or goal. These included: (1) directional prepositional phrases (e.g. *hwaŋ hayɔl* ‘straight ahead’ (towards-be.straight)) (present in 11% of descriptions); (2) overt nominal locations, introduced in prepositional phrases or directly following the verb (e.g. *daʔ kayɔm* ‘down’ (LOC-bottom), *niŋ hayãʔ* ‘in the house’ (in/on-house), *ŋahuʔ* ‘at the tree’ (tree)) (present in 12% of descriptions); and (3) deictic prepositional phrases, e.g. *daʔ ʔɛn* ‘here’ (LOC-DEM.here), *daʔ ʔum* ‘there’ (LOC-DEM.there) (present in 7% of descriptions). The majority of the descriptions, however, did not contain overt path or goal expressions. Crucially, the directional verbs from Table 4.2 occurred predominantly without such expressions, consistent with the idea that the path was already encoded in the verb roots. For instance, the verb *yɔp*, glossed as ‘to look down’, was employed 85 times in total, and only 7 times with the locative prepositional phrase *daʔ kayɔm* ‘down’, as in (105).

- (105)    ?ε?            m- <p> yɔp                            da?    kayɔm  
              3            PROG- <IMPF> look.down    LOC    bottom  
              ‘He is looking down.’

Since *da? kayɔm* ‘down’ expresses the visual goal, already implicit in the path-encoding verb *yɔp* ‘to look down’, *yɔp da? kayɔm* might be thought of as a pleonastic expression, similar to the motion expressions *subir arriba* ‘ascend up’ and *salir afuera* ‘exit out’ described for Spanish (González Fernández 1997). The function of directionals in the Spanish case is associated with discourse prominence. Given that in the present data set the phenomenon is rare and not clearly linked with particular scenes, I will not pursue the issue further.

Instead, I turn to the main focus of the task – the path distinctions lexicalized in the verbs. In order to begin to explore them, frequencies of verbs for each stimulus were calculated. It was then possible to identify the verbs used most frequently with each scene. Most of the verbs employed in this task were the same as in the translation questionnaire, supporting the validity of the translation questionnaire as a means of identifying the relevant verbs. Only *wwe* ‘to look around’ and *pədep* ‘to look around (of birds)’ from the previous task were not elicited in this task as these actions would require dynamic stimuli. Eight of the attested verbs referred to the looking acts. In addition, four verbs referred to other events which are not directly relevant here, and therefore excluded from further discussion: *hənyəŋ* ‘to stand’, *tapa?* ‘to lie on belly’, *tiek* ‘to lie on back’, and *cep* ‘to touch/grasp with hand’. Table 4.2 lists the relevant eight vision verbs together with glosses, the list of scenes for which they were the dominant response, and the level of participant agreement (i.e. the percentage of participants who used the verb with a given scene). Most scenes were associated with a single dominant response. The exceptions were scenes #4, #5, #8, #21, #23, #27, and #51, where two or three dominant responses were used an equal number of times. These scenes are listed several times, separately for each relevant verb. Stimuli, referenced by numbers, can be viewed in Appendix 2.

Verb	Gloss	Scene ID	Title of scene for which the verb was the dominant response	Agreement
deŋ	'to look at, to see'	32	UP INTO_bag	75%
		35	DOWN_into_bag	63%
		40	LEVEL_into_bag	63%
		2	AT_fingernails	63%
		28	AT_paper	63%
		17	LEFT_just_eyes	50%
		23	DOWN_and_LEFT	50%
		21	RIGHT_NON-SHARP	38%
		48	DOWN_just_eyes	38%
		27	STRAIGHT_lying_on_side	38%
		8	THROUGH_glass	25%
pəntew	'to look straight and horizontally or slightly up/sideways'	1	UP_NON-SHARP	88%
		12	LEFT_NON-SHARP	63%
		22	ACROSS_road	63%
		38	LEVEL	63%
		20	UP_lying_on_belly	50%
		45	DOWN_from_stairs	50%
		29	UP_from_bottom_of_stairs	38%
		41	INTO_room	38%
		5	DOWN_from_mound	38%
		21	RIGHT_45	38%
		27	STRAIGHT_lying_on_side	38%
8	THROUGH_glass	25%		
51	BACK_eyes_closed	25%		
cikiey	'to turn one's head sideways/ back, to look sideways/ back'	46	BACK_and_DOWN_via_right	100%
		53	LEFT_eyes_closed	100%
		3	BACK_and_UP_via_right	88%
		26	LEFT_SHARP	63%
		13	BACK_via_right	63%
		33	LEFT_while_lying_on_belly	63%
		34	BACK_and_DOWN_via_left	63%
		42	RIGHT_SHARP	63%
		24	RIGHT_while_lying_on_belly	50%
		49	BACK_and_UP_via_left	50%
4	RIGHT_lying_on_back	25%		

Verb	Gloss	Scene ID	Title of scene for which the verb was the dominant response	Agreement
		51	BACK_eyes_closed	25%
ciyēk	‘to look sideways, to move one’s eyes to the side’	6	RIGHT_just_eyes	75%
balay	‘to look up, to direct one’s eyes upwards’	15	UP_SHARP	100%
		31	UP_just_eyes	100%
		52	UP_eyes_closed	100%
		39	UP_and_RIGHT	100%
		7	UP_while_lying_on_side	88%
		18	UP_and_LEFT	75%
		25	UP_along_tree_trunk	75%
		10	UP_and_RIGHT	63%
		16	UP_lying_on_back	50%
		4	RIGHT_lying_on_back	25%
yɔp	‘to look down, to direct one’s eyes downwards’	9	DOWN_while_lying_on_belly	100%
		54	DOWN_eyes_closed	100%
		19	DOWN_UNDER_chair	75%
		43	DOWN_and_RIGHT	75%
		14	DOWN_OVER_table	75%
		44	DOWN_INTO_bin_upright	75%
		47	DOWN_INTO_bin_leaning	75%
		50	DOWN_lying_on_side	75%
		37	DOWN_NON-SHARP	63%
		36	DOWN_lying_on_back	38%
		23	DOWN_and_LEFT	50%
		5	DOWN_from_mound	38%
cakup	‘to bow one’s head sharply’	30	DOWN_SHARP	75%
		51	BACK_eyes_closed	25%
piwe	‘to lurk, to look from a hiding place’	11	OUT_of_room	50%

**Table 4.2** Verbs describing looking acts employed as dominant responses

***Dεη* ‘to look at, to see’**

The verb *dεη* is a direction-neutral gaze descriptor, as indicated by the fact it was employed with all sampled gaze directions. It was the most frequent verb in the task, used at least once with 47 of the 54 scenes. *Dεη* is associated primarily with looking at particular objects and featured most often with object-anchored paths: AT-paper (#28), AT-fingernails (#2; Figure 4.4 A), UP-INTO-bag (#32; Figure 4.4 B), DOWN-INTO-bag (#35; Figure 4.4 C), LEVEL-INTO-bag (#40). It presupposes a path with an endpoint, though the endpoint itself need not be explicitly mentioned. In this sense, *dεη* differs from most other verbs featured in the task, which place emphasis on the path itself and lack inherent endpoints.



**Figure 4.4** Scenes described predominantly with the verb *dεη*.

Note that images similar to those in Figure 4.4, but without specific physical objects as visual goals, elicited the direction-encoding verbs *πᾶντew*, *γᾶρ* and *βαλᾶν*. When visual goals were present, most participants did not encode direction, but focused on the endpoint by employing *dεη*.

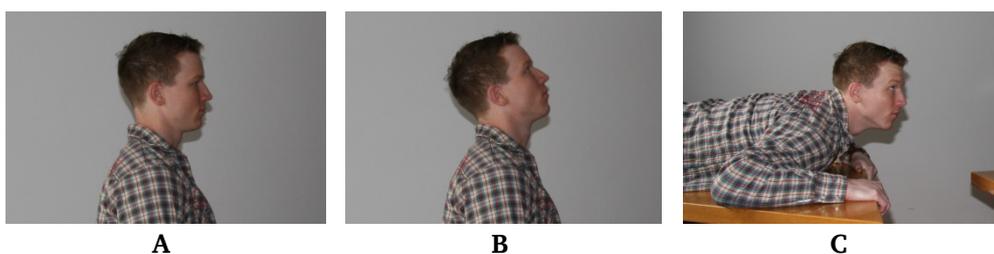
*Dεη* covered both AT- and INTO-type paths without making a distinction between the two. No special expressions were used to mark the crossed boundary<sup>41</sup> of INTO in the two looking-INTO-bag scenes – the endpoint physical objects in both AT and INTO scenes surfaced as direct objects in the sentences.

---

<sup>41</sup> The only instances of explicit marking of boundary crossing in the whole data set was the phrase *da? ney* ‘inside’ (LOC-inside) used by 2 participants to describe the scene of looking-INTO-room (#41).

***Pəntɛw* ‘to look ahead (for a general scene overview)’**

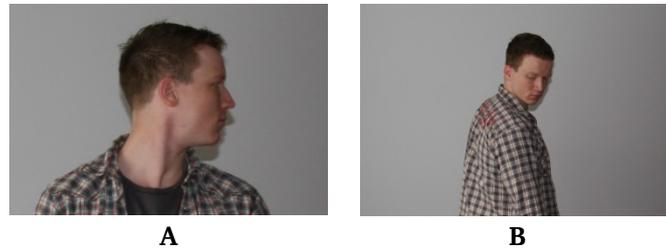
The verb *pəntɛw* is associated with looking ahead for a general overview of the scene in front. It is linked most strongly to neutral gaze directions (#38; Figure 4.5 A), but incorporates also non-sharp upward (#1; Figure 4.5 B) and sideways angles. *Pəntɛw* can also be used with looking down from an elevated point such as stairs or mound, but not with the ordinary DOWN scenes, consistent with the idea that it applies with looks aimed at getting a general scene overview. *Pəntɛw* was attested in scenes with various body-to-head angles (as in #38, #1, and #20; Figure 4.5 A-C), which indicates the up-down gaze orientation is determined with respect to the absolute frame. However, it is also partially dependent on the egocentric frame since it encompasses an area in front projected from the body.



**Figure 4.5** Scenes described predominantly with the verb *pəntɛw*.

***Cikiey* ‘to turn one’s head sideways/back, to look sideways/back’**

The verb *cikiey* is associated with the egocentrically-defined sideways and backwards gaze directions. It was employed to describe the simple sideways/back gaze paths – e.g. the scenes LEFT\_SHARP (#26; Figure 4.6 A) and BACK\_via\_right (#13) – as well as some diagonal paths – e.g. BACK\_and\_DOWN\_via\_right (#46; Figure 4.6 B). Note that BACK here entails turning the head and twisting the trunk, rather than turning the whole body together with the feet. The verb was not employed with a scene involving looking sideways by moving the eyes only, which suggests the rotated position of the head is a crucial aspect of *cikiey*.



**Figure 4.6** Scenes described predominantly with the verb *cikiey*.

The image with a sharply turned head and closed eyes (#53) was also described as *cikiey*, suggesting it might be acceptable to use the verb to refer to posture alone. This stimulus, however, might be depicting a somewhat unnatural situation, so this result should be interpreted with caution (participants may have, for instance, assumed the person was in fact gazing, but the photograph was taken during a blink).

Canonical examples of *cikiey*, as enacted by Maniq speakers, involve both head rotation and gaze (as in Figure 4.6 A). Gazing is thus presupposed for *cikiey*. Note also that *cikiey* can take visual goals as direct objects, e.g. *cikiey gana?* ‘looking back at companions’ (look.back companion) in example (99) attested in the translation task. Finally, *cikiey* can also occur in a special format, with the noun *met* ‘eyes’ in the direct object position, to place additional emphasis on gaze, as in (106). A similar format with the noun *hoh* ‘neck’ (107) is available for placing emphasis on the head turn.

- |       |     |                                    |      |
|-------|-----|------------------------------------|------|
| (106) | ʔɛ? | c < m > ikiey                      | met  |
|       | 3   | turn.head < PROG >                 | eyes |
|       |     | ‘He is turning his gaze sideways.’ |      |
| (107) | ʔɛ? | c < m > ikiey                      | hoh  |
|       | 3   | turn.head < PROG >                 | neck |
|       |     | ‘He is turning his neck sideways.’ |      |

***Ciyēk* ‘to look sideways, to move one’s eyes to the side’**

The verb *ciyēk* is associated with a sideways gaze direction. It was the dominant response for only one scene – looking right by moving the eyes to the side (#6) (Figure 4.7).



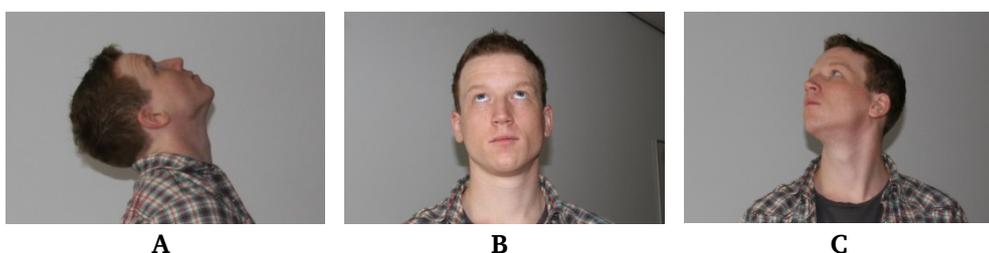
**Figure 4.7** The scene described predominantly with the verb *ciyēk*.

The verb refers specifically to the movement of the eyes and their resultant position. This is especially apparent when it surfaces in the form *calyēk* (attested on a separate occasion in the phrase *met calyēk* ‘eyes looking sideways’ (eyes look.sideways.MULT)). This form contains a frozen multiplicity infix *l*, encoding distribution of the action over multiple entities (in this case the two eyes) (see §3.11.3.6). Although the verb was a dominant response only in RIGHT\_just\_eyes scene, it was also applied – albeit less frequently – in scenes with a turned head (always with a lateral eye movement). This is related to the fact that head rotation is usually accompanied by lateral eye movement.

***Balay* ‘to look up sharply’**

The verb *balay* is associated with a sharply upward gaze, used with both simple upward paths and diagonal paths (#15, #31, #39; Figure 4.8 A-C). The prototypical example of the verb involves gazing upwards with a sharply tilted head, as in the UP\_SHARP scene (Figure 4.8 A). This is how speakers typically enact *balay*. However, *balay* does not require a tilted head (see e.g. Figure 4.8 B), which suggests UP is determined on absolute basis rather than egocentrically. The angle between the spinal axis and the vertical head axis is therefore not relevant, but what the verb is sensitive to is the environmentally-defined UP. In most everyday situations, UP means towards the tree canopy as looking upwards is saliently

associated with foraging activities related to trees, e.g. hunting arboreal game, collecting fruit, etc. Non-elicited instances of the verb in my corpus involve predominantly such contexts, i.e. in four of the six recorded sessions featuring *balay*, it is used either in the context of hunting or collecting fruit (see example (86)). This is most likely the reason why *balay* associates with sharp gaze angles much more strongly than with non-sharp ones (see further 4.3.3). Although in this task *balay* surfaced mostly on its own, it can take direct objects expressing the visual goal, e.g. *balay cey tawɔh* ‘look up at gibbon’s bottom’ (look.up bottom gibbon), cf. example (86).



**Figure 4.8** Scenes described predominantly with the verb *balay*.

While there is no doubt the primary sense of *balay* is ‘to look up sharply’, there is a possibility it could also be applied in an extended sense of ‘to tilt one’s head sharply’, as suggested by the fact it was used with a closed-eyes scene (#52). Note, however, that, as noted for *cikiey*, the closed-eyes stimulus might have been unnatural from the perspective of Maniq speakers. The unusualness of the scene was also reflected in the explicit qualification of responses by some speakers, who combined *balay* into a multi-verb construction with *lep* or *ɲup*, both meaning ‘to close eyes’.

#### **Yɔp ‘to look down’**

The verb *yɔp* refers to downward gaze direction. It was employed with most scenes depicting looking downwards. They included looking down in various positions involving different body-to-head angles: while standing upright (#37; Figure 4.9 A), lying on belly (#9; Figure 4.9 B), lying on side, lying on back, leaning forward,

leaning down, and crouching (#19; Figure 4.9 C). This indicates *yɔp* – like *balay* – is determined with respect to the absolute and not egocentric frame of reference. *Yɔp* applies also with diagonal paths such as DOWN-and-RIGHT (#43) and complex DOWN paths such as DOWN-UNDER (#19; Figure 4.9 C). It was also used for bowing the head without gazing (#54), but as mentioned above, the significance of this pattern is unclear given the unnaturalness of this action. In actual everyday use, *yɔp* typically features in the context of foraging, e.g. tuber-digging, or is used with reference to people, monkeys and various tree animals looking down to the ground. For instance, in my Maniq corpus the verb occurs in such contexts in three out of the four recorded sessions in which non-elicited examples of *yɔp* were attested (see e.g. example (87)).



**Figure 4.9** Scenes described predominantly with the verb *yɔp*.

#### ***Cakip* ‘to bow one’s head sharply’**

The verb *cakip* is associated with bowing one’s head sharply (#30, Figure 4.10). Its primary reference is posture so it does not refer specifically to gazing, but it is included here because of its strong implication of a downward visual path. Given that the activity of bowing one’s head sharply prototypically co-occurs with looking down, gazing is usually presupposed when *cakip* is used.



**Figure 4.10** The scene described predominantly with the verb *cakip*.

Unlike the other vertical-path verbs – *balay* and *yɔp*, *cakip* is defined egocentrically, i.e. it is dependent on the angle between the spinal and head axes, resulting from head flexion (bowing). *Cakip* is also associated with the default body posture and motion of some terrestrial animals, e.g. turtles and frogs, and is additionally employed in the sense of an existential verb with those animals, e.g. *baliw hic cakip* ‘there are no frogs’ (frog NEG bow.head).

***Piwε* ‘to lurk, to look from a hiding place’**

The verb *piwε* refers to looking from a hiding place. It was the dominant response for the scene depicting looking OUT of a room (#11; Figure 4.11 A). It was also occasionally elicited by its mirror image – looking INTO a room – as well as looking UNDER a chair while crouching. All situations were to some extent reminiscent of a canonical example of *piwε*, acted out by a Maniq speaker in Figure 4.11 B below.



**Figure 4.11** Examples of *piwε*.

Formally, *piwε* is a causative of *wε* ‘to walk around looking for food’ (usually attested in the imperfective form *wwε* (§4.3.1)). However, its semantics appear to

be more specific than that associated with a regular causative derivation (§3.11.3.2), suggesting a degree of idiomaticity. Because of its strong link to the foraging context, its semantics is likely much richer than this task was able to uncover. While visual path information is certainly present in the prototypical uses of the verb, it is not clear to what extent it is part of the core lexical meaning.<sup>42</sup> Based on speaker's enactments – which always involve looking from behind a specific physical object – the verb is tentatively analyzed here as encoding an object-anchored path FROM BEHIND.

### 4.3.3 Summary and discussion

The evidence from both the translation questionnaire and picture naming task revealed a core set of looking verbs incorporating information about visual path. These include verbs used with vertical, horizontal, and diagonal paths – *pəntɛw*, *cikiey*, *ciyĕk*, *balay*, *ɔɔp* (§4.3.3.1) – and verbs used with object-anchored paths – *dɛŋ*, *piwɛ* (§4.3.3.2).

#### 4.3.3.1 Vertical, horizontal, and diagonal paths

Table 4.3 is a graphic summary of the distinctions made by verbs referring to vertical, horizontal and diagonal paths, based on the dominant responses in the canonical scenes from the picture naming task (“canonical” here refers to scenes with neutral posture, in which change of gaze trajectory is accompanied by head movement). The only exception is the verb *ciyĕk* ‘to look/move eyes sideways’, which is associated more closely with the position of the eyes rather than the head and is added here based on dominant responses to a non-canonical scene (#6).

---

<sup>42</sup> It is worth noting that there is another verb with a meaning similar to *piwɛ*, often employed in similar contexts and enacted in similar ways. This verb – *pilɔ* – is also a fossilized causative form, derived from the obsolete root \**lɔ* (present in *cilɔ* ‘to hide’). Further probing is needed to establish how these two verbs differ.

	LEFT SHARP	LEFT NON-SHARP	STRAIGHT	RIGHT NON-SHARP	RIGHT SHARP	BACK
UP SHARP		balay	balay	balay		cikiey
UP NON-SHARP			pəntəw	balay		
LEVEL	cikiey	pəntəw	pəntəw	pəntəw	cikiey/ ciyək	cikiey
DOWN NON-SHARP		yɔp	yɔp	yɔp		cikiey
DOWN SHARP			cakip			

**Table 4.3** Dominant responses describing different gaze directions in canonical scenes (neutral standing posture, change of gaze trajectory accompanied by head movement). Grayed-out areas represent directions not targeted in the stimuli.

*Pəntəw* covers the most neutral STRAIGHT-and-LEVEL gaze direction as well as slight (~45°) upward and sideways gaze angles. The three main verbs covering non-neutral directions are *balay*, *yɔp* and *cikiey*. *Balay* is associated with UP, *yɔp* with DOWN, and *cikiey* with SIDEWAYS/BACK. Despite having largely corresponding denotations, these verbs differ in subtle semantic detail. While *yɔp* is used with a relatively slight downward angle of gaze, *balay* and *cikiey* require more pronounced UP and SIDEWAYS angles. *Balay* has the broadest application and includes various examples of looking up and tilting one’s head back. *Cikiey*, on the other hand, covers all instances of gazing sideways and back as long as they are accompanied by head turns. *Yɔp* refers to gazing downwards, but if the action involves bowing the head sharply, *cakip* is preferred.

Note that LEFT, RIGHT and BACK, as encoded in the verbs above, are egocentric, i.e. derived from bodily axes of the experiencer, while UP, DOWN and LEVEL are absolute, i.e. determined with reference to gravity and environmental features. Only *cakip*, despite implicating a downward visual path, is tied to bodily axes. It differs from the other verbs in this set since it is primarily related to body posture rather than gaze.<sup>43</sup>

Since the egocentrically-defined verbs – i.e. *cikiey*, *cakip*, *ciyēk* – are associated with specific body postures (and in the case of *ciyēk*, position of the eyes), the partitioning of visual paths is partially dictated by bodily mechanics. For instance, the fact that *cikiey* encompasses the lateral and backward directions can be explained by the perceptual similarity of the head movement involved in these two gaze trajectories.

Apart from the body, an important factor shaping the semantics of verbs in this set is earth-based verticality and environmental features. The fact that vertical verbal categories exist is linked to our bipedalism and ultimately accounted for by gravity (Miller & Johnson-Laird 1976; Lyons 1977; Brown & Levinson 1993). It is not immediately obvious, however, why the Maniq verbs of looking partition gaze directions the way they do. To recall briefly, *balay* denoting an upward gaze path refers only to sharp ( $\sim 90^\circ$ ) gaze angles, *yɔp* denoting a downward gaze path refers both to mild and sharp angles ( $\sim 45\text{-}90^\circ$ ), and *pəntew* covers all that is in between, i.e. level and mildly upward ( $\sim 45^\circ$ ) paths. To understand this division, one needs to take into account culture-specific factors.

Looking high up (*balay*) into the tree canopy is a salient activity accompanying many of the daily foraging practices within the Maniq community (e.g. hunting arboreal game, collecting honey, fruit, bamboo for blowpipes, etc.). Since the forest is often dense and most of the desired objects are situated high in the canopy, one is typically forced to gaze up at a sharp angle.

---

<sup>43</sup> According to Talmy's fictive motion framework (Talmy 2000b; Slobin 2009; Cifuentes-Férez 2014), *cikiey*, *ciyēk* and *cakip* encode the "deixis" path component, while *balay*, *yɔp* and *pəntew* encode the "earth-grid displacement" component.

Looking sharply up (*balay*) is functionally distinct from slightly up (*pəntəw*), which is usually combined with looking into the distance and not tied to the foraging context specifically. In this sense, a slightly upward gaze path is more similar to a horizontal gaze path than to a sharply upward turned one. In contrast, gazing down as marked by the verb *yɔp* begins already with a slightly downward visual path and also includes sharper gaze trajectories. There is no boundary between SHARP and NON-SHARP for DOWN as these gaze angles are not earmarked for different activities. For instance, foraging activities on the ground such as hunting for terrestrial animals or tuber digging often involve both sharp and non-sharp gaze angles. One reason for that is that the path to the ground is short so the gaze angle can be changed relatively easily (unlike in the case of a longer path). From a functional point of view, then, gazing slightly downwards and sharply down are similar. Note that even cases involving a sharply bowed head – although associated primarily with *cakip* – can be described with *yɔp*. The reason why *cakip* is usually preferred for scenes with a sharply bowed head is linked to the high salience of this body posture. *Yɔp* itself is not sensitive to body posture, but refers to DOWN defined in absolute terms. Occasionally, speakers employ *yɔp* as well as *cakip* within a single description, but since there is a strong implication regarding the visual path in *cakip*, it normally occurs on its own.

Summing up, the encoding of paths of vision in Maniq is shaped by multiple pressures. The locus of the main distinctions is provided by the two main spatial coordinates underlying our three-dimensional world – the horizontal and vertical planes. How this space is carved into specific categories is influenced by, on the one hand, universal constraints dictated by gravity and the mechanics of the human body, and, on the other hand, culture-specific considerations that render certain discontinuities more salient than others. It is important to point out that such fine-tuning of spatial distinctions to the parameters relevant for visual perception is possible largely because of the verbal lexicalization strategy. The sole fact that Maniq lexicalizes visual paths in verbs rather than simply reapplying the general spatial expressions (“satellites”) to mark them, means the semantics of verbs of looking can be defined independently of satellites. Thus, unlike in English or Spanish, where visual paths are dictated by spatial prepositions, the

partitioning of visual paths in Maniq is not constrained by satellites. I return to this again in §4.6 ('Conclusions').

#### 4.3.3.2 Object-anchored paths

Object-anchored paths were generally not encoded in verbs expressing specific spatial relations such as 'look into', 'look across', 'look under', etc. The stimuli probing for these distinctions revealed many such paths are associated with the verb *dɛŋ* 'to look at, to see'. This verb emerges as the main descriptor applied with visual paths which include an endpoint object. Another specific verb, *piwe* 'to lurk, to look from a hiding place' was attested marginally. It appears to be related to an object-anchored path (from behind something), but it is constrained to a specific context, most typically lurking during hunting.

*Dɛŋ* is semantically general and applicable in various contexts. It was the most frequent verb in both tasks. In Chapter 1 – where it was first introduced – it was noted that *dɛŋ* collapses the distinction between the activity and experience (cf. Viberg 1984), covering all predicates with perceiver as the grammatical subject. Depending on context, it is thus best glossed as 'to see, to look at'. The current chapter shows further that *dɛŋ* is unspecified with respect to direction. In the context of direction-encoding verbs of looking discussed here, the question arises whether it could be considered a superordinate term forming a hyponymic relation with these verbs. In other words, is there a hierarchy in the vision verb lexicon?

The available evidence does not suggest a straightforward answer, though some preliminary observations can be made. If we consider *dɛŋ* in its basic underived form, hyponymy is unlikely since *dɛŋ* and directional verbs differ with lexical aspect. Hyponyms form a "type-token" relationship with their superordinate terms; hence, they are expected to have all of their superordinate's features (cf. e.g. Murphy 2003).<sup>44</sup> The aspectual mismatch between *dɛŋ* and the other verbs would therefore rule out hyponymy (see Gisborne 2010:154 for a

---

<sup>44</sup> No explicit hyponymy test has been performed with Maniq speakers, but it is likely it would result in oddly-sounding sentences, e.g. one translating as "Looking up is a kind/way of seeing" or – applying a special hyponymy frame proposed for verbs (Lyons 1977:294) – "To look up is to see, in a certain way".

similar observation for English). In its default reading, *dεŋ* marks an accomplishment, since it refers to a telic situation, i.e. it has an inherent endpoint. This is in line with the fact that in the ‘Grammar of perception’ task in Chapter 1, *dεŋ* was consistently employed for all translations of the verb *see*. Similarly, whenever *dεŋ* was used in the picture naming or the translation task, it usually involved scenes which presupposed an endpoint object. The direction-encoding verbs like *balay*, *yɔp* etc., on the other hand, seem to place more emphasis on the path itself and lack inherent endpoints. This is reflected in the frequency of overt goals with different verbs. For instance, in the picture naming task, goals were overtly expressed with *dεŋ* more often than with any other verb (22 times, compared to 7 times for *pəntew*, 2 times for *balay*, and one time for *cikiey* and *piwε*). In addition, *dεŋ* was sometimes employed with a specific function of introducing an endpoint, as in (108) below, elicited for the DOWN-INTO-bag scene. In this example the verb *yɔp* specifies the downward path, while *dεŋ* introduces the visual endpoint, which in this context can be interpreted as the inside of the object.

- (108) ?ε?      k < m > i < s > was                      m- < p > yɔp,  
           3            open < PROG > < IMPF >            PROG- < IMFV > look.down  
           ?ε?        p < m > iyit,            ?ε?        m- < ŋ > dεŋ  
           3            unfold < PROG >    3            PROG- < IMFV > look  
           ‘She is opening and looking down, she’s unfolding, she is looking  
           (inside).’

While *dεŋ* in its root form seems to contrast with other verbs in telicity, this distinction can be manipulated with derivational morphology. When derived with the imperfective, the verb becomes atelic (*dŋ-dεŋ* ‘to be looking (around)’ (IMFV-look)) since the imperfective morpheme removes spatio-temporal boundaries from the event structure (cf. §3.11.3.4).<sup>45</sup> The imperfective form might therefore be a

---

<sup>45</sup> Note, however, that the progressive-cum-imperfective form *m- < ŋ > dεŋ* ‘to be looking’ (PROG- < IMFV > look) – frequent in the picture naming task – is telic. This is related to the fact that progressive

more appropriate candidate for a superordinate ‘looking’ term. Further investigation targeting this issue directly is needed to explore this in depth.

#### 4.4 Visual perception vs. motion events

One of the central questions pursued in this chapter is whether the distinctions encoded across distinct sets of verbs in Maniq follow the same underlying semantic principle. The focus of the investigation, more specifically, is the encoding of path: Are visual paths and motion paths similar in Maniq? Slobin (2009) proposed that physical and visual paths are universally conceptually equated in the use of the same types of spatial expression. This is supported by the fact that Maniq employs the same prepositional phrases with expressions of motion and vision, e.g. *da? kapin* ‘up’, *hwanj hayol* ‘straight ahead’, etc., as in (109) and (110).

- |       |     |                        |     |       |
|-------|-----|------------------------|-----|-------|
| (109) | ʔɛ? | wa                     | da? | kapin |
|       | 3   | go                     | LOC | up    |
|       |     | ‘She is going uphill.’ |     |       |
| (110) | ʔɛ? | dɛŋ                    | da? | kapin |
|       | 3   | look                   | LOC | up    |
|       |     | ‘She is looking up.’   |     |       |

However, path-encoding verbs – the main path-encoding strategy for both motion and vision – are not shared across the two domains. Motion verbs do not express visual paths (e.g. *sa* expresses downward motion, and is not used to express downward gaze), and vice versa, vision verbs do not express paths of motion (e.g. *yɔp* expresses downward gaze, and is not used to express downward motion). Although the verbal forms are not shared, it is still possible the spatial distinctions underlying the verbs are, since languages often display common lexicalization patterns across distinct lexical sets (Gentner 1982). The question then is: Are the path distinctions encoded in verbs of vision and verbs of motion similar?

---

– although itself marking an unbounded situation – implies the presence of situational boundaries (cf. §3.11.3.4; Michaelis 2004).

The basic paths mapped onto vision verbs – UP, DOWN, STRAIGHT-and-LEVEL, SIDEWAYS/BACK – are reminiscent of the basic paths mapped onto motion verbs – UP, DOWN, HORIZONTAL (cf. Table 4.1). Among these, the vertical directions UP and DOWN are in both cases established in the same way (i.e. by use of an absolute frame), while the horizontal directions are determined differently (i.e. relative to the absolute frame for motion, and to the egocentric frame for vision). This difference is due to the fact that motion verbs lexicalize ground objects, while the verbs of horizontal gaze lexicalize the position of the experiencer’s body/eyes. An additional point of difference is the place where the boundaries between specific categories are drawn. For instance, SIDEWAYS and BACK are encoded in two distinct verbs of motion (*kapoŋ* ‘to turn sideways, to change direction of motion’ vs. *palin* ‘to turn back, to change direction of motion’), but they constitute a single category expressed with one verb of looking (*cikiey* ‘to look sideways/back’). Despite such differences, at the global level the vertical and horizontal paths are similar.

When it comes to object-anchored paths, however, motion and vision differ significantly. In motion, there is a set of verbs encoding specific figure-ground configurations such as INTO/UNDER/THROUGH, OUT, OVER, e.g. *hok* ‘to enter/ go under’, *yes* ‘to exit’, *lɛŋkah* ‘to go over an obstacle’ (cf. §4.2). In contrast, in vision we find a highly specific verb *piwɛ* associated with looking from behind an object, and a general endpoint-encoding verb *dɛŋ*. Aside from these two cases, no other specific verbs marking object-anchored paths of vision were found. Even explicit naming of these types of paths in prepositional phrases was rare. In addition, contrary to other languages with multi-verb predicates (notably the surrounding Thai; cf. Takahashi 2000; Slobin 2009), Maniq does not express object-anchored gaze paths with motion verbs like ‘exit’, ‘enter’, etc.. These differences are most likely due to the different nature of physical and fictive motion events, as fleshed out in the introduction (cf. Slobin 2009). For instance, the lack of ‘exit’-type verbs for vision and the sporadic expression of boundary crossing can be explained by the differing dynamics of visual perception and motion events.

To conclude, paths encoded across the two verb sets differ in a number of ways, but they also converge on a number of distinctions. These are anchored in the same spatial coordinates underlying three-dimensionality – the vertical and

horizontal planes (Miller & Johnson-Laird 1976; Lyons 1977). In the rest of this chapter, I will draw on extensive lexical evidence from the Maniq lexicon and demonstrate these spatial planes not only underlie vision and motion, but in fact provide an organizational principle pervading several areas of the Maniq lexicon.

#### 4.5 Semantic organizational principle in the lexicon

The lexicalization of spatial notions in verbs of motion and verbs of looking follows a general semantic principle organizing these two domains. Its essential aspect is a systematic recurrence of semantic structure across domains. To take an example of DOWN, the previous sections established that the downward path is lexicalized in two motion verbs – *sa* ‘to descend’ and *wet* ‘to go downstream’ – and the looking verb *yɔp* ‘to look down’. DOWN is thus a recurring lexical notion found independently across two distinct lexical sets. While recurrence of semantic structure is also characteristic of derived expressions (e.g. the English phrasal verbs *go down* and *look down*), this case is different since the recurring semantic material is not overtly marked (i.e. *sa*, *wet* and *yɔp* do not exhibit structural similarities). Aside from verbs of motion and verbs of looking, two additional verb sets can be added to this list: positional verbs and verbs related to yam digging (digging and disposing of soil). Like verbs of motion and visual perception, these verbs lexicalize spatial notions. For instance, DOWN is encoded in the positional verb *cibɛl* ‘to be upside down’ and the digging verb *bay* ‘to dig down’. Together with the motion and vision verbs, these verbs constitute a grouping of formally unrelated items sharing a common semantic notion. As I will show below, further examples of such shared patterns connecting multiple verbs from unrelated sets involve the notions UP and HORIZONTAL.

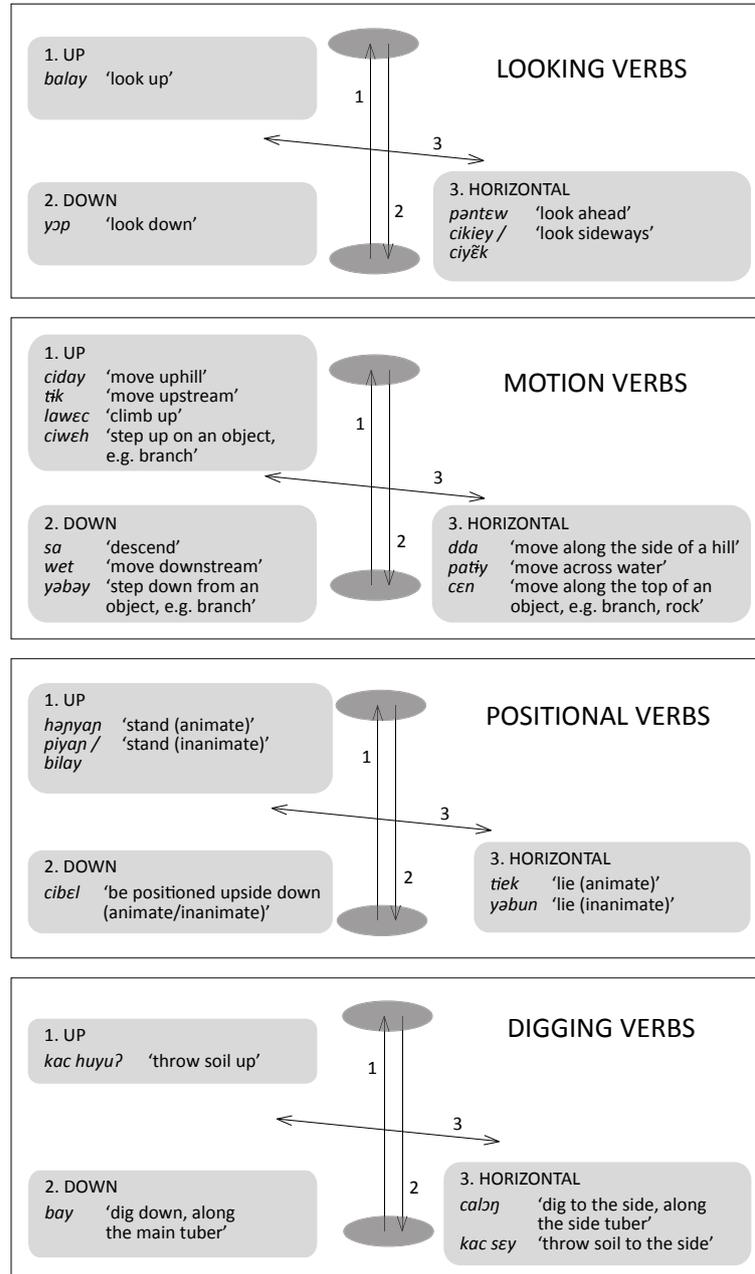
The systematic recurrence of semantic structure in these lexical sets is reminiscent of the lexico-semantic concept of *semplates* (Levinson & Burenhult 2009). A *semplate* (a blend of ‘semantic template’) is a term referring to configurations consisting of “an abstract structure or template, which is recurrently instantiated in a number of lexical sets, typically of different form classes” (Levinson & Burenhult 2009:153). Semplates normally involve multiple lexical subsets structuring a single well-defined domain, e.g. landscape or

subsistence. For example, Levinson and Burenhult (2009:159–161) describe the “landscape semplate” in Jahai, in which the same set of spatial oppositions is mapped onto different lexical sets within the landscape domain: motion verbs, locative verbs, place names, and metaphorical nouns denoting landscape features. The configuration of spatial oppositions in Maniq is semplate-like, in the sense that it is associated with an abstract semantic structure. However, since it is not restricted to one well-defined domain, but associated with several unrelated domains (motion, vision, etc.), it departs from the prototypical semplate notion. Irrespective of this, there is a striking similarity between semplates and this configuration as both rely on the same general idea, i.e. they provide a semantic organizational principle structuring multiple lexical sets.

The Maniq semplate-like structure encodes the spatial notions of UP, DOWN, and HORIZONTAL. Figure 4.12 provides a summary of the relevant verbal subsets. Depending on the verb, the HORIZONTAL category can be associated with horizontality in general (as in *tiek* ‘to lie (be positioned horizontally)’), or express a specific type of horizontal category relevant for a particular domain (as in *cɛn* ‘to move along the top of an object’ for the domain of motion on trees, or small obstacles).

While the spatial coordinates underlying this structure are common for all lexical sets, the exact category boundaries are domain-specific. For instance, UP and DOWN are somewhat different for motion verbs from different sets, e.g. *milder* for “ascend-hill” verb and *steeper* for “ascend-tree” verb. Similarly, HORIZONTAL is defined with respect to different reference points depending on the verb set, i.e. landscape features for motion verbs, body for vision and locative verbs, and tuber anatomy for yam-digging verbs.

Semplates are typically manifest across different form classes. There is some preliminary evidence the spatial semplate-like structure in Maniq also extends into other form classes, which would suggest the pattern is not restricted to verbs, but applies more generally. For instance, horizontality and verticality is mapped onto nouns indicating different tuber parts, i.e. *jalie?* ‘main tuber (growing vertically)’, *lapieh* ‘side tuber (growing horizontally)’. However, since the present focus is on verbs, other form classes are not explored further here.



**Figure 4.12** Verb sets participating in the spatial template-like structure represented as vectors

#### 4.6 Conclusions

The evidence reviewed in this chapter demonstrates visual paths are encoded in verb roots in Maniq. This is noteworthy since it has been observed before that visual paths are resistant to being lexicalized in verbs (e.g. Slobin 2009). This chapter is the first extensive report of the verb-framing strategy for looking events. Although detailed accounts of similar systems are missing, we know this strategy is not exclusive to Maniq as there are some previous reports of languages with looking verbs marked for direction, e.g. Toba and Kayardild (Klein 1981; Evans & Wilkins 2000). Together with these earlier sources, the Maniq data show languages need not lose their verb-framed nature in descriptions of visual perception events. The Maniq case is thus testimony to the fact visual paths are not generally barred from being encoded in verbal roots. This has important implications for the typology of vision verbs, as it suggests the “typological split” experienced by the verb-framed languages such as Spanish (cf. Matsumoto 2001) is not a universal phenomenon. In addition to these theoretical implications, the study makes a methodological contribution by identifying relevant semantic parameters and offering example methods for investigating such verbs.

The present findings suggest visual paths may be coded in verbs, but this is not true of all types of paths in Maniq. For example, no special verbs exist for paths with boundary-crossing such as *into* and *out of*. This might reflect a common trend since among the infrequent mentions of path-encoding verbs of looking in the literature, paths without inherent boundaries dominate, e.g. *walmurrija* ‘look up in the sky’, *warayija* ‘look back’, *rimarutha* ‘look eastwards at’ in Kayardild (Evans & Wilkins 2000:554), *sa:t* ‘to look up (at something moving)’, *la* ‘look ahead (in direction of something nearby)’, in Toba (Klein 1981:234). However, examples which involve boundary-crossing are not absent, e.g. *l̃e* ‘look outward’, *wa* ‘look for, search (look inward)’ (also in Toba). Based on this rather small sample, it appears verbs with boundary-crossing paths might indeed be rare, but far more attention needs to be devoted to documentation of verbs of looking cross-linguistically before it becomes clear how robust this tendency is.

