The Basicness of Knowing,
Where Semantics meets Philosophy:
The KNOW prime of Natural Semantic Metalanguage
and its philosophical implications

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I hereby declare that, except where it is otherwise acknowledged in the text, this thesis represents my own original work.

All versions of the submitted thesis (regardless of submission type) are identical.
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Linguistic Abbreviations

1, 2.. 1st person, 2nd person …
A Agent (of transitive verb)
DAT Dative
DEM Demonstrative
DU Dual
F Future
LOC Locative
NEG Negative
NEGBE A compound of negation and copular
NPP Non-past progressive
P Past
PC Past completive
Poss Possessive
PR Progressive
PRIOR Prior action to next verb
S Subject (of intransitive verb)
SG Singular
SS Same subject as next verb
TAM Tense Aspect Mood
Abstract

The topic of this thesis is the semantic prime KNOW of Natural Semantic Metalanguage (NSM) theory. I take an in-depth look at this NSM prime, proposed to be a fundamental concept found in all the world’s languages, considering both linguistic and broader philosophical issues in relation to the KNOW hypothesis, i.e. the proposal that the concept represented by KNOW is a legitimate NSM prime. After introducing NSM and defending a specific “psychological” interpretation of the theory (Chapter 1), I outline the KNOW proposal, including discussion of the combinatorial properties ascribed to it and how they have evolved in recent years (Chapter 2). I then look at would-be counterexamples to the universality of KNOW from a handful of languages (Chapter 3). I argue that overall the prime stands up well to these challenges, though the case of Kalam (Pawley 1994) does raise some issues that require further investigation and possibly novel kinds of tests to resolve. Then in the first part of the “philosophical” side to the thesis, I draw a comparison with the KNOW hypothesis and Timothy Williamson’s (2001) view that knowing is a conceptually fundamental concept, finding both striking similarities and instructive differences between the positions (Chapter 4). Lastly, I consider the “experimental philosophy” findings made by Weinberg et al. (2001) on what looks like cultural variation in concepts of knowing, addressing the question of whether such results are problematic for the universality of the KNOW prime (Chapter 5). Here I contend that such studies do not pose a threat to KNOW, not least because they come with a multitude of methodological issues, including specifically linguistic issues, many of which could be prevented by constructing NSM-based questionnaires. In Chapter 6, I conclude, pointing to several important avenues for further research brought up by the discussion, both on the subject of continued research on the KNOW prime and in relation to interdisciplinary applications of NSM to philosophy.
Chapter 1. An Introduction

1.1 Introduction to the thesis

The subject of this thesis is the semantic prime KNOW\(^1\) of Natural Semantic Metalanguage (NSM). NSM is a theory of meaning originally due to Anna Wierzbicka (1972), which has since flourished into a fully-fledged research program (e.g. Goddard & Wierzbicka 1994, 2002). According to the NSM view, there exists a small set of cross-linguistically universal and semantically unanalysable concepts, the *semantic primes*, in terms of which all other concepts of all the world’s languages are hypothesised to be definable, in the form of “reductive paraphrases” called *explications*.\(^2\) There are currently 65 proposed semantic primes, each hypothesised to have lexicalised counterparts (*exponents*) in all languages, and each accompanied by a set of combinatorial rules (*syntactic frames*) specifying how it can combine with the other primes. The NSM approach has significant practical applications wherever cross-cultural communication is involved (Goddard 2002a, 2010; Wierzbicka 1997). But quite apart from its considerable usefulness in applied contexts, NSM is also of enormous theoretical interest, not only because it makes substantial universalist and variationist claims about language (Goddard 2001) but because of what I see as its far reaching implications for other disciplines, such as philosophy and the cognitive sciences.

The purpose of this thesis is essentially to take an in-depth look at KNOW, examining both the NSM proposal itself, and how that proposal bears on some

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\(^1\) Small capitalisation is always used for the NSM primes.

\(^2\) Both here and elsewhere in the thesis, the process of explication is described as “reductive” just because it involves defining a complex concept in terms of simpler concepts, ultimately in terms of maximally simple ones, i.e. the primes.
philosophical literature. On the linguistics side of things, I outline the NSM proposal about KNOW, discussing some of the ways in which it has evolved in recent years, and I address several possible challenges to the cross-linguistic universality of the prime. In the philosophical part of the thesis, I consider how the KNOW hypothesis\(^3\) relates to some branches of analytic epistemology, i.e. the philosophy of knowledge within the analytic tradition. But why look in such detail at what is essentially *one sixty-fifth* of a theory of meaning? I have two reasons. The first is a general one: it is my contention that every NSM prime deserves (at least) the kind of attention that this thesis aims to give to KNOW. For while NSM can and should be evaluated as a whole, each NSM prime is also an independent hypothesis about the presence of a semantically simple concept in all languages, and as such requires in-depth consideration of its properties, defence from any would-be counterexamples, and discussion of any specific implications that it may have outside of semantics proper. The second reason is related specifically to the KNOW prime. At risk of displaying a little favouritism, I believe this prime is one of the most interesting proposed NSM primes, not least because the claim that ‘knowing’ is a fundamental concept of human languages directly bears on an entire foundational field of contemporary analytic philosophy.