The specific types of looking events lexicalized in Maniq verbs are culturally salient activities implying specific scenarios. This cultural salience as well as

Maniq's consistent preference for lexicalizing spatial notions in verb roots are the key factors in the existence of these verbs in Maniq. What the Maniq data show most clearly is that the lexicalization of visual paths in verbs rather than satellites has a non-trivial impact on their semantics. As elucidated in the previous sections, the lexicalization patterns within paths of vision reflect a complex interplay of pressures – vision verbs are synchronized with universal constraints and tailored to culture-specific requirements (cf. Evans & Levinson 2009; Majid 2015a). The exact meanings of verbs of looking are thus shaped by earth-based verticality, bodily mechanics, the environment, and cultural scenarios of which looking is a salient part. This vision-specific fine-tuning of the spatial notions relevant for paths would not have been possible if the preferred strategy was to encode path in satellites. In such a scenario, it is probable the meaning of the visual paths would be dictated by the general meaning of the satellites. What the verb-encoding strategy affords a language is a freedom to adjust the fine semantic details of its spatial categories according to a domain-specific logic.

Different domains encoding spatial information in verbs display fine-level differences as to how spatial distinctions are defined (e.g. HORIZONTAL locked to body vs. landscape vs. tuber axes). At the global level, however, spatial notions are similar across domains. This is illustrated by the spatial semplate-like structure, where similar spatial notions are lexicalized in at least four otherwise unrelated semantic fields. With striking systematicity, Maniq organizes its verbs of looking, verbs of motion, positionals, and verbs related to yam digging around the same spatial notions of UP, DOWN and HORIZONTAL. Thanks to domain-specific fine-tuning of these notions, spatial information in verbs is more precise than, for instance, spatial information encoded in prepositions, which have a more general range of applicability. This implies that knowing how to use these verbs correctly requires from the speaker not just general spatial knowledge, but the *specific organization* of spatial knowledge in a particular domain. The semantic fields which partake in the Maniq spatial semplate-like structure relate to culturally salient notions with the relevant domains, often linked to the indigenous expertise of the speakers, and central in their way of life. This in fact seems to be a

characteristic of semplates found in other languages too (e.g. Tzeltal, Yélfí Dnye, Jahai). As observed by Levinson and Burenhult (2009:172):

it may not be a coincidence that the semplates we have found all come from languages spoken in small, traditional societies without elaborate divisions of labor, in domains that are central to their way of life.

Vision verbs and other lexical sets making up this semantic configuration are most notable because they illustrate systematicity in the organization of information. In general, verbs are believed to have considerable freedom in what event aspects they lexicalize (Gentner 1982; Talmy 1985). This is reflected in substantial cross-linguistic variation of verb meaning (e.g. Bowerman et al. 2004; Levinson & Wilkins 2006; Majid, Boster & Bowerman 2008; Malt et al. 2014). When compared to concrete nouns, verbs show a “more variable mapping from concepts to words” (Gentner 1982:47), and they “are likely to be the most cross-linguistically variable part of a language’s vocabulary in terms of denotation” (Evans 2011a:189). Within a particular language, however, there is far less variability since the packaging of information within verbs may be ordered according to an underlying pattern. As the Maniq data show, this pattern need not be overt, but can be encoded in non-transparent verb forms. Thus – even though the various verb forms are not related to one another – the meanings encoded by them show correspondences. As illustrated by the lexical sets examined here, despite the covert nature of these correspondences, the semantically specific verb lexicon is characterized by internal systematicity.



## 5 Verbs of color and visual surface property

---

### 5.1 Introduction

The human eye can distinguish at least a million different colors (Gouras 1991), yet our languages encode only a tiny fraction of what could potentially be separate color categories. The question of how languages carve up the color space, i.e. determine the number and denotation of color categories, has fascinated researchers for over a century and a half (e.g. Gladstone 1858). In view of that, color categorization has become one of the most intensely researched subjects in semantics. The pioneering work on this topic was conducted by Berlin and Kay (1969), who established that there are universal tendencies in color naming across languages manifest in *basic color terms* (BCTs). These were defined as monolexic, non-hyponymic, psychologically salient terms whose meaning is not restricted to a narrow class of objects (Berlin & Kay 1969:6) (see §5.2.3). According to the Berlin and Kay theory, there is a limited set of basic color categories covered by BCTs. Languages add BCTs to their systems in one of a few predetermined orders. What is more, *focal colors* – the best and most typical examples of particular colors – are similar in all languages. A tacit assumption of the theory, fully spelled out in later work, was that BCTs in all languages exhaustively name all colors, thus fully partitioning the color space (Kay et al. 1997; Kay & Maffi 1999; Kay 2006; Kay et al. 2009). The first study by Berlin and Kay initiated a prominent line of work under the *Universals and Evolution* (UE) model (cf. Kay 2006), including the largest cross-linguistic study of a semantic domain to date – the World Color Survey (WCS) (Kay et al. 1997; Kay et al. 2009). Although the model has seen various revisions, its main tenets regarding the universality and evolutionary development of basic color term systems remain unchanged.

With the Berlin and Kay theory leading the way, most discussions about color focus on universality and basic color vocabulary (Heider 1972; Kay et al. 1997; Kay & Maffi 1999; Regier, Kay & Cook 2005; Regier, Kay & Khetarpal 2007).

However, as critics have noted (Lucy 1997; Levinson 2000; Wierzbicka 2005; Roberson, Davies & Davidoff 2000), many non-industrialized societies with no color technology attach considerably less importance to color and have few lexicalized color distinctions in their languages. “Small-scale societies with minimal social and technical complexity generally have only 2, 3, or 4 basic color categories, whereas industrialized societies encode all 11 colors” (Casson 1994:18; see also Berlin & Kay 1969; Naroll 1970).

In addition, the behavior of some languages goes against some of the initial predictions by Berlin and Kay. A serious challenge to the original theory is represented by so-called *non-partition languages*, i.e. languages with non-exhaustive coverage of the color space (Hargrave 1982; Kay & Maffi 1999; Levinson 2000; Hill 2011). For instance, the Australian Aboriginal language Umpila has only three terms, glossed as ‘black’, ‘white’ and ‘red’. In a color naming task, speakers of Umpila left the majority of color chips unnamed, “much of the time producing ‘non-responses,’ such as *manthala-kanyu* ‘name-without,’ *ulmpaya* ‘nothing,’ *ngampa pithanchi* ‘don’t know.’” (Hill 2011:60). Ineffability of color, revealed by gaps in color space, has been reported for a number of non-industrialized societies (Hargrave 1982; Levinson 2000), and suspected of four languages in the WCS sample (Kay & Maffi 1999). The major reason for non-partition is the lack of cultural salience of color distinctions and the doubtful usefulness of isolating color from the rest of visual experience. It has been argued that it is only with the development of color technology that languages develop richer basic color vocabulary. When color becomes isolated from the rest of visual experience, it takes on the role of a salient distinctive feature. This provides a push towards the full partition, or – in the case of partition languages – a refinement of existing categories (Berlin & Kay 1969; Naroll 1970; Casson 1997; Kay & Maffi 1999; Levinson 2000).

Most emphasis in color language research has been given to BCTs. However, the repertoire of color expressions found both within specific languages as well as cross-linguistically is much more varied (Lucy 1997; Levinson 2000; Wierzbicka 2005). Some languages, for instance, rely to a large extent on self-invented ad-hoc similes, e.g. Yéli Dnye “It has the surface appearance similar to the shallow sea

over sand” for ‘blue’ (Levinson & Majid 2014:410; cf. also Levinson 2000). Others make extensive use of *restricted* (or *contextualized*) *color terms*, i.e. color words tied to specific source objects (e.g. Kuschel & Monberg 1974; Davies et al. 1992). For instance, Bellonese – spoken on a small island in Polynesia – has only 3 BCTs, yet it makes dozens of fine-grained color distinctions with restricted terms. These terms capture not only color, but also imply changes in the sources they are conventionally associated with, e.g. *pai* “‘red’ stain of teeth, as from chewing betel nut”, *hoho* “dark colour of tattooing and (...) the rainy sky” (Kuschel & Monberg 1974:223, 226). Also BCTs themselves are not pure color descriptors in all languages since sometimes they encode other features too. For instance, in Hanunóo, a language spoken in the Philippines, the basic terms for ‘black’, ‘white’, ‘red’ and ‘green’ encode also non-chromatic contrasts: ‘light/dark’, ‘dry/wet’ and ‘indelible/faded’ (Conklin 1955). In Mursi, spoken by a group of cattle herders in Ethiopia, the only existing color terms are cattle color terms. As described by Turton, “it seems legitimate to regard these terms, in the first place, not as the names of colours but as the names of ‘species’ of cattle” (1980:326). Examples like this demonstrate that despite clear universal tendencies in color naming (Regier, Kay & Khetarpal 2007; Regier, Kay & Cook 2005), the color domain is not impervious to cultural influences and, like many other semantic fields, it is a locus of cross-linguistic variation (e.g. Levinson 2000; Wierzbicka 2005; Malt & Majid 2013). The variability within color terms thus draws attention to the importance of varied methodology in color language research. Standard elicitation kits with Munsell color chips have limited power to elicit a variety of color distinctions as they only target the dimensions of hue, brightness and saturation (cf. Conklin 1955; Hargrave 1982; Saunders & Brakel 1988). Hence, detecting and understanding the full lexical resources for color going beyond these dimensions must necessarily involve observing how color vocabulary is used in context.

This chapter provides an in-depth overview of color expressions in Maniq embracing the diversity of lexical resources for color and employing a varied methodology. It is concerned not just with the color terms fulfilling the criteria for basicness, but also secondary color terms, which typically do not receive as much attention as BCTs. All color expressions identified in Maniq are stative verbs. They

are similar in their morphosyntactic properties, but differ in their level of semantic specificity. The goal of this description is to capture the domain as a whole and shed light on how basic and non-basic color verbs relate to one another. More generally, this investigation can be viewed as an exploration of the *linguistic codability* or *expressibility* of color, i.e. the degree to which colors can be reliably expressed by convention (Levinson & Majid 2014). The specific questions addressed are: How large is the Maniq lexical repertoire for color? And, what are the types of specific distinctions made by terms encoding hue, i.e. are hue, brightness and saturation the only dimensions relevant for such terms or do they carry other kinds of information? Codability is explored in more depth by examining also the *efficient codability*, i.e. the extent to which the color language is efficient in transmitting colors, as indicated by the level of cross-speaker agreement in naming color stimuli, length of color descriptions and type of response (abstract, source-based, evaluative) (Brown & Lenneberg 1954; Majid & Levinson 2011; Levinson & Majid 2014).

Given that Maniq is a traditional non-industrialized society with a relatively simple material culture, and without complex technology, we might expect the language to show signs of low codability, e.g. few BCTs, gaps in color space, etc. On the other hand, looking at the languages closely related to Maniq, i.e. the other Aslian languages, another scenario also seems possible, namely borrowing of color terms from the dominant contact language. All Aslian languages for which basic word lists are available show evidence of borrowing of color terms from Malay (Kruspe 2004b; Burenhult 2009; Kruspe 2010). The most extensive data come from Jahai. According to the results of a color naming task carried out with Jahai speakers, color space was fully named with 12 different color terms (Majid & Burenhult 2014). However, the majority of the terms were Malay loanwords. The Malay and Jahai color terms do not appear to form a fully integrated system as some of them seem to overlap in reference. In addition, speakers showed limited agreement in color naming, as reflected in a significantly lower efficient codability score when compared to English (Majid & Burenhult 2014:269). This suggests that even though foreign color categories have penetrated the language, thereby

increasing the size of the color lexicon, the domain of color in Jahai displays signs of low efficient codability (cf. Levinson & Majid 2014).

It could be anticipated that Maniq could have followed a similar path, since Maniq and Jahai are alike at many levels. The Maniq – like the Jahai – have for centuries retained ties with the outside world (cf. Benjamin 1985), most recently the Thais and previously also the Malay (Wnuk & Burenhult 2014). As explained in Chapters 2 and 3, speakers of Jahai belong to the same ethnographic cluster of Semang hunter-gatherers as Maniq, and the same, Northern, branch of Aslian languages (Burenhult in press; Dunn et al. 2011). Maniq is also similar to Jahai in its general lexicalization principles (Kruspe, Burenhult & Wnuk 2015), as well as lexical strategies within specific semantic domains, e.g. in smell vocabulary (Majid & Burenhult 2014; Wnuk & Majid 2014). On the other hand, Maniq is geographically isolated from the rest of Aslian and experiences a unique contact situation (see §3.5). Unlike other Aslian languages, which are commonly in contact with each other and with Malay, Maniq is in contact only with Thai (mostly Southern Thai) (Peterson 2012; Wnuk & Burenhult 2014). This has resulted in some degree of lexical and structural divergence from the rest of Aslian (Wnuk & Burenhult 2014). The question of color vocabulary in Maniq is therefore open since the differing contact situations may have resulted in significant differences in the codability of color.

To evaluate whether color in Maniq is codable in the two senses outlined, I begin with a discussion of standard color patch naming tasks in §5.2. This methodology helps establish the granularity of the Maniq basic color categories, and whether all colors are expressible in words. The naming data also provides an indication of length of descriptions and cross-speaker agreement in the choice of color labels, thus serving as a window into the efficient codability of color. In order not to presuppose a unitary concept of color restricted to hue, brightness and saturation, in §5.3 I also examine non-basic color terms, provided in descriptions of objects from the local environment, e.g. various plants and animals. These terms were collected over the course of long-term fieldwork in general elicitations as well as spontaneously-occurring situations. Their semantics are explored with an exemplar listing task, in which speakers list objects

exemplifying a particular color. Compared to BCTs, non-BCTs are more semantically specific, encode both color and non-color information and often apply to a restricted range of objects. Since semantically general and specific terms are related to each other, further discussion reviews their common formal properties and the lexical relations between them.

The overall findings indicate color in Maniq is more codable than expected based on comparison with languages of some non-industrialized societies, including the closely-related Jahai. It is codable in both senses, i.e. linguistically – there is a rich repertoire of color verbs including BCTs and non-BCTs – and efficiently – Maniq speakers name colors consistently with each other, using dedicated abstract terms. To investigate these terms in their broader context, the final section examines the presence of color in Maniq culture and discourse.

## **5.2 Basic color terminology: Color naming and focal colors**

How many color terms are there in Maniq? Does Maniq partition the color space exhaustively? In order to answer these questions, color terms were elicited in two color naming tasks using a standard procedure similar to the one employed in the World Color Survey (see below) (Kay et al. 2009). Each of the color naming tasks was followed by elicitation of focal exemplars – the best examples – of the basic color categories. The findings of the naming tasks and the focal color tasks are discussed together in §5.2.2 below.

### **5.2.1 Method**

Color names were elicited in two naming tasks: (1) the color task developed by the Language & Cognition Department of the Max Planck Institute for Psycholinguistics and included in the 2007 Field Manual (henceforth, the FM task) (Majid & Levinson 2007), and (2) the World Color Survey (henceforth, the WCS task) (Kay et al. 2009). The two tasks were run with a 3-year break in between. The FM task consisted of naming color chips in a color booklet with a selection of 80 standardized Munsell color chips of 20 equally spaced hues with 4 degrees of brightness at maximum saturation. In order to verify its results against a bigger and a more widely-used stimulus set, the WCS task was conducted. This task

consisted of naming 330 Munsell color chips. It included 40 equally spaced hues with 8 degrees of brightness at maximum saturation, and 10 achromatic chips.<sup>46</sup>

The procedure in both color naming tasks was as follows. Participants were presented with colors in a fixed random order. The instruction was *si kalaw ?en?* ‘What color is this?’ (color what this) – since Maniq does not have an indigenous term for ‘color’, a Thai loanword *si* ‘color’ was employed. Thereafter, in a great majority of cases, no verbal instruction was necessary as speakers provided names for the stimuli instantly upon seeing the color chips. There was no pressure to respond quickly. Some participants occasionally showed hesitation pausing for a moment before providing a description. The exact response times were not measured, but overall speakers were reasonably quick. Sometimes participants self-corrected their first responses – in all such instances only the final response was taken into account. All participants in both tasks provided responses to all stimuli.

Each of the naming tasks was followed by elicitation of focal exemplars of the basic color terms, run either a year after (FM), or directly after (WCS) the corresponding naming task. The focal color tasks consisted in choosing single best examples of the terms identified as most basic in the naming tasks. The instruction was: *kalaw nay paŋes X naki?* ‘which one is the real X?’ (what one X be.real) or *mɔh pidɛŋ nay paŋes X naki* ‘show the real X’ (you show one X be.real). Participants selected focal chips from a color array laid out in Munsell color space, as in Figure 5.1. In the FM focal color task, the array was a sheet with 84 Munsell color chips: 80 colors used in the FM naming task plus 4 achromatic colors (Majid 2008b). In the WCS task, it was a sheet with 410 Munsell color chips: 330 patches from the WCS naming task, 40 copies of the white chip (N9.5), and 40 copies of the black chip (N0.5) (Kay et al. 2009).

Eleven participants (6 female) in the age range of about 25-50 took part in the FM naming task, and 10 participants (4 female) in the age range of about 25-50 took part in the corresponding focal color task. Because of a 1-year break between the FM naming and the FM focal color task, it was not possible to test all of the

---

<sup>46</sup> The stimuli were kindly provided by the WCS team.

same participants in both tasks – the number of same speakers tested in both tasks was 8. In contrast, all of the 7 participants (4 female) tested in the WCS naming task were the same as those tested in the corresponding focal color task. Five of them were adults in the age range of about 25-55, and 2 were minors (of about 7 and 16 years). All participants in both tasks were native speakers of Maniq and had a good command of Southern Thai. Most participants had only limited contact with the Thai population and no schooling – only 3 speakers who took part in the FM study attended a Thai school for a limited period of time. The remaining participants did not have any experience with formal education.

The tasks were conducted outdoors in natural daylight, out of direct sunlight. Participants were tested for color deficiency with Ishihara plates either before or after completing the naming task. All were able to complete it successfully, indicating they had normal vision. The procedure was similar in both naming tasks and focal color tasks. In the naming tasks, participants were presented with chips in a fixed random order one-by-one and asked to name the color of each chip. In the focal color tasks, participants were asked to choose focal exemplars of terms presented in a semi-random order. Responses in all tasks were recorded on paper and later transferred onto a spreadsheet.

### 5.2.2 Results

The results of both naming tasks are similar. First, in both the FM as well as the WCS task, all participants provided responses for all chips. Speakers showed little hesitation, and completed the naming tasks without problems. The responses were concise, most frequently consisting of a single monomorphemic word, as in (111), or a simple phrase as in (112) and (113). Some participants employed simple modifiers, but their use was limited – only about 1% of responses in the FM task and 5% of responses in the WCS task were modified (see further §5.2.3.1).

- (111) bəɬɛŋ  
 be.grue  
 ‘Grue.’

- (112) si        hayet  
 color    be.yellow  
 ‘Yellow color.’
- (113) ?u?     ?ɛn     pã?     hayet  
 3s       DEM    also    be.yellow  
 ‘This one is also yellow.’

The briefness of color descriptions and the low frequency of modifiers suggest the efficient codability of color. This is also supported by relatively high consensus between speakers in how they named the stimuli. Following Majid & Burenhult (2014), cross-speaker agreement was determined based on Simpson’s diversity index (D), a measure taking into account the overall number of terms as well as their frequency. The index was computed taking into account main responses (i.e. using the heads and excluding hedges and modifiers). It is based on the formula  $D = \sum n(n-1) / N(N-1)$ , where n is the number of responses employing a particular term, and N is the number of all responses. Values of D vary from 0 to 1, where 0 indicates no consensus and 1 is perfect consensus. The values for the FM and WCS naming tasks were similar, and were determined at  $D=0.58$  and  $D=0.60$ , which suggests color codability in Maniq is similar to English, and greater than in Jahai (cf. Majid & Burenhult 2014).

The total number of terms employed as main responses was 10 in the FM task, and 13 in the WCS task. Table 5.1 below lists them together with the overall number of tokens and the number of participants who employed them.

Term	Approximate gloss	FM task		WCS task	
		Tokens (total 880)	Participants (N = 11)	Tokens (total 2310)	Participants (N = 7)
<i>bələj</i>	grue	281	11	705	7
<i>blaʔem</i>	purple	176	11	327	7
<i>hayet</i>	yellow	129	11	344	7
<i>haŋət</i>	black	81	11	164	7
<i>baɣĩęc</i>	red	72	11	253	7
<i>paliək</i>	white	50	10	218	7
<i>panuk</i>	white	40	8	214	6
<i>batẽj</i>	black	30	5	45	4
<i>haʔuŋ</i>	yellow	16	4	8	1
<i>halāk</i>	white	5	1	–	–
<i>haŋep</i>	black	–	–	15	1
<i>bayul</i>	white	–	–	13	1
<i>katəŋ</i>	red	–	–	3	1
<i>pataw</i>	white	–	–	1	1

**Table 5.1** Terms employed in the FM and WCS color naming tasks

Of the 14 terms used across the two tasks, only 7 were employed by all or almost all participants in both tasks and were dominant for at least one color chip: *bələj*, *blaʔem*, *hayet*, *haŋət*, *baɣĩęc*, *paliək*, and *panuk*. Based on high frequency and occurrence across participants' idiolects, these are the most salient terms singled out as possible candidates for BCTs (see Table 5.2). Further examination of their status is taken up in §5.2.4.

Term	Approximate gloss
<i>bələj</i>	grue
<i>blaʔem</i>	purple
<i>hayet</i>	yellow
<i>haŋət</i>	black
<i>baɣĩęc</i>	red
<i>paliək / panuk</i>	white

**Table 5.2** Candidate basic color terms (BCTs)

Other terms featured in the task were infrequent and were employed by a small number of participants, typically only a single person in a single task. This was the case for the terms *halāk*, *haḡep*, *bayul*, *katəḡ* and *pataw*. Two other terms – *batēḡ* and *haḡuḡ* – were somewhat more frequent, but still not nearly as frequent as the seven terms above. They were also never dominant responses. They are examined further in §5.2.3.

Note that among the dominant terms there are two ‘white’ terms – *paliek* and *panuk*. They do not divide up Maniq ‘white’ into two areas, but occur across the whole ‘white’ range with comparable frequency. Their distribution suggests they are synonyms or near-synonyms. *Paliek* is somewhat more frequent than *panuk*, but the difference is not substantial (50 vs. 40 tokens in the FM task; and 218 vs. 214 in the WCS task).<sup>47</sup> Both *paliek* and *panuk* were used by nearly all participants. Some participants used *paliek* more often than *panuk*, while others clearly preferred *panuk* over *paliek*. Of the 3 participants who took part in both FM and WCS tasks, only 1 showed a consistent preference for one of the two terms.

Each of the terms in Table 5.1 was used to elicit focal exemplars in the focal color tasks. Participants always chose a single focal chip per term. The focal exemplars were determined based on the most frequently selected chips. In several cases, there was more than one dominant choice. For instance, in the WCS task the most frequently selected focal points for *hayet* ‘to be yellow’ were chips marked as 9C and 7D, each picked by 2 of the 7 participants. In this case, both 9C and 7D were considered focal colors of *hayet*. The focal color tasks were more challenging than the naming tasks since they involved performing a visual scan of the color arrays, one consisting of 84 and the other of 410 chips. Accordingly, participants took longer to provide responses and showed more hesitation than in the naming tasks. Occasionally, responses fell beyond the range of the relevant color category. Still, the majority of responses indicated relative agreement between speakers. In the FM task, for most terms, half or more participants chose the same focal chip. In the WCS task, fewer participants made identical choices. However, the majority

---

<sup>47</sup> Both *paliek* and *panuk* were dominant responses in the WCS task. In the FM task, *panuk* was never a dominant response, but for most items it was nearly as frequent as *paliek*.

of the focal points selected for particular color terms fall close to each other, suggesting that color categories have specific focal areas.

The results of the naming and the focal color tasks are displayed in color mode maps, showing the partitioning of the color space by dominant responses, in Figure 5.1<sup>48</sup>. Circular chips represent stimuli, while the background indicates the extent of the linguistic color category and is colored to match the focal colors<sup>49</sup>. Squares with multiple background colors did not have a single dominant response, but were associated with two or three dominant responses. The extent of color categories is derived from the naming tasks. Focal points are marked with thickened outlines and numbers to indicate how many participants selected a given chip. All focal responses are marked, except for cases, where the selected focal point fell outside of the range of a given color category.<sup>50</sup> Focal points for *paliek* and *panuk* were for the most part similar<sup>51</sup> – only responses for *paliek* are marked on the mode map.

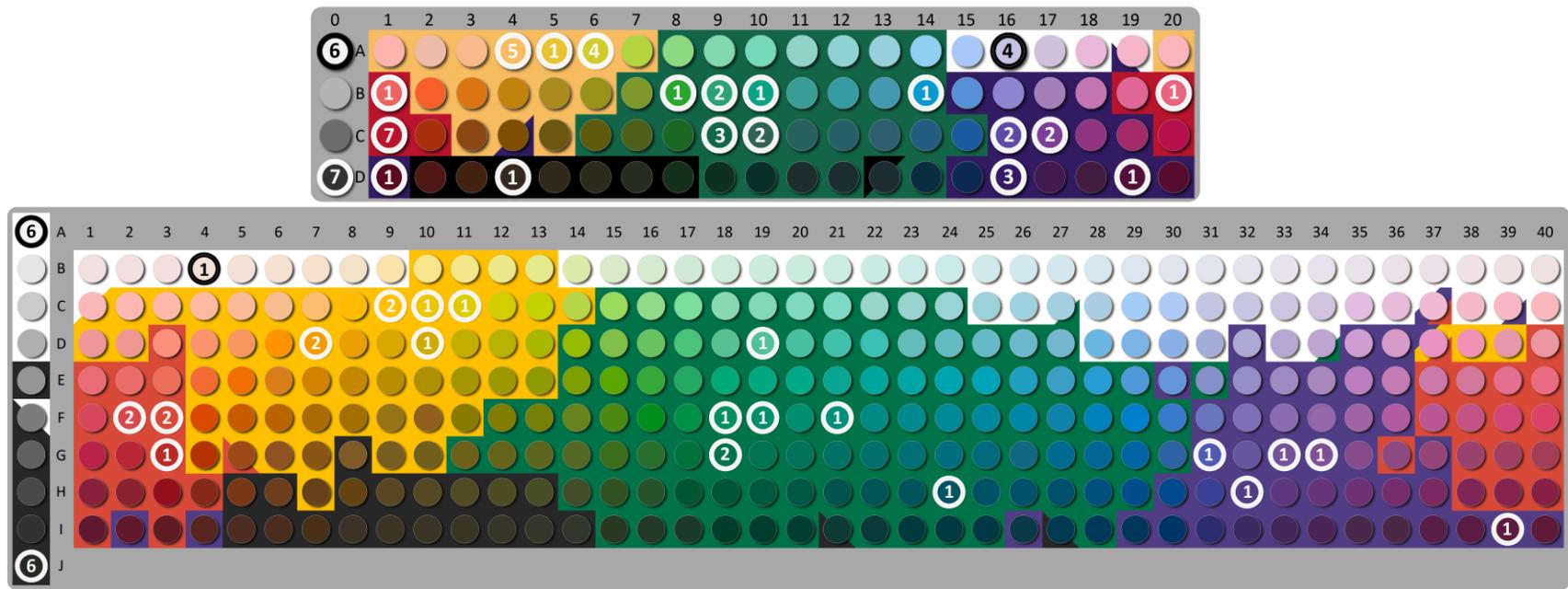
---

<sup>48</sup> I thank Ludy Cilissen for providing me with the template for the FM color mode map and Arno de Vreng for his help with adjusting it to create the WCS mode map.

<sup>49</sup> In the WCS task, three of the terms have multiple focal points. In these cases, the background corresponds to one of the focal chips situated in the center of the focal area.

<sup>50</sup> In the FM task these were: for *haɲɔt* - 18D and 20D, for *bagīēc* - 19C, and for *bla?em* - 14B. In the WCS task these were: for *haɲɔt* - F28, for *bagīēc* - F4 (2 responses), and for *bla?em* - G40, H7.

<sup>51</sup> The focal responses for *panuk* in the FM task were: 0A - 6 responses; and 15A, 16A, 0B - 1 response each (1 response missing). In the WCS task: pure white - 6 responses, and B33 - 1 response.



**Figure 5.1** Partitioning of the color space by dominant terms in the FM (top) and WCS task (bottom). Focal points of each term are marked with a thickened line and the number inside the chip indicates how many participants selected that chip. Background colors of the chips represent the focal examples of the dominant terms.

### 5.2.3 Morphosyntactic properties of color terms in Maniq

Color terms elicited in the naming tasks belong to a single class of stative verbs. They display the typical behavior characteristic of this class, i.e. they directly follow the noun in underived form when acting as modifiers in NPs, and require causativization in order to attach the progressive (cf. further §3.11.2.1). They are synchronically monomorphemic and display the canonical phonological form associated with stative verbs in Maniq, i.e. disyllabic words with a penultimate *a/ə* vowel nucleus (cf. §3.11.2.1). Below, I review the morphosyntactic properties of color verbs focusing in particular on modification strategies and derivations used in the naming tasks.

#### 5.2.3.1 Modification

Color verbs take two main types of modifiers: (1) other color verbs; and (2) general modifiers, also employed with other types of property verbs. The total number of modified responses was 11 (1%) in the FM task, and 126 (5%) in the WCS task. Table 5.3 contains a breakdown of the specific modification strategies across the two tasks.

Modification strategy	FM task Tokens (total 11)	WCS task Tokens (total 126)
other color verb	7	28
<i>naki</i> ‘to be real’	2	33
<i>maʔo</i> ‘to be faulty, bad’	2	-
<i>hay</i> ‘like’	-	1
<i>p<sup>h</sup>p<sup>h</sup>ɔ</i> ‘a bit’	-	38
<i>p<sup>h</sup>ɔ</i> ‘a bit’ + other color verb	-	26

**Table 5.3** Modification strategies in the color naming tasks

Color terms can also be modified by other color terms in head-initial phrases [ $V_{1-HEAD}V_{2-MODIFIER}$ ]. The basic ‘black’ and ‘white’ terms – *haŋɔt* and *paliek* – function as brightness terms ‘dark’ and ‘light’ in such constructions, cf. (114) and (115). Other terms attested as modifiers in the tasks include: *baḡīēc* ‘to be red’, *hayet* ‘to

be yellow’, *katəŋ* ‘to be red’ (§5.3), *blaʔem* ‘to be purple’, *bələŋ* ‘to be grue’, *batəŋ* ‘to be black/blue’ (§5.3).

- (114) *bələŋ paliek*  
 be.grue be.white  
 ‘light grue’
- (115) *bələŋ haŋət*  
 be.grue be.black  
 ‘dark grue’

These phrases have the same syntactic structure as coordinate constructions, where the meaning is that of two colors next to each other, e.g. *mət haŋət panuk* ‘black-and-white eye’ (eye be.black be.white). The two constructions can sometimes be told apart by different intonational patterns, namely a single intonational phrase in the case of the modified construction, and two separate intonational phrases in the case of the coordinate construction. However, these cues are not always consistent, i.e. the coordinate construction sometimes also surfaces within a single intonational phrase with a contour similar to the one attested in the modified construction.

The general modifiers include: the verb pair (116) *naki* ‘to be genuine, real’ vs. (117) *maʔo* ‘to be faulty, bad’, marking good and bad exemplars of a category; the preposition (118) *hay* ‘like’; and adverbs of degree – (119) *p<sup>h</sup>ɔ* (and its reduplicated variant (120) *p<sup>h</sup>p<sup>h</sup>ɔ*) ‘a little, a bit’ (from Thai *phɔ* ‘enough’). *P<sup>h</sup>ɔ* is used pre-verbally, whereas *naki*, *maʔo*, and *p<sup>h</sup>p<sup>h</sup>ɔ* are used post-verbally. The notion of incomplete degree is compatible with the semantics of the Maniq imperfective. Hence, the frequent occurrence of such adverbs with imperfective-derived verbs (e.g. (119)).

- (116) *haŋəp naki*  
 be.dark be.real  
 ‘real dark’
- (117) *haŋət maʔo*  
 be.black be.faulty  
 ‘faulty black’ (used for dark red)

- (118) hay bagĩec  
like be.red  
'like red'
- (119) bələŋ p<sup>h</sup>ɔ ha < t > yet  
be.grue a.bit be.yellow < IMFV >  
'somewhat yellow/yellowish grue'
- (120) hayet p<sup>h</sup>p<sup>h</sup>ɔ  
be.yellow a.bit  
'a bit yellow'

### 5.2.3.2 Derivation

Color terms can take the causative marker and all verbal aspectual affixes occurring with stative verbs. These include: imperfective, progressive, inceptive, multiplicity, and continuative. They can also fill the S and O slots in a sentence, functioning as deverbal nouns with zero-derivation (cf. §3.11.2.1). In the naming tasks, all color verbs used as response heads appeared in bare root form. Only the modifying color verbs were attested as derived forms, with the imperfective infix <C>. This section briefly details the use of the imperfective with color verbs. For examples of other derivations applicable to color verbs, see Chapter 3.

The imperfective allomorph for disyllabic verbs is realized as a copy of the final consonant <C> infix in the penultimate syllable. The imperfective characteristically marks situations that are in progress (cf. §3.11.3.3). With stative verbs, however, it is employed to denote transient or non-inherent properties. For instance, in (121) the yellow/orange color of the sun is not its permanent characteristic, but rather a transient feature. The derivation results in a dynamic reading.

- (121) (Explaining the ritual of burning animal hair performed on hot days when the sun is yellow/orange)
- |     |      |      |     |       |     |                    |
|-----|------|------|-----|-------|-----|--------------------|
| ʔiŋ | tɔt  | kaŋ  | met | katɔʔ | ʔɛʔ | ha < t > yet       |
| 1S  | burn | when | eye | day   | 3   | be.yellow < IMPF > |
- 'I burn (the hair) when the sun is "yellowing/oranging".'

In this sense, the imperfective is especially frequent with change-implicating color terms, e.g. *batēŋ* 'to be black (especially as a result of a process)'.



**Figure 5.2** A recently woven pandanus basket.

Another function of the imperfective is the marking of an incomplete degree of affectedness (cf. §3.11.3.3). For instance, the roof of a lean-to is “blackening” – *ba<η>tēη* (be.black<IMPF>) in various spots, especially those directly over the fire, but it is not black all over. In the same way, a recently woven pandanus basket has green – *bə<ŋ>lɛŋ* (be.grue<IMPF>) and white – *pa<k>liek* (be.white<IMPF>) areas, but none of the colors cover its whole surface (cf. Figure 5.2). In the WCS naming task, imperfectives occurred in phrases headed by the adverb *p<sup>h</sup>ɔ* ‘a bit’ (cf. (119)) and always marked incomplete degree of affectedness.

#### 5.2.4 Discussion of the naming and focal color tasks

The results of the naming tasks revealed all color chips can be named with 6 terms: *bəlɛŋ*, *blaʔɛm*, *hayet*, *haŋɔt*, *baqīɛc*, and *paliek/panuk*. These terms were the most frequent responses in both tasks and were used by all participants. Their broad range of reference, and salience across speakers, suggest they are good candidates for basic color terms (BCTs) (see below). They differ in this respect from the low-frequency items – *batēη*, *haʔuŋ*, *halāk*, *haŋɛp*, *bayul*, *katəŋ* and *pataw* – which featured only in one of the tasks and were used by only a few participants (usually just one person), suggesting they are less salient for speakers and more restricted in reference. From the formal point of view, however, the high- and low-frequency items are similar since they belong to the same word class of stative verbs. Based on the naming tasks alone, however, it is difficult to say whether the low-frequency terms are conventionalized descriptions of color or ad-hoc terms adopted solely for the tasks. This is explored further in §5.3.

The pattern which emerged from both naming and focal color tasks suggests color in Maniq is linguistically and efficiently codable. First of all, Maniq is a fully partitioning language. All chips were named by all participants and most naming was done with a dedicated set of terms. Second, Maniq participants largely agreed

in their color descriptions, reaching a consensus level comparable to English, and higher than Jahai (Majid & Burenhult 2014). Color descriptions were concise and most often consisted of a single conventionalized abstract color verb. In addition, the results suggest that, unlike Jahai, Maniq does not use loanwords from Malay or Thai, but relies exclusively on indigenous vocabulary. All of this presents an entirely different picture of the domain than expected, suggesting distinct factors must have been involved in the shaping of the Maniq color system. Before trying to account for why Maniq differs, it is important to get a full understanding of the Maniq system.

Can the dominant terms from Table 5.1 be considered BCTs based on the original criteria for basicness (Berlin & Kay 1969:5–7)? Formally, the terms are monolexemic. They are semantically general and their meanings are not included under other color terms. In addition, they have a broad application – they are not restricted to a narrow class of objects, but are applicable to different kinds of things. All speakers employed all 6 terms in the task showing considerable agreement. Their reference therefore appears stable across participants, suggesting they are psychologically salient (Berlin & Kay 1969:6). All of the items also satisfy the subsidiary criteria for the BCT status (Berlin & Kay 1969:6–7). Namely, they have the same distributional potential (cf. Lucy 1999), i.e. they belong to the same word class of stative verbs, may occur with the same set of modifiers (§5.2.3.1), and take some of the same derivational morphemes, e.g. imperfective (§5.2.3.2). None of them are loanwords. They also do not have a transparent connection to specific objects. One of the terms – *bagiēc* ‘to be red’ – has a secondary sense of a collective noun meaning ‘blood and raw meat’, but the color term is not derived from the noun. On the contrary, comparative evidence from a closely-related language Batek suggests the object sense is a metonymic extension of the color sense, specific to Maniq. In Batek, the cognate of *bagiēc* refers only to the red color and does not have a sense of raw meat and blood (T.P. Lye, p.c.). In addition to being monolexemic, the terms are synchronically monomorphemic<sup>52</sup>, and have a canonical phonological form associated with stative verbs, i.e. disyllabic words

---

<sup>52</sup> *Bla?em* possibly has a frozen multiplicity affix *l*, but it is synchronically non-analyzable.

with the penultimate *a/ə* vowel nucleus (cf. §3.11.2.1). Taken together, all criteria suggest that indeed these terms are BCTs.

Summing up, the data indicate Maniq is a 6-term color system. Considering the extent of color terms and their focal points, the best English glosses are: ‘black’ for *haŋot*, ‘white’ for *paliek/panuk*, ‘red’ for *baŋĩęc*, ‘yellow’ for *hayet*, ‘grue’ for *bələŋ* and ‘purple’ for *bla?em*. Particularly interesting are the last two terms – *bələŋ* and *bla?em* – which divide the green-blue-purple area into a configuration not predicted by any of the trajectories in the evolutionary sequence (Kay & Maffi 1999). The term *bələŋ* is a typical ‘grue’ covering greens and most blues, including the universal foci for green and blue, as proposed based on aggregated data from the languages in the WCS sample (cf. Regier, Kay & Cook 2005). *Bla?em* is best glossed as ‘purple’ since it subsumes mainly purples, purple-reds and is focused in the purple area, around the same region as the English focal point for *purple* (chip C17 in the FM array) (cf. Majid & Burenhult 2014). Within the Berlin and Kay framework, ‘purple’ should not emerge before ‘grue’ is separated into ‘green’ and ‘blue’ (Berlin & Kay 1969; Kay & Maffi 1999). Maniq thus constitutes an exception to the evolutionary sequence. It is, however, not the only “aberrant” system of this kind as persistence of the grue category after the addition of what are normally considered later-stage terms (e.g. purple, brown) has been reported in other languages (cf. Davies et al. 1992; Tornay 1973; Wierzbicka 1996), including some languages in the World Color Survey sample (e.g. Cofán; Kay et al. 2009).

The existence of a ‘grue’ term has been associated with a number of factors. For instance, it was suggested that the pressure to distinguish between green and blue may be relaxed in languages spoken in regions with high UV-B exposure due to high incidence of acquired blue-yellow color deficiency (tritanopia) (Lindsey & Brown 2002; Davies et al. 1998). Since a lot of ‘grue’ languages, including Maniq, are spoken in such areas, this could account for the presence of the ‘grue’ category. However, this explanation is far from certain since we do not know whether the Maniq suffer from this type of color deficiency (Ishihara test does not detect blue-green errors; Fletcher & Voke 1985:191). Despite living in an area with a high UV-B rate, the Maniq might turn out not to be affected by it since – like other Semang groups (Benjamin 1985; Endicott 1979; Lye 2004) – they have a

strong, culturally-motivated avoidance of exposure to sunlight and heat. According to the indigenous belief, strong sun can threaten health, so shaded and cool environments provided by the rainforest are preferred over tree-cleared open areas (cf. §2.9).

An alternative and a more likely explanation for the persistence of the *grue* category is related to a relatively low salience of the green-blue distinction among non-industrialized societies (cf. Woodworth 1910). There do not seem to be many blue objects of cultural importance in the Maniq setting. Lack of interest in the blue area of the spectrum is also reflected in semantically specific color terminology in Maniq. This lexicon is dominated by terms describing various types of white, black and red objects (§5.3). The only item that could perhaps develop into a ‘blue’ category is *batēŋ*. This term is used primarily with reference to black and other dark hues (especially as a result of a process), but occasionally also to blue, particularly in relation to blue sky during the day. However, the use of *batēŋ* with reference to ‘black’ is more common in comparison to the ‘blue’ use. In addition, when asked about the focal exemplar of *batēŋ*, the Maniq predominantly indicate black chips, e.g. in the FM task, 7 out of 10 speakers selected the black chip OD, which was also the focal point for *haŋət* ‘to be black’.

Instances of ‘purple’, on the other hand, are relatively common in the local environment. What is more, items described as purple (*bla?em*) are culturally salient objects in which color is a distinctive property. For instance, wild yams – a common staple food – come in a variety of different colors, e.g. white, yellow, red, as well as bright purple. Different yam species are typically associated with particular colors, but there is also some color variation across different specimens of the same species. For instance, *ləntak* ‘*Dioscorea glabra*’ (Figure 5.3) comes in at least two different colors: *ləntak bla?em* ‘purple *D. glabra*’ and *ləntak panuk* ‘white *D. glabra*’. Also the commonly hunted gibbons (Maniq: *tawɔh*) have different fur colors, e.g. *tawɔh ta?um* ‘black gibbon’ (for *ta?um*, see §5.3) and *tawɔh bla?em* ‘red-brown gibbon’ (note that *bla?em* in this



**Figure 5.3** Wild yam (*Dioscorea glabra*) described as *bla?em*.

case denotes a hue distinct from the prototypical example, but within the category range) (see also example (127) in §5.5.1). The cultural importance of these exemplars and the discriminating function of the term – not only in relation to yams and gibbons, but also other objects – are likely the key reasons why *bla?em* developed into a basic color term.

Irrespective of the forces shaping this system, the fact remains that Maniq – unlike some other non-industrialized communities – fully partitions its color spectrum, dividing it into 6 categories encoded in BCTs. The BCTs, however, are not everything when it comes to color talk in Maniq, as 7 additional terms featured in the naming tasks, and over a dozen others, were attested in spontaneous color descriptions. The following section explores in detail the nature of the non-basic color vocabulary and its relationship to BCTs.

### 5.3 Non-basic color terminology

Non-basic color terms (non-BCTs) have a narrower range of reference than BCTs. For instance, *scarlet* and *crimson* are hyponyms of *red* as their meaning is included under this more general term. Another type of non-BCTs are *restricted* color terms (cf. Davies et al. 1992; also called *contextualized*; Kuschel & Monberg 1974). These terms are characterized by the fact that they cannot be freely applied to any item, but rather they are conventionally associated with particular objects or classes of objects, e.g. *blond* is employed to talk about hair or beer. They are semantically specific since they encode detailed information about the described object. In other words, they are predicates with selection restrictions governed by rules of semantic agreement (cf. Bowerman 2005; Plank 1984).

Maniq is rich in semantically specific terms encoding color, most of which appear to be restricted. For instance, *bayεϕ* is a property verb referring specifically to the yellow color of hair of a baby stump-tailed macaque (*Macaca arctoides*). *Bayul* refers to the mottled gray color of ashes. These terms have a restricted range of application, but they are not tied exclusively to these exemplars. Other objects and novel stimuli may occasionally be described as *bayεϕ* and *bayul* as long as they are sufficiently similar to the prototype. The extent to which such novel uses are possible depends on the semantic requirements of particular verbs.

Twenty-nine semantically specific terms with color reference were identified in Maniq (see Table 5.4). The terms were collected across several field trips mostly in spontaneously-occurring situations or general elicitations involving plants, animals and other objects present in the environment. A few were infrequently attested in the color naming tasks, but none were elicited systematically from all participants. The terms were paraphrased with color terms, suggesting they denote color and are paradigmatically related to BCTs. Most items (15 terms) were paraphrased with a ‘white’ term. The remaining items were paraphrased with the terms for ‘black’ (6 terms), ‘red’ (5 terms), ‘yellow’ (2 terms) and ‘grue’ (1 term). Faced with such a multitude of terms with seemingly similar meanings, we may ask what makes them distinct from one another. Are they hyponyms of BCTs similar to *crimson* and *scarlet*, restricted terms like *blond* or yet another kind of descriptor? Do they encode hue, brightness and saturation, or focus on other distinctions?

In an attempt to understand the semantics of the specific terms, they were examined in another task. Instead of going from perceptual stimulus to descriptor, as was done in the naming tasks, non-BCTs were investigated by going from descriptor to the prototypical exemplars of these terms. This was done through an exemplar listing task, in which speakers were asked to list objects exemplifying a specific color.

### 5.3.1 Exemplar listing

Twenty-one of the total 29 identified specific verbs were used to elicit exemplars in a linguistic task from a total of 8 native Maniq speakers (4 female; approximate age 20-55). Seven of the investigated verbs were low-frequency items from the color naming tasks. The remaining verbs were attested in other contexts. The instruction – *Kalaw X?* ‘What is X?’ (what X), or *na? hay kalaw X?* ‘What is x like?’ (FOC like what X), where X is a target verb – elicited verbal responses. Speakers listed a variety of items: objects, body parts, animals and plants or their elements. All provided responses were taken into account. The experimenter encouraged the participants to list multiple exemplars by saying *kalaw pā? ?ε??* ‘what else?’ (what other 3), *moh biyoh bem* ‘say many’ (2s say be.many) or repeating the initial instruction. Since the task was carried out over the course of two field trips and

new verbs were added to the list in later stages, some participants provided exemplars for more terms than others. Although the verbs added later received fewer responses, the collected information was still informative with respect to their meaning.

The results are presented in Table 5.4 below. Numbers in brackets indicate the number of participants who provided the response. Eight verbs listed at the bottom were discovered after all participants had been questioned – these could not be included in the exemplar listing, but are included in the table for a complete overview. The list includes a variety of animals and plants from the local environment. Animal identifications were mostly based on earlier elicitations with zoological field guides (e.g. Francis 2001) and/or Thai translations. Most plants, notably the various species of wild yams (*Dioscorea* spp.), were identified with the vernacular labels in Maneenoon (2001; 2008). In cases where identification was impossible, the Maniq forms are given in square brackets, along with an approximate gloss in English. Note also that several verbs have very similar forms, i.e. *halāk* and *haliek*; *bayɔ̃ɸ*, *bayĩɸ* and *bayɛɸ*; *bayul* and *bayel*; *haʔuŋ* and *haʔɔ̃ŋ*. These represent the so-called verbal templates, discussed in detail in §5.4.

Term	Paraphrased with	Number of objects	Exemplars
palak	white	8	muntjac ( <i>Muntiacus muntjak</i> ) or its body parts (3), hair of animal (1), black giant squirrel ( <i>Ratufa bicolor</i> ) (1), cheeks of pig-tailed macaque ( <i>Macaca nemestrina</i> ) (1), dirty white socks (1), gray shirt (1), paper (1), tree (1)
haliek	white	5	basket (4), cucumber skin (1), bamboo tube for water (1), liver of Sunda flying lemur ( <i>Galeopterus variegatus</i> ) (1), liver of Asian leaf turtle ( <i>Cyclemys dentata</i> ) (1)
halāk	white	7	basket (3), cucumber skin (1), skin of [ <i>kunu</i> - gourd type] (1), head of a Maniq person (1), paper (1), [ <i>taduk</i> – plant sp.] (1), Prevost's squirrel ( <i>Callosciurus prevostii</i> ) (1)
hlawāk	white	9	shirt (2), wings of great hornbill ( <i>Buceros bicornis</i> ) (1), plumage of [ <i>cakep</i> - bird sp.] (1), muntjac ( <i>Muntiacus muntjak</i> ) (1), lesser mouse deer ( <i>Tragulus kanchil</i> ) (1), butterfly/moth (1), civet's hair (1), Prevost's squirrel ( <i>Callosciurus prevostii</i> ) (1), camouflage trousers (1)
bayōϕ	white	10	mist (3), smoke (2), cloud (2), gray/white hair (2), paper (2), rotten wood (2), ashes (2), flower (1), nose of sun bear ( <i>Helarctos malayanus</i> ) (1), head of dusky leaf monkey ( <i>Trachypithecus obscurus</i> ) (1)
bayīϕ	white	3	smoke (5), ashes (1), mist (1)
bayul	white	5	ashes (5), soil (2), mist (1), white-crowned hornbill ( <i>Berenicornis comatus</i> ) (1), feces of Sunda flying lemur ( <i>Galeopterus variegatus</i> ) (1)
bayek	white	10	rice (4), wild yam ( <i>Dioscorea orbiculata</i> ) (3), soil (2), other wild yams: <i>Dioscorea filiformis</i> (1), <i>Dioscorea daunea</i> (1), <i>Dioscorea stemonoides</i> (1), <i>Dioscorea pentaphylla</i> (1), <i>Dioscorea pyrifolia</i> (1), [ <i>sac</i> – wild yam sp.] (1), inside of tree (1)
sakwik	white	9	jeans (3), mist (2), stalactite/stalagmite (1), tip of <i>Dioscorea orbiculata</i> shoot (1), <i>Dioscorea daunea</i> (1), sky (1), mist (1), clear water (1), deep water (1)

Term	Paraphrased with	Number of objects	Exemplars
pataw	white	4	soil (4), unripe petai ( <i>Parkia speciosa</i> ) (1), [semi-ripe <i>hak</i> – type of fruit] (1), [ <i>tayu?</i> – type of fruit] (1)
lahiy	white	2	rock (2), sky (2)
lŋgieŋ	white	4	rock (2), white bowl (1), knife (1), mushroom (1)
lalēŋ	white	2	eyes (3), water (2)
bakay	white	4	sun (1), water (1), road (1), soil (1)
batēŋ	black	5	trousers (1), hair of a Maniq child (1), flying squirrel (1), [ <i>kadie?</i> <i>nījsuŋ</i> - civet sp.] (1), sky (1)
haŋep	black	5	bearcat ( <i>Arctictis binturong</i> ) (1), fur of wild pig ( <i>Sus scrofa</i> ) (1), trousers (1), candy/biscuit (1), [ <i>lamjīm</i> – plant sp.] (1)
taʔum	black	1	flying squirrel (4)
batgit	black	1	sky (2)
lŋŋaŋ	red	5	bamboo quiver (2), muntjac (2), soil (2), outer shaft of a blowpipe (1), tree (1)
taləŋ	red	2	fruit (4), leaves (1)
haʔuŋ	yellow	2	mud (1), yellow package (1)
laŋəŋ	red	–	–
yəhəy	red	–	–
katəŋ	red	–	–
haʔōŋ	black	–	–
haŋit	black	–	–
bayel	grue	–	–
bayeϕ	yellow	–	–
blahut	white	–	–

**Table 5.4** Non-basic terms with their corresponding exemplars. Numbers in the third column indicate the total number of different objects elicited. Numbers in brackets following exemplars indicate the number of consultants who produced that exemplar.

Exemplar listing is usually done with concrete concepts such as artifacts, natural kinds, and the like (e.g. Ruts et al. 2004). Here people were asked to generate the names of exemplars of abstract concepts, a cognitively more demanding task. The listing task nevertheless yielded a rich collection of

exemplars, providing information about the reference of the terms. All verbs, with the exception of *taʔum* and *batgit*, were linked to several exemplars. They were also abstract, in the sense that they did not bear a transparent formal connection to a specific source (the only exception was *haʔuŋ*, derived from a name of a civet). Some of them had strong prototypes listed by the majority of participants, e.g. *bayul* (ashes), *bayiϕ* (smoke). Others did not have one prototypical exemplar, but were associated with different objects, e.g. *batēŋ* (trousers, child's hair, flying squirrel, civet sp., sky), *haŋep* (bearcat, wild pig's fur, trousers, candy/biscuit, 'lamjim' plant). The variation in response patterns suggests the terms differ in the level of context-restrictedness. The results are discussed further one-by-one for each individual verb. Whenever possible, they are combined with insights from recorded spontaneous usage, which sometimes contains exemplars not recorded in the task. The order of discussion reflects the order in the table.

The terms paraphrased with 'white' BCTs constituted the largest group among the non-BCTs. The first item in the list – *palak* – seems to be applied mainly to white animal coats, especially that of muntjac, though various non-animate objects (e.g. clothes, paper) can be described as *palak* too. Together with *halāk*, it is the most frequent non-basic 'white' term, with a relatively general meaning, seemingly less restricted than other terms paraphrased with the 'white' BCT. *Halāk* forms a templatic pair with *haliek* – the two verbs have the same underlying structure *halV<sub>k</sub>*, here referred to as a verbal template<sup>53</sup> (§3.11.4). As is characteristic of templates, the formal resemblance of the words is accompanied by their semantic similarity (see further §5.4) – the main exemplar for both *haliek* and *halāk* is a beige/gray woven basket made of pandanus leaves. *Halāk* is also conventionally applied in the sense 'to be bald', hence the response "head of a Maniq person" among the listed exemplars. This sense, however, appears to be separate from the color sense since *halāk* has been noted to occur in descriptions of bald people of different skin and hair colors. Another verb from the 'white' subset, *hlawāk*,

---

<sup>53</sup> Verbal templates should not be confused with semplates, discussed in Chapter 4. Despite some commonality between them (such as being associated with semantic similarity), the two terms apply to distinct phenomena.

contains a frozen multiplicity affix *l*. The term possibly originated from *halāk* and underwent a stem modification<sup>54</sup>. It is associated with the white pattern on the wings and tail tips of the great hornbill (*Buceros bicornis*). Although in the task itself the hornbill was not the most frequent exemplar, in further elicitation, 5 out of 8 Maniq used the verb *hlawāk* when asked about the color of that hornbill. The term also features consistently in descriptions of pictures of the great hornbill. The multiplicity morpheme in this case encodes multiple occurrences of white on each feather tip (Figure 5.4). Thus, *hlawāk* is not a simple color term, but it is associated with a pattern – distributed patches of white, construed as multiple white elements rather than a single white area. Other objects described with *hlawāk* are usually patterned pieces of clothing, e.g. camouflage trousers or checked shirts. When used with these kinds of objects, the presence of a pattern appears to be of primary importance and the color itself is less significant. In fact non-white objects are also sometimes described as *hlawāk*, in which case they may be explicitly marked with another color term, e.g. *hlawāk haŋɔt* ‘patterned black/dark’ (be.patterned be.black).

---

<sup>54</sup> If this hypothesis is correct, the stem modification could be explained by a possible restriction on co-occurrence of two instances of /l/ within the stem: *\*h<l>alāk*, resulting in the modified form *hlawāk*, with *l* being replaced by an articulatorily similar sound *w* (also a coronal approximant).



**Figure 5.4** *Hlawāk*, patterned with multiple white patches on the wings and tail of the great hornbill (*Buceros bicornis*).



**Figure 5.5** *Lŋgier*, shiny white on a stone.

Another verb paraphrased with ‘white’ – *bayǎ̃̄* – refers to the color of airborne particles (smoke, mist, dust, clouds), but it is also frequently used to describe gray/white hair of old people and animals. All of these sources are similar in their gray/white color and wispy texture.<sup>55</sup> Unlike most of the other terms discussed here, *bayǎ̃̄* is employed not only in stative, but also in dynamic clauses, distinguished by the presence of the cross-referencing bound pronoun *ʔεʔ* (123). While the stative construction is a simple predication of the color property (122), the dynamic construction contains not only reference to color, but also implies physical movement, e.g. as of white “clouds” of smoke or dust moving in the air (123). Examples (122) and (123) below illustrate the stative and dynamic constructions.

- (122) (Description of a photo of a clouded leopard (*Neofelis nebulosa*))  
 sək məh bayǎ̃̄  
 hair nose be.white  
 ‘The whiskers are white’

---

<sup>55</sup> The combination of these sources under a single color term is not unheard of. For instance, in Polish the non-basic color adjective *siwy* is also used with reference to gray hair and smoke.

- (123)   ʔεʔ       bayɔ̃ɸ   daʔ       ʔamet, ʔal       ʔεʔ       bayɔ̃ɸ  
           3       be.white LOC   be.far   mist   3       be.white  
           ‘It is moving in a white cloud in the distance, the mist is moving in a  
           white cloud.’

The final bilabial fricative  $\phi$  in *bayɔ̃ɸ*, due to its acoustic properties, has an onomatopoeic component associated with moving air (cf. §3.11.4). *Bayĩɸ*, related to *bayɔ̃ɸ* via a template (§5.4), appears to have a similar range of applications, except that it has not been recorded with reference to gray hair. Aside from being a visual descriptor, *bayɔ̃ɸ* also denotes a specific smell quality, where it usually occurs in the noun phrase *miʔ bayɔ̃ɸ* ‘unpleasant smell, e.g. of old food and old shelters’ (*miʔ* ‘smell’) (cf. §6.2). Another verb paraphrased with a ‘white’ term is *bayul*. This item is associated primarily with the mottled gray color of ashes, but also with soil and a few other exemplars. Outside the exemplar listing task, it was used by several speakers in elicited descriptions of inverted-color photographs (i.e. negative images) of animals, e.g. hog badger (*Arctonyx collaris*), which had a similar mottled gray appearance. Another item – *bayek* – is a specialized ‘white’ verb applied primarily to starchy foods, e.g. rice and tubers of some wild yams.

*Sakwik* is used most often to describe white intermixed with other colors, e.g. as on jeans, where white is typically a visible background color of blue or black. Culturally and environmentally more entrenched exemplars of *sakwik* are forest streams and cave formations (e.g. stalactites, stalagmites). *Sakwik* contains a frozen coda copy, structurally identical to the imperfective, suggesting the verb derives from the obsolete root \**sawik*. The verb *pataw* is associated with soil. The Maniq paraphrase the term with ‘white’, but it is not clear what exact quality is meant here. *Lahiy* refers to the color of clear sky and limestone rocks. Outside the exemplar listing task, several speakers applied this descriptor to a glossy sheet of gray paper, which indicates it might refer to features such as glossiness and illuminance (ordinary gray surfaces did not elicit *lahiy*). *Lɲgietɲ* refers to shiny bright surfaces such as a specific type of rock (*batuʔ jalɛk* ‘white stone, most likely calcite or quartz’, see Figure 5.5), as well as metal objects such as knives, bowls, etc. Although not listed in this task, spontaneous data show it also applies to white eyes. The verb contains two exponents of frozen morphemes: imperfective (the

penultimate coda  $\eta$ ) and multiplicity  $l$ , encoding multiple referents, e.g. many reflecting spots on a stone, two eyes, etc. Like *bayǝ̃ɸ*, *lɣgieŋ* can be used in dynamic constructions. Example (124) illustrates a transitive use of the verb, with a human agent acting on a theme, in this case – the eyes. This description was elicited with a looking scene, in which the actor looks to the side by moving his eyes, so a notably large white portion of his eyes is in view (cf. image #17 in Appendix 2).

- (124)     $\text{?}\epsilon\text{?}$      $l\langle m\rangle\langle i\rangle\eta\text{gieŋ}$      $\text{met}$      $\text{?}\epsilon\text{?}$   
           3        be.shiny.white<PROG><CAUS>    eyes    3  
           ‘He is “whitening” his eyes.’

Note that the verb in this example contains the dynamicity-increasing causative infix  $\langle i\rangle$ , as well as the progressive infix  $\langle m\rangle$ , marking the ongoingness of the action. A verb somewhat similar to *lɣgieŋ* – *lalɛŋ* – is also employed with shiny surfaces. In addition to being applicable to eyes, it is used with reference to water. Finally, the verb *bakay* – the last of the ‘white’ terms in the list – refers to white or bright sun, water, road and soil. When applied with the sun, it contrasts with *hayet* ‘to be yellow’, as illustrated in (125) below. As the example shows, *hayet* and *bakay* have connotations relating to, respectively, the presence and absence of a dangerous odor – *hamis* – and are thus regarded as safety and threat signals.

- (125)     $\text{?}\epsilon\text{?}$      $ha\langle t\rangle\text{yet}$      $\text{?}\epsilon\text{?}$      $hamis,$   
           3        be.yellow<IPFV>3    smell(of.hot.air)  
            $\text{met.kat}\omega\text{?}$      $\text{?}\epsilon\text{?}$      $bakay$      $bap$      $\text{?}\epsilon\text{?}$   
           sun            3        be.white/bright    NEG    3  
           ‘When it is being yellow, it smells *hamis*, when the sun is white, it doesn’t  
           (smell *hamis*).’

The second largest set of non-BCTs is comprised of ‘black’ terms. *Batɛŋ* does not have a strong prototype and is to a large extent similar to the ‘black’ BCT *hanɔt*. It is not strictly tied to particular contexts, but can be used with decontextualized stimuli. It was the most frequent non-basic term in the color naming tasks, employed by 5 out of 11 participants in the FM task and 4 out of 7 participants in

the WCS task, used predominantly with black, dark blue and dark green chips. The most frequently selected focal exemplar of *batēŋ* was the achromatic pure black, the same as for the black BCT *haŋɔt*. In real-life contexts, *batēŋ* is used primarily, though not exclusively, with objects whose color has changed to black due to a natural or induced process, e.g. blowpipe darts hardened over fire, roof blackened by smoke, decaying teeth, withered petai beans, etc. In addition to being linked to black and other dark hues, several speakers associate *batēŋ* with light blue, as in the blue sky during the day. This use, however, is less common than the ‘black’ use (cf. the discussion in §5.2.4). *Haŋɛp* is a ‘dark’ term. It is often used with animal coats (e.g. of a bearcat), but it can also be used to talk about darkness and shade. *Taʔum* is a ‘black’ term applied restrictively to fur of certain animals, most notably the black flying squirrel (most likely *Aeromys tephromelas*), the small-toothed palm civet (*Arctogalidia trivirgata*), and agile gibbon (*Hylobates agilis*). *Batqit* refers to the color of dark sky accompanying rain. The penultimate *t* coda is a frozen exponent of the imperfective.

Besides the ‘whites’ and the ‘blacks’, three other terms were part of the exemplar listing task: *lŋŋaŋ* and *taləŋ*, paraphrased with ‘red’, and *haʔuŋ* linked to ‘yellow’. *lŋŋaŋ* is used with the orange or brown color characteristic of bamboo impregnated with beeswax (containers, quivers, blowpipes, etc.). It is also a standard term for describing tiger’s or muntjac’s fur. *Taləŋ* is another ‘red’ term, restricted in use to ripe fruit (a salient example often named here is the wild jackfruit (*Artocarpus* sp.)), and leaves. *Haʔuŋ*, paraphrased as ‘yellow’, is most likely source-based, from *haʔuŋ* ‘masked palm civet (*Paguma larvata*)’. It was occasionally used in the naming tasks, suggesting some degree of flexibility in the types of objects it is applied to. When comparing the chips which elicited *haʔuŋ* and the basic yellow term, *hayet*, no apparent hue differences can be noticed. Both terms have the same or almost the same focal hues. In addition, *haʔuŋ* does not seem to have strong prototypical exemplars. Besides the exemplars listed here, i.e. mud and a yellow package, it was recorded in reference to dog’s fur.

The last eight verbs in the table are items which were not included in the exemplar listing task. Their description below is based on spontaneous use and elicitation. Three of the verbs – *laŋɔŋ*, *yəhəy* and *katəŋ* – were paraphrased with

the term for ‘red’. *Lajɔŋ* is the orange or yellow color of the wild gandaria fruit (*Bouea* sp.) (also known as plum mango). One speaker additionally reported her baby’s head to be of that color. *Yəhəy* describes the red reflective eyes of animals seen in darkness. *Katəŋ* was used by one older speaker in the WCS color naming task for 2 red-brown chips and 1 pink chip. The term also appears in Trongdee (1998), who in his treatment of color terms in the neighboring Kensiw, mentions in passing the Maniq BCTs. *Katəŋ*, according to this source, is one of Maniq’s two basic ‘red’ terms, *bagīēc* being the other. The specific red hues associated with the two terms are said to differ: *katəŋ* is said to denote “fresh red” while *bagīēc* is “purple, red, orange, pink” (Trongdee 1998:210, own translation). No such division is reflected in the responses of the speaker who used the term in the WCS task. A different speaker recognized the term as relating to shape and size rather than color. *Katəŋ*, according to him, is a long cylindrical shape characteristic of certain large wild yams or tiger’s feces. It is unclear whether the term should be considered polysemous or if it has a different meaning in different speakers’ idiolects. What is clear, however, is that it is not commonly applied as a color term in this Maniq variety.

Two other verbs – *haʔəŋ* and *haŋit* – belong to the ‘black’ set. *Haʔəŋ* refers to the brown/gray color on the outside of mature wild tubers and wild yam stems. It was paraphrased with the change-implicating ‘black’ term *batēŋ* and contrasted with the ‘white’ BCT *panuk*. *Haŋit* is based on the same template as the ‘black’ BCT, *haŋɔt*. Its use was recorded with dark-colored deep water. Another verb – *bayel* – was paraphrased with a ‘grue’ BCT. It denotes a light green color of young leaves, often with a faint admixture of red (see Figure 5.6). *Bayel* indicates immaturity and, when applied to wild yam plants, implies it is too early to dig for tubers of this plant. The opposite of *bayel* is *talaŋ* ‘to be red/brown (of ripe fruit or mature leaves)’ – the two verbs are often employed contrastively, as in (126) below, suggesting they form an antonymic pair. In this example, the speaker juxtaposes the mature and immature plants by pointing out the difference in the color of their leaves.

(126)	pana?	ʔɛ?	hali?	bayel, (...)
	immature.stem	3	leaf	be.light.green
	dal	ʔɛ?	hali?	talap <sup>56</sup>
	mature.stem	3	leaf	be.red/brown

‘Immature stems have light green leaves, mature stems have red/brown leaves.’



**Figure 5.6** *Bayel*, light green with a faint admixture of red on a young leaf.



**Figure 5.7** *Blahut*, transparent moist cover on the flesh of *Dioscorea daunea*.

*Bayeɸ* – which forms a templatic set with *bayɔɸ* and *bayĩɸ*; cf. §5.4 – refers to the yellow-colored fur of a baby stump-tailed macaque (*Macaca arctoides*). In addition, it was employed in a description of a picture of a blond child. Finally, *blahut* refers to a light-colored transparent or semi-transparent mask on two kinds of objects: eyes veiled by tears or clouding (as in the lens of an eye clouded by cataract) and white moist flesh of immature wild tubers. Based on a specimen comparison, it appears that tubers described as *blahut* are also characterized by visible fibers (in the form of a vaguely spotted pattern, see Figure 5.7). *Blahut* is often used contrastively with *bayek* ‘to be white (of mature tubers)’.

---

<sup>56</sup> Prototypically, *talap* refers to red and brown, but mature leaves are also often simply dark green. It is unclear, however, whether *talap* applies also in this case. If it does, it might be an indication it has a classificatory function, i.e. indicating a type of leaf rather than describing its color (similar to *white* in “the white wines of France”; Biggam 2012:38).

### 5.3.2 Morphosyntactic properties of non-BCTs

Non-BCTs are for the most part similar to BCTs in their formal properties. Like the BCTs, they belong to the class of stative verbs. They are synchronically monomorphemic and display the canonical phonological form associated with stative verbs in Maniq, i.e. disyllabic words with the penultimate *a/ə* vowel nucleus (cf. §3.11.2.1). A few verbs include fossilized morphology, structurally identical to imperfectives: *sakwik* ‘to be white (e.g. jeans, cave formations)’, *lɲgieŋ* ‘to be shiny white’, and *batgit* ‘to be black (sky during rain)’ (derived from the obsolete roots *\*sawik*, *\*gieŋ*, *\*bagit*). Presence of the imperfective in regular derivation typically implies dynamicity or incomplete affectedness. This meaning component is present in *batgit*, lexicalizing the inherently transient color of the sky during rain. The other two verbs, however, are not inherently imperfective-like in their semantics. They may apply to dynamic scenes, as in the use of *lɲgieŋ* in (124), but that does not hold for all cases. This could be related to a possible semantic bleaching of the imperfective component and/or the fact that they exemplify a historical process, whose semantic effect may have not been identical to the present imperfective.

Another set of verbs containing fossilized morphology are the multiplicity-encoding *hlawāk* ‘to have distributed patches of white’, *lɲgieŋ* ‘to be shiny white’ and *blahut* ‘to be clouded with a bright-colored moist surface’. The fossilized affix in this case is the multiplicity morpheme *l*, expressing spatial or temporal multiplicity, corresponding to the distinctions typically marked by the distributive and iterative. The distributive meaning is still present in these verbs, or at least it is recoverable for some exemplars, e.g. multiple white patches on a hornbill for *hlawāk*, two eyes for *lɲgieŋ* and *blahut*. The same frozen multiplicity morpheme is also attested in the ‘purple’ BCT *bla?em*. In this case, however, the verb does not have distributive semantics, but rather a very general sense.

Although this has not been verified for all non-BCTs, it appears that generally they can take the same modifiers, e.g. *naki* ‘to be real/genuine’, as in *haŋɛp naki* ‘real dark’ (be.dark be.real), and can be used in similar coordinate constructions as BCTs, e.g. *lɲŋaŋ palak* ‘brown/orange and white’ (be.brown/orange be.white) (applied as a description of a muntjac). They also take the same derivational

morphemes, e.g. the imperfective, marking incomplete affectedness and/or transience of a feature, as in *ha <η> ?ōη* ‘to be partially/temporarily brown/gray (of tuber stems)’ (be.brown <IMFV>). Similarly, the multiplicity affix mentioned above is applied productively with some BCTs and non-BCTs, e.g. *h <l> aηot* ‘to be black (here and there)’ (be.black <MULT>), and *b <l> a <η> tēη* ‘to be blackening (here and there)’ (be.black <MULT> <IMFV>). Furthermore, BCTs and non-BCTs can occur together, e.g. in modifying constructions: *bāleη batēη* ‘black/dark grue’ (be.grue be.black); and coordinate constructions: *bayek hayet* ‘white and yellow (of tubers)’ (be.white be.yellow). All this points to a clear formal similarity between basic and non-basic verbs and suggests they form a single coherent grouping.

### 5.3.3 Discussion of non-BCTs

The examination of non-BCTs reveals color is even more linguistically codable (i.e. expressible) than the initial exploration based on the naming tasks would suggest. As the data discussed here shows, aside from the six basic verbs with general meanings, almost thirty additional distinctions are lexicalized in more semantically specific verbs. These verbs express fine nuances in color and aspects of visual surfaces. They refer to distinctions which are highly relevant in the everyday life of the Maniq, relating to culturally significant plants, animals and elements of the environment. Many of these distinctions are extremely context-rich as they are linked to the larger networks of indigenous knowledge, for instance ethnobiological knowledge. They also generate implications about the objects they describe (e.g. regarding plant growth stages, age of animals, etc.). With the possible exception of *katāη* (used as a color term by only one speaker), they are conventionalized everyday words known and used by all speakers. They do not represent a specialized register, but belong to the general vocabulary and are the default way of talking about the color and visual surface properties of objects they are associated with. They are also abstract, i.e. they do not bear a formal transparent relationship with the names of their typical exemplars (except for *ha?uη* ‘to be yellow’ derived from a civet name). Though they are restricted to or strongly associated with particular objects, they are typically connected to more than one exemplar, so the property in question is almost never locked to a single

thing. What is more, some terms are flexibly applied to novel objects (e.g. *bayεφ* used with blond hair of a child, *bayul* describing the mottled gray color of some negative images of animals), suggesting that extending the range of application beyond conventional exemplars is possible as long as the novel objects are sufficiently similar to the established prototype.

The rich semantically specific vocabulary, on the one hand, indicates high expressibility of color, and, on the other hand, points to the inseparability of color and other properties. This argues against the idea of a unitary domain of color in Maniq, and suggests a broader domain including dimensions such as reflectance (*hɣgier*, *lalēŋ*, *ɣəhəy*), spatial arrangement (as in *hlawāk* and *hɣgier*), processes of change (as in *batēŋ*), stages of growth of a plant (as in *bayel*, *haʔōŋ*, and *talaŋ*), and age (as in *bayōφ* and *bayεφ*). This observation is in line with earlier work on the cross-linguistic variation in color terminology (cf. e.g. Newman 1954; Conklin 1955; Kuschel & Monberg 1974; Wierzbicka 2008).

In support of the idea of a single field including both BCTs and non-BCTs, the two types of terms are linked by paradigmatic relations. They also belong to the same contrast set, since several non-BCTs occurred side-by-side with BCTs in the color naming tasks. In addition, as discussed in §5.3.2, both types of color verbs share most of their formal characteristics and can occur together within the same complex predicate constructions. Finally, striking phonological and semantic resemblance between a few ‘BCT + non-BCT’ pairs, i.e. *paliek-palak*, *harɔt-harjɪt*, further reinforces the idea of being part of a single underlying field (see §5.4).

In light of these arguments, it is instructive to examine the structure of the field as observable from the lexical relations. As pointed out above, BCTs were consistently employed in the paraphrases of the semantically specific terms. It is thus tempting to say the two are in a hyponymic relation, but it is not entirely clear whether we may really speak of hyponymy in this case. Relationships between property concepts are in general difficult to capture with hyponymy (cf. Miller & Fellbaum 1991; Murphy 2003), and color term hyponymy itself has not been explored in great detail, even in English. As Levinson (2000:49) points out: “if crimson is a “deep red inclining towards purple” (Oxford English Dictionary), is it really a kind of red (and not, e.g., the intersection between primary red and

derived purple)? Turquoise is said to be a kind of blue (Oxford English Dictionary), but the prototype stone varies from apple green to sky blue”. Similar arguments can be made for Maniq. *Bayel* is a light green, but there are instances where it denotes light green intermixed with red – would calling it a hyponym of ‘grue’ be an accurate description then? Or, if *hlawāk* refers to a distributed white pattern, does the pattern component make it a kind of ‘white’ or does it introduce an entirely new dimension, orthogonal to the color itself? More work addressing lexical relations explicitly needs to be undertaken to tackle this issue.

One of the peculiar characteristics of the semantic field of color is that it is not structured by antonymy (cf. Cruse 1986; Miller & Fellbaum 1991; Levinson 2000) – the basic relation type for words with adjectival meanings, e.g. *long-short*, *old-new*, *good-bad*, *hard-soft*, *slow-fast*, *far-near*, etc. Except for *black* and *white*, color terms do not form antonymic pairs, unless a special context is set up, e.g. *red* in relation to wine contrasts with *white* (Murphy 2003:28). Also among Maniq color verbs, antonymy does not have a strong presence. Other than *hayot* ‘black’ and *paliek* ‘white’, an antonymous pair is formed by the verbs *talān* ‘to be red/brown (of ripe fruit or mature leaves)’ and *bayel* ‘to be light green (sometimes intermixed with red; of young leaves)’ (see example (126)). The oppositeness of these two items is facilitated by their semantic specificity – because they presuppose a specific context, they are intrinsically contrastive, without the need to set up a context. Other color verbs are used contrastively too, e.g. *bakay* and *hayet* in example (125), but the contrast typically relies on setting up the right context.

In sum, the present data suggests inclusion (hyponymy) and opposition (antonymy) are not the dominant relations in the Maniq color lexicon. Instead, a more common relation is one that is not part of the standard set of lexical relations, namely similarity. Being a fairly general and unregimented type of relation, similarity is well-suited for capturing the interconnections within the field. A special formal device for expressing similarity in Maniq is represented by *verbal templates* (cf. §3.11.4). The following section discusses it in detail, focusing on its special significance for the color domain.

#### 5.4 Verbal templates and diagrammatic iconicity

Verbal templates are abstract structures that connect pairs or 3-item sets of words, minimally different from each other in both meaning and form (cf. Tufvesson 2011; Dingemanse 2011:172) (§3.11.4). They are instances of *diagrammatic iconicity*, whereby similarity between forms is mapped onto similarity between meanings (Peirce 1955). Templates are common in the Maniq verbal lexicon, and especially prominent among color and visual surface descriptors. For instance, *haʔuŋ*, denoting yellow (as of mud), is similar in form to *haʔɔŋ*, denoting brown or gray (as of mature stems and tubers of wild yams). The formal similarity between the verbs is an indication of an underlying semantic similarity – their senses bear resemblance to one another. The abstract common core of words like *haʔuŋ* and *haʔɔŋ* is the *template*, represented as the shared phonological structure *haʔVŋ*, with an underspecified final-syllable vowel *V*. The semantics represented by the template is the commonality of meaning of the member verbs. This common core is never overt and might therefore be difficult to extract and put into words. Vowel alternations are template-specific. Many vowel pairs exhibit maximal or near-maximal contrasts in height and/or backness (e.g. *ĩ-õ*), and occasionally there is an oral-nasal contrast (*u-ũ*). However, no consistent phonologically definable patterns can be found across templates. Similarly, the meaning associated with particular vowels is unpredictable, e.g. it is not the case that, for instance, *i* always marks a brighter color, etc. Thus, verbs within templates seem more like lexicalized entries with sound-meaning correspondences. Table 5.5 lists all templates attested in color and visual surface terminology. Glosses are intentionally kept brief. For more detailed semantic descriptions of individual verbs, see §5.3.

Template	Set members	Glosses
<i>palVk</i>	<i>paliek</i>	‘to be white (general)’
	<i>palak</i>	‘to be white (mainly of animal fur, e.g. muntjac)’
<i>bayVϕ</i>	<i>bayīϕ</i>	‘to be white-gray (of clouds, smoke, hair)’
	<i>bayōϕ</i>	‘to be white-gray (of clouds, smoke, hair)’
	<i>bayεϕ</i>	‘to be yellow/blonde (of baby stump-tailed macaque)’
<i>bayVl</i>	<i>bayul</i>	‘to be mottled gray (mainly of ashes)’
	<i>bayel</i>	‘to be light green and slightly red (of young leaves)’
<i>halVk</i>	<i>haliek</i>	‘to be white (mainly of baskets)’
	<i>halāk</i>	‘to be white (mainly of baskets)’
<i>haʔVŋ</i>	<i>haʔuŋ</i>	‘to be yellow (e.g. of mud)’
	<i>haʔōŋ</i>	‘to be brown/gray (of tubers and wild yam stems)’
<i>haŋVt</i>	<i>haŋot</i>	‘to be black (general)’
	<i>haŋit</i>	‘to be black (of water)’

**Table 5.5** Verbal templates in the color domain.

Note that all templates are formed based on the same principle – the only alternating element is the final-syllable vowel. The conceptual basis of relations between the pair or set members of templates is similarity. If items A and B are connected by template X, then A and B are similar. The basis for similarity between member verbs is usually hue (e.g. black for *haŋVt*), but sometimes additional factors can play a role (e.g. mottling as in *bayVl* or object type – e.g. hair in *bayVϕ*). The varying vocalic nuclei mark a specific color quality, sometimes restricted to one particular kind of object, e.g. young leaves, in the case of *bayel*.

Items in templatic sets can be described as semantically overlapping. Semantic overlap is also characteristic of a number of standard lexical relations, e.g. synonymy, co-hyponymy and co-taxonomy. These relations, however, are more specific as, aside from overlapping semantically, they presuppose a particular degree of implicit contrastiveness. Synonyms (e.g. *truthful* vs. *honest*) are typically not contrastive, while co-taxonyms (e.g. *Alsatian* vs. *spaniel*) are contrastive (Cruse 1986:266–267) (as other co-hyponyms are). The Maniq templatic sets are not uniform in this respect, i.e. they may or may not be implicitly contrastive. For instance, the pairs *haliek/halāk* and *bayīϕ/bayōϕ* are overlapping and non-contrastive, which suggests they are synonyms or near-synonyms. On the other

hand, the pairs *haʔuŋ/haʔõŋ* and *bayul/bayel* resemble co-hyponyms because they are semantically overlapping and contrastive. What remains the unifying characteristic across all templatic sets, however, is the general relation of similarity.

Use of vowel alternations to distinguish related meanings is a common Aslian motif, attested with two word classes – verbs and expressives (cf. e.g. Diffloth 1976b; Kruspe 2004b; Tufvesson 2011; Kruspe, Burenhult & Wnuk 2015). *Expressive templates* – described most extensively for Semai – rely on the same mechanism as Maniq verbal templates, i.e. a slight meaning difference triggered by a vowel alternation in the final syllable. Just like in Maniq, they are pervasive in color, and are also found in other perceptual domains, e.g. smell. Tufvesson (2011:89–90) reports the existence of 8 color templates in Semai and provides several examples, including “red” and “grue” sets of 3 items each, as well as a larger 6-item “dark” set spanning black, gray, rust-brown and purple hues. In addition, templates in Semai are used creatively, as individual speakers coin novel words conveying subjective perceptual experiences (cf. Tufvesson 2011). No evidence of similar ad-hoc template usage was found in Maniq.

Aside from templates (which are defined strictly on formal grounds as the common structure in sets of two or three verbs differing only in the final-syllable vowel), further surface relations seem to hold between Maniq color verbs. Namely, a number of the terms share other sounds occurring in the same position, e.g. *ba-* in *bayõf*, *bayĩf*, *bayɛf*, *bayul*, *bayek*, *bagĩɛc*, and *batẽŋ*; or *ha-* in *haliek*, *halāk*, *haʔuŋ*, and *haʔõŋ*. These could represent fossilized prefixes or be instances of phonesthemes (i.e. recurring sound-meaning pairings of submorphemic character). Although not synchronically productive, it is likely the form-meaning correspondences in these units are still psychologically real for Maniq speakers. This issue could be addressed in further investigations by applying psycholinguistic methods such as priming experiments (e.g. Bergen 2004), or comprehension/production tasks involving neologisms (e.g. Magnus 2000).

Summarizing briefly, verbal templates mark a special kind of relation among the color/visual surface descriptors, which constitutes a prominent set of interconnections in this field. Its semantics is best characterized in general terms

as similarity, and unlike the other relations discussed here, it is accompanied by similarity in form.

### 5.5 Tracing the causes of Maniq's distinctiveness

As elucidated in the last sections, color is richly lexicalized in Maniq, with six basic color verbs fully partitioning the color spectrum and almost thirty additional terms encoding semantically specific distinctions. These findings largely differ from those reported for other societies without applied color technology, which typically do not have many lexicalized color distinctions (Naroll 1970:1278), or do not partition the color space exhaustively (e.g. Levinson 2000). What is more, the basic color lexicon is used with remarkable cross-speaker consistency, similar to the consistency found in English, and in stark contrast to Jahai, which shows low consistency (cf. Majid & Burenhult 2014).

There appears to be something special about Maniq that makes it stand out from languages of similar societies, and differ even from its close relative. Evidence from the lexicon suggests color is salient in Maniq, but it is not clear whether the linguistic codability is associated with special cultural salience of color in Maniq society. The next section explores color in Maniq in relation to culture and everyday discourse. The aim of this discussion is to provide more background to the place of color in the life of the Maniq and attempt to identify the basis of Maniq's distinctiveness.

#### 5.5.1 Color in Maniq everyday life

The Maniq do not use elaborate color technology. Common artifacts like baskets, quivers, blowpipes, etc. are not painted or decorated with color. Colors of the raw materials become transformed in the production process, e.g. bamboo impregnated with beeswax becomes *lɲaŋ* 'to be orange/brown', or they change naturally as artifacts age, but there is no deliberate color application. Similarly, there is little traditional bodily adornment involving color. Traditional personal ornaments are made of simple objects such as vines, seeds, bones, turtle shells, etc. with no applied coloring. This may have been different historically since early ethnographic reports on various Semang groups (e.g. in the Malaysian states of

Perak and Kedah) describe face and body painting practices involving at least black, red, yellow and white (Skeat & Blagden 1906; Evans 1937). Less is known about the Maniq specifically, but the scarce reports mention face painting with charcoal for ritual dance (Bernatzik 1938), wearing of flowers as ornaments and dyeing of bamboo combs, however no details are provided about possible colors of dyes (King Chulalongkorn 1907). Applying charcoal and ashes on the forehead is still practiced, but its main purpose seems to be medicinal rather than decorative. The other practices do not seem to be commonly followed anymore. For instance, no use of combs has been observed among the Maniq, and this seems to have been the case at least since the 60s (Brandt 1961).

Although use of color technology is limited, the Maniq are attentive to color and frequently include information about color in folk definitions of various plants and animals. They also volunteer color information when providing descriptions of images. For numerous objects in the Maniq environment differences in color are salient. These include various plants and animals, most notably some culturally important taxa such as wild yams or gibbons, mentioned in §5.2.4. Tubers of wild yams, for instance, vary from white, yellow, purple to red (Maneenoon 2008:129). Two main species of gibbons found in the area – the agile gibbon (*Hylobates agilis*) and the lar gibbon (*Hylobates lar*) – can have black, dark brown, reddish, buff, and blonde fur coloring (Francis 2008). These differences are noted by the Maniq and explicitly connected with other specific properties, e.g. habitat, cf. (127).

- (127) hay    tawɔh    kayɔm    haɲɛp,    tawɔh    kahip    ?a?    panuk  
           like    gibbon    down    be.dark    gibbon    forest    CONTR    be.white  
           ‘Like the gibbons living down are dark, and the gibbons in the forest are  
           white.’

Apart from serving a simple descriptive function, color terms are used to metonymically represent objects or actions. For example, in (128) below, the speaker describes the edible and non-edible parts of a tuber as the ‘white’ and ‘black’.

- (128) ?ɪp kəs pək haŋət, ?ɪp hāw paliek  
 1s cut remove black 1s eat white  
 ‘I cut off the black (part). I eat the white (part).’