The thesis will proceed as follows. In what remains of this introductory chapter, I give a brief overview of NSM, then I argue for what I am calling the “psychological” interpretation of the theory, which involves the idea that NSM is best understood as a substantial psychological claim, rather than “just” a heuristically valuable methodology for comparing concepts across languages and

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\(^3\) Note that throughout the thesis I will refer to “the KNOW hypothesis”, “the KNOW claim” etc. whereby I mean the hypothesis that the concept represented by KNOW is a true NSM prime, i.e. a cross-linguistically universal and semantically unanalysable concept.
cultures. I also defend the idea that in certain cases, behavioural evidence of the kind sought in the psychological sciences may be necessary to properly support specific NSM claims. In Chapter 2, I look at the KNOW proposal in detail, both setting out its current grammar, and discussing some of ways this grammar has evolved over recent years. For example, I discuss the recently proposed explication for the commonly lexicalised concept of “experiential” or “familiarity” knowledge, e.g. French connaître and German kennen (Goddard & Wierzbicka 2013), thereby eliminating the problems with earlier attempts to treat those concepts as basic instantiations of the KNOW prime. In Chapter 3, I move to the subject of the proposed challenges to the universality of KNOW. I consider five languages in some detail: Arrernte (Harkins & Wilkins 1994), Acehnese (Durie et al. 1994), East Cree (Junker 2008), Dalabon (Evans 2007), and Kalam (Pawley 1994). The first three cases are not presented as counterexamples to KNOW, but the identification of the prime in each of these languages presents some instructive obstacles; in the case of Dalabon and Kalam, however, the respective authors do argue that the language lacks a distinct exponent of the prime. I show that only in the case of Kalam is there any problem with disambiguating KNOW, due to the presence of “interprime polysemy” between primes of a similar conceptual category, and I argue that the best way to answer to this problem is to conduct more rigorous testing, not just language-internal tests of the kind that is typical of NSM research, but behavioural experiments designed to try to get at speakers’ semantic representations from another angle.

Chapters 4 and 5 are concerned with the intersection between the NSM and philosophy. Here I will consider how each of the two claims that are involved in the KNOW claim – its semantic unanalysability and its cross-linguistic universality –
relate to parts of the analytic epistemological literature. Thus Chapter 4 will be concerned with the “analytic project”, i.e. the traditional project to reductively define the concept of knowledge in philosophy, especially as it has evolved in response to Gettier cases, which are hypothetical cases that are thought to show the insufficiency of the once standard analysis of knowing as ‘justified, true belief’ (Gettier 1963). More specifically, I discuss Williamson’s (2001) alternative view of epistemology, the “knowledge first” thesis, essentially a rejoinder to the analytic project, whereby ‘knows’ is instead proposed to be fundamental and irreducible. Here I argue that there is an interesting consonance between this view and the KNOW hypothesis, but I also outline several ways in which, from an NSM perspective, Williamson’s argumentation falls short. I also suggest how NSM may be helpful in testing some residual questions in relation to philosophers’ intuitions about the constituent conditions of ‘knows’, in particular, the apparent entailment between ‘knows’ and ‘true’. Chapter 5 centers on how newer work in epistemology, part of the so-called “experimental philosophy” movement, relates to the other main claim involved in the KNOW claim, viz. its universality. Here I critique the findings of Weinberg et al. (2001), the seminal study on experimental philosophy applied to epistemology, which purports to demonstrate cultural variation in epistemic intuitions, in particular, variation in when speakers are prepared to attribute ‘knows’ to a subject of a hypothetical scenario, such as a Gettier case. I contend that the conclusions of Weinberg et al.’s (2001) are problematic because their methodology is questionable on both general and especially linguistic-specific grounds. I also argue that even if the findings were correct, variation in epistemic intuitions would be best explained by non-semantic factors, in particular, in terms of the operation of different epistemic norms, and thus wouldn’t present a problem for the proposal that
KNOW is a universal semantic prime. I also show how NSM could be immensely useful in constructing more rigorous experiments for testing epistemic intuitions cross-culturally and cross-linguistically. In Chapter 6, I offer some concluding remarks and point to some of the most promising lines of further research on KNOW.

I take the upshot of the thesis to be threefold. Firstly, the NSM proposal that KNOW is a semantic prime stands up well, overall, to the purported challenges to its universality, particularly in light of developments in the proposal of the last few years. Secondly, if we are willing to embrace the consequences of the psychological interpretation of NSM, there is a promising way forward for dealing with residual issues in difficult cases like that of Kalam’s apparent interprime polysemy, namely the construction of behavioural tests to support standard language-internal investigation. And thirdly, the KNOW hypothesis is rich in implications for philosophy, and further exploration into the many points of intersection should be rewarding on all sides.

1.2 Introduction to NSM

As I have said, NSM is a theory of meaning and a methodological approach to the study of linguistic meaning. Originally due to Wierzbicka (1972), NSM has since developed in leaps and bounds, having been studied in dozens of languages, over a good range of language families (Goddard & Wierzbicka 1994; Wierzbicka 1996; Goddard & Wierzbicka 2002; Goddard 2008). As I have said, the current proposal consists of 65 primes (Appendix I), each with its own combinatorial syntax, the syntactic frames, essentially the rules specifying how a prime can combine with the other primes. The idea is that all the other concepts of all the world’s languages are

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4 Note that ‘NSM’ is used to refer both to the metalanguage itself and to the theory thereof.
reducible to (and at some basic psychological level, can only be understood in terms of) the primes plus their associated syntax, resulting in reductive definitions called *explications* (Appendix II).

For the approach to be successful, then, all languages need to be shown to have *exponents* (lexical instantiations) of all the primes, which need not be single words, and may instead be bound morphemes or phrasemes. Sometimes a language will have two or more realisations of one prime, with the choice dictated by some local grammatical feature, such as case, as in English *I*–*ME* exponents.\(^5\) This is called *(syntactically-constrained) allolexy* and does not present a problem provided 1) there is no specifiable difference in meaning between the two forms, and 2) the grammatical constraint can be clearly identified. And finally, an exponent of a prime may be *polysemous*, that is, it may have some additional, non-prime meanings specific to that language. Each case of polysemy is taken seriously by NSM researchers, but the general point is that it does not constitute a challenge to the existence of the prime in that language provided the prime meaning can be differentiated from the non-prime meanings. Standard tests for polysemy are used for this, such as 1) identifying *disambiguating grammatical contexts*, where one sense of the word can be forced by a given grammatical environment; and 2) locating what could be dubbed *constrained antonymy*, cases where only one of several senses of a word can be contrasted with another concept.

Another central tool in NSM research are the primes’ *canonical sentences*, i.e. basic sentences couched predominately in NSM,\(^6\) the attempted translation of which is used to establish the existence and behaviour of a prime in a given language.

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5 Where the tilde indicates allolexy.

6 I say ‘predominately’ because other non-prime elements can be slotted into a canonical sentence. For example, third-person singular pronouns and proper names are used. But these elements should be understood as standing in for the (inherently third-person) primes SOMEONE or SOMETHING.
Canonical sentences are supposed to capture the proposed universal meaning of the concept and, ideally, to exclude any extended, metaphorical or other possible meanings that the exponent of the prime may have in some, but not all, languages. The idea is that if such sentences can be translated without the addition or loss of any paraphrasable meaning, then the hypothesis that the prime exists in that language is supported. Note that canonical sentences were first used in a heuristic capacity in NSM research but have since evolved to have a theoretically significant role (Goddard & Wierzbicka 2002: 42). Canonical sentences are now seen to do the important job of “exemplify[ing] hypothetical combinatorics of the primes” (loc. cit.). That is, they are the “filled in” versions of the basic combinatorial possibilities available for the prime.

It must also be stressed that it is not the prime’s lexical form *simpliciter* that is supposed to be unanalysable and universal across languages, but rather the prime *plus* its combinatorial properties and valency options, as specified by the syntactic frames posited for the prime. In fact, it could argued that it is the prime only *as it appears in its syntactic frames* that is proposed to be basic and universal.

Finally, note that while the focus here is on an NSM prime, there are at least two other important pieces of NSM theoretical “machinery” besides the primes. Firstly, there are *semantic molecules*, which are semantically complex, “mid-level” concepts via which other concepts are explicated (defined). Some of these are specific to a given language (e.g. English *animal*), but others are proposed to be lexically instantiated in all languages, (e.g. *women, hands, sky*) (Goddard 2012). Secondly, there are the *cultural scripts*, which are essentially articulations of cultural norms that are couched in NSM; cultural scripts are put to use in describing
a whole range of broadly “pragmatic” features of language use that do not pertain to the fixed meaning of the concepts involved (Goddard & Wierzbicka 2004).

1.3 The psychological interpretation of NSM

As I have intimated, NSM can be interpreted in a variety of “strengths”, anything from a heuristically helpful approach to cross cultural communication, to a full-blown metaphysical claim about what constitutes the “alphabet of human thought”7, or to put the latter more plainly, as a claim about our psychological resources or capacities. I believe that this latter the best way to make sense of NSM theory. On this view, NSM is not just a practically valuable approach to studying meaning across cultures. Rather, the primes and their associated grammar are proposed to be psychologically real elements of human cognition. This interpretation of NSM is close to that expressed in Goddard et al. (2014), who align NSM with a sort of “language of thought” hypothesis.8 Part and parcel with this kind of “realist” view of NSM is the idea that the primes are somehow realised in the brain, and thus must ultimately be given both ontogenetic (developmental) and phylogenetic (evolutionary) explanations.