Some color metonymies are conventionalized expressions with specific meanings. For instance, the basic term for red, *bagīēc* is conventionally employed in an extended sense as a noun referring to raw meat and blood. Another example is the causativized ‘yellow’ term *h<i>yet* ‘to rub in medicine, lit. to make yellow’ (be.yellow<CAUS>), referring to the activity of rubbing in medicinal substances (e.g. ashes, charcoal, metal dust) on various body parts. In this case, the color meaning became bleached and the verb is now used to describe all instances of rubbing in medicine regardless of whether or not it is yellow.

Also spontaneous uses of color terms reveal a conceptualization of more complex actions or entities via color. For instance, when talking about writing (something the Maniq themselves do not do, and do not have a word for), a Maniq speaker used the term *h<l>aŋət* ‘to be black (here and there)’ (be.black<MULT>) to describe handwritten text. In another situation, a speaker participating in a director-matcher task used a color term *lalēŋ* ‘to be white (of eyes)’ to direct the matcher to the right stimulus, cf. (129). The stimuli were images of various looking scenes with the same actor (cf. Appendix 2). They differed on parameters such as body posture and gaze direction, and consequently, the appearance of the actors eyes.

- (129) ?ɔ? c<m>i<k>yēk met lalēŋ ?ahaw  
 RECOG look.sideways<PROG><IMFV> eyes be.white be.big  
 ‘The one that is looking sideways with big white eyes’.

Examples like this suggest color is a salient element of objects and scenes, and spontaneous use of color terms is a strategy for coordinating reference.

Colors are also significant for the Maniq because of their powerful symbolism. Red is particularly meaningful since it evokes the idea of blood, a potent symbol of life and death.<sup>57</sup> The special significance of red in the context of blood is

---

<sup>57</sup> In 1907, King Chulalongkorn reported red was a highly prized color among the Maniq. It is unclear, though, what exactly generated this observation (Porath 2001:121–122). Maniq today deny this.

widespread among Aslian groups (e.g. Dentan 1979:20; Endicott 1979:159). For instance, blood let from calves is subject to offerings in blood-throwing ceremonies that are meant to appease the thunder god *Ka?ey* (cf. Needham 1967). The association to blood is also linked to the sun via its color while it is *ha<t>yet* ‘being yellow/orange’ (be.yellow/orange<IMPF>). In this state, the sun is dangerous since it is associated with the spreading of disease, transported down with heat and a malicious smell *hamis*<sup>58</sup> (cf. §6.4.1). It is also linked to heat, yet another sensorial element signifying a health hazard (cf. §2.9). Color is thus interwoven with other percepts and constitutes an important component of notions central to Maniq ideology.

Summarizing, color is a salient perceptual property the Maniq are aware of and frequently refer to. It is used to distinguish between otherwise similar objects and to help coordinate reference. The prominence of color in everyday discourse thus matches the linguistic codability of color described earlier. However, there is no evidence for elaborate color technology among the Maniq, and certainly nothing to suggest the Maniq have a more advanced color technology than the Jahai or other Aslian groups. The period of isolation from the rest of Aslian has not resulted in Maniq being more technologically advanced. On the other hand, an alternative explanation that color vocabulary is somehow more communicatively useful for the Maniq than the Jahai, is also unlikely to be true since both groups lead a similar lifestyle in a similar ecology. If the differences in the codability of color between the two groups are not random then, they could be an outcome of different contact situations.

### 5.5.2 Maniq’s contact situation and the color lexicon

Maniq is an outlier among the Aslian languages. As described in Chapter 3, of the approximately 20 Aslian varieties, it is the one spoken furthest to the north, in an isolated enclave away from the Thai-Malay border area, where its nearest relatives can be found (cf. Figure 3.1). It had previously been in contact with other Aslian

---

Despite that, the idea has become entrenched in the popular perception of the Maniq in Thailand, and had influenced the representation of the Maniq in media, books, etc.

<sup>58</sup> Another smell term – *palej* – is also connected to both blood and sun (cf. also Endicott 1979).

varieties and Malay, but at least since the early 1900s, it is in regular contact only with Thai (mostly Southern Thai) (Peterson 2012; Wnuk & Burenhult 2014). Other Aslian languages are commonly in contact with each other and also with Malay. Compared to other closely-related Northern Aslian varieties, Maniq exhibits a higher rate of change in its basic lexicon (Dunn et al. 2011) (cf. §3.5). Despite its lexical divergence, however, Maniq is typically Aslian in its lexicalization patterns, which involve highly semantically specific meanings encoded in monolexemic forms (Kruspe, Burenhult & Wnuk 2015:466).

At first sight, the Maniq basic color lexicon is also typically Aslian. Several Maniq BCTs have cognates in other Aslian varieties, e.g. the ‘grue’ and ‘red’ terms *bələŋ* and *baŋiēc* are cognate with the Batek *bəlʔəŋ* and *blakāc* (Burenhult 2009). What makes it “un-Aslian”, paradoxically, is that it does not show traces of foreign influence. All other Aslian languages for which basic word lists are available have borrowed color terms from Malay (Dentan 2003; Kruspe 2004b; Kruspe 2009; Burenhult 2009; Kruspe 2010). It is particularly noteworthy that this is true also of Maniq’s closest relatives, the languages of the Semang hunter-gatherer sphere – Jahai, Kensiw, Kentaq, Batek and Menriq – which have all borrowed at least the Malay ‘yellow’ term *kuning*. Jahai has borrowed at least 7 Malay terms (Majid & Burenhult 2014), including those considered to be early in the evolutionary sequence such as ‘white’ and ‘red’ as well as later-stage terms like ‘blue’ and ‘gray’ (cf. Berlin & Kay 1969).

Aslian disposition to borrow color terms appears to diverge from the larger cross-linguistic trend, as generally speaking color terms, at least the more basic ones, do not seem to be particularly amenable to borrowing. According to the World Loanword Database (WOLD) (Haspelmath & Tadmor 2009) – a survey based on lexical data from 41 languages – early-stage color terms are borrowed relatively rarely. The average borrowability score for words from 24 different domains is 0.34 (SD=0.13) and the domain of ‘sense perception’ averages at 0.19. Color terms score mostly below the domain’s average (‘black’ – 0.05, ‘red’ – 0.07, ‘yellow’ – 0.15, ‘white’ – 0.16, ‘green’ – 0.17), except for ‘blue’ which has a score of 0.24. This suggests that at least the most basic color terms are not easily borrowed, most likely because they already exist in the indigenous lexicon (cf.

Tadmor 2009:65). The picture might look different for later-stage terms not explored in the survey like ‘orange’, ‘pink’, etc., as these are less common across languages (Kay et al. 2009). The word for ‘color’ itself, for instance, is borrowed frequently (its score is 0.60), presumably because in many languages it is not a lexicalized concept.

Despite being unusual from a cross-linguistic perspective, loans of early-stage color terms are not extraordinary in the Aslian context. Generally speaking, loans of words with presumed basic meanings, which form part of the basic 146-item Swadesh list (cf. Benjamin 1976b) – are well-attested in Aslian, e.g. *?ikan* ‘fish’ (in e.g. Menriq, Batek, Maniq), *?adi?* ‘younger sibling’ (in e.g. Ceq Wong, Semelai, Mah Meri), *darah* ‘blood’ (in e.g. Jahai, Semnam, Lanoh) (all from Malay) (§3.6). Maniq is no different in this respect as its basic lexicon includes a number of Malay loans, including some pan-Aslian borrowings, e.g. *batu?* ‘rock’, *pasi* ‘sand’, *tasik* ‘lake/sea’, *?uyan* ‘rain’, *nasi?* ‘rice’, *kuko?* ‘nail/claw’ (cf. Burenhult 2009; Kruspe 2010) (§3.6). The fact that color terms such as *kuning* ‘yellow’ are missing from Maniq while being present in Jahai and elsewhere in Aslian suggests these terms entered Aslian after Maniq became isolated.

If this is truly the case, one may still ask: Why did Maniq not follow a parallel trajectory and borrow color terms from Thai? Several explanations appear possible. Firstly, the Maniq may not have experienced a strong ‘cultural pressure’<sup>59</sup> to acquire Thai color vocabulary. Like the Jahai and other Semang, the Maniq have been in contact with outsiders throughout much of their history (Benjamin 1985), but the most recent contact has been qualitatively different. In the last few decades, for instance, many Jahai have settled in regroupment villages and a growing number has been receiving education in Malay schools (cf. Burenhult 2005: 1, 7). No similar large-scale regroupment program has affected Maniq

---

<sup>59</sup> I use the term ‘cultural pressure’ following Thomason & Kaufman (1988:72, 77) to refer to “any combination of social factors that promotes borrowing”, e.g. level of bilingualism; sociopolitical dominance of the source-language speakers or intimate contact in various social settings.

speakers<sup>60</sup>, and it seems generally the Thai government has interfered less with the life of the people (see §2.6). The majority of the Maniq are still nomadic<sup>61</sup>, and it is relatively uncommon for children to attend Thai schools (cf. Bishop & Peterson 2003). These differences may have amounted to little pressure to borrow color terms in the case of Maniq.

One other possibility when considering contact-induced language change (or, in this case, non-change) is that it might be a result of deliberate actions by speakers (cf. Thomason 2007). In this instance, however, there is little evidence to suggest deliberate non-borrowing. The Maniq do not seem to be reluctant towards Thai loans and the general attitudes towards the Thai language are rather positive (Bishop & Peterson 2003). In addition, no puristic tendencies such as condemning the use of loanwords have been observed (note that speakers themselves are normally aware which items are Thai loans). However, unlike Malay loans, Thai loans include fewer items with presumed basic meanings, and mostly consist of: names for new items (e.g. *kahwɛ* ‘coffee’, *cɔk* ‘mirror’), new function words (e.g. *tʰaw* ‘of a size’, *pɨn* ‘to be/to have’), and previously unnamed concepts (e.g. *tanhān* ‘to work’, *sɨ* ‘to buy’), including the word for ‘color’ *si*. This indicates the cultural pressure from Thai is not strong enough to lead to replacement of indigenous vocabulary. Taken together with the fact that Maniq indigenous color lexicon is rich, this could help explain the lack of Thai color loans.

Another possible factor that may have contributed to the non-borrowing of color terms from Thai is of a structural nature. Namely, Thai terms may simply not fit with the Maniq system. Although syntactically compatible, they are phonologically odd from the point of view of the Maniq stative verb lexicon. Most Thai color terms are monosyllabic (*dam* ‘to be black’, *khǎao* ‘to be white’, *deng* ‘to be red’, *sôm* ‘to be orange’, *khĕo* ‘to be green’, *fáa* ‘to be blue’, *lŭeang* ‘to be yellow’, *mŭang* ‘to be purple’), which is a structure almost unattested with stative verbs in Maniq (cf. §3.11.2.1). This might constrain borrowability (i.e. these items

---

<sup>60</sup> Note that I refer solely to the *speakers* of Maniq, i.e. the Maniq of the Banthad mountain range, and not speakers of Kensiw or Kentaq who share the ethnonym with them. The Kensiw speakers of the Yala province have in fact lived in a government resettlement village (Phaiboon 1984).

<sup>61</sup> One hundred and twenty-six of 239 Maniq surveyed in 2009 led a nomadic lifestyle (cf. §2.5).

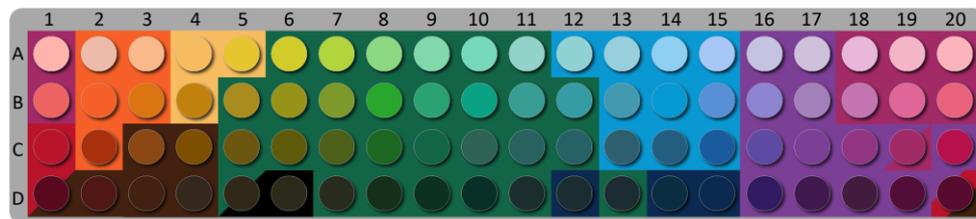
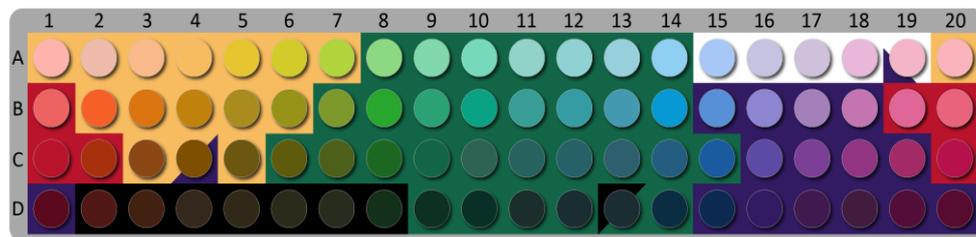
might not get borrowed because they do not match the canonical stative verb structure), as suggested by the fact that among the 142 Thai loans in the current Maniq lexicon, there are only 5 monosyllabic stative verbs. There is no evidence for a similar mismatch between Jahai and Malay.

Maniq has not borrowed color terms from Thai, but does this mean the Maniq color system has not been influenced by contact with Thai speakers? Smaller languages in contact with large dominant languages sometimes borrow color categories, i.e. the semantic extensions of color terms, without borrowing color terms themselves (Borchardt 2014). If this was true for Maniq, we would expect to find similarities between the structures of Maniq and Thai basic color systems. At present, it is difficult to directly evaluate this possibility as there is no available data specifically from the relevant rural varieties of Southern Thai. Central Thai (as reflected in the data from three speakers<sup>62</sup>) makes more fine-grained distinctions than Maniq, dividing the chromatic part of the color space into 10 categories: pink (*chomphuu*), red (*dɛɛŋ*), brown (*nám taan*), orange (*sôm*), yellow (*l̥yɑŋ*), green (*khǎaw*), black (*dam*), light blue (*fáa*), dark blue (*nám ɲən*), purple (*múɑŋ*).<sup>63</sup> Figure 5.8 below shows the Thai and Maniq color mode maps. Aside from the differences in the number of color categories, their extensions and focal examples also differ, indicating lack of Thai influence on Maniq color lexicon.

---

<sup>62</sup> The data were collected in the Netherlands. All speakers were tested in Central Thai. Two of the speakers were in the Netherlands only temporarily as foreign students and spoke only Central Thai, while one has been resident in the Netherlands for over 10 years and, except for standard Thai, was additionally a speaker of the Isan variety of Thai.

<sup>63</sup> Two additional color categories from the achromatic part of the spectrum – white (*khǎao*) and gray (*thao*) – are not included in the mode map.

**Thai****Maniq**

**Figure 5.8** Color mode maps for Thai (top) and Maniq (bottom) based on the FM task. Background colors of the chips represent the focal examples of the dominant terms.

It would be more appropriate, however, to compare Maniq to the rural Southern Thai of Satun (where the Maniq data was collected), as this variety is likely to differ from the standard. Data in Diller (1979) suggest, for instance, speakers of the rural Southern Thai in Songhkla (directly neighboring Satun) collapse the three-way distinction ‘light blue’/ ‘dark blue’/ ‘green’ from Central Thai under a single ‘grue’ term *khīaw*<sup>64</sup> (meaning ‘green’ in the current Central Thai). Thus, the final evaluation of the possible influence of Thai must await a collection of data from the rural varieties.

To summarize, as of yet no evidence of foreign influence on the Maniq color system has been found. Maniq has not borrowed color terms from Malay, thus deviating from the common Aslian pattern. It also appears not to have adopted

---

<sup>64</sup> For simplicity, I render all tones of words cited here according to the Central Thai standard. The tones in fact differ across Central and Southern Thai, and sometimes even across the educated and the rural variety of Southern Thai (cf. Diller 1979).

any of the Thai color terms, suggesting its most recent contact situation was qualitatively different from the rest of Aslian.

### 5.6 Final discussion

Color in Maniq is remarkably codable, both in terms of linguistic as well as efficient codability. Maniq is a partitioning language, with six basic color verbs. This is in spite of the fact that Maniq speakers have not developed advanced color technology, and counter to what seems to be the prevailing trend among groups of similar technological complexity, which typically have fewer BCTs (Naroll 1970). This chapter demonstrated further color is well lexicalized beyond basic vocabulary. Almost thirty additional non-basic color verbs are found in Maniq. These verbs are semantically specific and encode rich information about color and visual surface. They are fully conventionalized abstract descriptors known to all speakers and employed on an everyday basis. As monolexemic terms, they constitute a compact and efficient way of capturing fine color nuances of cultural relevance. Furthermore, semantically specific verbs are formally similar to BCTs and are related to them paradigmatically. The semantically specific terms for the most part did not get systematically elicited in the naming tasks, but were discovered in contexts they are typically applied to, i.e. when discussing specific plants, animals and aspects of the environment. This underscores the importance of going beyond the standard methodology of color patch naming tasks when trying to obtain a comprehensive overview of the domain. Even increasing the number of stimuli – as was done by switching from an 80-chip to a 330-chip color elicitation kit – did not result in a more fine-grained vocabulary since the use of semantically specific terminology crucially relies on specific contexts and not just finer sampling of the Munsell space.

The naming tasks also revealed Maniq speakers name colors with ease and show high agreement in the use of color terms. Responses given in the tasks were prompt and brief, with only occasional modification. This suggests the domain is efficiently codable in Maniq. The high agreement is consistent with the fact that color is salient in everyday discourse of the Maniq (as opposed to some other non-industrialized societies like the Bellonese who openly admit “We don’t talk much

about colour here”; Kuschel & Monberg 1974:213). Furthermore, color in Maniq is entirely lexically indigenous. No evidence of color term borrowing was found in Maniq, whereas in many other Aslian languages color term borrowing is extensive (e.g. Majid & Burenhult 2014). Maniq’s departure from the general Aslian pattern is likely due to its unique contact situation in most recent history. Importantly, the lack of color loans in Maniq may have contributed to the higher cross-speaker agreement since no externally-induced reorganizations of the color system have taken place. It has been shown that recently borrowed color categories may display fuzzy boundaries in the initial period as they undergo a process of stabilization and conventionalization (Borchardt 2014:39–40). This could help explain the situation in Jahai, where the cross-speaker agreement is relatively low and color categories appear to lack clear-cut boundaries (Majid & Burenhult 2014).

Another contribution of this chapter was the description of verbal templates – a dedicated tool for expressing semantic similarity between verbs in Maniq. Templates among Maniq color verbs are not only common, but they also cross-cut the general/specific distinction by connecting some BCTs and non-BCTs. This is noteworthy in light of the fact that color is generally considered an unusual field, lacking the typical antonymy-based structure of property concept predicates. Given that antonyms are scant among Maniq color terms and evidence for hyponyms is inconclusive, similarity emerges as the basic relation structuring color. This fact is even more meaningful when we consider that of all lexical fields in Maniq employing templates, color appears to use them most extensively. This suggests there is a particularly good fit between the relation of similarity and the structure of the color domain.

## 5.7 Conclusions

The exquisite elaboration of the color lexicon in Maniq makes a case against the claim that color is poorly linguistically codable among non-industrialized societies with no applied color technology (Berlin & Kay 1969; Ember 1978; Levinson 2000; Levinson & Majid 2014). Color talk does not rely on ad-hoc circumlocutions, but draws on a semantically varied repertoire of well-established resources. In

addition, the consensual usage – at least with respect to the basic color lexicon – suggests further color is also efficiently codable.

The previous literature contains numerous reports suggesting there is a trade-off between general and specific terms. For instance, in the languages of some non-industrialized societies, rich terminology for specific colors and visual surface features has been associated with a limited basic lexicon. Thus, for example in Bellonese “The presence of few basic colour terms seems to point towards a lesser cultural focus upon colour as an abstract entity. (...) The existence of numerous contextualised terms seems to confirm this” (Kuschel & Monberg 1974:229; see also Wierzbicka 2008). Conversely, in many other cultures, there is a trend of growing reliance on basic terms and a de-emphasis of specialized terminology:

colour-space has never been more than partially, and crudely mapped by colour-language. There has been a far more remarkable tendency towards the ‘basic’ than towards the development of more and more subtle discriminations. (...) Even though many people are capable of discriminating a very wide range of nuances, and of communicating many of these discriminations, it remains that for most purposes a highly reduced and abstract colour-vocabulary is all that seems to be required. (Gage 1993:79)

Maniq represents a third possibility. Namely, both the general and specific terms appear to be well-developed and are in active everyday use. Their formal uniformity and semantic relatedness show further they belong together. Despite not having developed advanced color technology of their own, the Maniq are well-equipped with color expressions, and can talk about color with precision.

## 6 Smell<sup>65</sup>

---

### 6.1 Introduction

For centuries, scholars and scientists have underestimated the sense of smell in humans. Olfaction is often singled out as the least useful perceptual sense, whose role in life is negligible. “Of all the senses it is the one which appears to contribute least to the cognitions of the human mind” (Condillac 1794/1930:xxxi). Darwin deemed it to be “of extremely slight service” (1874:17), while to Kant it appeared as “the most dispensable” (1798/2006: 50) of the senses. It has also been claimed that olfaction is of “little special value across cultures” (Gardner 1993:61) and that man “has left the world of smells” (Burton 1976:109). Cognitive- and neuro-scientists have expressed the belief that smell is insignificant for humans and that it is “extremely rudimentary” (Grinker 1934:313), vestigial (Pinker 1997), or as Stanley-Jones phrased it, the human rhinencephalon is “untenanted” (Stanley-Jones 1957:594).

Hand in hand with these ideas came the popularization of the belief that olfactory language is impoverished. Dan Sperber, a proponent of the cognitive approach to communication known as Relevance Theory, wrote: “In none of the world’s languages does there seem to be a classification of smells comparable, for example, to colour classification.... There is no semantic field of smells” (1974/1975:115-116). According to Henning, “olfactory abstraction is impossible” (1916:66), while Kant remarks on a margin of his manuscript: “Smell does not allow itself to be described, but only compared through similarity with another sense” (1798/2006:51). Similarly, Lawless and Cain have argued that “Odor quality names (e.g., woody, fruity) are almost always derived from the object from which the odor emanates, and accordingly are not quality names per se” (Lawless & Cain 1975:336). Similar views are found today:

---

<sup>65</sup> This chapter is a slightly revised version of: Wnuk, Ewelina & Asifa Majid. 2014. Revisiting the limits of language: The odor lexicon of Maniq. *Cognition* 131(1). 125–138. doi:10.1016/j.cognition.2013.12.008.

the vocabulary of olfaction almost invariably ties the odor to its physical source, e.g., orange or coffee or cheese odors. This is distinctly different than, for example, the vocabulary for color, in which blue, yellow, and red can be distinct percepts themselves, separate from whatever object produces those reflected wavelengths. (Wilson & Stevenson 2006:7)

Expert smell vocabularies in Western languages largely reflect that. The flavor and fragrance industry overwhelmingly relies on source-descriptors (e.g. Drake & Civille 2003; Martínez-Mayorga et al. 2011; Zarzo 2008). Lehrer (1983; 2009) presents long lists of source-descriptors produced by wine experts, augmented by metaphorical descriptors, utilizing source-domains as diverse as architecture, artifact production, botany, and music (see also Caballero 2007). One of the leading contemporary wine critics Robert Parker lists terms such as *angular*, *austere*, *backward*, *brawny*, *decadent*, *dumb*, *hot*, and *unctuous* in his glossary of wine terms (Weil 2007; Storchmann 2011). It is unclear to what extent these descriptions are conventionalized or whether they even carry any communicative utility at all (Weil 2007; Quandt 2007).

Against this backdrop, investigations of language and olfaction have focused heavily on odor identification and odor naming. Unfortunately, these two have not always been adequately distinguished from each other and in many accounts they are treated as equivalent (cf. Jönsson & Olsson 2012). Olfactory researchers have nevertheless concluded that odor representations have poor access to language (e.g. Herz & Engen 1996; Yeshurun & Sobel 2010). If odors are truly inaccessible to language then this has implications for general theories of our underlying cognitive architecture (see Levinson & Majid 2014).

There is abundant evidence that odor naming is difficult (e.g. Cain 1979; Cain et al. 1998; Distel & Hudson 2001; Lawless & Engen 1977), but the preponderance of data is from English and other closely related languages. The possibility that this may not be universally true is rarely entertained. While several linguistic and anthropological works in the last decades have reported the existence of “smell cultures” with languages rich in abstract odor terms (Beer 2007; Burenhult & Majid 2011; Classen, Howes & Synnott 1994; Hombert 1992; Lee 2010; Shepard Jr. 1999; Tufvesson 2011; Van Beek 1992), these descriptions have not yet

reached a wide audience and their full import has not been realized. The psychological literature on olfactory language continues to rely strongly on earlier generalizations, which were made primarily on the basis of WEIRD (Western, Educated, Industrialized, Rich, Democratic) communities (Henrich, Heine & Norenzayan 2010). In this study, we present evidence regarding the cultural and linguistic diversity of olfactory language which has significant bearing on theories of the relationship between olfaction and language. We adopt a multidisciplinary approach, where the perspectives of linguistics, psychology and anthropology are brought together. More broadly, this paper is a further step towards the rapprochement of anthropology and the cognitive sciences that has been recently called for (Beller, Bender & Medin 2012; Bender, Hutchins & Medin 2010; Levinson 2012).

We examine the olfactory language of the Maniq. The Maniq data challenge the view that olfaction is of little value to humans as well as the idea that olfactory lexica are necessarily impoverished and lacking in abstract terms. At the same time, this paper adds to the literature on olfaction of the larger linguistic group of Aslian (belonging to the Austroasiatic family), which is a locus of considerable olfactory elaboration in the cultural and linguistic realm (e.g. Burenhult & Majid 2011; Majid & Burenhult 2014; Tufvesson 2011). This evidence, together with earlier reports of languages with rich smell lexica, opens a new perspective on the language of olfaction.

Studying lexical fields is interesting in its own right, especially in the case of olfaction where specific claims have been made regarding paucity of terminology. In addition, understanding how a semantic field is structured can provide insights into the underlying perceptual system, after all the lexical system must map onto perception in order to enable us to talk about the world. We know from research on other lexical domains that perceptually salient discontinuities are often systematically encoded in languages. For example, Shepard and Cooper (1992) tested normally-sighted participants in two sorting tasks, one involving color chips and another color words. They found that in both cases items were sorted in similar ways so that both color chips and color words were structured according to Newton's color circle. Since the two sortings reflected the same organization, this

suggests that the linguistic system faithfully reflects the perceptual system. Other examples of such parallelism include terms for body parts (Majid 2010; Majid & van Staden 2015), gaits (Malt et al. 2008; Malt et al. 2014), and biological taxa (Berlin 1992). If olfaction is similarly structured, then odor terms should mirror odor perception.

Currently, we have only a limited understanding of odor perception and, despite numerous attempts to uncover the structure of the underlying system, there is no agreement on the issue. Proposals regarding the dimensionality of odor perceptual space range from 1 to 32 dimensions (e.g. Khan et al. 2007; Koutrakov et al. 2011; Madany Mamlouk et al. 2003; Yeshurun & Sobel 2010; Zarzo 2008). In principle, one could analyze verbal descriptors of smells in English and attempt to relate those to odor perception space but there is a fundamental problem: English smell descriptors are overwhelmingly names of sources (cf. Kaeppler & Mueller 2013, who found that 84% of 175 odor descriptors used in odor classification studies were odor source names). Maniq can, therefore, shed new light on the debate regarding the dimensionality of odor space precisely because, unlike English, it has a dedicated smell lexicon.

There are two questions we ask in this paper. How is the smell lexicon structured? And what does that structure tell us about olfactory perception? Assuming olfactory perception is mirrored in language, and odor perception is one-dimensional (cf. Yeshurun & Sobel 2010), then the Maniq odor lexicon ought to be one-dimensional too. But if odor perception has larger dimensionality, as suggested by other studies (e.g. Kaeppler & Mueller 2013), then we ought to find that reflected in the Maniq lexicon as well.

In order to investigate our research questions, in the context of a detailed examination of the olfactory domain as experienced by the Maniq, we draw on the following methods: (1) linguistic elicitation; (2) experimentation; (3) ethnographic observation and interview. We begin by introducing the smell lexicon of the Maniq, and describe the results of an exemplar listing experiment in Study 1. This study explores the meaning of individual Maniq smell terms. Study 2 presents the critical experiment that examines the structure of the olfactory lexicon as a whole. Speakers' similarity judgments of smell terms were collected and analyzed with

multidimensional scaling analysis (MDS) and factor analysis (FA) to uncover the dimensions of the olfactory lexicon. In order to identify the concepts underlying these dimensions, an offline rating task of smell terms was conducted in Study 3. In this experiment, people were asked to make judgments of parameters of relevance to olfaction. Together these studies suggest that the Maniq odor lexicon is richly elaborated and coherently structured. The final section of the paper contextualizes this odor lexicon in terms of the indigenous ideology of the Maniq. We discuss smell-related beliefs, practices, and taboos, all of which are crucial for a more complete understanding of the meaning and usage of smell terms.

## 6.2 Language of olfaction

Talk about smell in Maniq is radically different from that in English. Maniq possesses a rich vocabulary dedicated to describing olfactory sensations. Aside from one exception<sup>66</sup>, these words are not applicable across multiple sensory domains, but are used exclusively with smell. The terms denote an abstract odor quality without making reference to the source of the smell (unlike, for example, *fruity*). They are not restricted to a single object, or kind of object, but apply to a diverse range of things. Table 6.1 in §6.2.1.2 provides a list of 15 Maniq smell terms together with common exemplars.

Odor terminology in Maniq is present in everyday conversation. The smell lexicon is not specialist or known to only a limited group of people. Smell talk is not restricted to particular contexts or registers of speech. It is a mundane activity that all members of the community engage in on a daily basis. Smell is an important reference point in a number of areas of life, such as medicinal practices and rituals (see §6.4). The Maniq constantly monitor odors around them and

---

<sup>66</sup> The exceptions are the stative verbs *bayōḥ* and *kamloh*. *Bayōḥ*, in addition to referring to smell, refers to color. It is used for a specific kind of white, e.g. of fog or old person's hair. It is unclear whether and how the smell and color meanings are related to one another. *Kamloh* – as the only term in this set – does not refer to a particular smell quality, but rather describes the feeling of being short of breath, and in the smell context is linked to overpowering smells causing this sensation. Since the present study was published, two other smell terms were discovered and hence are not included here: *pa?e?* 'to smell (e.g. of soil in caves)' and *ca?ūs* 'to smell (e.g. of stump-tailed macaques)'.

manage smells so that they are surrounded with healthy and safe scents while avoiding those believed to be hazardous.

Maniq smell terms are phenomenon-oriented descriptions, i.e. they take the experienced odor as the grammatical subject. The controlled activity of smelling as well as the uncontrolled experience of perceiving smell, where the experiencer is the grammatical subject, are both expressed by the verb *ʔɔŋ* ‘to smell’. The specific Maniq smell terms do not belong to a single word class. They are encoded in stative verbs (first 10 items in Table 6.1) and noun phrases (the remaining 5 items). Stative verbs are a commonly employed word class across the Maniq lexicon to encode perceptual qualities, e.g. color terms: *haŋɔt* ‘to be black’, taste terms: *kadek* ‘to be bitter’. Their meaning is best rendered in English by a phrase “to be” + the adjective referring to a particular quality, e.g. *lspəs* ‘to be fragrant, as of wild yams, bearcat, new shelter, etc.’, or a possessive construction, e.g. ‘to have a fragrant smell, as of wild yams, bearcat, new shelter, etc.’. Maniq smell terms are not easily rendered into English, so glosses such as ‘fragrant’ must not be interpreted as direct translations.

Smell stative verbs can take verbal affixes, though they usually do not bear morphology (excluding the frozen iterative morpheme *ls-* in *lspəs*). A few verbs, namely *caŋes*, *caŋus* and *caŋə*, are semantically and phonologically similar but they do not show evidence of a productive derivational relationship.

Smell noun phrases are headed by the noun *mi?* ‘smell’. The phrases are lexical chunks. None of the modifiers, with the exception of the stative verb *bayɔ̃ɔ̃*, occur outside the “*mi?* + ...” phrase. For that reason, it is difficult to establish their word class. If they are nouns, it is possible they originated as source-based terms since ad-hoc source-based smell descriptors have the same “*mi?* + ...” structure (e.g. *mi?* *puŋo* ‘smell of rotten trees’; *puŋo* ‘rotten tree’). For example, the word *danɔw* in *mi?* *danɔw* could have originated from the Malay *dangau* ‘field shelter’. If this is true, the phrase shifted from denoting a smell of one particular object to a more general smell descriptor. This would be similar to what happened to the English color term *orange*, which first referred to a fruit and only later was used for color (Casson 1997). However, speakers were not able to provide the meaning of *danɔw* (or any of the other modifiers) on their own, which suggests that there is no transparent

connection to objects in these terms. In addition, some Maniq speakers derive the modifiers *danɔw*, *latiŋ* and *ɲətuʔ* with verbal aspect morphemes, which indicates they might be verbs.

Three items in Table 6.1 are possible loans from standard Malay and its dialects. Aside from (*miʔ*) *danɔw*, the terms are *kameh* ‘to smell (of millipedes, poison, etc.)’ possibly from Borneo Malay *kamah* ‘dirty’, and *hamis* ‘to smell (of yellow-colored sun on hot days)’ from Malay *hamis* ‘rank in odor, especially of the smell of sweat or an old he-goat, bad belanchan or decaying fish manure’.

### 6.2.1 Study 1: Exemplar listing task

In order to explore the range of things Maniq smell terms refer to, an exemplar listing task was conducted with speakers. The goal was to uncover what the best exemplars might be for each smell term, and to identify how many different objects participants could readily identify as smelling X.

#### 6.2.1.1 Method

##### Participants

The participants were 8 Maniq speakers (4 female) aged approximately 20-50 years. All were native speakers of Maniq. Six participants contributed responses to the entire (or almost entire) set of smell terms whereas 2 speakers commented on a limited number of terms while another participant was being interviewed.

##### Stimuli and design

The stimuli were the 15 smell terms in Table 6.1. The list was compiled on the basis of elicitation sessions and observation of spontaneous language use. Items were presented in different random orders.

##### Procedure

Consultants were verbally presented with the smell terms, one by one, and asked the question in Maniq: *Kaləw X?* ‘What is X?’ (what X), or *naʔ hay kaləw X?* ‘What

is X like?’ (FOC like what X), where X was one of the smell terms. Participants were free to list as many exemplars as they wished. The task was carried out in Maniq.

In this first attempt to explore the meaning of smell terms, the task was run in an unconstrained way. Participants were not tested individually and speakers who added responses while another person was being interviewed were not discouraged from doing so. Responses by the same participant given during two or three separate elicitation sessions were also included. In situations where one of the speakers repeated the response heard from another speaker, it was only counted once.

### 6.2.1.2 Results and discussion

Table 6.1 lists the terms together with the elicited exemplar sources. Numbers in brackets next to each exemplar indicate the number of consultants who gave that response independently. Participants listed many individual species of plants and animals. Most plants mentioned by the speakers were identified with the help of Maneenoon 2001 and Maneenoon, Sirirugsa & Sridith 2008. In cases where a plant or animal could not be identified, the Maniq forms are given in square brackets, along with an approximate gloss in English.

Smell term	Number of objects	Exemplars
caŋə	9	wild yams ( <i>Dioscorea</i> spp.) (4), food (1), cooked food (1), cooked meat (1), rice (1), wild pig ( <i>Sus scrofa</i> ) (1), cooked wild pig (1), fresh meat (1), white sun (1)
caŋes	8	animal hair (1), hair of dusky leaf monkey ( <i>Trachypithecus obscurus</i> ) (1), hair of banded leaf monkey ( <i>Presbytis femoralis</i> ) (1), hair of pig-tailed macaque ( <i>Macaca nemestrina</i> ) (1), burnt hair (1), burnt animal hair (1), roasted animal fat (1), sun (1)
caŋus	9	soap (3), washing oneself (2), fruit ( <i>Goniothalamus</i> sp.) (1), leaves (1), <i>Uvaria</i> sp. (1), clothes (1), talcum powder (1), sun (1), medicine to drink (1)
hamis	2	sun (6), air/smoke coming from the sun (2)

Smell term	Number of objects	Exemplars
haʔit	10	dead animal (3), rotting animal (3), animal (1), plantain squirrel ( <i>Callosciurus notatus</i> ) (1), Prevost's squirrel ( <i>Callosciurus prevostii</i> ) (1), [wac caw 'kind of squirrel'] (1), bats (1), flying fox ( <i>Pteropus cf. vampyrus</i> ) (1), wild yam ( <i>Dioscorea daunea</i> ) (1), bamboo tube (1)
kameh	6	[taluj 'kind of millipede A'] (5), [caŋwɔŋ 'kind of millipede B'] (1), [kaʔɔʔ basiŋ 'kind of millipede C'] (1), ipoh poison ( <i>Antiaris toxicaria</i> ) (1), flying fox ( <i>Pteropus cf. vampyrus</i> ) (1), forest (1)
kamloh	3	smoke from fire (3), old shelter (1), bathing (1)
lspəs	14	wild yam ( <i>Dioscorea orbiculata</i> ) (2), bearcat ( <i>Arctictis binturong</i> ) (2), wild yam ( <i>Dioscorea filiformis</i> ) (1), wild yam ( <i>Dioscorea calcicola</i> ) (1), wild yams ( <i>Dioscorea</i> spp.) (1), new shelter (1), clean and dry clothes (1), fruit ( <i>Ficus chartacea</i> ) (1), forest (1), tree (1), animal (1), food (1), medicine to drink (1), white sun (1)
paləŋ	11	blood (3), animal blood (1), blood of wild pig ( <i>Sus scrofa</i> ) (1), blood of pig-tailed macaque ( <i>Macaca nemestrina</i> ) (1), blood of long-tailed macaque ( <i>Macaca fascicularis</i> ) (1), blood of bearcat ( <i>Arctictis binturong</i> ) (1), raw meat (1), [pɔʔ batew 'fern sp.'] (1), [smkam 'plant sp.'] (1), searching for food (1), sun (1)
paʔɔʔ	16	wild yam ( <i>Dioscorea daunea</i> ) (2), mushroom (2), pouring water (1), fetching water (1), mud (1), digging yams in mud (1), cooking muddy yams (1), wet or dirty clothes (1), rotting bamboo tube (1), soil (1), searching for food (1), petai ( <i>Parkia speciosa</i> ) (1), <i>Parkia timoriana</i> (1), sweat (1), urine (1), old shelter (1)
miʔ bayɔʔ	12	old shelter (3), soil (2), shelter (1), mushrooms (1), skin of a dead animal (1), rotten wood (1), bamboo tube for water (1), drinking water from a bamboo tube (1), rotten leaf (1), head of banded leaf monkey ( <i>Presbytis femoralis</i> ) (1), head of pig-tailed macaque ( <i>Macaca nemestrina</i> ) (1), head of stump-tailed macaque ( <i>Macaca arctoides</i> ) (1)
miʔ danɔw	10	mushrooms (3), rotten wood (2), rotten mushrooms (1), old shelter (1), animal bones (1), durian seed (1), snakes (1), forest (1), searching for food (1), soil (1)

Smell term	Number of objects	Exemplars
mi? huhūφ	10	snakes (2), soil (2), searching for yams (1), digging yams (1), mushrooms (1), sweat (1), rotten wood (1), walking in the forest (1), making fire (1), smoke (1)
mi? latiŋ	10	soil (2), burning fire (1), [ <i>tanɔl</i> 'kind of fire wood A'] (1), [ <i>ɲɛʔɲɛʔ</i> 'kind of fire wood B'] (1), [ <i>tɲwaŋ</i> 'kind of flower'] (1), [ <i>kabiʔ likhi</i> 'kind of fruit'] (1), [ <i>bacɛn</i> 'food item (unknown)'] (1), mushrooms (1), tree (1), walking in the forest (1),
mi? ɲətuʔ	7	tree sap (1), leaves (1), garlic (1), soil (1), forest (1), searching for food (1), [ <i>kabiʔ ɲɛʔɲɛʔ</i> 'kind of fruit'] (1)

**Table 6.1** Maniq smell terms with their corresponding exemplars. Numbers in the column indicate the total number of different objects elicited. Numbers in brackets following exemplars indicate the number of consultants who produced that exemplar. Unidentified animal and plant species are given in square brackets.

As in the case of exemplar listing done with color terms, the exemplar listing for smell terms involved abstract concepts. This is cognitively more demanding than listing exemplars of concrete concepts, such as artifacts, etc. (e.g. Ruts et al. 2004). This is compounded by the fact that Maniq speakers are non-literate and are not familiar with this sort of task. In spite of this, only occasionally was a participant not able to provide an exemplar. This happened once each with the terms *miʔ latiŋ*, *miʔ ɲətuʔ*, and *kamloh*. Overall, people were able to easily generate exemplars, and responses involving 2 or 3 exemplars occurred nearly half of the time. It is striking that smell terms span many different types of objects. Some smell terms have clearly identifiable prototypical sources, e.g. *hamis* (sun), *kameh* (millipedes), *paleŋ* (blood). But even in these cases, people listed additional exemplars. Other terms appear to be more diffuse, e.g. *miʔ ɲətuʔ* (tree sap, leaves, garlic, soil, forest), *miʔ bayɔ̄φ* (old shelter, soil, mushrooms, skin of dead animal, etc.). The listed exemplars include edible and non-edible things; plants and animals; single objects, activities as well as locations. This illustrates further the

broad applicability of these smell terms and lends credence to the claim that these are abstract olfactory terms.

Interestingly, the listed exemplars for some of the terms are reminiscent of exemplars of smell terms found in the related language Jahai, spoken in Malaysia (Burenhult & Majid 2011). When Jahai speakers were asked to generate exemplars for the cognate term of *lspəs* (in Jahai *ltpit*) they also listed flowers and bearcat (*Arctictis binturong*) as possible odorants. Similarly for *haʔit* (in Jahai *haʔēt*) both Maniq speakers and Jahai speakers listed feces and rotten meat. *Paleŋ* (in Jahai *plʔeŋ*) both generated blood and raw meat as exemplars. This suggests a common core to smell terms across these languages.

To summarize, Maniq smell terms are associated with a wide array of exemplars. Smell qualities encoded by the terms are independent of their sources and are applied to different classes of objects.

### 6.3 Organization of the smell lexicon

Now that we have a better understanding of the individual smell terms, we are in a better position to return to the research questions we posed in the introduction. How is the smell lexicon structured as a whole? And what does that structure tell us about olfactory perception? We assume that part of the meaning of a lexical item is a function of the relations between that term and other items in the domain (e.g. Lyons 1977; Majid 2015a; Saussure 1967). To get at these meaning relations, we asked participants to perform a similarity judgment task. We separately conducted a rating task in order to further understand the relational structures uncovered. If there is a coherent internal structure to this lexical field then we should be able to model the similarity judgment data produced by the Maniq with a small number of dimensions. The resulting models should have a low stress value while simultaneously accounting for a high percentage of the variance. We test these predictions in the two experiments below.

#### 6.3.1 Study 2: Similarity judgment

We first collected similarity judgments from speakers. Since the Maniq are a non-literate community, we could not conduct a pile-sorting task with words on cards

– the usual method for collecting data of this sort (e.g. Shepard & Cooper 1992). Instead, we used a triadic comparison task, which does not require reading. People were presented with three smell terms at a time and had to indicate which was the odd one out. The results of the task were then converted into a similarity matrix and analyzed statistically.