Whether or not all NSM researchers would be happy to accept this interpretation of the theoretical underpinnings of the approach is an open question, but I would argue that the psychological interpretation of NSM just described falls out quite naturally from the theory’s claims. After all, NSM theory is the hypothesis

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7 An idea associated with seventeenth century thinkers, especially Leibniz (e.g. 1961[1903]) as often cited by Wierzbicka, e.g. in her (1997: 22) and (1972: 8).
8 A term popularised by Fodor (1975). But while the NSM view is reminiscent of Fodor’s ideas in very rough outline—namely, in being an empirical hypothesis about the existence of universal, inborn concepts, in terms of which all our explicit thinking is done (Murat 2015)—the views incorporate some very different claims and thus should be seen as independent. For example, Fodor (e.g. 2008: 139) has expressed suspicion of the idea that (even non-primitive) concepts are “learnt” in the standard sense, which doesn’t sit well with the NSM contention that most concepts are culturally specific and thus are learnt (specifically, learnt via cultural means).
that the (final list of) primes are the only concepts found in all languages that aren’t understood in terms of other concepts and via which all other concepts must be understood. But why should this be true? Unless it is by some great accident, the most ready explanation is that the NSM primes are psychologically real conceptual atoms that are “inherent in the cognitive apparatus of *Homo Sapiens*” (Goddard *et al.* 2014: 61).9

A final point is that if the psychological interpretation of NSM is right, this suggests that behavioural evidence of the kind strived for in the discipline of psychology could play an important role in supporting conclusions of NSM research. That is, I think NSM researchers should be open to using controlled behavioural experiments into speakers’ semantic intuitions, in addition to the language-internal tests discussed in §1.2 – whether it is to support the distinctness of two primes that share some morphological material (§3.3), or to help settle a particularly problematic case of polysemy (§3.5). This may involve what might be dubbed “button-pushing” tests,10 or verbal questionnaires that avoid the method of direct elicitation. What is important about such tests is that, when conducted properly, they may point more directly to speakers’ semantic representations than language-internal tests could ever be expected to. Of course, designing sophisticated and well-controlled experiments of this kind is no easy feat, but nevertheless, I think the incorporation of such methods constitutes an important part of setting NSM claims on the strongest possible theoretical and empirical foundations.

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9 The term “innate” knowledge springs to mind here, but I avoid using this term due to its rather hairy application in the sciences. See Mameli & Bateson (2006), and Samuels (2004) for discussion.

10 This term is inspired by Chomsky’s (1983) (somewhat disparaging) characterization of lab-based behavioural tests.
Chapter 2. The KNOW prime

In this chapter we delve into the subject of the thesis proper: the proposal that a concept of ‘knowing’ is a universal semantic primitive.

2.1 The advent of KNOW

KNOW is now an established member of the NSM inventory, but it was not one of the original fourteen proposed by Wierzbicka (1972). Wierzbicka’s original idea was that ‘know’ (or rather Polish wiedzieć) could be defined in terms of ‘can say’, as in the following example, applied to an instance of propositional knowledge: ¹¹

(1) Ja wiem, że stolicą Portugali a jest Lizbona.
   = Ja mogę powiedzieć, jakie miasto jest stolicą Portugali a: Lizbona.
   I know that Lisbon is the capital of Portugal.
   = I can say what town is the capital of Portugal: Lisbon.

In Lingua Mentalis (1980: 156), however, Wierzbicka discussed an objection that threatened this analysis, in the form of an argument from Andrzej Bogusławski (1979) on the attribution of ‘knowing’ and ‘saying’ to animals. In brief, Bogusławski argued that while it doesn’t make sense to talk of animals ‘saying’ things, it is intelligible to talk of their ‘knowing’ things. According to Wierzbicka (1980), if this were correct, the analysis of ‘knowing’ in terms of what one ‘can say’ would be undermined, and absent a viable analysis, would suggest that the concept may in fact be best treated as basic and unanalysable (as per Bogusławski’s view) ²².

¹¹ As analysed in her Dociekania Semantyczne (1969) (Anna Wierzbicka, personal communication, February 2016).
²² See Bogusławski (2007) on the idea that knowing, or in particular, knowing that, is a primitive or “key” concept, a view reminiscent of Williamson’s (2001) knowledge first thesis discussed in Chapter 4.
Is Bogusławski right? There certainly does seem to be a widely-held folk belief that “higher” animals (at least) can know things. Testament to this is the fact that many epistemologists will reject an analysis of knowledge that does not allow for animal knowers, on the grounds that it is too demanding (e.g. Dretske 1985: 177; Bonjour 2005: 242). Behavioural ecologists also talk seriously about animals know things, beyond a mere anthropomorphic metaphor (e.g. Bekoff 2003; see also Kornblith 1999).13 As to whether animals can be regarded as ‘saying’ things, I would tend to agree with Bogusławski that (with the exception of our pets, perhaps) it does sound odd to talk of animals ‘saying’ things.14 Leaving aside this argument, however, (1) falls short for other reasons. For one thing, it cannot account for certain non-propositional or non-verbalisable knowledge, in particular ‘know how’ meanings, such as ‘I know how to swim’. Such a sentence simply cannot be reduced to what the subject ‘can say’: my knowing how to swim does not mean I can say *anything* about what it is that I know.15

Wierzbicka (1980: 37, 156) indicated her sympathy to Bogusławski’s argument, and to the possibility that ‘knowing’ might be best considered a primitive concept. By the time of *Lexical and Semantic Universals* (Goddard & Wierzbicka 1994), KNOW had taken its place in the NSM inventory, with its existence being attested in a wide variety of languages in this volume, among them French, Polish, Chinese, Longgu, Yankunytjatjara, and Ewe. Since then, it has been tested in tens of other languages, including, for example, Malay (Goddard 2002b), Italian (Farese

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13 At least, Bekoff talks of “higher” animals such as orcas and monkeys knowing things (2003: 5, 57). I am unsure to what extent it is common among biologists to talk about “lower” animals (e.g. insects) knowing things in a non-metaphorical sense.

14 Though the extent to which saying is equated with verbal communication is important here; the meaning of the NSM prime SAY is not exclusively verbal (a meaning which can be expressed in NSM as ‘say with words’). While animals obviously cannot say things *with words*, perhaps they can be regarded as saying things *with their bodies*. It is still my feeling that this would be odd to say of animals besides our pets, but the intuition needs further investigation.

15 To be clear, as we will see later “knowledge how” is not seen as reducible to “knowledge that” on the current view either; instead, both constructions are seen as semantically complex and built up from the KNOW prime. But the point here is just that the ‘can say’ view of propositional knowledge has no hope of covering ‘know how’ meanings, so the latter would need an entirely distinct analysis.
2015), Amharic (Amberber 2008), East Cree (Junker 2008), and Wolof (Bondéelle 2015). Thus I think it is fair to that the KNOW hypothesis has significant empirical support, having been tested in a significant number of languages, drawn from a reasonably wide range of language families. Of course, one can always counter, à la Evans and Levinson (2009), that the number of languages spoken far exceeds the number of languages tested, by several orders of magnitude. But I think it would be excessive to suggest that we need to test each and every language in order to say that a prime is cross-linguistic universal; it is methodical sampling of a considered variety of language families that is required, and this is what NSM research is aimed at. Of course, as ever in linguistics, investigating more languages is desirable, but the incompleteness of the NSM program does not constitute an argument against its plausibility.

Now that I have traced how KNOW came to enter the NSM inventory and the extent of the testing so far, it is time to consider the proposal in more detail. In the following section I will outline the “grammar” currently ascribed to the prime.

2.2. The “Grammar” of KNOW

2.2.1 Syntactic Frames

As mentioned in Chapter 1, each prime has a set of “syntactic frames”, which specify the ways in which it may combine with other primes and the particular valency options it permits, and which are hypothesised to be available for all exponents of the prime. In a sense, then, these combinatorial possibilities can be seen as constituting the “universal grammar” of the prime.
The valency options of KNOW, then, are similar to those available for the other mental predicates, THINK and WANT (Table 1). Firstly, KNOW takes a “psychological subject”, i.e. I, YOU, SOMEONE, and PEOPLE (Wierzbicka 1996: 119). It also allows a “substantive topic” (realised in English as “know about something”) and a “substantive complement” (realised in English as simply “know something”). These combinatorial possibilities are summarised as follows (with the options for THINK and some of those for WANT included for comparison):

Table 1. Syntactic Frames for mental predicates (KNOW, THINK, and WANT)

<table>
<thead>
<tr>
<th>KNOW</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) X know(s) (it) *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) X know(s) something</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) X know(s) something about someone/something</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THINK</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) X thinks like this: “—”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) X thinks something (good/bad) about someone/something</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) X is thinking about something</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WANT</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(partial) (1) X wants something</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) X wants to do something</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) X wants something to happen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) X wants to know something</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* X stands for any psychological subject (e.g. I, SOMEONE, PEOPLE) or permutation thereof (e.g. ‘THIS SOMEONE’, ‘MANY PEOPLE’)

Adapted from Goddard & Wierzbicka (2002: 60f), updated to conform to recent thinking, e.g. the option “(X) knows that —” listed there is no longer available, as discussed in 2.3.2.
Note that ‘SOMEONE’ and ‘SOMETHING’ in the above sentences have their own syntactic properties and thus can be altered by the quantifiers (MANY, ALL etc.) and determiners (THIS, SAME, OTHER), creating permutations such as ‘MANY THINGS’ and ‘SOME PEOPLE’. Furthermore, like a number of the primes, KNOW combines with the so called meta-predicates NOT and CAN (Goddard 2008: 15).

2.2.2 Canonical Sentences

I argued in the Chapter 1 that each NSM prime constitutes an independent hypothesis, a claim that has to be independently assessed, and its existence in the languages of the world independently tested. As I also discussed there, the central tool for testing the existence and behaviour of a prime in a given language is the attempted translation of canonical sentences. So what are the proposed canonical sentences used for testing the existence of KNOW in other languages? The current proposal includes the following (from Goddard & Wierzbicka 2015):

Table 2. Some canonical sentences for KNOW:

<table>
<thead>
<tr>
<th>(i)</th>
<th>I know (it)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii)</td>
<td>He knows much (many things) about things like this.</td>
</tr>
<tr>
<td>(iii)</td>
<td>Where is he now? I don’t know. Maybe Mary knows.</td>
</tr>
<tr>
<td>(iv)</td>
<td>I know/don’t know these people.¹⁷,¹⁸</td>
</tr>
</tbody>
</table>

¹⁷ Note that this is a slightly altered version of G&W’s (2015a) original canonical sentence ‘I know that person’. This version is preferable because PEOPLE and not ‘person’ is an NSM prime.