### 6.3.1.1 Method

#### Participants

Eleven Maniq speakers (5 female) aged approximately 20-45 years participated in this experiment. All were native speakers of Maniq.

#### Stimuli and design

The stimuli for the experiment were the 15 smell terms in Table 6.1. A triadic comparison procedure was followed (Weller & Romney 1988). A complete triad test with 15 items would result in 455 triads, which is too time-consuming and tiring for participants. So we used a balanced incomplete block design ( $\lambda = 1$ ) of 35 triads instead. The letter  $\lambda$  represents “the number of triads in which each pair of items occurs” (Burton & Nerlove 1976:249). We followed the procedures outlined in Burton and Nerlove 1976. Two different triad compositions were created, with each composition presented to half of the participants. Items were presented in a pseudo-random order within and across triads to avoid frequent repetition of terms in close proximity.

#### Procedure

Each participant was tested individually in Maniq. Speakers were presented orally with 3 smell terms at a time and asked the following question: “Which one is not the same/similar?” (the meaning of the Maniq term *hmin*, from Thai *mǎn* ‘same, similar’, has scope over both sameness and similarity). The response was coded on a response sheet and the next triad was presented until all triads were complete.

In order to ensure the task was proceeding as intended, a series of precautions were taken. Before starting the task, the researcher informed the participants that

they would be presented with words relating to smell. The critical question was repeated on the initial triads to make sure the participants remembered what they were being asked to do. As they became accustomed to the task, the question was repeated every few triads.

Three objects (three similar leaves from the same plant) were placed in a row in front of the participant to act as anchors to the words in the triad. The researcher would say each smell term while pointing to one of the leaves. The participant could answer by saying the smell term and/or pointing to the corresponding leaf. To prevent participants from falling into a response set, words were assigned to objects sometimes from right to left and other times from left to right. When presenting a triad, target words were pronounced slowly several times with neutral intonation, until the participants made a decision. Many people responded with the following phrases: “These are together” and “This one is alone” or “These are similar” and “This one is not similar”. On the rare occasions when a participant could not make a choice after being asked the question several times, the researcher proceeded to the next triad and came back to the problematic case at the end. All participants were able to complete the study.

### **6.3.1.2 Results**

We first tested whether individuals agreed with one another in their similarity judgments of smell words by using cultural consensus analysis (Romney, Weller & Batchelder 1986). Next, we analyzed the data using two independent methods, multidimensional scaling analysis (MDS) and factor analysis (FA), in order to establish the dimensionality of the Maniq smell lexicon.

#### **Cultural consensus**

In order to establish whether participants agreed in their similarity judgments of the Maniq smell words, we constructed individual 15x15 similarity matrices for each participant and submitted these to the factor-analytic method described by Romney, Weller & Batchelder 1986. If participants agree in their similarity judgments then individuals should load positively on the first extracted factor. The strength of the agreement can be discerned by the size of the eigenvalues (see

Boster & Johnson 1989). Our solution indicates general consensus for the similarity judgments of smell words. All participants loaded positively on the first factor, and the eigenvalue of the first factor (3.22) was 2.5 times larger than the second (1.33).

We examined loadings of individuals on the second factor for potential sub-group differences between participants, e.g., are people more alike in their similarity judgments based on age, gender, etc. No sub-group patterns emerged. Given the lack of individual differences, we summed all participants in a single aggregate similarity matrix which we then submitted to MDS and FA.

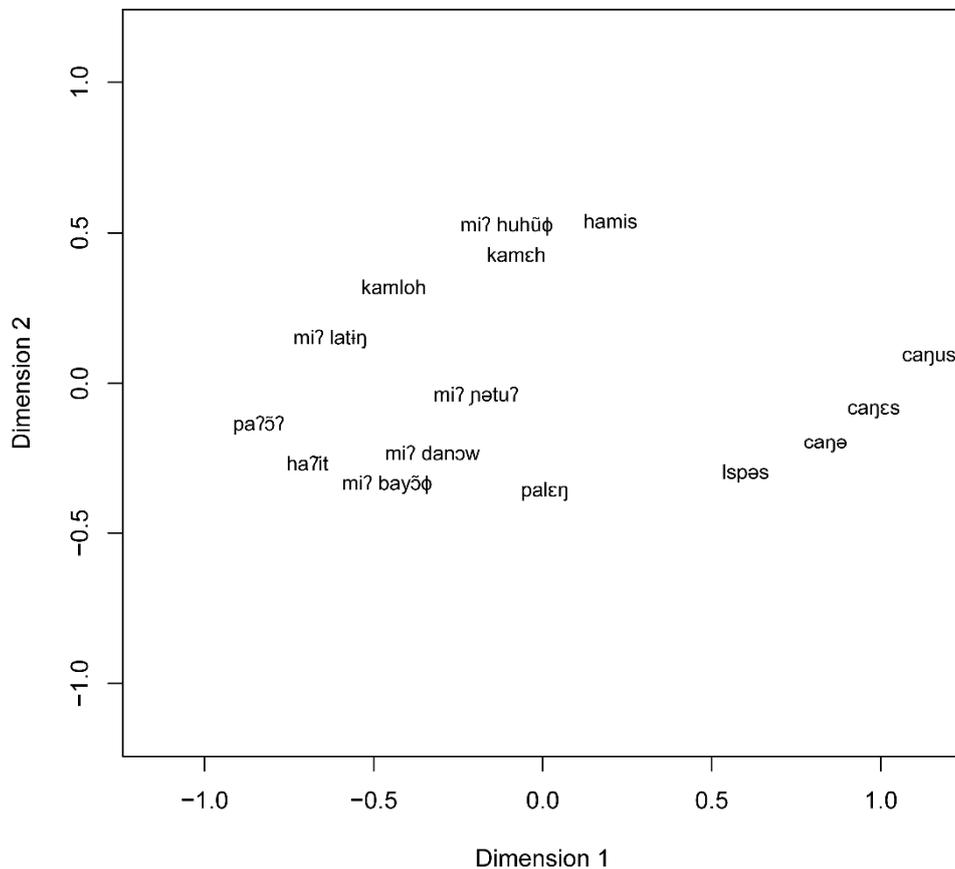
### **Multidimensional scaling analysis**

The aggregate matrix with similarities served as input into the multidimensional scaling procedure carried out with the use of the PROXSCAL algorithm in SPSS. To determine the best-fitting solution from MDS, dimensions are added until the stress is sufficiently low and additional dimensions do not result in significant stress reduction. A stress value of 0 would indicate a perfect fit to the data. According to the scree test (Cattell 1966; Kruskal & Wish 1978), the number of dimensions can be established by determining where stress values level off. The stress values for solutions from 1 to 6 dimensions were: .188, .098, .055, .054, .045 and .036. The scree test indicates that 2 dimensions are needed to model this data. The stress value of .188 for a one-dimensional solution is poor (Kruskal 1964), and a pronounced improvement is noted with the addition of a second dimension. A unidimensional solution for this data can therefore be ruled out. A stress value of .098 achieved after adding the second dimension is satisfactory not only from the point of view of the commonly applied scree test, but it is also statistically robust. Sturrock & Rocha 2000 modeled the probability distribution of stress values for over 500,000 random differently sized matrices. According to their calculations, our 2-dimensional solution for 15 items differs significantly from chance  $p < .01$ . Stress reductions brought by extra dimensions are not substantial, indicating a 2-dimensional representation is optimal for this data set.

In addition, the dispersion-accounted-for (DAF) value for each solution shows an improvement with the addition of the second dimension (from .964 to .99) but

only a minor increase with subsequent dimensions (e.g. from .99 of a 2-dimensional to .996 of a 3-dimensional solution). Tucker's coefficient of congruence shows the same pattern – for 1 to 3 dimensions the values are .982, .995, .998. A value of 1 would indicate perfect fit. Taken together with the stress values, this confirms a 2-dimensional solution for this data.

Figure 6.1 shows the corresponding MDS plot. Items are more densely concentrated in the left-hand side, while the right-hand side is more sparsely populated, with an almost empty area in the upper right quarter.



**Figure 6.1** Two-dimensional MDS based on speakers' similarity judgments of Maniq smell terms.

### **Factor analysis**

The same similarity matrix was fed into a factor analysis. The analysis was carried out in SPSS with the principal component extraction method and rotated to a varimax criterion.<sup>67</sup> Extraction was based on factors with eigenvalues greater than 1 (Kaiser 1960). This is one of the most commonly used methods to determine the number of factors to extract. Using this criterion four factors were extracted, together accounting for 82.1% of variance. Using the scree test of Cattell 1966 a plausible case could also be made for two factors to be retained. Therefore, at least two but up to four factors are required to model this data. It has been argued, however, that both of these criteria are subjective. Therefore, parallel analysis (PA) is recommended as well as an objective method to determine number of factors to retain. In PA multiple matrices with the same parameters as the raw data are constructed and the resulting eigenvalues from the randomly permuted matrices are compared to the original dataset (Hayton, Allen & Scarpello 2004). Following O'Connor 2000, we created 100 permuted datasets and conducted FA over these matrices. We then calculated the average eigenvalues and 95th percentiles for the datasets. Comparing these values to those for the original data shows that only the first two factors of the original data had eigenvalues greater than that of the permutated data (see Table 6.2). Therefore, a two-factor solution is supported.

---

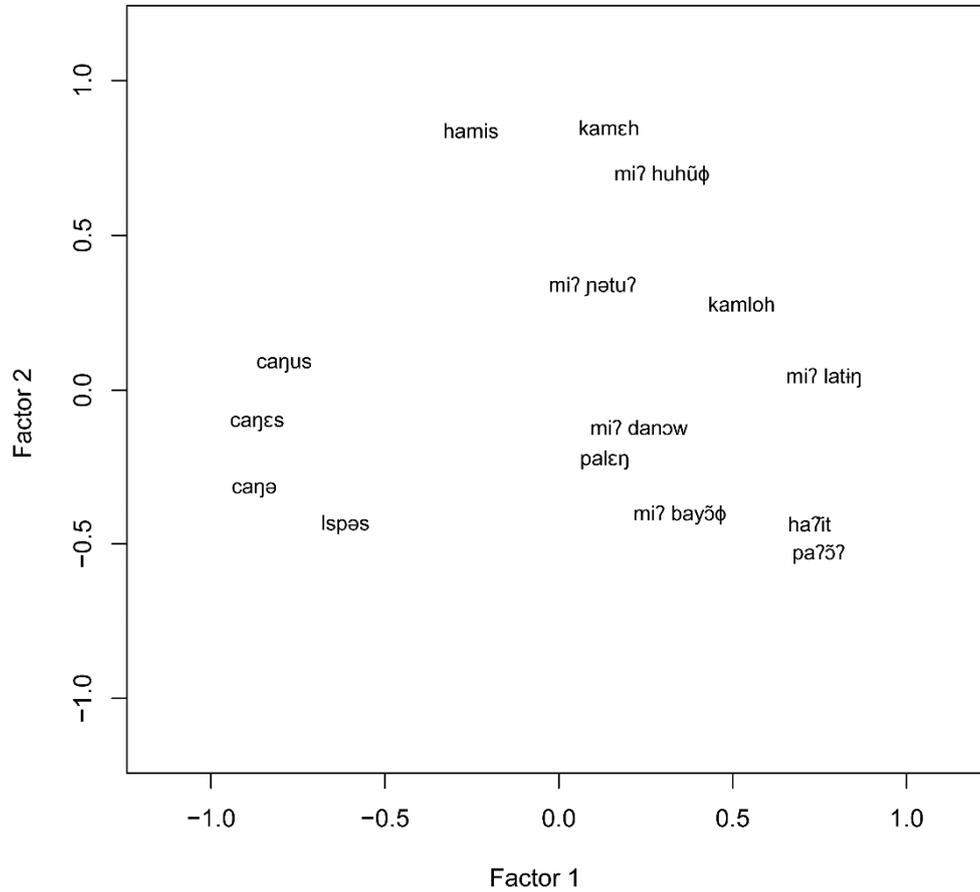
<sup>67</sup> The same number of factors are also extracted without the varimax rotation.

Actual eigenvalue	Average eigenvalue	95th percentile eigenvalue
5.844937	3.224935	3.826036
3.251385	2.601913	2.99028
1.81112	2.119216	2.457615
1.413316	1.752544	1.963543
0.819789	1.384843	1.592559
0.610867	1.126564	1.30328
0.426021	0.882021	1.112897
0.341	0.683838	0.840399
0.214289	0.496494	0.661576
0.127082	0.333629	0.439698
0.097977	0.213304	0.323811
0.037209	0.116883	0.195174
0.003767	0.05227	0.113802
0.001241	0.011544	0.038899

**Table 6.2** Actual and random eigenvalues according to parallel analysis

Using multiple criteria, it is clear that a unidimensional solution is inadequate, and the optimal solution has 2 factors accounting for 60.6% of variance (factor 1 = 39%, factor 2 = 21.7%).

The FA plot in Figure 6.2 echoes the MDS plot in Figure 6.1, although items on the first dimension are plotted in mirror-image. There is a similar circular ordering of terms in both analyses.



**Figure 6.2** Two main factors of a varimax-rotated FA based on speakers' similarity judgments of Maniq smell terms

### 6.3.1.3 Discussion

We asked in the Introduction: How is the smell lexicon structured in Maniq? Both MDS and FA converge to show that the Maniq smell lexicon is a coherent lexical field with internal structure. One dimension is not sufficient to adequately model the similarity data. Standard tests indicate that the optimal solution is 2-dimensional; however, since 40% of variance remains unaccounted for in the FA, it is possible that additional factors, not captured by the scaling model, also play a role.

What are the implications of such an outcome for theories of smell perception? The multidimensional structure of the Maniq smell lexicon is incompatible with unidimensional models of odor (Yeshurun & Sobel 2010). It also does not support solutions of extremely high dimensionality (e.g. Madany Mamlouk et al. 2003). The perceptual models most closely approximating the structure found for the Maniq olfactory language are 2- to 4-dimensional, with parsimony suggesting a 2-dimensional solution (e.g. Koulakov et al. 2011).

Can the first two dimensions be labeled or are they themselves ineffable? A closer examination of the terms, and their associated meanings revealed in Study 1, suggests that the first dimension might tap into pleasantness. Terms referring to pleasant and unpleasant smells lie at the opposite ends of dimension 1. The interpretation of the second dimension is less clear. There are at least two plausible interpretations. Either the terms on this dimension refer to smells that are edible vs. inedible or to smells that are dangerous vs. safe. This is based on the observation that terms at the top describe smells of dangerous inedible objects (e.g. snakes, sun) while those at the bottom have among their exemplars edible non-dangerous objects (e.g. yams, petai). In order to test these interpretations, we conducted a rating study. Participants were asked to rate the 15 smell terms on a number of parameters salient for olfaction, and the ratings were then correlated with the MDS and FA solutions.

### **6.3.2 Study 3: Rating task**

As discussed earlier, the main dimension implicated in smell perception is pleasantness (e.g., Khan et al. 2007; Yeshurun & Sobel 2010). But other studies have made finer-level distinctions in the parameters that might be relevant for smell perception. For example, Chrea et al. (2004) asked American, French and Vietnamese participants to rate odors according to pleasantness, but also familiarity, intensity, cosmetic use and edibility. In another perceptual judgment task, Rouby and Bensafi (2002) asked participants to evaluate odors according to pleasantness, intensity and dangerousness. These parameters were shown to be relevant for evaluating real odors. We ask here whether similar parameters may be relevant for odor terms.

Maniq speakers were asked to rate odor terms on an 8-point scale for pleasantness, edibility, familiarity, dangerousness, cosmetic value and intensity. Pleasantness, edibility and dangerousness were chosen because we hypothesized earlier that they could explain the dimensions in the MDS and FA plots. Cosmetic value was deemed important because it discriminated between odor clusters in Chrea et al. study (2004). Familiarity and intensity were selected because they are reported to influence odor perception (e.g. Ayabe-Kanamura et al. 1998; Doty 1975).

### **6.3.2.1 Method**

#### **Participants**

Eight Maniq speakers (4 female) aged approximately 20-50 years participated in this study. All were native speakers of Maniq.

#### **Stimuli and design**

The same 15 terms from Table 6.1 were tested. Participants were asked to rate pleasantness, edibility, familiarity, dangerousness, cosmetic value and intensity for each term on an 8-point rating scale. Items were presented in a fixed random order to all participants. Since Maniq speakers were not familiar with this sort of task, we determined that ratings by numbers or by pointing to a line anchored by numbers would not be appropriate. So we elicited ratings by presenting people with a line of circles of increasing size instead. Participants made judgments by pointing to the smallest circle to indicate the lowest value and the largest circle to indicate the highest value. High ratings were associated with extremely pleasant, edible, familiar, etc., while low ratings were associated with unpleasant, inedible, unfamiliar, etc.

Table 6.3 gives the English translations of the Maniq phrases used in the task. Most of the scales were easily translated. Cosmetic value was operationalized as suitability to be used in a necklace because the Maniq often wear fragrant necklaces. Intensity was expressed with the size metaphor – strong smells were

said to be big, while weak ones small. This was based on the use of a size metaphor to express the notion of intensity in other domains, e.g. in sound.

Parameter	Smallest point	Mid area	Largest point
pleasantness	not good	somewhat good	good
edibility	not eat	eat a bit	eat a lot
familiarity	not know	know a bit	know well
dangerousness	not fear	fear a bit	fear a lot
cosmetic value	not use to make necklaces	use a bit to make necklaces	use a lot to make necklaces
intensity	not big	somewhat big	big

**Table 6.3** English translations of Maniq phrases used in the study to denote extreme points of the scale

Rating on each of the scales was preceded by a brief training period. Training items were selected on the basis of structural and semantic resemblance to smell terms (i.e., stative verbs with abstract meanings), yet they were distinct in that they could not be employed as odor descriptors. Examples of the training items include: “bitter”, “spotted”, “soft”, “black” and “heavy”.

### Procedure

Participants were tested individually and the task was run in Maniq. First the rating scale was introduced. The experimenter explained the concept of pleasantness and how it applied to the scale. Previous ethnographic work provided the relevant information to exemplify each of the parameters according to indigenous beliefs.

For pleasantness, the experimenter pointed to the largest point on the scale and gave an example of a saliently pleasant property, “fatty/starchy”, adding that it was “really good” and that this point represented “really good”. She then indicated the smallest point and gave an example of a saliently unpleasant training item, “bitter”, adding that it was “not good” and that this point represented “not good”. Finally, the experimenter pointed to the middle circle and gave an example of an

item which was neutral, “bland”, adding that it was “somewhat good” and that this point represented “somewhat good”. After the introduction to the pleasantness scale, the participant was asked to rate the pleasantness of several items from the taste domain (sour, sweet, chalky, spicy, salty). Once the participant understood the task, the experimenter moved to pleasantness judgments of the experimental items. Ratings for other parameters were collected in the same way.

### 6.3.2.2 Results and discussion

The rating data was used to test which parameters might underlie the 2-dimensional solutions uncovered by the earlier MDS and FA. We calculated the correlation between each of the scales in the rating task, and the MDS and FA loadings of smell terms. Table 6.4 presents the results.

	Pleasant	Edible	Familiar	Dangerous	Cosmetic	Intense
MDS						
Dimension 1	.888**	.749**	.756**	-.543*	.823**	.782**
Dimension 2	-.256	-.350	-.170	.527*	-.229	-.345
FA						
Factor 1	-.908**	-.798**	-.763**	.602*	-.854**	-.813**
Factor 2	-.237	-.399	-.269	.526*	-.254	-.343

Note: \*\*  $p < .01$ ; \*  $p < .05$

**Table 6.4** Correlations between average ratings of smell terms and their loadings on the dimensions of the MDS and FA

Correlations between rating judgments and the loadings on the MDS and FA plots show the same pattern. As hypothesized, the first dimension correlates most highly with pleasantness. It also correlates significantly with all other parameters. This is not surprising since edible, familiar, and cosmetically valued things are usually pleasant, while dangerous things are unpleasant. It is not clear why intensity shows a correlation since this could be argued to be an independently varying factor. This result requires further investigation. It is possible that the size metaphor was not understood as intended despite our precautions. The second

dimension correlates significantly only with dangerousness. Note that dangerousness is not just an inverse of pleasantness. The second dimension appears to tap a distinct construct – the arousal and ensuing alertness provoked by smell. To illustrate, the three terms *mi? huhũφ*, *hamis* and *kameh* appear at the top of dimension 2. They refer to the smells of snakes, sun, millipedes and poison. Because these smells and smell sources are believed to inflict pain, illness and death, the Maniq fear them. These odors and odor terms trigger alertness so the person is ready to respond to the accompanying dangers. The relevant responses can be different for each object. Terms on the other side of the axis, *mi? bayãφ*, *lspas* and *haʔit*, are not usually associated with fear and all received relatively low ratings on the dangerousness scale. There is, however, an exception. *Paleŋ* received a high score. This apparent inconsistency can be understood by recognizing the internal complexity of the term, whose meaning combines several distinct notions. On the one hand, *paleŋ* refers to the smell of blood and raw meat (which, depending on context, may or may not be dangerous for the Maniq) and, as indicated by the exemplar listings, this is the most prototypical aspect of the term. On the other hand, *paleŋ* refers to the smell of windstorms and softened pandanus leaves, both of which are believed to provoke abdominal pain. In the similarity judgment task, participants appear to have focused on the prototypical meaning while in the rating task the “dangerous” aspect likely brought to mind the less prototypical exemplars that fit the dangerous criteria resulting in relatively high scores on the scale.

How do these findings correspond to odor perception studies? Overwhelmingly, previous studies have found that the first dimension in odor perception is best accounted for by pleasantness (e.g. Khan et al. 2007; Koulakov et al. 2011; Zarzo 2008). Pleasantness is found to correlate with the first PC (principal component) of odor molecular structure (Khan et al. 2007) and the first PC of olfactory neural activity (Haddad et al. 2010). The fact that we find it to be important for olfactory language lends further support to the idea that pleasantness is of primary importance in olfaction. Our second dimension of dangerousness also has support in the odor perception literature. According to Haddad et al. (2010), the second dimension of odor perception reflects toxicity, a

notion closely related to dangerousness. The parallelism between the structure of the Maniq odor lexicon and previous odor perception studies conducted independently is highly suggestive of the broader notion that language reflects structure in the world. Future research simultaneously exploring odor perception and odor language in Maniq is required to unpack this further.

To summarize, the Maniq smell lexicon can be characterized by a low-dimensional space, optimally modeled in 2 dimensions, and which correlate with pleasantness and dangerousness.<sup>68</sup> The identification of a pleasantness and dangerousness dimension is in line with the established view that pleasantness is the primary axis of odor perception (Khan et al. 2007), as well as the more recent proposal that toxicity is a secondary dimension in odor perception (Haddad et al. 2010). Overall, our results lend support to low-dimensional odor perception models such as the 2-dimensional model of Koutrakov et al. (2011).

The cognitive structure uncovered by the MDS and FA reveals how the Maniq olfactory lexicon is organized. It does not provide us with a complete semantic analysis of the lexical field, but – by uncovering how the terms relate to one another – it brings us a step closer to understanding the semantics of Maniq odor terms. Before concluding this paper, we would like to turn briefly to the role of odor in Maniq culture in order to further flesh out their semantic richness and illustrate the significance of smell.

#### **6.4 The significance of smell in indigenous beliefs and practices**

Maniq smell categories are culturally and linguistically elaborated. Smell is an important part of the indigenous concepts of well-being and safety, and therefore it is intertwined with knowledge from other domains, such as ethnobiology, natural phenomena, and the supernatural world. This background is necessary to

---

<sup>68</sup> Although there is a tradition of interpreting scaling results of similarity judgments as revealing the semantic structure of a lexical domain, we do not intend to suggest that the current results are a full semantic analysis of odor terms in Maniq (for interpretive pitfalls along these lines, see Fillenbaum & Rapoport (1971; 1974)). Providing a complete account of the lexical meaning of odor terms would require a deeper understanding of their full extensional ranges, sense relations, and conditions of usage, arrived at by explicit tests as well as observations in context.

fully understand the shades of meaning associated with the smell lexical categories.

It is tempting to interpret the smell terms in Maniq as various ways of describing fragrant and foul odors. But the semantics are much more complex, and we posit that the odor terms critically capture specific odor qualities. These meanings are difficult to translate into English since it lacks the relevant terminology. The discussion below illustrates the cultural embeddedness of the meanings conveyed by smell terms.

#### 6.4.1 Odor and culture

According to the Maniq, smell (*mi?*) is emitted by various organisms and objects in the world. Its prototypical locus is referred to by two expressions: *paloh* (*γɔc*), a loanword from Malay *peluh* ‘sweat’, and *mina?*, its indigenous synonym. The two terms are interchangeable. They both denote the “essence” of an object – a substance (usually liquid) that emits smell. For humans the essence is sweat. For animals, plants and mushrooms, it is an odorous liquid found inside the organism. *Paloh* is not restricted to living things, however, and is believed to be a property of all kinds of objects that emit odor (e.g. the sun).

Odor does not remain constant over time. There are cases where this is obvious, such as food that changes its smell when processed or left uneaten for too long. There are also cyclic changes that affect which odors are present in the environment. For instance, hog badger (*Arctonyx collaris*) is described as smelling *cajə* (a good aroma often associated with various foodstuffs) during the dry season. In the wet season, however, the badger has an unpleasant odor similar to a monitor lizard. The smells carry with them implications for hunting. Skinny and bad-smelling badgers are not usually pursued by the Maniq. Fatty ones with an aromatic odor, on the other hand, will cause the group to move camp into the vicinity of the badger’s feeding area and hunt it.

Smell is vital in the life of the Maniq. People keep constant track of scents and rely on olfactory information in a variety of situations, from everyday foraging, indigenous medicine to the ritualized use of scents. They also manipulate odors in their immediate environment to counteract possible dangers and maintain a state

of balance. A number of objects and natural phenomena associated with danger or disease are said to be accompanied by unpleasant smells. According to the Maniq, violent windstorms are the source of an unpleasant smell referred to by the verb *paleŋ*. The wind is appeased by neutralizing the bad odor through burning the rhizome of the plant called *kasay* ‘*Dianella ensifolia*’. This releases a pleasant fragrance, *lspəs*, which helps to counterbalance *paleŋ*. *Paleŋ* is also relevant during the preparatory stage of weaving, when pandanus leaves are softened. On both occasions (during windstorms and when preparing to weave), *paleŋ* may provoke abdominal pain, treated by applying metal dust, obtained in the process of sharpening a machete, to the sore spot. Machetes are often used as compresses because of their cool temperature, considered to be one of the two essential elements of a healthy environment (good smell being the other).

Another feared unpleasant smell is *hamis*, the odor of sun, present in the atmosphere on some hot days when the sun has a yellow color. Those moments are potentially dangerous since both heat and *hamis* can lead to illness with fever, burnt (“red”) eyes and headache. So people seek refuge in their shelters because they believe that a cool and shaded environment is healthy and provides protection against disease. They also perform a ritual where they burn animal hair and bones in order to release a pleasant smell (*caŋəs*), which together with the smoke floats up to the sun and eliminates the dangerous *hamis* (cf. Dallos 2011; Endicott 1979).

Just as negative objects and phenomena are accompanied by bad odors, positive ones are often connected to good fragrances. A large number of medicinal herbs collected by the Maniq have intense aromas, the majority of which can be described by the term *lspəs* ‘to be fragrant’. Exemplars include: *kasay* ‘*Dianella ensifolia*’, *kujit* ‘turmeric (*Curcuma domestica*)’, *biha* ‘*Triomma cf. malaccensis*’ and *p<sup>h</sup>ley* ‘Cassumunar ginger (*Zingiber montanum*)’ (Thai *phlaj*). The fact that pleasing odors and healing or disease-preventive powers come together in a large number of plants speaks to a perceived causal connection. The Maniq believe that medicinal plants worn in necklaces, headbands and wristbands protect them against illness because they are fragrant (*lspəs*). Wearing them is thus a common practice among the Maniq.

A prime example of a fragrant medicinal plant is *kasay* '*Dianella ensifolia*' mentioned before in the context of the wind-appeasing practice. Its rhizome has a number of therapeutic uses and it is administered in a variety of ways. It can be boiled and drunk as an infusion, the smoke produced by burning it in fire can be inhaled, or, if the condition of the patient is very bad, the smoke can be blown over the body by another person. *Kasay* is used to treat a wide variety of conditions, such as stomachache, muscle/flesh pain and dizziness. When questioned, people do not offer detailed explanations of how smoke counters disease or wind, but a valuable insight into understanding these practices can be gained from the description of the same act performed by the Batek, a closely related group living in Malaysia:

The smoke is supposed to enter the body and cause the disease to flee. This is because the odour of the smoke is good (*bed'èt*) and that of the disease bad (*jebéc*), and they cannot mix. If the smoke goes in, the disease must leave. Alternatively, some say the good-smelling smoke draws the disease out of the body by attracting it, causing it to follow the smoke as it wafts upward from the patient's body. (Endicott 1979:107–108)

These beliefs and practices are a vivid illustration of how much power is attributed to odor, belying the claims that odor is of little value across cultures.

#### 6.4.2 Returning to smell terms

The lexical field of smell may be reducible to two dimensions, but the meanings of individual smell terms hook into rich cultural knowledge. *Caŋus*, for example, is the odor of cosmetic products and cleanliness and so it could be thought to be unambiguously pleasant. It lies on the extreme end of the pleasant dimension in Figures 6.1 and 6.2. But the fruit *kulɔw* (unidentified) is also *caŋus*, even though it is poisonous. Maniq avoid the fruit. Leaf monkeys, on the other hand, feed on *kulɔw* fruit. Leaf monkeys are also a common food for the Maniq. However, if the Maniq hunt and eat a leaf monkey who has recently consumed the *kulɔw* fruit, they will become sick. A monkey which has eaten *kulɔw* is said to smell *caŋus*, just like the fruit – a warning for people that they should not eat it in that state.

*Lspəs* also lies at the extreme end of the pleasant spectrum. This is the smell of food and fragrant (and medicinal) plants. However, *lspəs* smells must be handled carefully and if not this can lead to dire consequences. According to a taboo referred to as *?amse?*, it is forbidden to mix the *lspəs* smell with game. More specifically, people must not consume *lspəs*-smelling plants or drinks with the meat of hunted animals. It is also prohibited to touch or wear *lspəs* plants before or during direct contact with game. The consequences of breaching this taboo depend on the particular fragrant plant involved. If it is *cawəs* (unidentified plant), *salih* (*Alpinia* sp.), or *hubiew* (unidentified plant), it will bring about *?amse? ta?ɔ?* – an attack by a streak of tigers. The tigers will ambush the Maniq campsite and attack people by biting at their heads or eyes. According to some people, the attack could also take place during a hunting trip, suddenly and unexpectedly. The consequences are far less serious if the fragrant plants are *biha* (*Triomma* cf. *Malaccensis*), *laweŋ* (*Cinnamomum subavenium* or *Neolitsea* sp.), *gale* (*Uvaria* sp.), *tiŋ dik diew* (*Goniothalamus* sp.) (Thai *ching dɔk diaw*) or *caŋlun* (*Elettariopsis* sp.). Mixing these with game causes *?amse? dɔk*, i.e. reduced effectiveness of dart poison used in hunting. Hunts will be unsuccessful despite accurate shooting. Of the two, *?amse? ta?ɔ?* is certainly more salient. In fact, some Maniq consider the combination of all *lspəs*-smelling plants with game as being equally likely to expose them to a tiger attack.

Although mixing *lspəs* smells with game is dangerous, there is an odor remedy: the smell of dart poison, *kameh*, released by burning toxic plants (e.g. *ba?el* ‘*Strychnos* sp.’) or the processed dart poison. *Kameh* is said to block the tiger’s nose, thereby confusing it, so that the tiger cannot find its way to the campsite. *Kameh* itself is ambiguous as to whether it relates to something good or bad (it lies in the middle of dimension 1 in Figures 6.1 and 6.2). On the one hand, it can be a weapon and protection; on the other hand, it is a poison found in venomous millipedes.

These examples illustrate the complex cultural constructs that odor terms tap into. Distinctions such as good-bad or alert-calm are important in distinguishing terms from one another, but they are not necessarily fixed. The parameters

pleasantness and dangerousness are malleable and depend on the contexts considered.

## 6.5 Discussion

Smell is particularly important in the lives of the Maniq, and lies at the core of the indigenous ideology. The Maniq surround themselves with odors believed to be beneficial for health and that repel danger. They stay constantly alert for potentially harmful odors. Olfactory knowledge is central to the life of the Maniq as it is deeply interconnected with knowledge in other principal areas of daily experience such as ethnobiology and natural phenomena. This shows that claims such as odors have “little special value across cultures” (Gardner 1993:61) are simply wrong.

Alongside the cultural preoccupation with odors, we have shown the Maniq language possesses a rich odor vocabulary of over a dozen abstract terms. This is evidence against the long-standing and widespread view that humans do not have words for smells, or that the language of odor is non-abstract and steeped in metaphors (e.g. Kant 1798/2006; Lawless & Cain 1975; Wilson & Stevenson 2006). Maniq smell terms refer to different types of odor qualities. They apply to a variety of objects, as exemplified in Study 1, and tap into broader cultural constructs.

The Maniq system is remarkable because there are dedicated terms for olfaction and these are part of everyday talk. Western languages simply lack this. When describing smells, English speakers, for example, most often resort to source-descriptors, such as *like a banana* or *fruity*, but even these descriptors are not applied accurately (e.g. Cain 1979; Majid & Burenhult 2014). Experts also largely rely on source-descriptors. As the wine writer and columnist Gluck states

We wine writers are the worst qualified of critical experts. This is largely, though not exclusively, because we are the most poorly equipped. The most important tool at our disposal is inadequate for the job. That tool is the English language. (2003:107)

We showed in Study 2 that Maniq smell words constitute a coherent semantic field (contra Sperber 1974/1975, and others). The 2-dimensional structure uncovered in our study argues in favor of low-dimensional odor perceptual spaces (e.g. Koulakov et al. 2011). Study 3 showed further that the first dimension correlated with pleasantness and the second dimension with dangerousness. The fact that most of the variance in the data is explained by pleasantness and dangerousness bolsters the claim that the hedonic dimension plays a primary role in smell perception (cf. Khan et al. 2007; Koulakov et al. 2011; Zarzo 2008) and provides support for toxicity as the second dimension of smell perception (Haddad et al. 2010).

The 2-dimensional structure we uncovered is reminiscent of the similarity space of emotion terms discovered by Russell (1980; Russell, Lewicka & Niit 1989). The circumplex model of emotion has been characterized by a pleasure-displeasure dimension and a degree-of-arousal dimension. We have argued that these constructs are plausible interpretations of our 2-dimensional solution of odor terms in Maniq too. Why might we find these two dimensions for odors? It was not an inevitable outcome after all. Similar studies of other lexical fields find different principles structuring different domains. For example, Shepard and Cooper (1992) found that hue was the most important property structuring the domain of color. Storm (1980) discovered that size and habitat (land vs. water) were the underlying dimensions of an animal lexicon. Fillenbaum and Rapoport (1971) found person and number to be the most important properties organizing the lexical field of pronouns. And so forth. Thus, the parallelism between the odor lexicon and emotion lexicon is notable. This could reflect the well-documented close relationship between odors and emotions. Verbal descriptions of olfactory sensations in Western languages often involve affective terminology (Dubois 2000). And outside of language olfaction and emotion are closely associated too (e.g. Herz & Engen 1996). Here, for the first time, we show that the semantic field of a dedicated olfactory lexicon can also parallel the structure of emotion lexicons.

Does the fact that we found a 2-dimensional solution for the Maniq smell lexicon mean that the theory of unidimensional odor representations or those involving more than 2 dimensions are wrong? And could our data support

alternative theories of odor perception? Assuming that language structure mirrors perceptual structure, we may treat this finding as evidence against the unidimensional and high-dimensional models of odor perception. A different interpretation of our results would be to assume that olfactory language is not a faithful reflection of olfactory psychophysics, but that other considerations (perhaps culture-specific) play a role in forming olfactory categories in language. This then raises the question of what exactly the relationship is between odor perception and odor language. Are these completely independent systems? Does smell language use the same representations as the perceptual system? And the other way round, can smell language influence smell perception? We leave these questions for future studies to address.

## **6.6 Conclusion**

The cultural and linguistic elaboration of smell among the Maniq constitutes compelling evidence against the universal paucity of olfactory terms, the “weak link” between smell and language, and the general insignificance of olfaction for humans. This evidence is even stronger in light of the fact that Maniq is not an isolated case of this kind of elaboration. There are a number of similar smell-oriented cultures around the world (e.g. Burenhult & Majid 2011; Classen, Howes & Synnott 1994; Majid & Burenhult 2014). These cultures have so far been largely overlooked. By embracing cultural and linguistic diversity, we can make significant advances in understanding human olfaction that otherwise would not emerge. These results resonate with recent evidence that the human sense of smell is more acute than previously believed (Laska, Seibt & Weber 2000; Shepherd 2004), and that smell is not a vestigial sense, but serves a variety of functions (Stevenson 2010). The data presented in here urge us to modify our perspective on yet another dogma of olfaction. Human languages can encode odors.



## 7 Conclusions

---

Languages of the world vary from those using only semantically general verbs to those strongly preferring specific ones. The focus here has been on semantic specificity, as manifest in verbs of perception in Maniq. I have shown that verbs with long and exotic-sounding glosses are more than mere curiosities. The lexicalization patterns discussed here shed new light on verb specificity, pointing to the central role of society, culture and linguistic structure in lexical elaboration.

This chapter takes stock of the insights provided by the case studies within different subdomains of perception in Maniq. I begin with a brief summary of findings (§7.1) and discuss their implications for verbal semantic specificity (§7.2). Finally, I identify the limitations of the present work and the potentially fruitful directions for further research (§7.3).

### 7.1 Summary

Chapter 1 formulated the aim and research questions of this thesis and introduced the topic of verbal semantic specificity. It set the scene for later chapters by presenting the basic verbs of perception in Maniq and illustrated the key distinction of the domain – the division into dynamic and stative verbs. The chapter also pointed out the strong connection of verbal semantic specificity to verbiness, i.e. the special prominence of verbs in language structure and everyday discourse. Verbal semantic specificity and other manifestations of verbiness are testament to the important role of dynamic conceptualizations in Maniq. The non-linguistic background reviewed in the chapter revealed such conceptualizations are congruent with some aspects of the Maniq cultural and ecological setting.

Chapters 2 and 3 outlined basic information about the Maniq people and language, providing the reader with a reference for the main chapters on the one hand, and making a contribution to the description and documentation of Maniq on the other hand. Chapter 2 introduced Maniq society, outlining the ethnographic background necessary for the contextualization of the linguistic data. Chapter 3

presented the basic facts about the Maniq language and laid out the grammatical preliminaries with a primary focus on verbs. The stative/dynamic distinction was fleshed out and other verb-related topics were discussed. The chapter also included the relevant essential information on Maniq phonology, morphology, syntax, and word classes, thus providing an overview of the language structure and the most extensive account of Maniq grammar to date.

The main contribution of Chapter 4 was the first detailed documentation of a verb-framing strategy for visual paths – a pattern previously claimed to be resistant to lexicalization. The analysis of the fine semantics of the verbs revealed their meaning is shaped by a number of factors. These are, on the one hand, universal constraints imposed by earth-based verticality and the human body, and on the other hand, culture-specific forces: the local environment and culturally salient activities. Due to the fact that visual paths are encoded in verbs rather than general path expressions (“satellites”), the semantics of verbs of looking can be fine-tuned to the visual domain. Another insight of Chapter 4 was the observation that the internal organization of the specific verb lexicon is characterized by systematicity. The chapter surveyed verbs of looking lexicalizing visual path and found that the spatial notions encoded in them follow an organizational principle recurring across several domains in the lexicon. This principle is best captured as a template-like structure consisting of the semantic notions UP, DOWN and HORIZONTAL, common to a variety of otherwise unrelated verb sets.

Chapter 5 also targeted the visual modality, but this time the focus was specifically on stative verbs encoding color. The main finding was that Maniq exhibits high codability of color, contrary to what might be expected of it, based on its lack of color technology. This relates to both linguistic codability – the fact that colors are lexicalized in a large set of dedicated color verbs, and efficient codability – the fact that speakers show considerable agreement in color naming and give brief color descriptions consisting of abstract terms. Crucially, the bulk of color categories in Maniq are encoded in semantically specific verbs, which express nuanced distinctions in areas of high cultural salience, i.e. culturally important plants, animals and the environment. This underscores again the essential role of culture in the lexical elaboration of a domain. It also demonstrates

the importance of a varied methodological approach, long advocated for in color research. Another key contribution of Chapter 5 was related to the finding that the most common type of lexical relation in the color lexicon was similarity. Given the scarce evidence for relations such as opposition and inclusion, this suggests similarity is particularly well-suited to the structure of the color field. Finally, the chapter also discussed the impact of language history and language contact on the Maniq color lexicon. Due to its distinct contact situation in recent history, Maniq has not borrowed color terms from its neighbors like other Aslian languages. Since borrowings can contribute to decreasing codability (Borchardt 2014), their absence in Maniq may partially explain the difference in codability between Maniq and Jahai.

Chapter 6 investigated verbal semantic specificity within olfaction, commonly considered the most ineffable perceptual domain in human languages. The major finding was that – contrary to the widespread view that languages lack dedicated vocabulary for odors – Maniq has over a dozen odor terms, mostly encoded as stative verbs. Importantly, these words are known to the whole speech community and form part of everyday language. They capture specific odor qualities and – as revealed by exemplar listing – may be applied to a variety of objects. Two experiments, a smell term similarity judgment task and an off-line rating task, suggested the Maniq odor lexicon is structured by two dimensions – pleasantness and dangerousness. The linguistic elaboration of odor in Maniq goes hand in hand with cultural elaboration. Smell features prominently in the Maniq indigenous knowledge and belief system, playing a crucial role in the concepts of well-being and safety. Together, lexical, experimental and ethnographic evidence argue against the universal ineffability of smell. Contrary to claims in the literature, smells are not generally constrained from being lexicalized in dedicated vocabulary. Human languages can encode odors, and abstract odor qualities can be packaged in semantically specific words.

## 7.2 General discussion

### 7.2.1 Principles of lexicalization

One of the central questions pursued throughout the chapters of this thesis was: What information is lexicalized in semantically specific verbs, and why? When we inspect the semantically specific verb lexicon in Maniq, it turns out the greatest elaboration relates to verbs denoting culturally salient events and properties. These are the portions of the verb lexicon which are in frequent use and are of high importance to the way of life of the community, i.e. relating to fields of indigenous expertise and cultural pre-occupations. This thesis uncovered a number of them: yam digging, activities accompanying foraging practices (e.g. gazing, motion on trees/hills/rivers, etc.), odors, colors and other visual surface properties present in the environment. Dense encoding in areas of specialization is also what we find in Indo-European languages. For instance, the same tendency has been observed in specialized jargons within English (Haiman 1985:232–236). Note, however, that in Maniq the semantically specific vocabulary is not a characteristic of a specialized jargon or register, but is part of the general lexicon. It is thus worth stressing the distinctive aspect of the lexical elaboration in Maniq – namely the distinctions captured by specific verbs are salient across the whole community and are relevant in ordinary everyday situations.