¹⁸ I have reservations about using this “experiential” or “familiarity” construction as a canonical sentence of KNOW. As G&W (2015a: 2) note, “[t]he word for ‘knowing (someone)’ will often be different to the word for ‘knowing (something)’”. On the current view, such experiential knowing concepts are seen as semantically complex, explicated in terms of KNOW (§2.3.2). I am not sure, then, that (iv) should be used to test the existence of KNOW. (This is not to say that it isn’t useful to translate (iv) in a new language, e.g. in order to establish whether it does have a lexicalised experiential knowing construction).
Note that (i) is a combination of the I and KNOW primes, i.e. ‘I know (it)’, where the object ‘it’ stands in for some sentence, which may or may not be expressed depending on the language (Wierzbicka in press). As for (ii)–(iii), note that they involve non-prime elements in the form of third person pronouns and names.19

It is important to note that, just as is the case with the proposed primes and their syntactic frames, the canonical sentences are partly a matter of discovery; that is, they are negotiated in light of the available empirical evidence. For this reason, it is always possible that a given proposed canonical sentence could be found to be untranslatable in some language, and would thus have to be adjusted or even discarded. Depending on the canonical sentence, such a finding may also alter (typically reduce) what valency options are available for that prime. For example, if it were discovered that some language(s) didn’t permit the exponent of KNOW to be combined with a substantive topic and therefore (ii) was found to be untranslatable, then not only would (ii) be discarded as a canonical sentence for KNOW, but the valency options for KNOW listed in Table 1 would be reduced or changed. Thus it should be clear that testing the prime, its grammar, and its canonical sentences are projects necessarily undertaken together.

Also note here that idiomaticity problems can arise when negotiating what the right canonical sentences are. In fact, there is something of an outstanding issue on this point in the case of (ii) in English: neither ‘He knows many things about things like this’ or ‘He knows much about things like this’ sound ideal in English; it is much more natural for say “He knows a lot about things like this”.20 Is this merely one of those cases in which NSM phrasing sounds unfamiliar, or is ‘knowing many

19 See note 6 above.
20 Though a further issue is that ‘I know a lot’ and ‘I know many things’ may not be equivalent in meaning, unlike in Polish where there is no such distinction (Anna Wierzbicka, personal communication, March 2016).
things’ not a permissible string of ordinary English? And if the latter is true, does that mean that this canonical sentence needs to be discarded, or rather that ‘a lot’ should be considered an allolex of MANY?

Answering these questions, and analogous ones for the canonical sentences translated into other languages, are essential for determining both whether or not (ii) is the right canonical sentence for the purposes of testing the existence and behaviour of the prime. For my part, I am inclined to think that this case is simply one of those cases of NSM sounding marked, rather than there being any genuine incompatibility between KNOW and MANY THINGS. In support of this idea is the fact that ‘know(s) many things’ is reasonably well-attested in English, at least in poetry and lyrics.21 Furthermore, I think there may be a more general idiomaticity issue here, given that English ‘many things’ can sound somewhat “aphoristic” in the object slot of other verbs (e.g. “She saw many things on her travels”, “I learnt many things at the lecture today”). Nevertheless, it may be worth trying out another possible canonical sentence for KNOW, using SOMETHING/SOME THINGS instead of MANY THINGS, such as “He knows something about this” or “He knows some things about things like this”.

2.3 Which know concept?

I will now address the question of exactly what concept is being proposed to be a universal and irreducible semantic primitive.

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21 For example, in the title of the poem Men Say They Know Many Things by Henry Thoreau, and in a line of the song A thousand years, performed by Sting: “I may know many things, I may be ignorant”.
2.3.1 ‘Know’ vs. ‘Knowledge’

The first thing to be clear on is that the relevant concept is ‘know(s)’, or ‘knowing’ and not ‘knowledge’. The issue here is not simply that in English, the ordinary way to express the prime happens to be via a verb and not a noun, for it is possible that in other languages its expression involves a nominal (or adjectival etc.) form. Rather, the claim is that the concept represented by the English abstract noun ‘knowledge’ is neither plausibly unanalysable nor universal. As Wierzbicka (in press) discusses, some languages, such as the Australian language, Walpuri, appear to lack any serviceable equivalent to ‘knowledge’, and even in a nearby language like French, the concepts of connaissances and savoir cut across the English concept in different ways, without either having a sense quite equivalent to it (op.cit.: 10f). Thus the claim is not that ‘know(s)’ is basic and universal for some apriori reason (though it may be a prima facie better candidate for a prime, given its greater frequency in ordinary language), rather it is precisely because of the evidence unearthed by cross-linguistic semantic analysis that English ‘knowledge’ is not a credible candidate for an NSM prime, whereas ‘know(s)’ is.