This is facilitated by the fact that the Maniq are a relatively homogenous small-scale society with a large body of shared knowledge, common cultural values, and a low division of labor. As is typical of a Semang community, the Maniq have little individual specialization (Lukas 2004:11) and, although a gender-based division of tasks exists, many of the daily activities are performed in mixed groups or spouse teams (Endicott & Adem 2009:4; Endicott & Endicott 2008). Thus, while differences as to the degree of expertise exist, in a sense, everyone is an expert in forest matters and the traditional Maniq ways of functioning in this environment. Being familiar with the culturally salient distinctions and knowing the right vocabulary is part of the basic toolkit, acquired by every child and carried over into adulthood.

Of the lexical sets discussed here, two in particular deserve close attention: path-encoding verbs of looking and smell verbs. Both of them have previously been noted to resist lexicalization (Matsumoto 2001; Sperber 1975). Both, however, turned out to display exquisite elaboration in Maniq. This is notable because, in the absence of lexical evidence from any language, one might be tempted to postulate the specific notions are universally ineffable (or inexpressible in single morphemes) because of cognitive constraints or limits of language (cf. Levinson & Majid 2014). In the case of smell, such postulates have in fact been made, as the prevailing opinion has been the lack of smell words in languages is an index of the human limitation to talk about smells (Wilson & Stevenson 2006; Olofsson & Gottfried 2015). A discovery such as this one (backed by overlooked cases in the literature) clearly rules out such a possibility. The lexical evidence in this field speaks against an absolute constraint on expressibility, suggesting instead the lack of smell vocabulary is related to the lack of cultural salience of smell. It might still be the case that something about the complex nature of olfactory psychophysics makes the lexicalization of odors difficult (hence they are *weakly ineffable*, i.e. ineffable in some languages; Levinson & Majid 2014:410; Majid 2015b), but it is clear this difficulty is not insurmountable. Cultural salience can outweigh the pressure of ineffability.

The color lexicon also deserves mention as the level of elaboration found in Maniq is surprising given that many technologically simple societies typically have few abstract color terms (Naroll 1970). While in smell the purported ineffability has been associated with universal constraints, in color, the ineffability has been linked to cultural factors, specifically the lack of color technology. Although color technology may lead to developing rich abstract color lexica (Casson 1997), it is not a prerequisite to linguistic codability of color. There are abstract color terms in Maniq, despite the lack of advanced color technology. The greatest lexical elaboration was attested in culture-specific areas, not targeted by standard color stimuli. This highlights the importance of supplementing traditional elicitation techniques with methods taking into account the cultural context.

By now, the answer to the question of what information is lexicalized in semantically specific verbs is beginning to emerge. The environment in which

these verbs seem to thrive are areas of high cultural salience. However, the outstanding question is why. In a way, holistic encoding – whereby multiple meaning components are packaged into a single non-analyzable form – may seem counterintuitive. We may presume such a strategy is disadvantageous from the point of view of a language learner. If there are no transparent form-meaning relationships, they are more difficult to spot. A child acquiring this vocabulary might therefore face greater challenges than would have been the case if the forms were semantically transparent. Work investigating language transmission seems to support this. In artificial language experiments, holistic languages were found to be less likely to persist than compositional languages (Smith, Kirby & Brighton 2003). Semantically opaque structures lacking compositionality are thus associated with lesser learnability. Despite this, there is an advantage to packaging multiple meaning components in monomorphemic forms. In Chapter 4, I have argued that the special affordance of path encoding in verbs of looking is a domain-specific tailoring of spatial notions. Thanks to holistic encoding in verbs, spatial information is expressed with greater precision since it is fine-tuned to fit particular domains. Such precision would be impossible to achieve with all-purpose prepositions since compositionality forces onto spatial expressions a general meaning. Another benefit of holistic encoding is that it is less prone to ambiguity than compositional encoding. For instance, a change from holistic to compositional motion expressions in Nicaraguan Sign Language resulted in an initial loss of information. With separate expressions of motion and path – previously packaged in a single unit – it was no longer clear whether they were part of the same event (Senghas, Kita & Özyürek 2004:1781). In the big picture, of course, compositionality is a powerful tool, but the expressive advantage of semantically dense items should not be underestimated.

Another question is whether the need for precision and efficiency related to cultural salience are the only factors involved in dense encoding. Semantically specific verbs across languages are also found in domains for which it is difficult to argue that they are of special relevance in one particular community. An example of such a domain is ingestion, a highly elaborate field in Maniq (cf. §1.1). Ingestion is a domain of importance across human communities and ingestion

verbs are likely high-frequency words in many languages. However, only some languages distinguish specific types of ingestion events with separate verbs (cf. Brown 1998; Bowerman 2005; Heath & McPherson 2009; Burenhult & Kruspe 2016). In some cases, such specialization could be argued to have support in special cultural considerations, e.g. culturally distinct meal habits and typical composition of meals (Burenhult & Kruspe 2016:194). However, even if specific subtypes of ingestion events are culturally salient, it is still not sufficient motivation for a language to encode them in separate basic-level verbs. What matters as well is the language's *typological profile*, i.e. whether or not it is usual for a language to make fine-grained distinctions in basic-level monomorphemic verbs. If a language favors such encoding, it is more likely it will exhibit semantically dense verbs in multiple domains, perhaps even including those that do not appear salient in a culture-specific way. Thus, although verbal semantic specificity is largely a reflection of cultural concerns, it is also influenced by the semantic-typological profile of a language (cf. Malt & Majid 2013).

It is worth stressing again the importance of the fact that the Maniq are a small close-knit community. With few speakers all of whom are familiars, the pressure for “structuration” (in the sense of formation of transparent form-meaning relationships) is not as strong as in cases where communication also takes place between less familiar individuals or strangers (Wray & Grace 2007). Since strangers cannot rely extensively on shared knowledge, they need to use more transparent linguistic means in order to ensure communicative success. This general tendency has been illustrated in an artificial language experiment manipulating generation turnover. Tamariz et al. (2012) have shown that not replacing learners leads to evolving less structured languages than when learners are replaced. Also modeling work shows that higher group sizes tend to be associated with an emergence of compositional structures in language (Vogt 2007). Of course, structuration affects Maniq as well (e.g. in verbal morphology), so the mechanism should not be seen as applying across the board to all elements of the language. However, the small size and homogeneity of the Maniq community can be seen as one of the factors favoring dense verbal encoding.

### 7.2.2 Principles of lexical structure

The relevance of the semantic-typological profile in lexicalization strategies relates to yet another vital aspect of semantic specificity – namely, its systematicity and the internal structure of the lexicon more broadly. Among the main issues addressed throughout the chapters of this thesis was the question of the relations formed by semantically specific verbs. The reviewed evidence demonstrates the examined verb sets are characterized by an underlying structure, present both within and across lexical fields. The inspection of this structure is revealing.

For instance, the 2-dimensional space structuring the smell terms described in Chapter 6 not only constitutes evidence that smell terms form a lexical field, but can be used to inform modern theories of smell perception. If we assume that lexical structure mirrors perceptual structure – the way it does in color (Shepard & Cooper 1992) – then the Maniq lexicon speaks to the structure of odor perception space. The contribution of this study thus reaches beyond the field of semantics since it could have bearing on theories of sensory perception.

The data in other chapters provide insights into further puzzles. The strong presence of templates in the color and visual surface lexicon described in Chapter 5 suggests that similarity – rather than the canonical relations of inclusion and opposition – is the key type of relationship in this field. Since similarity is a rather general and unregimented type of relation, it is a good fit for color terms, whether in the general or the specific lexicon (where color is sometimes combined with other visual surface features). In fact, similarity appears particularly at home in color since templates in Maniq are most common among color terms. This data thus sheds light onto the structure of the color lexicon, which is considered unique and still underexplored (Cruse 1986:190; Levinson 2000:49).

Finally, perhaps the most complex lexical pattern uncovered within semantically specific verbs is the spatial semplate-like structure described in Chapter 4. The configuration reveals similar spatial notions are encoded in several otherwise unrelated sets of verbs. There is an internal logic to how Maniq packages and distributes information in verbs, even though this logic may not be accessed simply by inspecting the word forms. As was noted multiple times in this thesis, verb meaning varies considerably across languages (Gentner 1982; Talmy

1985; Evans 2011a). However, it does not lack organization. On the contrary, the isomorphism of conceptual structure across semantic domains suggests verbal semantic specificity in Maniq patterns in an organized way.

### **7.3 Outstanding issues and future directions**

This thesis has focused on specificity by investigating the semantics of verbs. Within its limited scope, it has, however, left unaddressed some aspects of semantic specificity which could provide further insights into the phenomenon.

The first such area is discourse. Due to the lack of an extensive corpus of spontaneous conversation, I restricted the discussion of discourse patterns to some impressionistic observations of general tendencies (cf. §1.5). It would be useful, however, to carry out a more systematic exploration. One of the recurring observations about semantically specific verbs is that they pre-empt nouns since most information is expressed in verbal stems. This is true for Maniq and other languages in the literature (e.g. Brown & Levinson 1993). Typologically then, we would expect that all languages favoring specific verbs have optional argument realization (and indeed express them less often). Furthermore, as pointed out in the introduction, verbal specificity in Maniq is associated with verbiness, manifested by a high number of verbs in the lexicon (as compared to nouns). This seems to hold for other languages with semantically specific verbs as well, e.g. Iwaidja (Evans 2011), and could be verified for a bigger sample by inspecting a larger number of relevant lexica.

Verbal specificity is also of relevance to language complexity. Most work in language complexity until now focused on morphology and syntax (e.g. Dahl 2004; Hawkins 2004), sometimes to the explicit exclusion of lexico-semantic complexity: “from the point of view of complexity, lexical richness is indeed somewhat trivial in a way rather similar to the difference in complexity between two unpatterned strings of different lengths” (Dahl 2004:43). We know, however, that rich and semantically specific lexical resources can eliminate the need to employ grammatical means, and perhaps even have an effect on the shape of grammar as such. One example is spatial language: what is encoded in grammatical elements (e.g. case, clitics, prepositions, etc.) in one type of language,

is built into word roots in another type of language (cf. Talmy 1985). Because language complexity is an important notion employed by other fields (language evolution and language processing), it is crucial that lexico-semantic complexity be taken into account.

Related to that, verbal specificity also raises interesting questions for language processing. Since sentence processing proceeds incrementally, verb-specific knowledge activated by verbs modulates how subsequent linguistic expressions are processed and guides attention to specific elements of the scene (Altmann & Kamide 1999; Garrido Rodriguez 2015). This may well be thought of as facilitating comprehension. It might also affect production. One possibility is that specific verbs could be associated with slower lexical retrieval, because of a greater number of available possibilities. Further predictions can be made in relation to the later phases of production. For instance, given that less informative sentence elements are pronounced with shorter duration and lesser detail (Gahl & Garnsey 2004), we might expect that arguments which surface with semantically specific verbs will be more reduced than when they surface with generic verbs. Furthermore, under the assumption that speakers prefer to spread out information content (Jaeger & Tily 2011), we would also expect languages like Maniq to have developed special strategies (e.g. patterns in intonation, discourse structure, etc.), which would minimize non-uniform distribution of information. For instance, especially dense verbs should not occur close to one another (e.g. in multi-verb constructions), unless the first verb makes the following one(s) highly predictable.

Another context where verbal specificity is of interest is language acquisition. I noted above that the opacity associated with specific verbs might constitute a challenge for a language learner. It is important to note, however, that despite lack of transparency, the learning of semantically specific verbs in Maniq is likely enhanced by the presence of underlying semantic structure. Language-specific semantic organization has been shown to influence children from early on (Choi & Bowerman 1991). In particular for verbs, it has been claimed that they must be learned as part of a system (Gentner 1982:47). A child exposed to Maniq is thus likely to rely on patterns detected in the input to form hypotheses about new words. This mechanism has been termed *typological bootstrapping* (Slobin 2001)

and it was proposed that it provides language-specific support in acquisition. For a language with many semantically weighty verbs, this presupposes children learn to expect verbs will carry rich information, as has been suggested for Tzeltal (Brown 2001). It would be interesting to see how this would play out for various kinds of verbs in Maniq. For instance, to what extent does the encoding of spatial notions in the spatial template-like structure bias children towards attending to space in various activities? Both observational as well as experimental data would help address these issues.

On a final note, the Maniq data demonstrate that meaning can be packaged in ways which are distinct and perhaps even unexpected from the Indo-European point of view. It also sensitizes us to the problem of insufficient semantic typological data in some fields. We still know very little about how various languages organize meaning in certain domains, and the field can benefit from focused surveys of semantic systems of unexplored languages in different sociocultural niches. The major implication coming out of this study is therefore of a typological nature. More semantic systems across the world need careful and detailed investigations, and more attention needs to be given to underexplored domains. According to Levinson and Evans, it is variation that lies at the center of linguistics – “variation is the lever used to discover underlying systematics: you can’t find a gene without phenotypic variation, and you can’t find a fundamental building block for language without comparing languages” (2010:2735). Semantics is by no means excluded here since it is arguably the central aspect of language and like grammar it shows great cross-linguistic variability. Semantic typological work is thus in high demand and it should be among top priorities for linguistics and cognitive science.



## References

---

- Altmann, Gerry T. M & Yuki Kamide. 1999. Incremental interpretation at verbs: Restricting the domain of subsequent reference. *Cognition* 73(3). 247–264. doi:10.1016/S0010-0277(99)00059-1.
- Ameka, Felix K. & Stephen C. Levinson. 2007. The typology and semantics of locative predication: Posturals, positionals and other beasts. *Linguistics* 45(5).
- Anong Chaowanakit & Songkoon Chanthachon. 2009. The ethnic Manni Sakai: Guidelines for social and cultural revival for living together in Southern Thailand. *The Social Sciences* 4(5). 478–482.
- Arends, Jacques, Pieter Muysken & Norval Smith. 1995. Introduction. In Jacques Arends, Pieter Muysken & Norval Smith (eds.), *Pidgins and Creoles: An introduction*, 319–330. (Creole Language Library v. 15). Amsterdam; Philadelphia: J. Benjamins.
- Ayabe-Kanamura, Saho, Ina Schicker, Matthias Laska, Robyn Hudson, Hans Distel, Tatsu Kobayakawa & Sachiko Saito. 1998. Differences in perception of everyday odors: A Japanese-German cross-cultural study. *Chemical Senses* 23(1). 31–38. doi:10.1093/chemse/23.1.31.
- Bauer, Christian. 1991. Kensiw: a Northern Aslian language of southern Thailand. In Surin Pookajorn (ed.), *Preliminary report of excavations at Moh-Khiew Cave, Krabi Province, Sakai Cave, Trang Province and ethnoarchaeological research of huntergatherer group, socall "Sakai" or "Semang" at Trang Province*, 310–335. Bangkok: Silpakorn University, Faculty of Archeology.
- Becker, Neele. 2008. DoBeS archive: Semang. *IMDI-corpora*. [http://corpus1.mpi.nl/ds/imdi\\_browser/](http://corpus1.mpi.nl/ds/imdi_browser/) (22 October, 2012).
- Beer, Bettina. 2007. Smell, person, space and memory. In Jürg Wassmann & Katharina L. Stockhaus (eds.), *Experiencing new worlds*, vol. 1, 187–200. (Person, Space and Memory in the Contemporary Pacific). New York: Berghahn Books.

- Beller, Sieghard, Andrea Bender & Douglas L Medin. 2012. Should anthropology be part of cognitive science? *Topics in Cognitive Science* 4(3). 342–353. doi:10.1111/j.1756-8765.2012.01196.x.
- Bender, Andrea, Edwin Hutchins & Douglas Medin. 2010. Anthropology in cognitive science. *Topics in Cognitive Science* 2(3). 374–385. doi:10.1111/j.1756-8765.2010.01082.x.
- Benjamin, Geoffrey. 1967. Temiar religion. Cambridge: University of Cambridge PhD dissertation.
- Benjamin, Geoffrey. 1976a. An outline of Temiar grammar. In Philip N. Jenner, Laurence C. Thompson & Stanley Starosta (eds.), *Austroasiatic studies*, vol. 1, 129–188. (Oceanic Linguistics Special Publications 13). Honolulu: The University Press of Hawaii.
- Benjamin, Geoffrey. 1976b. Austroasiatic subgroupings and prehistory in the Malay Peninsula. *Oceanic Linguistics Special Publications*(13). 37–128.
- Benjamin, Geoffrey. 1985. In the long term: Three themes in Malayan cultural ecology. In Karl L. Hutterer, A. Terry Rambo & George W. Lovelace (eds.), *Cultural values and human ecology in Southeast Asia*, 219–278. University of Michigan: Center for South and Southeast Asian Studies.
- Benjamin, Geoffrey. 2002. On being tribal in the Malay world. In Geoffrey Benjamin & Cynthia Chou (eds.), *Tribal communities in the Malay world: Historical, cultural and social perspectives*, 7–76. Leiden, the Netherlands: International Institute for Asian Studies.
- Benjamin, Geoffrey. 2011. Deponent verbs and middle-voice nouns in Temiar. In Sophana Srichampa & Paul Sidwell (eds.), *Mon-Khmer Studies, Special Issue 2*, 11–27. Canberra: Pacific Linguistics.
- Benjamin, Geoffrey. 2012. The Aslian languages of Malaysia and Thailand: An assessment. In Peter K. Austin & Stuart McGill (eds.), *Language Documentation and Description*, vol. 11, 136–231. London: Endangered Languages Project, School of Oriental and African Studies.
- Bergen, Benjamin K. 2004. The psychological reality of phonaesthemes. *Language* 80(2). 290–311. doi:10.2307/4489664.

- Berlin, Brent. 1992. *Ethnobiological classification: Principles of categorization of plants and animals in traditional societies*. Princeton, NJ: Princeton University Press.
- Berlin, Brent, Dennis E. Breedlove & Peter H. Raven. 1968. Covert categories and folk taxonomies. *American Anthropologist* 70(2). 290–299.  
doi:10.1525/aa.1968.70.2.02a00050.
- Berlin, Brent & Paul Kay. 1969. *Basic color terms: Their universality and evolution*. Berkeley: University of California Press.
- Berman, Judith. 1990. Notes on shape classification in Kwakw'ala. *ICSNL* 25. 37–60.
- Bernatzik, Hugo Adolf. 1938. *Die Geister der gelben Blätter. Forschungsreisen in Hinterindien*. Auflage: 1. F. Bruckmann.
- Bickel, Balthasar. 2003. Referential density in discourse and syntactic typology. *Language* 79(4). 708–736.
- Biggam, C. P. 2012. *The semantics of colour: A historical approach*. New York: Cambridge University Press.
- Bishop, Nancy & Mary Peterson. 1993. *Maniq language survey report*. Bangkok: TU-SIL-LRDP Thammasat University.
- Bishop, Nancy & Mary Peterson. 2003. *Northern Aslian language survey: Trang, Satul and Phatthalung provinces, Thailand*. Bangkok: TU-SIL-LRDP Thammasat University.
- Blankenship, Barbara. 1997. Classificatory Verbs in Cherokee. *Anthropological Linguistics* 39(1). 92–110.
- Borchardt, Nadine. 2014. Color categories in language contact: “Pygmy” hunter-gatherers and Bantu farmers. *Proceedings of the Berkeley Linguistics Society*, vol. 38.
- Boster, James S. & Jeffrey C. Johnson. 1989. Form or function: A comparison of expert and novice judgments of similarity among fish. *American Anthropologist* 91(4). (New Series). 866–889.
- Bowerman, Melissa. 2005. Why can't you “open” a nut or “break” a cooked noodle? Learning covert object categories in action word meanings. In Lisa

- Gershkoff-Stowe & David H. Rakison (eds.), *Building object categories in developmental time*, 209–243. Mahwah, NJ: L. Erlbaum Associates.
- Bowerman, Melissa, Marianne Gullberg, Asifa Majid & Bhuvana Narasimhan. 2004. Put project: The cross-linguistic encoding of placement events. In Asifa Majid (ed.), *Field manual volume 9*, 10–24. Nijmegen: Max Planck Institute for Psycholinguistics.
- Bowerman, Melissa & Eric Pederson. 1992. Topological relations picture series. In Stephen C. Levinson (ed.), *Space stimuli kit 1.2: November 1992*, vol. 51. Nijmegen: Max Planck Institute for Psycholinguistics.  
<http://fieldmanuals.mpi.nl/volumes/1992/bowped/> (30 January, 2015).
- Braack, L. E. O. 2010. *Fascinating insects of Southeast Asia*. Singapore: Marshall Cavendish International Asia Pte Ltd.
- Brandt, John H. 1961. The negrito of peninsular Thailand. *Journal of the Siam Society* 49(2). 123–158.
- Brandt, John H. 1965. The Southeast Asian negritos: Further notes on the negrito of South Thailand. *Journal of the Siam Society* 53(1). 27–43.
- Brown, Penelope. 1998. Children's first verbs in Tzeltal: Evidence for an early verb category. *Linguistics* 36(4). 713–754.
- Brown, Penelope. 2001. Learning to talk about motion UP and DOWN in Tzeltal: Is there a language-specific bias for verb learning? In Melissa Bowerman & Stephen C. Levinson (eds.), *Language acquisition and conceptual development*, 512–543. Cambridge: Cambridge University Press.
- Brown, Penelope. 2008. Verb specificity and argument realization in Tzeltal child language. In Melissa Bowerman & Penelope Brown (eds.), *Crosslinguistic perspectives on argument structure: Implications for learnability*, 167–189. Mahwah, NJ: Erlbaum.
- Brown, Penelope & Stephen C. Levinson. 1993. "Uphill" and "downhill" in Tzeltal. *Journal of Linguistic Anthropology* 3(1). 46–74.  
 doi:10.1525/jlin.1993.3.1.46.
- Brown, Roger W. & Eric H. Lenneberg. 1954. A study in language and cognition. *The Journal of Abnormal and Social Psychology* 49(3). 454–462.  
 doi:10.1037/h0057814.

- Burenhult, Niclas. in press. Foraging and the history of languages in the Malay Peninsula. In Tom Güldeman, Patrick McConvell & Richard A. Rhodes (eds.), *The language of Hunter-Gatherers*. Cambridge: Cambridge University Press.
- Burenhult, Niclas. 2005. *A Grammar of Jahai*. Canberra: Pacific Linguistics.
- Burenhult, Niclas. 2006. Body part terms in Jahai. *Language Sciences* 28(2–3). 162–180. doi:10.1016/j.langsci.2005.11.002.
- Burenhult, Niclas. 2008. Streams of words: Hydrological lexicon in Jahai. *Language Sciences* 30(2–3). 182–199. doi:10.1016/j.langsci.2006.12.005.
- Burenhult, Niclas. 2009. Semang archive: Survey, Malaysia. <http://hdl.handle.net/1839/00-0000-0000-0009-79A4-7@view> (19 January, 2015).
- Burenhult, Niclas. 2012. The linguistic encoding of placement and removal events in Jahai. In Anetta Kopecka & Bhuvana Narasimhan (eds.), *Events of “putting” and “taking”: A crosslinguistic approach*, 21–36. (Typological Studies in Language 100). John Benjamins Publishing.
- Burenhult, Niclas. 2013. Categories of arboreal locomotion in Jahai (Austroasiatic, Malay Peninsula). Unpublished report.
- Burenhult, Niclas & Nicole Kruspe. 2016. The language of eating and drinking: A window on Orang Asli meaning-making. In Kirk Endicott (ed.), *Malaysia’s original people : Past, present and future of the Orang Asli*, 175–199. National University of Singapore Press.
- Burenhult, Niclas, Nicole Kruspe & Michael Dunn. 2011. Language history and culture groups among Austroasiatic-speaking foragers of the Malay Peninsula. In N.J. Enfield (ed.), *Dynamics of human diversity: The case of mainland Southeast Asia*, 257–277. Canberra: Pacific Linguistics.
- Burenhult, Niclas & Asifa Majid. 2011. Olfaction in Aslian ideology and language. *The Senses and Society* 6(1). 19–29.
- Burton, Michael L. & Sara B. Nerlove. 1976. Balanced designs for triads tests: Two examples from English. *Social Science Research* 5(3). 247–267.
- Burton, Robert. 1976. *The language of smell*. London: Routledge & Kegan Paul.

- Bybee, Joan L. 1985. *Morphology: A study of the relation between meaning and form*. (Typological Studies in Language v. 9). Amsterdam ; Philadelphia: J. Benjamins.
- Caballero, Rosario. 2007. Manner-of-motion verbs in wine description. *Journal of Pragmatics* 39(12). 2095–2114. doi:10.1016/j.pragma.2007.07.005.
- Cain, William S. 1979. To know with the nose: Keys to odor identification. *Science* 203(4379). 467–470. doi:10.1126/science.760202.
- Cain, William S., René de Wijk, Christine Lulejian, Franc Schiet & Lai-Chu See. 1998. Odor identification: Perceptual and semantic dimensions. *Chemical Senses* 23(3). 309–326.
- Carlson-Radvansky, Laura A. & David E. Irwin. 1993. Frames of reference in vision and language: Where is above? *Cognition* 46(3). 223–244. doi:10.1016/0010-0277(93)90011-J.
- Casson, Ronald W. 1994. Russett, rose, and raspberry: The development of English secondary color terms. *Journal of Linguistic Anthropology* 4(1). 5–22.
- Casson, Ronald W. 1997. Color shift: Evolution of English color terms from brightness to hue. In C.L. Hardin & Luisa Maffi (eds.), *Color categories in thought and language*, 320–346. Cambridge: Cambridge University Press.
- Cattell, Raymond B. 1966. The scree test for the number of factors. *Multivariate Behavioral Research* 1(2). 245–276.
- Chang, Echa, Chu-Ren Huang, Sue-Jin Ker & Chang-Hua Yang. 2002. Induction of classification from lexicon expansion: Assigning domain tags to WordNet entries. In Grace Ngai & Pascal Fung (eds.), *Proceedings of the Workshop on Semanet: Building and Using Semantic Networks COLING 2002*. Taipei: Association for computational linguistics and chinese language processing.
- Choi, Soonja & Melissa Bowerman. 1991. Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns. *Cognition* 41(1). 83–121.
- Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Choosri, Isara, Chumphol Pothisarn, Amornrat Ratanawong & Sarawut Kraisame. 2011. Sedentarization of Maniq, Mlabri, and Moken: Implications for

- language and culture preservation in Thailand. Bangkok: Mahidol University.
- Chrea, C., D. Valentin, C. Sulmont-Rossé, H. Ly Mai, D. Hoang Nguyen & H. Abdi. 2004. Culture and odor categorization: Agreement between cultures depends upon the odors. *Food Quality and Preference* 15(7-8). 669–679.
- Cifuentes-Férez, Paula. 2014. A closer look at Paths of vision, Manner of vision and their translation from English into Spanish. *Languages in Contrast* 14(2). 214–250.
- Clark, Herbert H. & Richard J. Gerrig. 1990. Quotations as demonstrations. *Language* 66(4). 764–805. doi:10.2307/414729.
- Classen, Constance. 1990. Sweet colors, fragrant songs: Sensory models of the Andes and the Amazon. *American Ethnologist* 17(4). 722–735.
- Classen, Constance. 1997. Foundations for an anthropology of the senses. *International Social Science Journal* 49(153). 401–412. doi:10.1111/j.1468-2451.1997.tb00032.x.
- Classen, Constance, David Howes & Anthony Synnott. 1994. *Aroma: The cultural history of smell*. London: Routledge.
- Cohnitz, Daniel & Marcus Rossberg. 2014. Nelson Goodman. In Edward N. Zalta (ed.), *The Stanford encyclopedia of philosophy*. Winter 2014. <http://plato.stanford.edu/archives/win2014/entries/goodman/> (17 August, 2015).
- Comrie, Bernard. 1976. *Aspect: An introduction to the study of verbal aspect and related problems*. Cambridge: Cambridge University Press.
- Conklin, Harold C. 1955. Hanunóo color categories. *Southwestern Journal of Anthropology* 11(4). 339–344.
- Cox, Merel J., Peter Paul & Kumthorn Thirukhuapl. 1998. *A photographic guide to snakes and other reptiles of Thailand, Singapore & Peninsular Malaysia*. Sanibel Island, Fla.: Ralph Curtis Publishing.
- Croft, William. 1991. *Syntactic categories and grammatical relations: The cognitive organization of information*. Chicago: University of Chicago Press.
- Croft, William. 2000. Parts of speech as language universals and as language-particular categories. In Petra Maria Vogel & Bernard Comrie (eds.),

- Approaches to the typology of word classes*, 65–102. (Empirical Approaches to Language Typology 23). Berlin; New York: Mouton de Gruyter.
- Cruse, D. A. 1986. *Lexical semantics*. (Cambridge Textbooks in Linguistics). Cambridge; New York: Cambridge University Press.
- Dahl, Östen. 2004. *The growth and maintenance of linguistic complexity*. (Studies in Language Companion Series 71). Amsterdam; Philadelphia: John Benjamins.
- Dallos, Csilla. 2011. *From equality to inequality: Social change among newly sedentary Lanoh hunter-gatherer traders of Peninsular Malaysia*. Toronto: University of Toronto Press.
- Darwin, Charles. 1874. *The descent of man, and selection in relation to sex*. 2nd ed. London: John Murray.
- Davies, Ian R.L., Glynis Laws, Greville G. Corbett & David J. Jerrett. 1998. Cross-cultural differences in colour vision: Acquired “colour-blindness” in Africa. *Personality and Individual Differences* 25(6). 1153–1162. doi:10.1016/S0191-8869(98)00150-0.
- Davies, I. R. L., C. Macdermid, G. G. Corbett, H. Mcgurk, D. Jerrett, T. Jerrett & P. Sowden. 1992. Color terms in Setswana: a linguistic and perceptual approach. *Linguistics* 30(6). 1065–1104.
- Declerck, Renaat. 2006. *The grammar of the English tense system: A comprehensive analysis*. (Topics in English Linguistics 60.1). Berlin; New York: Mouton de Gruyter.
- Dentan, Robert Knox. 1979. *The Semai: A nonviolent people of Malaya*. (Case Studies in Cultural Anthropology). New York: Holt, Rinehart and Winston.
- Dentan, Robert Knox. 2003. Preliminary field notes on the Semai language. Edited by thomas Doyle. Unpublished typescript.
- De Wit, Astrid. 2014. *The Present Perfective Paradox across Languages*. Antwerp: Universiteit Antwerpen.
- De Wit, Astrid & Frank Brisard. 2014. A Cognitive Grammar account of the semantics of the English present progressive. *Journal of Linguistics* 50(01). 49–90.

- Diffloth, Gérard. 1975. Les langues mon-khmer de Malaisie: Classification historique et innovations. *Asie du Sud-Est et Monde Insulinde* 6(4). 1 – 19.
- Diffloth, Gérard. 1976a. Jah-Hut, an Austroasiatic language of Malaysia. In Nguyen Dang Liem (ed.), *South-east Asian linguistic studies*, vol. 2, 73–118. Canberra: Pacific Linguistics.
- Diffloth, Gérard. 1976b. Expressives in Semai. *Oceanic Linguistics Special Publications*(13). 249–264.
- Diffloth, Gérard. 1976c. Minor-syllable vocalism in Senoic languages. *Oceanic Linguistics Special Publication*. 229–247.
- Diffloth, Gérard & Norman H. Zide. 1992. Austro-Asiatic languages. In William Bright (ed.), *International Encyclopedia of Linguistics*, vol. 1, 137–142. New York: Oxford University Press.
- Diller, Anthony. 1979. Tones, segments and Thai regional society. In T.L. Thongkum, V. Panupong, P. Kullavanijava & M.R. Kalaya Tingsabadh (eds.), *Studies in Tai and Mon-Khmer phonetics and phonology in honour of Eugénie J.A. Henderson*, 60–93. Bangkok: Chulalongkorn University Press.
- Dingemanse, Mark. 2011. The meaning and use of ideophones in Siwu. Nijmegen: Radboud University PhD dissertation.
- Distel, Hans & Robyn Hudson. 2001. Judgement of odor intensity is influenced by subjects' knowledge of the odor source. *Chemical Senses* 26(3). 247–251.
- Dixon, Robert M. W. 1982. Where have all the adjectives gone? *Studies in Language* 1(1). 19–80.
- Dixon, Robert M. W. 2004. Adjective classes in typological perspective. In Robert M. W. Dixon & Alexandra Y. Aikhenvald (eds.), *Adjective classes*. Oxford: Oxford University Press.
- Dixon, Robert M. W & Alexandra Y. Aikhenvald. 2004. *Adjective classes*. Oxford: Oxford University Press.
- Doty, Richard L. 1975. An examination of relationships between the pleasantness, intensity, and concentration of 10 odorous stimuli. *Perception & Psychophysics* 17(5). 492–496.

- Drake, M.A. & G.V. Civile. 2003. Flavor lexicons. *Comprehensive Reviews in Food Science and Food Safety* 2(1). 33–40. doi:10.1111/j.1541-4337.2003.tb00013.x.
- Dubois, Danièle. 2000. Categories as acts of meaning: The case of categories in olfaction and audition. *Cognitive Science Quarterly* 1(1). 35–68.
- Dunn, Michael, Niclas Burenhult, Nicole Kruspe, Neele Becker & Sylvia Tufvesson. 2011. Aslian linguistic prehistory: A case study in computational phylogenetics. *Diachronica* 28. 291–323.
- Dunn, Michael, Nicole Kruspe & Niclas Burenhult. 2013. Time and place in the prehistory of the Aslian languages. *Human Biology* 85(1).
- Ember, Melvin. 1978. Size of color lexicon: Interaction of cultural and biological factors. *American Anthropologist* 80(2). 364–367. doi:10.1525/aa.1978.80.2.02a00100.
- Endicott, Kirk M. 1979. *Batek negrito religion: The world-view and rituals of a hunting and gathering people of Peninsular Malaysia*. Oxford: Clarendon Press.
- Endicott, Kirk M. & Terefi Abate Adem. 2009. Culture summary: Semang. *eHRAF World Cultures Database. Human Relations Area Files*. <http://ehrafworldcultures.yale.edu>.
- Endicott, Kirk M. & Karen L. Endicott. 2008. *The headman was a woman: The gender egalitarian Batek of Malaysia*. Long Grove, Ill: Waveland Press.
- Enfield, N. J. (ed.). 2002. Ethnosyntax: Introduction. *Ethnosyntax: Explorations in grammar and culture*, 3–30. (Oxford Linguistics). Oxford; New York: Oxford University Press.
- Enfield, N. J. 2004. Adjectives in Lao. In Robert M. W. Dixon & Alexandra Y. Aikhenvald (eds.), *Adjective classes*, 323–347. Oxford: Oxford University Press.
- Enfield, N. J., Paul Kockelman & Jack Sidnell (eds.). 2014. *The Cambridge handbook of linguistic anthropology*. (Cambridge Handbooks in Language and Linguistics). New York: Cambridge University Press.
- Evans, Ivor H. N. 1927. *Papers on the ethnology and archaeology of the Malay Peninsula*. Cambridge: Cambridge University Press.
- Evans, Ivor H. N. 1937. *The negritos of Malaya*. Cambridge: The University Press.

- Evans, Nicholas. 2000. Kinship verbs. In Petra Maria Vogel & Bernard Comrie (eds.), *Approaches to the typology of word classes*, 103–172. (Empirical Approaches to Language Typology 23). Berlin; New York: Mouton de Gruyter.
- Evans, Nicholas. 2003. Context, culture, and structuration in the languages of Australia. *Annual Review of Anthropology* 32. 13–40.
- Evans, Nicholas. 2011a. Anything can happen: The verb lexicon and interdisciplinary fieldwork. In Nick Thieberger (ed.), *The Oxford handbook of linguistic fieldwork*, 183–208. (Oxford Handbooks in Linguistics). Oxford; New York: Oxford University Press.
- Evans, Nicholas. 2011b. Semantic typology. In Jae Jung Song (ed.), *The Oxford handbook of linguistic typology*, 504–533. (Oxford Handbooks in Linguistics). Oxford; New York: Oxford University Press.
- Evans, Nicholas & Stephen C. Levinson. 2009. The myth of language universals: Language diversity and its importance for cognitive science. *Behavioral and Brain Sciences* 32(05). 429–448. doi:10.1017/S0140525X0999094X.
- Evans, Nicholas & David Wilkins. 2000. In the mind's ear: The semantic extensions of perception verbs in Australian languages. *Language*. 546–592.
- Everett, Daniel. 2005. Cultural constraints on grammar and cognition in Pirahã. *Current anthropology* 46(4). 621–646.
- Fellbaum, Christiane (ed.). 1998. *WordNet: An electronic lexical database*. Cambridge, MA: MIT Press. <https://mitpress.mit.edu/books/wordnet> (18 August, 2015).
- Fellbaum, Christiane & George A. Miller. 1990. Folk psychology or semantic entailment? Comment on Rips and Conrad (1989). *Psychological Review* 97(4). 565–570. doi:10.1037/0033-295X.97.4.565.
- Fillenbaum, Samuel & Amnon Rapoport. 1971. *Structures in the subjective lexicon*. New York: Academic Press.
- Fillenbaum, Samuel & Amnon Rapoport. 1974. Verbs of judging, judged: A case study. *Journal of Verbal Learning and Verbal Behavior* 13(1). 54–62. doi:10.1016/S0022-5371(74)80030-7.

- Fletcher, Robert & Jane Voke. 1985. *Defective colour vision: Fundamentals, diagnosis, and management*. Bristol; Boston: A. Hilger.
- Foley, William A. 1986. *The Papuan languages of New Guinea*. (Cambridge Language Surveys). Cambridge; New York: Cambridge University Press.
- Francis, Charles M. 2001. *A photographic guide to mammals of South-East Asia*. London: New Holland Publishers.
- Francis, Charles M. 2008. *A field guide to the mammals of South-East Asia*. London: New Holland Publishers.
- Gage, John. 1993. *Color and culture: Practice and meaning from antiquity to abstraction*. Boston: Little, Brown and Company.
- Gardner, Howard. 1993. *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Garrido Rodriguez, Gabriela. 2015. Mayan predictions for 2015: Predictive processing during sentence comprehension in Tzeltal. Paper presented at the MPI Lunch Talk Series, Nijmegen.
- Gentner, Dedre. 1982. Why nouns are learned before verbs: Linguistic relativity versus natural partitioning. In S.A. Kuczaj (ed.), *Language development: Vol. 2. Language, thought, and culture*, 301–334. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gentner, Dedre & Lera Boroditsky. 2001. Individuation, relativity, and early word learning. In Melissa Bowerman & Stephen C. Levinson (eds.), *Language acquisition and conceptual development*. (Language, Culture and Cognition 3). Cambridge; New York: Cambridge University Press.
- Gentner, Dedre & Susan Goldin-Meadow (eds.). 2003. *Language in mind: Advances in the study of language and thought*. Cambridge, MA: MIT Press.
- Gisborne, Nikolas. 2010. *The event structure of perception verbs*. (Oxford Linguistics). Oxford; New York: Oxford University Press.
- Givón, Talmy. 1984. *Syntax: A functional-typological introduction*. . Vol. 1. Amsterdam; Philadelphia: J. Benjamins.
- Gladstone, W. E. 1858. *Studies on Homer and the Homeric age*. Oxford.
- Gluck, Malcolm. 2003. Wine language: Useful idiom or idiot-speak? In J. Aitchison & D.M. Lewis (eds.), *New Media Language*, 108–115. London: Routledge.

- González Fernández, María Jesús. 1997. Sobre la motivación semántica de las expresiones pleonásticas de movimiento: Subir, bajar abajo, entrar adentro y salir afuera. In Concepción Company Company (ed.), *Cambios diacrónicos en el español*, 123–141. México: Universidad Autónoma de México.
- Gouras, Peter. 1991. Color vision. In Eric R. Kandel & James H. Schwartz (eds.), *Principles of neural science*, 467–479. Norwalk, CT: Appleton and Lange.
- Grinker, Roy R. 1934. *Neurology*. Springfield: C.C. Thomas.
- Haddad, Rafi, Tali Weiss, Rehan Khan, Boaz Nadler, Nathalie Mandairon, Moustafa Bensafi, Elad Schneidman & Noam Sobel. 2010. Global features of neural activity in the olfactory system form a parallel code that predicts olfactory behavior and perception. *The Journal of Neuroscience* 30(27). 9017–9026. doi:10.1523/JNEUROSCI.0398-10.2010.
- Haiman, John. 1985. *Natural syntax: Iconicity and erosion*. (Cambridge Studies in Linguistics 44). Cambridge; New York: Cambridge University Press.
- Hamilton, Annette. 2001. State's margins, people's centre: Space and history in southern Thai jungles. *Nomadic Peoples* 5(2). 89–104.
- Hamilton, Annette. 2002. Tribal people on the southern Thai border. In Geoffrey Benjamin & Cynthia Chou (eds.), *Tribal communities in the Malay world: Historical, cultural and social perspectives*, 77–96. Leiden, the Netherlands: International Institute for Asian Studies.
- Hamilton, Annette. 2006. Reflections on the “disappearing Sakai”: A tribal minority in southern Thailand. *Journal of Southeast Asian Studies* 37(2). 293–314.
- Hargrave, Susanne. 1982. Report on colour term research in five Aboriginal languages. *Work Papers of SIL-AAB*, vol. 8, 201–226. Darwin, NT: Summer Institute of Linguistics, Australian Aborigines Branch.
- Haspelmath, Martin. 2009. Lexical borrowing: Concepts and issues. In Martin Haspelmath & Uri Tadmor (eds.), *Loanwords in the world's languages: a comparative handbook*, 35–54. Berlin, Germany: De Gruyter Mouton.
- Haspelmath, Martin & Uri Tadmor (eds.). 2009. *WOLD*. Leipzig: Max Planck Institute for Evolutionary Anthropology. <http://wold.clld.org/> (26 August, 2015).