2.3.2 The analysis of propositional and experiential knowing

Now I will discuss how KNOW, as it is currently conceived, relates to (1) propositional knowledge (as in “I know that p”), and (2) what may be dubbed “experiential” knowledge, a concept that is lexicalised in various languages. Here we will see the most significant changes that the KNOW proposal has undergone. I will begin with (2), the concept of experiential knowledge.

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23 But note that like Wierzbicka (in press), I will not hesitate to use English word ‘knowledge’ when discussing the issues surrounding the universal concept, in those cases where it sounds more natural than ‘know’. But KNOW always refer to the prime proper.
In many languages, including Romance languages, Polish, German and Chinese, there is a lexically marked distinction between propositional knowledge (so-called “knowledge that”), and knowledge based on experience or familiarity, e.g. knowledge of people and places. In Italian, for example, we have sapere and conoscere, both translated as ‘know’ in English, yet clearly distinct in their uses, as the following examples show:

(2) John sa che Oslo è la capitale della Norvegia.
   ‘John knows that Oslo is the capital of Norway.’

(3) Luisa sa che le droghe sono pericolose.
   ‘Luisa knows that drugs are dangerous.’

(4) John conosce bene Mosca.
   ‘John knows Moscow well.’

(5) Luisa conosce Igor.
   ‘Luisa knows Igor.’

As these examples show, sapere is used to express propositional knowledge, whereas conoscere indicates a kind of knowledge from experience or familiarity. Similar contrasts are possible in other languages, including French (savoir/connaitre), German (wissen/kennen), Polish (wiedzieć/znać) and Chinese

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24 Wierzbicka (2002).
25 See Wierzbicka (in press).
26 Chappell (1994).
How does NSM deal with this contrast found in some languages but non-existent in others? The original position was to treat the experiential knowing lexemes as syntactically-constrained allolexes of the KNOW prime. And indeed, if one looks to the examples above, a syntactic difference is obvious: sapere is followed by a clausal complement introduced by the complementiser che, while conoscere is followed by a nominal expression. This analysis doesn’t work, however, for at least two reasons. For one thing, it is possible to combine sapere with a nominal, as in the following:

(6) Non so i dettagli.

‘I don’t know the details.’

A further problem with the allolex account is simply that ‘knowing someone X’ and ‘knowing some place Y’ (as in (4) and (5) above) is intuitively quite different in meaning from ‘knowing that p’. Knowing a person or place involves some kind of non-verbalisable knowledge, perhaps akin to an ability to recognise or conjure up a mental image of the person or places. Propositional knowledge, by contrast, is verbalisable almost by definition. And while Wierzbicka (2002: 95) suggested that (in the case of Polish wiedzieć/znać) this apparent difference in meaning may be due to the contribution of meaning of ‘someone’ (or ‘some place’) rather than any semantic difference between the verbs themselves, it was still perceived to be a problem (e.g. Goddard 2007: 15). But it was not until 2013 that explications of

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27 Chappell (1994: 117f) equates the distinction with that of French savoir/connaître and German wissen/kennen.
28 Other languages in which propositional and experiential knowing are expressed using the same lexical form are Mangaaba-Mbula (Bugenhagen 2002: 12) and Amharic (Amberber 2008: 93f), and of course, English.
29 Note that “Non conosco i dettagli” is also possible.
30 See Wierzbicka (in press) for exploration of the verbalisable/non-verbalisable distinction.
‘knowing someone’ and ‘knowing a place’ (and thus of those uses of Italian
conoscere etc.) was proposed (Goddard & Wierzbicka 2013). This analysis does not
rely on the concept of propositional knowledge at all, but rather on the substantive
topic frame, as follows:31

(7) I know these people (conosco questa gente, ich kenne diese Leute etc.).

I know some things about these people

like people can know some things about some people if they have been with them
before

because of this, I can think like this:

“these people are like this”

(8) I know this place (conosco questo posto, ich kenne diesen Platz etc.).

I know some things about this place

like people can know some things about a place if they have been in this place
before

because of this, I can think like this:

“this place is like this”

With the availability of such an analyses in (7) and (8), English ‘knowing a
person’ and ‘knowing a place’, and the analogous senses of Italian conoscere
(French connaître, German kennen, etc.), no longer needed to be treated as allolexes
of the KNOW (SAPERE/SAVOIR/WISSEN etc.) prime. They can instead be seen as

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31 (7) and (8) are adapted from Wierzbicka (in press). This version had a ‘because’ clause in the first line (i.e. ‘I know
some things about these people/this place because I have been with them/in this place before’) instead of the second line
appearing here. The version here is to be preferred because Italian conoscere at least does not necessarily require one to
have met the person or been to the place. For example, if I have often seen a person on television, such that I feel very
personally familiar with them, I could say that I conosco that person. Such an example can be seen in a 2015 YouTube
video from the comedy duo theShow, available at the following address (at 1:09 minutes in):
<https://www.youtube.com/watch?v=ruQWtmA4ENg&annotation_id=annotation_1693881917&src_vid=fpLZC1K
vc&feature=iv>.
independent and semantically complex concepts, with the \text{KNOW} prime as their central component.