- Haviland, John B. 2006. Documenting lexical knowledge. In Jost Gippert, Nikolaus Himmelmann & Ulrike Mosel (eds.), *Essentials of language documentation*, 129–162. (Trends in Linguistics. Studies and Monographs 178). Berlin; New York: Mouton de Gruyter.
- Hawkins, John A. 2004. *Efficiency and complexity in grammars*. (Oxford Linguistics). Oxford; New York: Oxford University Press.
- Hayton, James C., David G. Allen & Vida Scarpello. 2004. Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods* 7(2). 191–205.
- Heath, Jeffrey & Laura McPherson. 2009. Cognitive set and lexicalization strategy in Dogon action verbs. *Anthropological Linguistics* 51(1). 38–63. doi:10.1353/anl.0.0001.
- Heider, Eleanor Rosch. 1972. Probabilities, sampling, and ethnographic method: The case of Dani colour names. *Man* 7(3). 448–466. doi:10.2307/2800917.
- Hellwig, Birgit. 2006. Field semantics and grammar-writing: Stimuli-based techniques and the study of locative verbs. In Felix K Ameka, Alan Dench & Nicholas Evans (eds.), *Catching language: The standing challenge of grammar writing*, 321–358. Berlin: Mouton de Gruyter.
- Henrich, Joseph, Steven J. Heine & Ara Norenzayan. 2010. The weirdest people in the world. *Behavioral and Brain Sciences* 33(2-3). 61–83.
- Herz, Rachel S. & Trygg Engen. 1996. Odor memory: Review and analysis. *Psychonomic Bulletin & Review* 3(3). 300–313. doi:10.3758/BF03210754.
- Hill, Catherine, Pedro Soares, Maru Mormina, Vincent Macaulay, William Meehan, James Blackburn, Douglas Clarke, et al. 2006. Phylogeography and ethnogenesis of Aboriginal Southeast Asians. *Molecular Biology and Evolution* 23(12). 2480–2491. doi:10.1093/molbev/msl124.
- Hill, Clair. 2011. Named and unnamed spaces: Color, kin, and the environment in Umpila. *The Senses and Society* 6(1). 57–67. doi:10.2752/174589311X12893982233759.
- Hill, Deborah. in press. Bride-price, baskets and the semantic domain of “carrying” in a matrilineal society. *Oceanic Linguistics*.

- Hojjer, Harry. 1951. Cultural implications of some Navaho linguistic categories. *Language* 27(2). 111–120. doi:10.2307/410424.
- Hombert, Jean-Marie. 1992. Terminologie des odeurs dans quelques langues du Gabon. *Pholia* 7. 61–65.
- Hopper, Paul J. & Sandra A. Thompson. 1980. Transitivity in grammar and discourse. *Language* 56(2). 251–299. doi:10.2307/413757.
- Hopper, Paul J. & Sandra A. Thompson. 1984. The discourse basis for lexical categories in Universal Grammar. *Language* 60(4). 703–752. doi:10.2307/413797.
- Jönsson, Fredrik U. & Mats J. Olsson. 2012. Knowing what we smell. In Gesualdo Zucco, Rachel Herz & Benoist Schaal (eds.), *Olfactory cognition: From perception and memory to environmental odours and neuroscience*, 115–135. (85). Amsterdam; Philadelphia: Benjamins.
- Kaeppler, Kathrin & Friedrich Mueller. 2013. Odor Classification: A review of factors influencing perception-based odor arrangements. *Chemical Senses* 38(3). 189–209. doi:10.1093/chemse/bjs141.
- Kaewkhao, Uthai & Tawan Kiatboonyarit. 1986. Central Southern Thai dictionary. <http://eric.ed.gov/?id=ED401730> (11 September, 2014).
- Kaiser, Henry F. 1960. The application of electronic computers to factor analysis. *Educational and Psychological Measurement* 20. 141–151. doi:10.1177/001316446002000116.
- Kant, Immanuel. 2006. *Anthropology from a pragmatic point of view*. (Ed.) Robert B. Loudon. Cambridge University Press.
- Katz, Jerrold J. & Jerry A. Fodor. 1963. The structure of a semantic theory. *Language* 39(2). 170–210.
- Kay, Paul. 2006. Methodological issues in cross-language color naming. *Language, culture, and society: Key topics in linguistic anthropology*. 115–134.
- Kay, Paul, Brent Berlin, Luisa Maffi & William R. Merrifield. 1997. Color naming across languages. In C.L. Hardin & Luisa Maffi (eds.), *Color categories in thought and language*, 21–56. Cambridge: Cambridge University Press.

- Kay, Paul, Brent Berlin, Luisa Maffi, William R. Merrifield & Richard Cook. 2009. *The world color survey*. Stanford, California: Center for the Study of Language and Information Publications.
- Kay, Paul & Luisa Maffi. 1999. Color appearance and the emergence and evolution of basic color lexicons. *American anthropologist* 101(4). 743–760.
- Khan, Rehan M., Chung-Hay Luk, Adeen Flinker, Amit Aggarwal, Hadas Lapid, Rafi Haddad & Noam Sobel. 2007. Predicting odor pleasantness from odorant structure: Pleasantness as a reflection of the physical world. *Journal of Neuroscience* 27(37). 10015–10023. doi:10.1523/JNEUROSCI.1158-07.2007.
- King Chulalongkorn. 1907. *Ngo Pa: Romance of the Sakai*. (Trans.) Malithat Pramathatavedi. Bangkok: Department of Curriculum and Instruction Development.
- Kittilä, Seppo. 2009. Causative morphemes as non-valency increasing devices. *Folia Linguistica* 43(1). 67–94. doi:10.1515/FLIN.2009.002.
- Klein, Harriet E. Manelis. 1981. Location and direction in Toba: Verbal morphology. *International Journal of American Linguistics* 47(3). 227–235.
- Kopecka, Anetta. 2010. Motion events in Polish: Lexicalization patterns and semantic distribution of Manner. In Viktoria Hasko & Renee Perelmutter (eds.), *New approaches to Slavic verbs of motion*, 225–246. (Studies in Language Companion Series (SLCS) v. 115). Amsterdam; Philadelphia: John Benjamins.
- Kopecka, Anetta & Bhuvana Narasimhan (eds.). 2012. *Events of putting and taking: A crosslinguistic perspective*. (Typological Studies in Language 100). Amsterdam; Philadelphia: John Benjamins.
- Koulakov, Alexei A., Brian E. Kolterman, Armen G. Enikolopov & Dmitry Rinberg. 2011. In search of the structure of human olfactory space. *Frontiers in Systems Neuroscience* 5. 1–8. doi:10.3389/fnsys.2011.00065.
- Kraft, Thomas S., Vivek V. Venkataraman & Nathaniel J. Dominy. 2014. A natural history of human tree climbing. *Journal of Human Evolution* 71. 105–118. doi:10.1016/j.jhevol.2014.02.002.

- Kricheff, Daniel Abraham & Helmut Lukas. 2015. Being Maniq. *Hunter Gatherer Research* 1(2). 139–155. doi:10.3828/hgr.2015.9.
- Kruskal, Joseph B. 1964. Nonmetric multidimensional scaling: A numerical method. *Psychometrika* 29(2). 115–129.
- Kruskal, Joseph B. & Myron Wish. 1978. *Multidimensional scaling*. Beverly Hills, CA: Sage.
- Kruspe, Nicole. 2004a. Adjectives in Semelai. In Robert M. W Dixon & Alexandra Y. Aikhenvald (eds.), *Adjective classes*, 283–305. Oxford: Oxford University Press.
- Kruspe, Nicole. 2004b. *A Grammar of Semelai*. New York, NY: Cambridge University Press.
- Kruspe, Nicole. 2009. Loanwords in Ceq Wong, an Austroasiatic language of Peninsular Malaysia. In Martin Haspelmath & Uri Tadmor (eds.), *Loanwords in the world's languages: A comparative handbook*. Berlin, Germany: De Gruyter Mouton.
- Kruspe, Nicole. 2010. *A dictionary of Mah Meri as spoken at Bukit Bangkong*. (Oceanic Linguistics Special Publication 36). Honolulu: University of Hawaii Press.
- Kruspe, Nicole. 2015. Semaq Beri. In Paul Sidwell & Mathias Jenny (eds.), *Handbook of the Austroasiatic languages*, 475–518. Leiden; Boston: Brill.
- Kruspe, Nicole, Niclas Burenhult & Ewelina Wnuk. 2015. Northern Aslian. In Paul Sidwell & Mathias Jenny (eds.), *Handbook of the Austroasiatic languages*, 419–474. Leiden; Boston: Brill.
- Kuschel, Rolf & Torben Monberg. 1974. “We don”t talk much about colour here”: A study of colour semantics on Bellona Island. *Man* 9(2). 213–242.
- Langacker, Ronald W. 1987. Nouns and verbs. *Language* 63(1). 53–94. doi:10.2307/415384.
- Laska, Matthias, Alexandra Seibt & Andreas Weber. 2000. “Microsmatic” primates revisited: Olfactory sensitivity in the squirrel monkey. *Chemical Senses* 25(1). 47–53. doi:10.1093/chemse/25.1.47.

- Lawless, Harry T. & Trygg Engen. 1977. Associations to odors: Interference, mnemonics, and verbal labeling. *Journal of Experimental Psychology: Human Learning and Memory* 3(1). 52–59.
- Lawless, Harry T. & William S. Cain. 1975. Recognition memory for odors. *Chemical Senses* 1(3). 331–337. doi:10.1093/chemse/1.3.331.
- Lee, Amy Pei-jung. 2010. Reduplication and odor in four Formosan languages. *Language and Linguistics* 11(1). 99–126.
- Lehrer, Adrienne. 1974. *Semantic fields and lexical structure*. (North-Holland Linguistic Series 11). Amsterdam; New York: North-Holland; American Elsevier.
- Lehrer, Adrienne. 1983. *Wine and conversation*. Bloomington: Indiana University Press.
- Lehrer, Adrienne. 2009. *Wine and conversation*. 2nd edn. Oxford; New York: Oxford University Press.
- Levelt, Willem J.M. 1984. Some perceptual limitations on talking about space. In Andrea J. Van Doorn, Wim A. Van de Grind & Jan J. Koenderink (eds.), *Limits in perception*, 323–358. Utrecht: VNU Science Press.
- Levin, Beth. 1993. *English verb classes and alternations: A preliminary investigation*. Chicago, IL: University of Chicago Press.
- Levinson, Stephen C. 1994. Vision, shape, and linguistic description: Tzeltal body-part terminology and object description. *Linguistics* 32(4-5). 791–856.
- Levinson, Stephen C. 1996. Frames of reference and Molyneux's question: Crosslinguistic evidence. In Paul Bloom, Merrill F. Garrett, Lynn Nadel & Mary A. Peterson (eds.), *Language and space*, 109–169. (Language, Speech, and Communication). Cambridge, MA: MIT Press.
- Levinson, Stephen C. 2000. Yélf Dnye and the theory of basic color terms. *Journal of Linguistic Anthropology* 10(1). 3–55.
- Levinson, Stephen C. 2001. Motion verb stimulus, version 2. In Stephen C. Levinson & N. J. Enfield (eds.), *Manual for the field season 2001*, 9–13. Nijmegen: Max Planck Institute for Psycholinguistics.

- Levinson, Stephen C. 2003. *Space in language and cognition: Explorations in cognitive diversity*. (Language, Culture, and Cognition 5). Cambridge; New York: Cambridge University Press.
- Levinson, Stephen C. 2012. The original sin of cognitive science. *Topics in Cognitive Science* 4(3). 396–403. doi:10.1111/j.1756-8765.2012.01195.x.
- Levinson, Stephen C. & Niclas Burenhult. 2009. Semplates: A new concept in lexical semantics? *Language* 85(1). 153–174. doi:10.1353/lan.0.0090.
- Levinson, Stephen C. & Nicholas Evans. 2010. Time for a sea-change in linguistics: Response to comments on “The Myth of Language Universals.” *Lingua* 120(12). 2733–2758. doi:10.1016/j.lingua.2010.08.001.
- Levinson, Stephen C. & Asifa Majid. 2014. Differential ineffability and the senses. *Mind & Language* 29. 407–427. doi:doi:10.1111/mila.12057.
- Levinson, Stephen C. & David Wilkins (eds.). 2006. *Grammars of space: Explorations in cognitive diversity*. (Language, Culture, and Cognition 6). Cambridge; New York: Cambridge University Press.
- Leyton, Michael. 1989. Inferring causal history from shape. *Cognitive Science* 13(3). 357–387.
- Lindsey, Delwin T. & Angela M. Brown. 2002. Color naming and the phototoxic effects of sunlight on the eye. *Psychological Science* 13(6). 506–512. doi:10.1111/1467-9280.00489.
- Lucy, John A. 1992. *Language diversity and thought: A reformulation of the linguistic relativity hypothesis*. (Studies in the Social and Cultural Foundations of Language 12). Cambridge; New York: Cambridge University Press.
- Lucy, John A. 1997. The linguistics of “color.” In C.L. Hardin & Luisa Maffi (eds.), *Color categories in thought and language*, 320–346. Cambridge: Cambridge University Press.
- Lukas, Helmut. 2004. Can “they” save “us”, the foragers? Indonesian and Thai hunter-gatherer cultures under threat from outside. *Südostasien Working Papers*, vol. 2.
- Lye, Tuck-Po. 2004. *Changing pathways: Forest degradation and the Batek of Pahang, Malaysia*. Lanham: Lexington Books.

- Lyons, John. 1968. *Introduction to theoretical linguistics*. London: Cambridge University Press.
- Lyons, John. 1977. *Semantics*. Cambridge; New York: Cambridge University Press.
- Madany Mamlouk, Amir, Christine Chee-Ruiter, Ulrich G. Hofmann & James M. Bower. 2003. Quantifying olfactory perception: Mapping olfactory perception space by using multidimensional scaling and self-organizing maps. *Neurocomputing* 52. 591–597.
- Magnus, Margaret. 2000. What's in a Word? Studies in Phonosemantics. Trondheim, Norway: University of Trondheim PhD dissertation.
- Majid, Asifa (ed.). 2007. *Field manual volume 10*. Nijmegen: Max Planck Institute for Psycholinguistics.
- Majid, Asifa (ed.). 2008a. *Field manual volume 11*. Nijmegen: Max Planck Institute for Psycholinguistics.
- Majid, Asifa. 2008b. Focal colours. In Asifa Majid (ed.), *Field manual volume 11*, 8–10. Nijmegen: Max Planck Institute for Psycholinguistics.
- Majid, Asifa. 2010. Words for parts of the body. In Barbara C. Malt & Phillip M. Wolff (eds.), *Words and the mind: How words capture human experience*, 58–71. New York: Oxford University Press.
- Majid, Asifa. 2015a. Comparing lexicons cross-linguistically. In John R. Taylor (ed.), *The Oxford handbook of the word*, 364–379. Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199641604.013.020.
- Majid, Asifa. 2015b. Cultural factors shape olfactory language. *Trends in Cognitive Sciences* 19(11). 629–630. doi:10.1016/j.tics.2015.06.009.
- Majid, Asifa, James S. Boster & Melissa Bowerman. 2008. The cross-linguistic categorization of everyday events: A study of cutting and breaking. *Cognition* 109(2). 235–250.
- Majid, Asifa, Melissa Bowerman, Sotaro Kita, Daniel B. M. Haun & Stephen C. Levinson. 2004. Can language restructure cognition? The case for space. *Trends in Cognitive Sciences* 8(3). 108–114. doi:10.1016/j.tics.2004.01.003.
- Majid, Asifa, Melissa Bowerman, Miriam van Staden & James S. Boster. 2007. The semantic categories of cutting and breaking events: A crosslinguistic perspective. *Cognitive Linguistics* 18(2). 133–152.

- Majid, Asifa & Niclas Burenhult. 2014. Odors are expressible in language, as long as you speak the right language. *Cognition* 130(2). 266–270. doi:10.1016/j.cognition.2013.11.004.
- Majid, Asifa, Marianne Gullberg, Miriam van Staden & Melissa Bowerman. 2007. How similar are semantic categories in closely related languages? A comparison of cutting and breaking in four Germanic languages. *Cognitive Linguistics* 18(2). 179–194.
- Majid, Asifa & Stephen C. Levinson. 2011. The senses in language and culture. *The Senses and Society* 6(1). 5–18.
- Majid, Asifa & Miriam van Staden. 2015. Can nomenclature for the body be explained by embodiment theories? *Topics in Cognitive Science* 7(4). 570–594. doi:10.1111/tops.12159.
- Malinowski, Bronisław. 1929. Social anthropology. *Encyclopaedia Britannica*, vol. 20, 862–870. 14th ed. Chicago: Encyclopaedia Britannica.
- Malt, Barbara C., Eef Ameel, Mutsumi Imai, Silvia P. Gennari, Noburo Saji & Asifa Majid. 2014. Human locomotion in languages: Constraints on moving and meaning. *Journal of Memory and Language* 74. 107–123. doi:10.1016/j.jml.2013.08.003.
- Malt, Barbara C., Silvia Gennari, Mutsumi Imai, Eef Ameel, Naoaki Tsuda & Asifa Majid. 2008. Talking about walking: Biomechanics and the language of locomotion. *Psychological Science* 19(3). 232–240. doi:10.1111/j.1467-9280.2008.02074.x.
- Malt, Barbara C. & Asifa Majid. 2013. How thought is mapped into words. *Wiley Interdisciplinary Reviews: Cognitive Science* 4(6). 583–597. doi:10.1002/wcs.1251.
- Malt, Barbara C., Steven A. Sloman & Silvia P. Gennari. 2003. Universality and language specificity in object naming. *Journal of Memory and Language* 49(1). 20–42. doi:10.1016/S0749-596X(03)00021-4.
- Maneenoon, Katesarin. 2001. Ethnobotany of Sakai tribe in Trang, Phatthalung and Yala provinces. Hat Yai: Prince of Songkla University MA thesis.

- Maneenoon, Katesarin. 2008. A study on the genus *Dioscorea* L. (Dioscoreaceae), a major food plant of Sakai tribe at Banthad Range, Peninsular Thailand. Hat Yai: Prince of Songkla University.
- Maneenoon, Katesarin, Puangpen Sirirugsa & Kitichate Sridith. 2008. Ethnobotany of *Dioscorea* L.(Dioscoreaceae), a major food plant of the Sakai tribe at Banthad Range, Peninsular Thailand. *Ethnobotany Research & Applications* 6. 385–394.
- Martínez-Mayorga, Karina, Terry L. Peppard, Austin B. Yongye, Radleigh Santos, Marc Giulianotti & Jose L. Medina-Franco. 2011. Characterization of a comprehensive flavor database. *Journal of Chemometrics* 25(10). 550–560. doi:10.1002/cem.1399.
- Matisoff, James. 1986. Hearts and minds in South-East Asian languages and English: An essay in the comparative lexical semantics of psycho-collocations. *Cahiers de linguistique-Asie orientale* 15(1). 5–57.
- Matisoff, James A. 1973. Tonogenesis in Southeast Asia. In Larry M. Hyman (ed.), *Consonant types and tone*, 71–95. (Southern California Occasional Papers in Linguistics 1). Los Angeles: University of Southern California.
- Matisoff, James A. 2003. Aslian: Mon-Khmer of the Malay Peninsula. *Mon-Khmer Studies* 33. 1–58.
- Matsumoto, Yo. 2001. Lexicalization patterns and caused and fictive motion: The case of typological split. Lecture at SUNY Buffalo, NY.
- Michaelis, Laura A. 2004. Type shifting in construction grammar: An integrated approach to aspectual coercion. *Cognitive linguistics* 15(1). 1–68.
- Miller, George A. & Christiane Fellbaum. 1991. Semantic networks of English. *Cognition* 41(1–3). 197–229. doi:10.1016/0010-0277(91)90036-4.
- Miller, George A. & P. N. Johnson-Laird. 1976. *Language and perception*. Cambridge, MA: Belknap Press of Harvard University Press.
- Mithun, Marianne. 1999. *The languages of native North America*. (Cambridge Language Surveys). Cambridge; New York: Cambridge University Press.
- Mühlhäusler, Peter. 1974. *Pidginization and simplification of language*. (Pacific Linguistics). Canberra: Dept. of Linguistics, Research School of Pacific Studies, Australian National University.

- Mühlhäusler, Peter. 2001. Babel revisited. In Alwin Fill & Peter Mühlhäusler (eds.), *The ecolinguistics reader: Language, ecology, and environment*. London; New York: Continuum.
- Murphy, M. Lynne. 2003. *Semantic relations and the lexicon: Antonymy, synonymy, and other paradigms*. Cambridge; New York: Cambridge University Press.
- Naroll, Raoul. 1970. What have we learned from cross-cultural surveys? *American Anthropologist* 72(6). 1227–1288. doi:10.1525/aa.1970.72.6.02a00030.
- Needham, Rodney. 1967. Blood, thunder, and mockery of animals. In John Middleton (ed.), *Myth and cosmos: Readings in mythology and symbolism*. (American Museum Sourcebooks in Anthropology). Garden City, NY: Natural History Press.
- Newman, John. 2009. A cross-linguistic overview of “eat” and “drink.” In John Newman (ed.), *The linguistics of eating and drinking*, 1–26. (Typological Studies in Language v. 84). Amsterdam; Philadelphia: John Benjamins.
- Newman, Stanley. 1954. Semantic problems in grammatical systems and lexemes: A search for method. In Harry Hoijer (ed.), *Language in culture*, 82–91. (Comparative Studies of Cultures and Civilizations). Chicago: University of Chicago Press.
- Nichols, Johanna. 2010. Indeterminate motion verbs are denominal. In Viktoria Hasko & Renee Perelmutter (eds.), *New approaches to Slavic verbs of motion*, 47–65. (Studies in Language Companion Series (SLCS) v. 115). Amsterdam; Philadelphia: John Benjamins.
- Nichols, Johanna. 2015. Noun-based, verb-based, flexible: A lexical typology. Abstract of a talk presented at the University of Helsinki.
- Norcliffe, Elisabeth, N. J. Enfield, Asifa Majid & Stephen C. Levinson. 2010. The grammar of perception. In Elisabeth Norcliffe & N. J. Enfield (eds.), *Field manual volume 13*, 7–16. Nijmegen: Max Planck Institute for Psycholinguistics.
- O'Connor, Brian P. 2000. SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers* 32(3). 396–402.

- Olofsson, Jonas K. & Jay A. Gottfried. 2015. The muted sense: Neurocognitive limitations of olfactory language. *Trends in Cognitive Sciences* 19(6). 314–321. doi:10.1016/j.tics.2015.04.007.
- Ong, Walter J. 1969. World as view and world as event. *American Anthropologist* 71(4). 634–647. doi:10.1525/aa.1969.71.4.02a00030.
- Oppenheimer, Stephen. 2011. MtDNA variation and southward Holocene human dispersals within mainland Southeast Asia. In N.J. Enfield (ed.), *Dynamics of human diversity: The case of mainland Southeast Asia*, 81–108. Canberra: Pacific Linguistics.
- Palancar, Enrique L. 2006. Property concepts in Otomi: A language with no adjectives. *International Journal of American Linguistics* 72(3). 325–366. doi:10.1086/ijal.2006.72.issue-3.
- Papafragou, Anna, Justin Hulbert & John Trueswell. 2008. Does language guide event perception? Evidence from eye movements. *Cognition* 108(1). 155–184. doi:10.1016/j.cognition.2008.02.007.
- Parks, Thomas I. 2009. Maintaining peace in a neighbourhood torn by separatism: The case of Satun province in southern Thailand. *Small Wars & Insurgencies* 20(1). 185–202. doi:10.1080/09592310802573632.
- Peirce, Charles S. 1932. *Collected writings, 2: Elements of logic*. Cambridge, MA: Harvard University Press.
- Peirce, Charles S. 1955. *Philosophical writings of Peirce*. New York: Dover Publications.
- Peterson, Mary M. 2012. Notes on Ten-edn (Tonga-Mos) and Kensiw borrowings. *Mon-Khmer Studies* 40. 19–34.
- Phaiboon, Duangchan. 1984. *A phonological description of the Kansiw language (Sakai dialect)*. Bangkok: Mahidol University MA thesis.
- Phaiboon, Duangchan. 2006. Glossary of Aslian languages: The northern Aslian languages of southern Thailand. *Mon-Khmer Studies* 36. 207–224.
- Pinker, Steven. 1997. *How the Mind Works*. New York: Norton.
- Pinxten, Rik. 1983. *Anthropology of space: Explorations into the natural philosophy and semantics of the Navajo*. Philadelphia: University of Pennsylvania Press.

- Plank, Frans. 1984. Verbs and objects in semantic agreement: Minor differences between English and German that might suggest a major one. *Journal of Semantics* 3(4). 305–360. doi:10.1093/jos/3.4.305.
- Porath, Nathan. 2001. Foraging Thai literary culture: A performing tribe of South Thailand. *Senri Ethnological Studies*, 117–138. National Museum of Ethnology.
- Porath, Nathan. 2006. Enwrapped by Thai development: The sedentarisation process of a hunting and gathering people of South Thailand. In M. C. Behera (ed.), *Globalizing rural development: Competing paradigms and emerging realities*, 125–159. SAGE Publications India.
- Primack, Richard B. & Richard Corlett. 2005. *Tropical rain forests: An ecological and biogeographical comparison*. Malden, MA: Blackwell Publishers.
- Quandt, Richard E. 2007. On wine bullshit: Some new software? *Journal of Wine Economics* 2(2). 129–135.
- Rattanakrajangsri, Kittisak, Thapat Maneerat & Marcus Colchester. 2013. The Mani people of Thailand on the agricultural frontier. In Marcus Colchester & Sophie Chao (eds.), *Conflict or consent? The oil palm sector at a crossroads*, 282–301. Moreton-in-Marsh: Forest Peoples Programme (FPP).
- Regier, Terry, Paul Kay & Richard S. Cook. 2005. Focal colors are universal after all. *Proceedings of the National Academy of Sciences of the United States of America* 102(23). 8386–8391.
- Regier, Terry, Paul Kay & Naveen Khetarpal. 2007. Color naming reflects optimal partitions of color space. *Proceedings of the National Academy of Sciences* 104(4). 1436–1441. doi:10.1073/pnas.0610341104.
- Reichard, Gladys A. 1949. The character of the Navaho verb stem. *Word* 5(1). 55–76.
- Roberson, Debi, Ian Davies & Jules Davidoff. 2000. Color categories are not universal: Replications and new evidence from a stone-age culture. *Journal of Experimental Psychology: General* 129(3). 369.
- Romney, A. Kimball, Susan C. Weller & William H. Batchelder. 1986. Culture as consensus: A theory of culture and informant accuracy. *American Anthropologist* 88(2). 313–338. doi:10.2307/677564.

- Ross, John R. 1972. The category squish: Endstation hauptwort. *Chicago Linguistic Society*, vol. 8, 316–328.
- Russell, James A. 1980. A circumplex model of affect. *Journal of Personality and Social Psychology* 39(6). 1161.
- Russell, James A., Maria Lewicka & Toomas Niit. 1989. A cross-cultural study of a circumplex model of affect. *Journal of Personality and Social Psychology* 57(5). 848–856. doi:10.1037/0022-3514.57.5.848.
- Ruts, Wim, Simon De Deyne, Eef Ameel, Wolf Vanpaemel, Timothy Verbeemen & Gert Storms. 2004. Dutch norm data for 13 semantic categories and 338 exemplars. *Behavior Research Methods* 36(3). 506–515.
- Saji, Noburo, Mutsumi Imai, Henrik Saalbach, Yuping Zhang, Hua Shu & Hiroyuki Okada. 2011. Word learning does not end at fast-mapping: Evolution of verb meanings through reorganization of an entire semantic domain. *Cognition* 118(1). 45–61. doi:10.1016/j.cognition.2010.09.007.
- San Roque, Lila, Kobin H. Kendrick, Elisabeth Norcliffe, Penelope Brown, Rebecca Defina, Mark Dingemanse, Tyko Dirksmeyer, et al. 2014. Vision verbs dominate in conversation across cultures, but the ranking of non-visual verbs varies. *Cognitive Linguistics* 26(1). 31–60. doi:10.1515/cog-2014-0089.
- Sasse, Hans-Jürgen. 2001. Scales between nouniness and verbiness. In Martin Haspelmath (ed.), *Language typology and language universals: An international handbook*, 495–509. (Handbooks of Linguistics and Communication Science 20). Berlin; New York: W. de Gruyter.
- Saunders, B. A. C. & J. van Brakel. 1988. Re-evaluating basic colour terms. *Cultural Dynamics* 1(3). 359–378. doi:10.1177/092137408800100306.
- Saussure, Ferdinand de. 1967. *Cours de linguistique générale*. Wiesbaden: Harrassowitz.
- Schachter, Paul & Timothy Shopen. 1985. Parts-of-speech systems. In Timothy Shopen (ed.), *Language typology and syntactic description: Vol. I, Clause structure*, 1–60. Cambridge: Cambridge University Press.
- Schebesta, Joachim. 1925. The Semangs of Patalung. *Man* 25. 23–26.

- Schebesta, Pater P. & Charles Otto Blagden. 1926. The jungle tribes of the Malay Peninsula. *Bulletin of the School of Oriental and African Studies* 4(2). 269–278.
- Schebesta, Paul. 1929. *Among the forest dwarfs of Malaya*. London: Hutchinson & Co., ltd.
- Schebesta, Paul. 1957. *Ethnographie der Negrito, III. Religion und Mythologie*. Vienna: St. Gabriel Verlag, Studia Instituti Antropos.
- Schultze-Berndt, Eva. 2000. Simple and complex verbs in Jaminjung. A study of event categorisation in an Australian language. Nijmegen: Radboud University PhD dissertation.
- Senghas, Ann, Sotaro Kita & Asli Özyürek. 2004. Children creating core properties of language: Evidence from an emerging sign language in Nicaragua. *Science* 305(5691). 1779–1782. doi:10.1126/science.1100199.
- Shepard Jr., Glenn H. 1999. Pharmacognosy and the senses in two Amazonian societies. Berkeley: University of California PhD dissertation.
- Shepard, Roger N. & Lynn A. Cooper. 1992. Representation of colors in the blind, color-blind, and normally sighted. *Psychological Science* 3(2). 97–104.
- Shepherd, Gordon M. 2004. The human sense of smell: Are we better than we think? *PLoS Biol* 2(5). 572–575. doi:10.1371/journal.pbio.0020146.
- Sidwell, Paul & Mathias Jenny. 2015. *The handbook of Austroasiatic languages*. Leiden; Boston: Brill.
- Skeat, Walter William & Charles Otto Blagden. 1906. *Pagan races of the Malay Peninsula*. London: Macmillan.
- Slobin, Dan I. 1996. From “thought and language” to “thinking for speaking.” In John J. Gumperz & Stephen C. Levinson (eds.), *Rethinking linguistic relativity*, 70–96. Cambridge: Cambridge University Press.
- Slobin, Dan I. 1997. Mind, code, and text. In Joan L. Bybee, John Haiman & Sandra A. Thompson (eds.), *Essays on language function and language type: Dedicated to T. Givón*. Amsterdam; Philadelphia: J. Benjamins.
- Slobin, Dan I. 2000. Verbalized events: A dynamic approach to linguistic relativity and determinism. In Susanne Niemeier & René Dirven (eds.), *Evidence for*

- linguistic relativity*. (Amsterdam Studies in the Theory and History of Linguistic Science 198). Amsterdam; Philadelphia: J. Benjamins.
- Slobin, Dan I. 2001. Form-function relations. In Melissa Bowerman & Stephen C. Levinson (eds.), *Language acquisition and conceptual development*, 406–449. (Language, Culture and Cognition 3). Cambridge; New York: Cambridge University Press.
- Slobin, Dan I. 2003. Language and thought online: Cognitive consequences of linguistic relativity. In Dedre Gentner & Susan Goldin-Meadow (eds.), *Language in mind: Advances in the study of language and thought*, 157–191. Cambridge, MA: MIT Press.
- Slobin, Dan I. 2004. The many ways to search for a frog: Linguistic typology and the expression of motion events. In Sven Strömquist & Ludo Verhoeven (eds.), *Relating events in narrative: Typological and contextual perspectives*, vol. 2, 219–257. Mahwah, NJ: Erlbaum.
- Slobin, Dan I. 2006. What makes manner of motion salient? Explorations in linguistic typology, discourse, and cognition. In Maya Hickmann & Stéphane Robert (eds.), *Space in languages: Linguistic systems and cognitive categories*, 59–82. (Typological Studies in Language 66). Amsterdam; Philadelphia: J. Benjamins.
- Slobin, Dan I. 2009. Relations between paths of motion and paths of vision: A crosslinguistic and developmental exploration. In Virginia C. Mueller-Gathercole (ed.), *Routes to language: Studies in honor of Melissa Bowerman*. New York: Psychology Press.
- Slobin, Dan I. & Nini Hoiting. 1994. Reference to movement in spoken and signed languages: Typological considerations. *Proceedings of the 20th Annual Meeting of the Berkeley Linguistics Society*.
- Slobin, Dan I., Iraide Ibarretxe-Antuñano, Anetta Kopecka & Asifa Majid. 2014. Manners of human gait: A crosslinguistic event-naming study. *Cognitive Linguistics* 25(4). 701–741.
- Smith, Carlota S. 1997. *The Parameter of aspect*. 2nd edn. (Studies in Linguistics and Philosophy 43). Dordrecht: Kluwer.

- Smith, Kenny, Simon Kirby & Henry Brighton. 2003. Iterated learning: A framework for the emergence of language. *Artificial Life* 9(4). 371–386.
- Sperber, Dan. 1975. *Rethinking symbolism*. (Trans.) Alice L. Morton. (Cambridge Studies in Social Anthropology). Cambridge; New York: Cambridge University Press.
- Stanley-Jones, D. 1957. Posture and the rhinencephalon: A new interpretation. *The Journal of Nervous and Mental Disease* 125(4). 591–598.
- Stassen, Leon. 1997. *Intransitive predication*. (Oxford Studies in Typology and Linguistic Theory). Oxford; New York: Clarendon Press; Oxford University Press.
- Stevenson, Richard J. 2010. An initial evaluation of the functions of human olfaction. *Chemical Senses* 35(1). 3–20. doi:10.1093/chemse/bjp083.
- Storchmann, K. 2011. Wine economics: Emergence, developments, topics. *Agrekon* 50(3). 1–28. doi:10.1080/03031853.2011.617856.
- Storm, Christine. 1980. The semantic structure of animal terms: A developmental study. *International Journal of Behavioral Development* 3(4). 381–407. doi:10.1177/016502548000300403.
- Sturrock, Kenneth & Jorge Rocha. 2000. A multidimensional scaling stress evaluation table. *Field Methods* 12(1). 49–60. doi:10.1177/1525822X0001200104.
- Suwilai, Premsrirat. 2004. Phānthī phāsā khōng klum chāttiphan tāng tāng nai Prathēt Thai: Ethnolinguistic maps of Thailand. Bangkok: Samnakngān Khana Kammakān Watthanatham hāng Chāt.
- Sweetser, Eve. 1990. *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. (Cambridge Studies in Linguistics 54). Cambridge; New York: Cambridge University Press.
- Swoyer, Chris & Francesco Orilia. Properties. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. Fall 2014. <http://plato.stanford.edu/archives/fall2014/entries/properties/> (21 August, 2014).
- Tadmor, Uri. 2009. Loanwords in the world's languages: Findings and results. In Martin Haspelmath & Uri Tadmor (eds.), *Loanwords in the world's*

- languages: A comparative handbook*, 55–75. Berlin, Germany: De Gruyter Mouton.
- Takahashi, Kiyoko. 2000. Expressions of emanation fictive motion events in Thai. Bangkok: Chulalongkorn University PhD dissertation.
- Talmy, Leonard. 1985. Lexicalization patterns: Semantic structure in lexical forms. In Timothy Shopen (ed.), *Language typology and syntactic description: Vol. III, Grammatical categories and the lexicon*, 55–149. Cambridge: Cambridge University Press.
- Talmy, Leonard. 1991. Path to realization: A typology of event conflation. *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* 17. 480–519.
- Talmy, Leonard. 2000a. *Toward a cognitive semantics*. . Vol. 2. (Language, Speech, and Communication). Cambridge, MA: MIT Press.
- Talmy, Leonard. 2000b. *Toward a cognitive semantics*. . Vol. 1. (Language, Speech, and Communication). Cambridge, MA: MIT Press.
- Tamariz, Mónica, Hannah Cornish, Seán Roberts & Simon Kirby. 2012. The effect of generation turnover and interlocutor negotiation on linguistic structure. *The Evolution of Language: Proceedings of the 9th International Conference*, 555–556.
- Taylor, Paul Michael. 2015. Thailand's "Chow pah negritos" (Maniq) in 1897 and 1899: Smithsonian records of W.L. Abbott's expeditions to the Trang-Phatthalung border highlands. *Journal of the Siam Society*(103). 161–182.
- Thomason, Sarah G. 2007. Language contact and deliberate change. *Journal of Language Contact* 1(1). 41–62. doi:10.1163/000000007792548387.
- Thomason, Sarah Grey & Terrence Kaufman. 1988. *Language contact, creolization, and genetic linguistics*. Berkeley: University of California Press.
- Tornay, Serge. 1973. Langage et perception. La dénomination des couleurs chez les Nyangatom du Sud-Ouest éthiopien. *L'Homme* 13(4). 66–94. doi:10.3406/hom.1973.367381.
- Trier, Jost. 1934. Das sprachliche feld. *Jahrbuch für Deutsche Wissenschaft*(10). 428–449.

- Trongdee, Thananan. 1998. Sakai Color Categories. *Songklanakarin Journal of Social Sciences and Humanities* 4(2). 197–216.
- Trueswell, John C. & Anna Papafragou. 2010. Perceiving and remembering events cross-linguistically: Evidence from dual-task paradigms. *Journal of Memory and Language* 63(1). 64–82. doi:10.1016/j.jml.2010.02.006.
- Tufvesson, Sylvia. 2011. Analogy-making in the Semai sensory world. *The Senses and Society* 6(1). 86–95. doi:10.2752/174589311X12893982233876.
- Turton, David. 1980. There's no such beast: Cattle and colour naming among the Mursi. *Man* 15(2). 320–338. doi:10.2307/2801674.
- Van Beek, W. E. A. 1992. The dirty smith: Smell as a social frontier among the Kapsiki/Higi of north Cameroon and north-eastern Nigeria. *Africa* 62(1). 38–58.
- Viberg, Åke. 1984. The verbs of perception: A typological study. *Linguistics* 21(1). 123–162. doi:10.1515/ling.1983.21.1.123.
- Vogt, Paul. 2007. Group size effects on the emergence of compositional structures in language. In Fernando Almeida e Costa, Luis Mateus Rocha, Ernesto Costa, Inman Harvey & António Coutinho (eds.), *Advances in Artificial Life*, 405–414. (Lecture Notes in Computer Science 4648). Berlin; Heidelberg: Springer.
- Walsh, Michael. 1996. Vouns and nerbs: A category squish in Murrinh-Patha (northern Australia). *Studies in Kimberley Languages in Honour of Howard Coate*, 227–252. München: Lincom Europa.
- Weil, Roman L. 2007. Debunking critics' wine words: Can amateurs distinguish the smell of asphalt from the taste of cherries? *Journal of Wine Economics* 2(02). 136–144.
- Weller, Susan C. & A. Kimball Romney. 1988. *Systematic data collection*. Newbury Park, CA: Sage Publications.
- Wetzer, Harrie. 1992. "Nouny" and "verby" adjectivals: A typology of predicative adjectival constructions. In Michel Kefer & Johan van der Auwera (eds.), *Meaning and grammar: Crosslinguistic perspectives*, 223–262.
- Wetzer, Harrie. 1996. *The typology of adjectival predication*. (Empirical Approaches to Language Typology 17). Berlin; New York: Mouton de Gruyter.

- Whorf, Benjamin Lee. 1940. Science and linguistics. *Technology Review* 42(6). 229–231, 247–248.
- Whorf, Benjamin Lee. 1945. Grammatical categories. *Language* 21(1). 1–11.  
doi:10.2307/410199.
- Whorf, Benjamin Lee. 1956. *Language, thought, and reality: Selected writings of Benjamin Lee Whorf*. (Ed.) John B. Carroll. Cambridge, MA: MIT Press.
- Wierzbicka, Anna. 1988. What's in a noun? (or: How do nouns differ in meaning from adjectives?). *The semantics of grammar*, 463–497. (Studies in Language Companion Series 18). Amsterdam; Philadelphia: J. Benjamins.
- Wierzbicka, Anna. 1992. *Semantics, culture, and cognition: Universal human concepts in culture-specific configurations*. New York: Oxford University Press.
- Wierzbicka, Anna. 1996. *Semantics: Primes and universals*. Oxford; New York: Oxford University Press.
- Wierzbicka, Anna. 2000. Lexical prototypes as a universal basis for crosslinguistic identification of “parts of speech.” In Petra Maria Vogel & Bernard Comrie (eds.), *Approaches to the typology of word classes*, 285–317. (Empirical Approaches to Language Typology 23). Berlin; New York: Mouton de Gruyter.
- Wierzbicka, Anna. 2005. There are no “color universals” but there are universals of visual semantics. *Anthropological Linguistics* 47(2). 217–244.  
doi:10.2307/25132327.
- Wierzbicka, Anna. 2008. Why there are no “colour universals” in language and thought. *Journal of the Royal Anthropological Institute* 14(2). 407–425.  
doi:10.1111/j.1467-9655.2008.00509.x.
- Wilson, Donald A & Richard J Stevenson. 2006. *Learning to smell: Olfactory perception from neurobiology to behavior*. Baltimore: Johns Hopkins University Press.
- Witherspoon, Gary. 1977. *Language and art in the Navajo universe*. Ann Arbor: University of Michigan Press.
- Wittenburg, Peter, Hennie Brugman, Albert Russel, Alex Klassmann & Han Sloetjes. 2006. Elan: A professional framework for multimodality research. *Proceedings of LREC*.

- Wnuk, Ewelina. 2010. The phonology of Maniq (southern Thailand) – a preliminary account. Amsterdam: University of Amsterdam MA thesis.
- Wnuk, Ewelina & Niclas Burenhult. 2014. Contact and isolation in hunter-gatherer language dynamics: Evidence from Maniq phonology (Aslian, Malay Peninsula). *Studies in Language* 38(4). 956–981.  
doi:10.1075/sl.38.4.06wnu.
- Wnuk, Ewelina & Asifa Majid. 2014. Revisiting the limits of language: The odor lexicon of Maniq. *Cognition* 131(1). 125–138.  
doi:10.1016/j.cognition.2013.12.008.
- Woodburn, James. 1982. Egalitarian societies. *Man*. 431–451.
- Woodworth, S.R. 1910. The puzzle of color vocabularies. *Psychological Bulletin* 7(10). 325–334. doi:10.1037/h0071190.
- Wray, Alison & George W. Grace. 2007. The consequences of talking to strangers: Evolutionary corollaries of socio-cultural influences on linguistic form. *Lingua* 117(3). 543–578. doi:10.1016/j.lingua.2005.05.005.
- Yeshurun, Yaara & Noam Sobel. 2010. An odor is not worth a thousand words: From multidimensional odors to unidimensional odor objects. *Annual Review of Psychology* 61. 219–241.
- Zarzo, Manuel. 2008. Relevant psychological dimensions in the perceptual space of perfumery odors. *Food Quality and Preference* 19(3). 315–322.  
doi:10.1016/j.foodqual.2007.10.007.



## Appendix 1: 'Looking' translation questionnaire

---

1. The boy **looked up** the tree in search of fruit.  
เด็กชายมอง(ขึ้น)บนต้นไม้เพื่อหาผลไม้
2. The man **looked up** the tree in search of leaf monkeys.  
ผู้ชายมอง(ขึ้น)บนต้นไม้เพื่อหาลิง
3. The young macaque **looked up at** his mother getting bananas above in the tree.  
ชะนีมอง(ขึ้น)ที่แม่ที่กำลังเก็บกล้วยบนต้น
4. The man **looked up** (with his eyes) without moving his head.  
ผู้ชายก้มมองสายตาดูขึ้น
5. The men were moving through a dense forest carefully **looking down** to avoid stepping on snakes.  
กลุ่มผู้ชายเดินผ่านป่าอย่างระมัดระวัง มองข้างล่างหลีกเลี่ยงการเหยียบงู
6. The woman sitting at the top of the stairs **looked down at** her child playing on the ground.  
ผู้หญิงที่นั่งอยู่บนบันไดมองลงดูลูกที่เล่นอยู่บนพื้น
7. The leaf monkey **looked down at** the hunter when it heard him walking.  
ลิงมองลงไปที่นายพรานเมื่อมันได้ยินเสียงเขาเดิน
8. The boy **looked down into** the water searching for fish.  
เด็กชายมองไปในน้ำเพื่อหาปลา
9. The man **looked down** (with his eyes) without moving his head.  
ผู้ชายก้มมองสายตาลง
10. The hunters were walking and **looking sideways** from time to time.  
นายพรานเดินและมองข้างทางเป็นระยะ
11. The couple was sitting quietly side by side **looking into the distance**.  
When the man started speaking, ...  
ชายหญิงคู่หนึ่งนั่งเงียบๆข้างกันมองออกไป เมื่อผู้ชายเริ่มพูด
12. a) the woman **turned her head sideways** and **looked at** him.  
ผู้หญิงหันหน้าไปมองเขา
13. b) the woman **looked sideways** (with her eyes) without moving the head.  
ผู้หญิงก้มมองสายตาไปด้านข้าง

14. The small boy detached from the group and soon realized he was lost. He began **looking around** him in all directions to find his way back.  
เด็กชายพลัดหลงกับกลุ่ม เขาเริ่มมองไปรอบๆตัวเพื่อหาทางกลับ
15. The bird was **looking around** in all directions in search of food.  
นกมองไปรอบๆตัวเพื่อหาอาหาร
16. The group was walking in line through a narrow path. The man in the lead **looked over his shoulder** from time to time to see if the rest could keep up with his pace. After a while he stopped, **turned back** (with his whole body) and **looked** again to check if everyone was there.  
กลุ่มคนเดินเป็นแถวผ่านทางแคบ ผู้นำหันหน้าไปมองเป็นระยะเพื่อดูว่าทุกคนตามเขาทัน สักพักเขาหยุดเอี้ยวตัวไปมองอีกครั้งเพื่อดูว่าทุกคนอยู่ครบ
17. The deer **looked back** when it heard a noise coming from behind.  
กวางหันหลังไปมองเมื่อได้ยินเสียงจากข้างหลัง
18. The woman **looked into** the basket to see if she had many tubers.  
ผู้หญิงมองในตะกร้าเพื่อดูว่ามีหัวมันมากหรือยัง
19. Standing by the door he **peered into** the house to check if anyone was home.  
เขายืนอยู่ที่ประตูมองเข้าไปในบ้านเพื่อดูว่ามีใครอยู่หรือเปล่า
20. The man **looked inside** his blowpipe to see if it was clean.  
ผู้ชายมองเข้าไปในลำกล้องเพื่อดูว่ามันสะอาดหรือยัง
21. The badger **looked inside** its den.  
หมูดินมองเข้าไปในหลุม
22. The man **looked through** the gap in the thicket and saw a group of people.  
ผู้ชายมองผ่านช่องระหว่างพุ่มไม้และเห็นกลุ่มคน
23. The tiger **looked at** a deer through the sparse vegetation.  
เสือมองกวางผ่านช่องระหว่างพุ่มไม้
24. When she heard the men coming back from the forest, she put her head out and **looked out from** the house.  
เมื่อเธอได้ยินเสียงคนกลับมาจากป่า เธอชะโงกหน้าออกจากบ้านไปมอง
25. The rat **looked out from** the burrow in the ground.  
หนูมองออกมากจากรู
26. I couldn't find my machete so I **looked under** the bed to check if it was there.  
ผมหาขวานไม่เจอ จึงไปดูใต้เตียงว่ามีหรือเปล่า
27. The dog **looked under** the bed to see if he could find remnants of food.

27. The dog **looked under** the bed to see if he could find remnants of food.  
หมามองหาเศษอาหารใต้เตียง
28. He **looked over** a fallen tree trunk to see what was on the other side.  
เขามองข้ามท่อนไม้เพื่อดูว่ามีอะไรอีกฝั่ง
29. The deer **looked over** the bushes checking if there was no enemy there.  
กวางมองข้ามพุ่มไม้เพื่อดูว่าไม่มีศัตรู
30. He **looked across** the river and saw a langu palm on the other side.  
เขามองข้ามแม่น้ำและเห็นต้นปาล์มอีกฝั่ง
31. The tiger **looked across** the road and saw some deer on the other side.  
เสือมองข้ามถนนและเห็นกวางอีกฝั่ง
32. The man **looked along** the river in search of a place for taking a bath.  
ผู้ชายมองไปตามแม่น้ำเพื่อหาที่อาบน้ำ
33. The macaque **looked along** the river in search of a place where it could reach the water.  
ชะนีมองไปตามแม่น้ำเพื่อหาที่กินน้ำ
34. The small boy was playing with a blowpipe. He **looked through** the shaft into his house.  
เด็กชายเล่นลำกล้อง เขามองเข้าไปบ้านผ่านช่องลำกล้อง
35. The man **looked down through** the (holes in the) floor at the people under his house.  
ผู้ชายมองดูคนใต้ถุนบ้านผ่านช่องบนพื้นบ้าน
36. He **looked up into** a tree hole.  
เขามองขึ้นไปดูรูบนต้นไม้
37. The woman **looked over** the head of her child **out of** the house.  
ผู้หญิงมองข้ามหัวลูกออกไปนอกบ้าน
38. The man **looked out through** the door, **past** the houses, **into** the forest.  
ผู้ชายมองผ่านประตูบ้านออกไปในป่าผ่านบ้านอีกหลัง
39. a) He is lying on the back **looking at** the sky:  
เขานอนหงายมองท้องฟ้า
40. b) He is lying on the back **looking at** a child lying beside him  
เขานอนหงายมองเด็กที่นอนข้างๆ
41. c) He is lying on the back **looking down from** the hut  
เขานอนหงายมองลงมาจากบ้าน
42. a) He is lying on the belly **looking down under** the house  
เขานอนคว่ำมองลงมาจากบ้าน
43. b) He is lying on the belly **looking up** the sky

44. 3) He is lying on the belly **looking at** a child lying next to him  
เขานอนคว่ำมองเด็กที่นอนข้างๆ
45. a) He is lying on the side **looking down under** the house.  
เขานอนตะแคง มองลงมาจากบ้าน
46. b) He is lying on the side **looking up** the sky  
เขานอนตะแคงมองท้องฟ้า
47. 3) He is lying on the side **looking at** a child lying next to him.  
เขานอนตะแคงมองเด็กที่นอนข้างๆ
48. He **looked upstream**.  
เขามองไปทางต้นน้ำ
49. He **looked downstream**.  
เขามองไปทางที่น้ำไหลไป
50. He **looked uphill**.  
เขามองขึ้นไปบนภูเขา
51. He **looked downhill**.  
เขามองลงมาจากภูเขา
52. He **looked east**.  
เขามองทิศตะวันออก
53. He **looked west**.  
เขามองทิศตะวันตก
54. The woman **looked through** the water in the river and saw red stones at the bottom.  
ผู้หญิงมองผ่านน้ำในแม่น้ำและเห็นก้อนหินสีแดง
55. The woman **looked at** the water in the river.  
ผู้หญิงมองน้ำในแม่น้ำ
56. The woman **looked at** the fire.  
ผู้หญิงมองไฟ
57. The woman **looked: at** the smoke / **through** the smoke.  
ผู้หญิงมองควัน/ผ่านควัน
58. The woman **looked at** the fog / **through** the fog.  
ผู้หญิงมองหมอก/ผ่านหมอก
59. The woman **looked at** the eyes of her child.  
ผู้หญิงมองตาลูก

## Appendix 2: Looking scenes stimuli

---



#1 UP\_NON-SHARP



#2 AT\_nails



#3 BACK\_and\_UP\_via\_right



#4 RIGHT\_lying\_on\_back



#5 DOWN\_from\_top\_of\_mound



#6 RIGHT\_just\_eyes



#7 UP\_lying\_on\_side



#8 THROUGH\_glass



#9 DOWN\_lying\_on\_belly



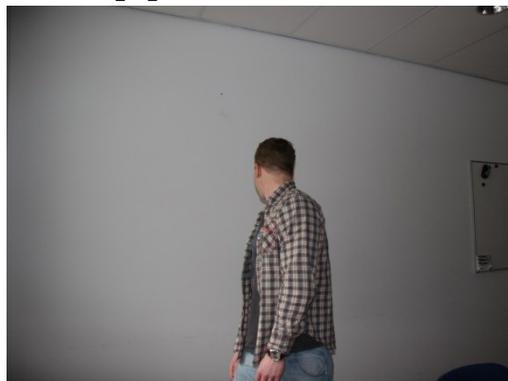
#10 UP\_and\_RIGHT



#11 OUT\_of\_room



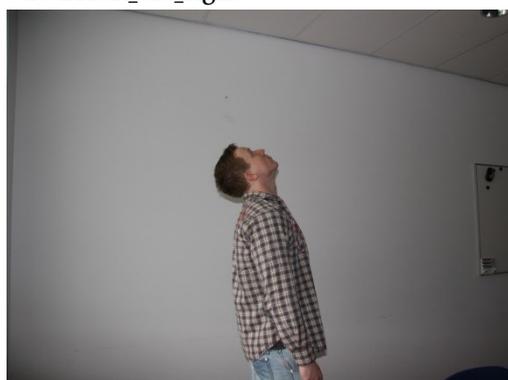
#12 LEFT\_NON-SHARP



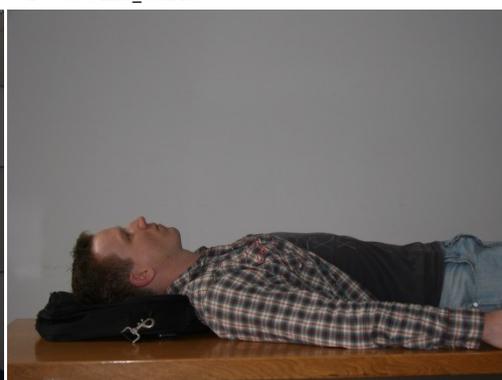
#13 BACK\_via\_right



#14 OVER\_table



#15 UP\_SHARP



#16 UP\_lying\_on\_back



#17 LEFT\_just\_eyes



#18 UP\_and\_LEFT



#19 UNDER\_chair



#20 UP\_lying\_on\_belly



#21 RIGHT\_NON-SHARP



#22 ACROSS\_road



#23 DOWN\_and\_LEFT



#24 RIGHT\_lying\_on\_belly



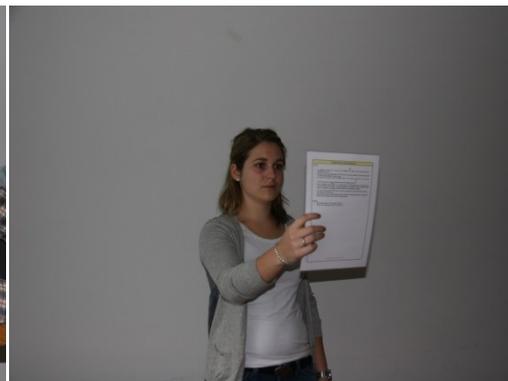
#25 UP\_along\_tree\_trunk



#26 LEFT\_SHARP



#27 STRAIGHT\_lying\_on\_side



#28 AT\_paper



#29 UP\_from\_bottom\_of\_stairs



#30 DOWN\_SHARP



#31 UP\_just\_eyes



#32 UP\_into\_bag



#33 LEFT\_lying\_on\_belly



#34 BACK\_and\_DOWN\_via\_left



#35 DOWN\_into\_bag



#36 DOWN\_lying\_on\_BACK



#37 DOWN\_NON-SHARP



#38 LEVEL\_and\_STRAIGHT



#39 UP\_and\_RIGHT



#40 LEVEL\_into\_bag



#41 INTO\_room



#42 RIGHT\_SHARP



#43 DOWN\_and\_RIGHT



#44 INTO\_bin\_straight



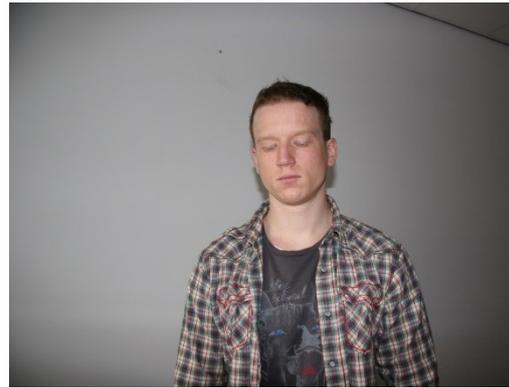
#45 DOWN\_from\_stairs



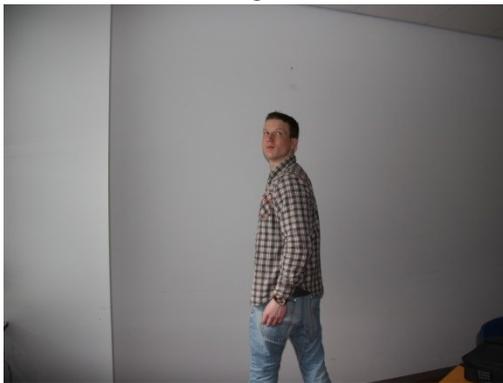
#46 BACK\_and\_DOWN\_via\_right



#47 INTO\_bin\_leaning



#48 DOWN\_just\_eyes



#49 BACK\_and\_UP\_via\_left



#50 DOWN\_lying\_on\_side



#51 BACK\_eyes\_closed



#52 UP\_eyes\_closed



#53 LEFT\_eyes\_closed



#54 DOWN\_eyes\_closed

## Samenvatting

---

In de talen van de wereld zit een enorme variatie wat betreft de aard en hoeveelheid informatie die in werkwoorden gelexicaliseerd wordt: het gamma loopt van talen waarin bijna alle werkwoorden algemeen zijn (zoals bijvoorbeeld Jaminjung) tot talen waarin een groot deel van de werkwoorden specifiek is. Dit is gerelateerd aan het idee dat er vergeleken met zelfstandige naamwoorden er in werkwoorden meer vrijheid voor de lexicalisatie van betekenis is. De grenzen van en beperkingen op deze vrijheid zijn nog niet volledig begrepen. Dit proefschrift verkent een selectie van werkwoorden in het Maniq – een taal uit de Asliaanse tak van de Austroaziatische taalfamilie – met als doel het belichten van het onderwerp werkwoordspecificiteit en de lexicalisatie van betekenis in werkwoorden in het algemeen. De focus ligt op perceptie, een domein dat niet veel aandacht heeft gehad in deze context, en een domein dat aanzienlijke mogelijkheden biedt voor nieuwe inzichten.

Maniq wordt gesproken door ongeveer 300 nomadische jagers-verzamelaars in de Banthad bergen van Zuid-Thailand. Semantische specificiteit is wijdverbreid in het werkwoordslexicon van het Maniq, en betreft zogenaamde basic-level termen, dat wil zeggen, frequente monomorfemische woorden die op het meest algemene niveau gebruikt worden om contrasten aan te geven. De verschillen die specifieke werkwoorden uitdrukken zijn belangrijk voor de hele sprekersgemeenschap en zijn relevant in gewone, alledaagse situaties. Dit proefschrift behandelt een gevarieerde selectie van specifieke werkwoorden (zowel actief als statief) voor perceptie. Drie lexicale velden krijgen gedetailleerde aandacht: (1) visuele perceptie, (2) kleur en visuele oppervlakte, en (3) geur.

Hoofdstuk 1 formuleert het doel en de onderzoeksvragen van dit proefschrift en introduceert semantische specificiteit. Het hoofdstuk vormt een fundering voor latere hoofdstukken door de basiswerkwoorden voor perceptie in het Maniq te presenteren. Het introduceert ook het belangrijkste onderscheid – dat tussen actieve en statieve werkwoorden. Verder beschouwt het hoofdstuk het sterke

verband tussen de semantische specificiteit van werkwoorden en “verbiness”, dat wil zeggen de speciale prominentie van werkwoorden in de structuur van de taal en in alledaags taalgebruik. Semantische specificiteit en andere manifestaties van verbiness vormen bewijs voor de belangrijke rol van dynamische conceptualisaties in het Maniq. De niet-taalkundige achtergrond die in dit hoofdstuk wordt besproken laat zien dat deze conceptualisaties gerelateerd zijn aan aspecten van de culturele en ecologische setting van de Maniq.

Hoofdstukken 2 en 3 bevatten informatie over sprekers van de Maniq en hun taal. Deze informatie dient als achtergrondkennis voor de volgende hoofdstukken en draagt bij aan de beschrijving en documentatie van het Maniq. Hoofdstuk 2 introduceert de Maniq-gemeenschap en geeft de etnografische achtergrondinformatie die nodig is om de taalkundige gegevens in een context te kunnen plaatsen. Hoofdstuk 3 presenteert een inleiding tot de grammatica van het Maniq, met een focus op werkwoorden. Het onderscheid tussen actief en statief wordt verder uitgewerkt en andere onderwerpen gerelateerd aan werkwoorden worden besproken. Het hoofdstuk bevat ook informatie over de fonologie, morfologie, syntaxis en woordklassen in het Maniq en is daarmee de meest extensieve bespreking van de grammatica van het Maniq tot nu toe.

De voornaamste bijdrage van hoofdstuk 4 is dat het de eerste gedetailleerde documentatie bevat van een verb-framing strategie voor visuele paden – een patroon waarvan eerder werd beweerd dat het resistent zou zijn tegen lexicalisatie. Een nauwkeurige semantische analyse van de werkwoorden voor kijken laat zien dat hun betekenis door een aantal factoren gevormd wordt. Deze zijn aan de ene kant universele beperkingen die opgelegd worden door zwaartekracht, verticaliteit en het menselijk lichaam en aan de andere kant cultuur-specifieke factoren: de lokale omgeving en activiteiten die belangrijk zijn in de cultuur. Doordat visuele paden in werkwoorden worden uitgedrukt in plaats van in algemene pad-uitdrukkingen (*satellites*), kan de semantiek van werkwoorden voor kijken preciezer aansluiten op het visuele domein. Een ander inzicht uit hoofdstuk 4 is de observatie dat de interne organisatie van het specifieke werkwoordslexicon systematisch is. De ruimtelijke informatie die in de

werkwoorden voor kijken besloten ligt, volgt een ordening die in verschillende domeinen van het lexicon terugkeert.

Hoofdstuk 5 behandelt ook visuele waarneming, maar focust nu op statieve werkwoorden voor kleur. De voornaamste bevinding is dat het Maniq een hoge codability heeft voor kleuren, wat onverwacht is gezien het gebrek aan kleurtechnologie in de cultuur. Dit betreft zowel taalkundige codability – het feit dat kleuren gelexicaliseerd zijn in een grote set kleurenwerkwoorden – als efficiënte codability – het feit dat sprekers kleuren op dezelfde manier benoemen en ze beschrijven met korte en abstracte woorden. Cruciaal is dat de meeste kleurcategorieën in het Maniq uitgedrukt worden door semantisch specifieke werkwoorden, die genuanceerde verschillen uitdrukken in cultureel belangrijke domeinen zoals planten, dieren en de omgeving. Deze bevinding onderstreept opnieuw de essentiële rol van cultuur in de lexicale uitwerking van een domein. Het demonstreert daarnaast het belang van een gevarieerde methodologische aanpak, die in het onderzoek naar kleuren al lang bepleit werd. Een andere belangrijke bijdrage van hoofdstuk 5 is de bevinding dat de meest voorkomende lexicale relatie in het kleurenlexicon gelijkenis is. Aangezien er nauwelijks bewijs is voor relaties zoals tegenstelling en insluiting, lijkt gelijkenis in het bijzonder geschikt voor het structureren van kleurtermen. Ten slotte bespreekt dit hoofdstuk ook de impact van de geschiedenis van de taal en van taalcontact op het kleurenlexicon van het Maniq.

Hoofdstuk 6 onderzoekt de semantische specificiteit van werkwoorden in het domein van geuren, normaal gesproken beschouwd als het moeilijkst te verwoorden (*ineffable*) perceptuele domein in taal. De belangrijkste bevinding is dat het Maniq – in tegenstelling tot het wijdverbreide idee dat talen geen specifieke termen voor geuren hebben – meer dan een dozijn geurwoorden heeft, voornamelijk statieve werkwoorden. Belangrijk is dat deze woorden bekend zijn bij de volledige gemeenschap van sprekers en onderdeel zijn van het alledaagse taalgebruik. Ze beschrijven specifieke geureigenschappen en – zoals door exemplar listing wordt aangetoond – kunnen worden toegepast op verschillende objecten. Twee experimenten, een taak waarbij de semantische gelijkenis van geurwoorden beoordeeld wordt en een off-line waarderingstaak van geurwoorden, suggereren

dat het geurlexicon van het Maniq in twee dimensies gevat kan worden – aangenaamheid en gevaarlijkheid. De talige uitwerking van geur in het Maniq gaat samen met culturele uitwerking. Geur is belangrijk in het traditionele kennis- en geloofstelsel van de Maniq en speelt een cruciale rol in de concepten van welzijn en veiligheid. Samengenomen pleit het lexicale, experimentele en etnografische bewijs tegen de universele ineffability van geur. In tegenstelling tot algemene opvattingen uit de literatuur kunnen geuren ook gelexicaliseerd worden in een speciale vocabulaire. Talen kunnen geuren verwoorden, en abstracte geureigenschappen kunnen gecodeerd worden in semantisch specifieke woorden.

Hoofdstuk 7 besluit dit proefschrift door de voornaamste bevindingen uit de voorgaande hoofdstukken samen te vatten en hieruit een aantal theoretische gevolgtrekkingen te maken. De voornaamste bevindingen zijn direct gerelateerd aan de vragen die aan het begin van dit proefschrift gesteld worden over de semantiek van specifieke werkwoorden, de factoren die aan de lexicalisatiepatronen ten grondslag liggen en de structuur van het werkwoordslexicon. Dit proefschrift benadrukt dat semantische specificiteit gerelateerd is aan cultureel belangrijke gebeurtenissen en eigenschappen. Het feit dat specifieke betekenissen verpakt worden in monomorfemische werkwoorden wordt ook beïnvloed door het semantisch-typologische profiel van het Maniq, dat wil zeggen, de voorkeur voor een compacte codering van betekenis in de taal. De lexicalisatiepatronen die hier besproken worden werpen een nieuw licht op semantische specificiteit door te wijzen op de centrale rol van de cultuur, de gemeenschap en de taalkundige structuur in lexicale uitbreiding.

## Streszczenie

---

Wśród języków na świecie istnieje ogromna różnorodność co do tego jakie informacje wyrażane są za pomocą czasowników, a także jak wiele znaczenia zakodowanego jest w pojedynczych formach czasownikowych: począwszy od języków, w których wszystkie czasowniki są semantycznie ogólne (jak np. w Jaminjung), do takich, gdzie duża proporcja leksykonu czasowników jest specyficzna. Ta różnorodność związana jest z założeniem, że w porównaniu do rzeczowników, kodowanie znaczenia w czasownikach wiąże się z większą swobodą. Jakkolwiek, granice i obostrzenia związane z tą swobodą jak dotychczas nie są w pełni zrozumiałe. Celem tej pracy jest zbadanie wybranej grupy czasowników w Maniq – języku przynależącym do asiańskiej gałęzi z rodziny języków austroazjatyckich – w celu naświetlenia tematu specyficzności znaczenia czasowników, a także ogólniej tematu leksykalizacji znaczenia w czasownikach. Praca koncentruje się na percepcji – polu, któremu dotychczas nie poświęcono zbyt dużo uwagi w tym kontekście, a które posiada spory potencjał objaśniający.

Językiem Maniq włada około 300 osób przynależących do koczowniczej grupy łowców-zbieraczy zamieszkujących w górach Banthad w południowej Tajlandii. Specyficzność semantyczna jest wszechobecna w leksykonie czasowników Maniq i dotyczy słów z poziomu podstawowego (*basic level*), tj. często występujących słów monomorficznych reprezentujących główny poziom kontrastu. Co istotne, znaczenia zapisane w czasownikach specyficznych są wyraziste (*salient*) dla całej społeczności i adekwatne w codziennych sytuacjach. Ta praca bada zróżnicowany zestaw czasowników specyficznych (zarówno dynamicznych, jak i statycznych) z domeny percepcji. W centrum uwagi znajdują się trzy pola leksykalne: (1) percepcja wzrokowa, (2) kolor i wizualne cechy powierzchni oraz (3) zapach.

Rozdział pierwszy formułuje cel oraz pytania badawcze tej pracy, a także wprowadza temat specyficzności semantycznej czasowników. Przygotowuje grunt pod kolejne rozdziały, prezentując podstawowe czasowniki percepcji w Maniq i ilustrując kluczowe dla tej pracy rozróżnienie – podział na czasowniki dynamiczne

i statyczne. Rozdział także zwraca uwagę na silny związek specyficzności semantycznej czasowników z tzw. „czasownikowością” (*“verbiness”*), tj. wyjątkowo prominentną pozycją czasowników w strukturze języka i codziennym dyskursie. Specyficzność semantyczna czasowników oraz inne objawy „czasownikowości” są świadectwem istotnej roli konceptualizacji dynamicznych w Maniq. Tło pozajęzykowe omówione w rozdziale pokazuje, że tego rodzaju konceptualizacje są zgodne z niektórymi aspektami otoczenia kulturowego i ekologicznego, w którym funkcjonują Maniq.

Rozdziały 2 i 3 przedstawiają zarys podstawowych informacji na temat języka i społeczności Maniq, dając punkt odniesienia dla głównych rozdziałów pracy i jednocześnie przyczyniając się do opisu i dokumentacji języka i kultury Maniq. Rozdział 2 zapoznaje czytelnika ze społecznością Maniq i szkicuje tło etnograficzne potrzebne do kontekstualizacji danych językowych. Rozdział 3 prezentuje podstawowe fakty na temat języka Maniq i przedstawia wstęp do gramatyki ze szczególnym uwzględnieniem czasowników. Rozwija temat podziału na czasowniki dynamiczne i statyczne, a także omawia serię innych zagadnień związanych z czasownikami. Rozdział zawiera także niezbędne informacje na temat fonologii, morfologii, składni oraz części mowy w Maniq, w ten sposób dostarczając przegląd struktury gramatycznej języka, która jest jak dotychczas najbardziej szczegółowym dostępnym opisem gramatyki Maniq.

Głównym wkładem rozdziału 4 jest pierwsza szczegółowa dokumentacja schematu czasownikowego (*verb-framing*) w kodowaniu ścieżek wzroku – wzorca dotychczas uważanego za opierającego się leksykalizacji. Analiza znaczenia czasowników patrzenia pokazuje, że jest ono ukształtowane przez kilka czynników. Te obejmują z jednej strony presje uniwersalne, takie jak pionowość narzuconą przez grawitację i ograniczenia wynikające z anatomii ludzkiego ciała, oraz z drugiej strony presje kulturowe – środowisko i ważne dla kultury czynności. Ponieważ ścieżki wzroku zakodowane są w rdzeniach czasownikowych, a nie ogólnych zwrotach wyrażających ścieżki (tzw. satelitach), znaczenie czasowników patrzenia może być dostrojone do domeny wzrokowej. Rozdział 4 jest też źródłem obserwacji, że wewnętrzna struktura leksykonu czasowników specyficznych charakteryzuje się systematycznością. Przegląd czasowników patrzenia ukazuje, że

zleksykalizowane w nich pojęcia stosują się do ogólnej zasady organizacji semantycznej nadającej strukturę wielu domenom leksykonu.

Rozdział 5 także dotyczy domeny wzrokowej, ale skupia się na czasownikach statycznych kodujących kolory. Głównym ustaleniem jest fakt, że Maniq posiada wysoką kodowalność (*codability*) kolorów wbrew temu, czego można by oczekiwać biorąc pod uwagę brak technologii kolorów wśród Maniq. Dotyczy to zarówno kodowalności językowej (*linguistic codability*) – tj. faktu, że kolory są zleksykalizowane w dużej grupie specjalnych czasowników koloru – jak i kodowalności wydajnej (*efficient codability*) – tj. faktu, że użytkownicy Maniq są w dużej mierze jednomyślni w tym, jak nazywają kolory i używają zwięzłych abstrakcyjnych określeń na kolory. Co ważne, gros kategorii kolorów w Maniq jest zakodowana w czasownikach semantycznie specyficznych, które wyrażają niuansy na temat koloru w kulturowo ważnych sferach, tj. w sferze roślin, zwierząt i środowiska naturalnego. To ponownie podkreśla kluczową rolę kultury w rozbudowaniu leksykalnym pól semantycznych. Demonstruje też jak istotnym jest zróżnicowane podejście metodologiczne, do którego od dawna nawołuje się w badaniach języka koloru. Kolejna istotna obserwacja wynikająca z rozdziału 5 to fakt, że najpowszechniejszy rodzaj relacji semantycznej w leksykonie koloru oparty jest na podobieństwie. Fakt, że obecność innych relacji, takich jak inkluzja bądź przeciwieństwo, jest znikoma wskazuje, że podobieństwo jest relacją wyjątkowo dobrze dopasowaną do struktury pola leksykalnego koloru. Wreszcie, rozdział ten rozważa także, jaki wpływ na leksykon koloru w Maniq miała historia języka i kontakt międzyjęzykowy.

Rozdział 6 bada specyficzność semantyczną czasowników w domenie zapachu, którą powszechnie uważa się za najtrudniejszą do wyrażenia słowami dziedzinę percepcji. Głównym odkryciem jest fakt, że wbrew szeroko rozpowszechnionemu twierdzeniu, że brak w językach wyspecjalizowanego słownictwa zapachowego, Maniq posiada kilkanaście terminów zapachowych, w większości zakodowanych jako czasowniki statyczne. Co ważne, słowa te znane są całej społeczności użytkowników Maniq i są częścią codziennego języka. Ujmują w znaczeniu konkretne jakości zapachów i, jak wynika z listy wygenerowanych przykładów obiektów zapachowych, każde z nich może odnosić się do wielu przedmiotów.

Dwa eksperymenty, w tym ocena podobieństwa między terminami i rating off-line tych terminów wobec kilku parametrów, pokazują, że leksykon zapachowy Maniq jest zorganizowany wokół dwóch osi – osi przyjemności i niebezpieczności. Językowe rozbudowanie pola zapachu w Maniq idzie w parze z jego prominentną pozycją w kulturze. Zapach jest istotny w wiedzy tradycyjnej Maniq i systemie wierzeń, odgrywając kluczową rolę w pojęciach pomyślności i bezpieczeństwa. Całość zebranych danych leksykalnych, eksperymentalnych i etnograficznych razem stanowi argument przeciwko powszechnej niewysławialności zapachów. Wbrew twierdzeniom w literaturze, zapachy nie są ograniczone brakiem możliwości leksykalizacji w specjalnym słownictwie. Języki mogą kodować zapachy, a abstrakcyjne jakości zapachowe mogą być wyrażane w semantycznie specyficznych słowach.

Rozdział 7 zamyka tę pracę, podsumowując główne wnioski z poszczególnych rozdziałów i syntetyzując je w zestaw teoretycznych implikacji. Najważniejsze ustalenia dotyczą bezpośrednio pytań zadanych na początku tej pracy dotyczących się zawartości semantycznej czasowników specyficznych, czynników wpływających na leksykalizację i struktury leksykonu czasowników. Praca pokazuje, że specyficzność semantyczna wiąże się z ważnymi w kulturze wydarzeniami i cechami. Ponadto, fakt, że znaczenia specyficzne są ujęte w monomorfemicznych czasownikach jest dodatkowo związany z typologicznym profilem semantycznym Maniq, tj. jego ogólną preferencją do kodowania dużej ilości znaczenia w niepodzielnych morfologicznie jednostkach. Niezbadane i dotychczas pominięte wzorce leksykalizacyjne omówione w tej pracy rzucają nowe światło na specyficzność semantyczną czasowników, a także ukazują centralną rolę społeczeństwa, kultury i struktury językowej w leksykalizacji.

## Biographical note

---

Ewelina Wnuk graduated from a 5-year M.A. program in English Studies and a 3-year B.A. program in Italian studies at the University of Warsaw, both completed in 2008, and a 2-year Research M.A. in Linguistics at the University of Amsterdam, completed in 2010. In 2009, she began linguistic field research on a previously undescribed Maniq language in southern Thailand within a DOBES language documentation project *Tongues of the Semang*. Her Research Master's thesis provided the first comprehensive description of the Maniq sound system. In 2010, she was awarded a PhD scholarship in the Language and Cognition department at the Max Planck Institute for Psycholinguistics. She continued her work on Maniq, expanding the grammatical description and pursuing an in-depth investigation of the semantics of Maniq perception verbs, carrying out a total of 9 months of fieldwork. She currently works as a post-doctoral researcher at the Radboud University in Nijmegen. Her research topics include semantics, grammar and the relationship between language and cognition.



## MPI Series in Psycholinguistics

---

1. The electrophysiology of speaking: Investigations on the time course of semantic, syntactic, and phonological processing. *Miranda van Turenhout*
2. The role of the syllable in speech production: Evidence from lexical statistics, metalinguistics, masked priming, and electromagnetic midsagittal articulography. *Niels O. Schiller*
3. Lexical access in the production of ellipsis and pronouns. *Bernadette M. Schmitt*
4. The open-/closed-class distinction in spoken-word recognition. *Alette Haveman*
5. The acquisition of phonetic categories in young infants: A self-organising artificial neural network approach. *Kay Behnke*
6. Gesture and speech production. *Jan-Peter de Ruiter*
7. Comparative intonational phonology: English and German. *Esther Grabe*
8. Finiteness in adult and child German. *Ingeborg Lasser*
9. Language input for word discovery. *Joost van de Weijer*
10. Inherent complement verbs revisited: Towards an understanding of argument structure in Ewe. *James Essegbey*
11. Producing past and plural inflections. *Dirk Janssen*
12. Valence and transitivity in Saliba: An Oceanic language of Papua New Guinea. *Anna Margetts*
13. From speech to words. *Arie van der Lugt*
14. Simple and complex verbs in Jaminjung: A study of event categorisation in an Australian language. *Eva Schultze-Berndt*
15. Interpreting indefinites: An experimental study of children's language comprehension. *Irene Krämer*
16. Language-specific listening: The case of phonetic sequences. *Andrea Weber*
17. Moving eyes and naming objects. *Femke van der Meulen*

18. Analogy in morphology: The selection of linking elements in Dutch compounds. *Andrea Krott*
19. Morphology in speech comprehension. *Kerstin Mauth*
20. Morphological families in the mental lexicon. *Nivja H. de Jong*
21. Fixed expressions and the production of idioms. *Simone A. Sprenger*
22. The grammatical coding of postural semantics in Goemai (a West Chadic language of Nigeria). *Birgit Hellwig*
23. Paradigmatic structures in morphological processing: Computational and cross-linguistic experimental studies. *Fermín Moscoso del Prado Martín*
24. Contextual influences on spoken-word processing: An electrophysiological approach. *Daniëlle van den Brink*
25. Perceptual relevance of prevoicing in Dutch. *Petra M. van Alphen*
26. Syllables in speech production: Effects of syllable preparation and syllable frequency. *Joana Cholin*
27. Producing complex spoken numerals for time and space. *Marjolein Meeuwissen*
28. Morphology in auditory lexical processing: Sensitivity to fine phonetic detail and insensitivity to suffix reduction. *Rachèl J. J. K. Kemps*
29. At the same time...: The expression of simultaneity in learner varieties. *Barbara Schmiedtová*
30. A grammar of Jalonke argument structure. *Friederike Lüpke*
31. Agrammatic comprehension: An electrophysiological approach. *Marlies Wassenaar*
32. The structure and use of shape-based noun classes in Miraña (North West Amazon). *Frank Seifart*
33. Prosodically-conditioned detail in the recognition of spoken words. *Anne Pier Salverda*
34. Phonetic and lexical processing in a second language. *Mirjam Broersma*
35. Retrieving semantic and syntactic word properties. *Oliver Müller*
36. Lexically-guided perceptual learning in speech processing. *Frank Eisner*
37. Sensitivity to detailed acoustic information in word recognition. *Keren B. Shatzman*

38. The relationship between spoken word production and comprehension. *Rebecca Özdemir*
39. Disfluency: Interrupting speech and gesture. *Mandana Seyfeddinipur*
40. The acquisition of phonological structure: Distinguishing contrastive from non-contrastive variation. *Christiane Dietrich*
41. Cognitive cladistics and the relativity of spatial cognition. Daniel B.M. Haun
42. The acquisition of auditory categories. *Martijn Goudbeek*
43. Affix reduction in spoken Dutch. *Mark Pluymaekers*
44. Continuous-speech segmentation at the beginning of language acquisition: Electrophysiological evidence. *Valesca Kooijman*
45. Space and iconicity in German Sign Language (DGS). *Pamela Perniss*
46. On the production of morphologically complex words with special attention to effects of frequency. *Heidrun Bien*
47. Crosslinguistic influence in first and second languages: Convergence in speech and gesture. *Amanda Brown*
48. The acquisition of verb compounding in Mandarin Chinese. *Jidong Chen*
49. Phoneme inventories and patterns of speech sound perception. *Anita Wagner*
50. Lexical processing of morphologically complex words: An information-theoretical perspective. *Victor Kuperman*
51. A grammar of Savosavo, a Papuan language of the Solomon Islands. *Claudia Wegener*
52. Prosodic structure in speech production and perception. *Claudia Kuzla*
53. The acquisition of finiteness by Turkish learners of German and Turkish learners of French: Investigating knowledge of forms and functions in production and comprehension. *Sarah Schimke*
54. Studies on intonation and information structure in child and adult German. *Laura de Ruiter*
55. Processing the fine temporal structure of spoken words. *Eva Reinisch*
56. Semantics and (ir)regular inflection in morphological processing. *Wieke Tabak*
57. Processing strongly reduced forms in casual speech. *Susanne Brouwer*
58. Ambiguous pronoun resolution in L1 and L2 German and Dutch. *Miriam Ellert*

59. Lexical interactions in non-native speech comprehension: Evidence from electro-encephalography, eye-tracking, and functional magnetic resonance imaging. *Ian FitzPatrick*
60. Processing casual speech in native and non-native language. *Annelie Tuinman*
61. Split intransitivity in Rotokas, a Papuan language of Bougainville. *Stuart Robinson*
62. Evidentiality and intersubjectivity in Yurakaré: An interactional account. *Sonja Gipper*
63. The influence of information structure on language comprehension: A neurocognitive perspective. *Lin Wang*
64. The meaning and use of ideophones in Siwu. *Mark Dingemans*
65. The role of acoustic detail and context in the comprehension of reduced pronunciation variants. *Marco van de Ven*
66. Speech reduction in spontaneous French and Spanish. *Francisco Torreira*
67. The relevance of early word recognition: Insights from the infant brain. *Caroline Junge*
68. Adjusting to different speakers: Extrinsic normalization in vowel perception. *Matthias J. Sjerps*
69. Structuring language. Contributions to the neurocognition of syntax. *Katrien R. Segaert*
70. Infants' appreciation of others' mental states in prelinguistic communication: A second person approach to mindreading. *Birgit Knudsen*
71. Gaze behavior in face-to-face interaction. *Federico Rossano*
72. Sign-spatiality in Kata Kolok: how a village sign language of Bali inscribes its signing space. *Conny de Vos*
73. Who is talking? Behavioural and neural evidence for norm-based coding in voice identity learning. *Attila Andics*
74. Lexical processing of foreign-accented speech: Rapid and flexible adaptation. *Marijt Witteman*
75. The use of deictic versus representational gestures in infancy. *Daniel Puccini*
76. Territories of knowledge in Japanese conversation. *Kaoru Hayano*

77. Family and neighbourhood relations in the mental lexicon: A cross-language perspective. *Kimberley Mulder*
78. Contributions of executive control to individual differences in word production. *Zeshu Shao*
79. Hearing speech and seeing speech: Perceptual adjustments in auditory-visual processing. *Patrick van der Zande*
80. High pitches and thick voices: The role of language in space-pitch associations. *Sarah Dolscheid*
81. Seeing what's next: Processing and anticipating language referring to objects. *Joost Rommers*
82. Mental representation and processing of reduced words in casual speech. *Iris Hanique*
83. The many ways listeners adapt to reductions in casual speech. *Katja Poellmann*
84. Contrasting opposite polarity in Germanic and Romance languages: Verum Focus and affirmative particles in native speakers and advanced L2 learners. *Giuseppina Turco*
85. Morphological processing in younger and older people: Evidence for flexible dual-route access. *Jana Reifegerste*
86. Semantic and syntactic constraints on the production of subject-verb agreement. *Alma Veenstra*
87. The acquisition of morphophonological alternations across languages. *Helen Buckler*
88. The evolutionary dynamics of motion event encoding. *Annemarie Verkerk*
89. Rediscovering a forgotten language. *Jiyoun Choi*
90. The road to native listening: Language-general perception, language-specific input. *Sho Tsuji*
91. Infants' understanding of communication as participants and observers. *Gudmundur Bjarki Thorgrímsson*
92. Information structure in Avatime. *Saskia van Putten*
93. Switch reference in Whitesands. *Jeremy Hammond*

94. Machine learning for gesture recognition from videos. *Binyam Gebrekidan Gebre*
95. Acquisition of spatial language by signing and speaking children: a comparison of Turkish sign language (TID) and Turkish. *Beyza Sümer*
96. An ear for pitch: on the effects of experience and aptitude in processing pitch in language and music. *Salomi Savvatia Asaridou*
97. Incrementality and Flexibility in Sentence Production. *Maartje van de Velde*
98. Social learning dynamics in chimpanzees: Reflections on (nonhuman) animal culture. *Edwin van Leeuwen*
99. The request system in Italian interaction. *Giovanni Rossi*
100. Timing turns in conversation: A temporal preparation account. *Lilla Magyari*
101. Assessing birth language memory in young adoptees. *Wencui Zhou*
102. A social and neurobiological approach to pointing in speech and gesture. *David Peeters*
103. Investigating the genetic basis of reading and language skills. *Alessandro Gialluisi*
104. Conversation Electrified: The Electrophysiology of Spoken Speech Act Recognition. *Rósa Signý Gísladóttir*
105. Modelling Multimodal Language Processing. *Alastair Smith*
106. Predicting language in different contexts: The nature and limits of mechanisms in anticipatory language processing. *Florian Hintz*
107. Situational variation in non-native communication. *Huib Kouwenhoven*
108. Sustained attention in language production. *Suzanne Jongman*
109. Acoustic reduction in spoken-word processing: Distributional, syntactic, morphosyntactic, and orthographic effects. *Malte Viebahn*
110. Nativeness, dominance, and the flexibility of listening to spoken language. *Laurence Bruggeman*
111. Semantic specificity of perception verbs in Maniq. *Ewelina Wnuk*