Arguably what prevented the above analyses from coming to light earlier was the focus on trying to reduce such constructions to propositional knowledge, i.e. to the syntactic frame ‘X know(s) that —’, which was, until recently, proposed to be basic syntactic frame of \text{KNOW} (e.g. Goddard 2007: 16). That is, sentences such as those in (2) and (3) were treated as basic instantiations of \text{KNOW}. This treatment has since been abandoned, however, and an explication of know-	extit{that} constructions has been proposed, based on the syntactic frame ‘X know(s) (it)’, (from Wierzbicka in press):

(9) 
\textit{John knows that Oslo is the capital of Norway.} \\
\textit{it is like this: Oslo is the capital of Norway} \\
\text{John knows it}

Of course, the material after ‘it is like this:’ remains unexplicated, but the idea is that (9) serves as the explication of the frame (essentially of the “propositional attitude”, minus its content). I would argue that this explication is plausible in that it captures an important feature of know-	extit{that} claims: that they both set out some state of affairs \textit{and} assert someone’s knowledge of it. That is, when I tell Luisa “John knows that Oslo is the capital of Norway”, it seems plausible that I am communicating to Luisa both that Oslo \textit{is} the capital of Norway (“it is like this”), \textit{and} that John stands in a particular relation to this fact (“he knows it”).
2.3.3 The analysis of know-how

Finally, I would like to point to one other type of ‘know’ construction for which an NSM explication has been put forward, viz. “X knows how (to do something)”. This construction is interesting not least because “knowledge-how” (seen in opposition to “knowledge-that”) has an entire philosophical literature to its name, in which the central debate is whether or not knowledge-how can be reduced to knowledge-that (Fantl 2016). According to the NSM perspective, these are independent concepts, semantically analysable in terms of different basic constructions of the prime KNOW, as follows (from Wierzbicka in press):

(10) *She knows how to do it.*

    she can do it if she wants because she knows some things about it,\(^{32}\)

    like people can know some things about something if they have done it before

Note that this (10) is much closer to the explications of the experiential knowing concepts ‘knowing someone’ and ‘knowing a place’ than it is to the explication of ‘knowing that’, in that both refer to (non-necessary) personal experience (‘…like people can know…if they have done it before’).

It is not possible here to give anywhere near an exhaustive treatment of all the constructions centred on KNOW, but it is worth handwaving to a few other examples of “epistemic” concepts and constructions that have been analysed in terms of the prime. For one example, consider that Wierzbicka (in press) offers explications of various (English) constructions involving ‘know’ plus a wh-word (e.g. when, where) via KNOW, including both direct wh-questions (‘Where does

\(^{32}\) I have slightly altered Wierzbicka’s (in press) version, changing ‘…because she knows something’ to ‘…because she knows some things about it’, giving the right parallelism with the following line.
Mary live?’) and so-called “embedded” wh-questions (‘John knows where Mary lives’). Another important reach of explications involving KNOW is in the analysis of evidential markers, a feature of some languages in which information relating to the evidence or source of some piece of knowledge is grammaticalised (e.g. the source of knowledge being directly seen by the speaker vs. being heard about from other people) (Wierzbicka 1994b).

Chapter 3. Challenges to the universality of KNOW

In this chapter I look at problematic cases that have been encountered in the search for exponents of KNOW in other languages.

3.1 Mparntwe Arrernte

The first case I will consider is that of Mparntwe Arrernte (a variety of Arrernte spoken around Alice Springs), as analysed by Harkins and Wilkins (1994; henceforth H&W). This case demonstrates the relatively “easy” problem of establishing which of several candidates is the exponent of a prime. In Mparntwe Arrernte, then, there are two candidates for the exponent of KNOW: the adjectival form kaltye, which H&W define as ‘know (stative)’ and itelare-, which they define as ‘know (actively)’ (p. 289). Here is an example of each:

(1) Ayenge kaltye unte kurne mpware-ke
   1SG:S know 2SG:A bad make/do-PC
‘I know you did something bad’ (i.e. I am knowledgeable of the fact that you did something bad)

(2) Ayenge itelare-unterle kurne mpware-ke

1SG:S know-NPP 2SG:A-that bad make/do-PC

‘I know you did something bad’ (i.e. I am actively aware that you did something bad)

As we see in this pair of examples, kaltye and itelare- exhibit different syntactic behaviour. Whereas kaltye is a predicative nominal that takes dative, purposive, and sentential complements (p. 289), itelare- is clearly verbal, evident from its taking a non-past progressive TAM marker. Does this mean that kaltye and itelare- could be treated as syntactically-constrained allolexes of the Mparntwe Arrernte exponent of KNOW? This is a possibility, but I don’t think the authors clearly identify the specific grammatical contexts that condition the use of kaltye and itelare-. Instead, their suggestion to “regard both kaltye and itelare- as equivalents of KNOW with the choice conditioned by the active/stative distinction” (1994: 289) invokes what sounds more like a semantic distinction, given that “active” and “stative” grammatical labels generally encode substantial information about the participants’ level of activity or intention (doing or wanting). In other words, Harkins and Wilkins do not provide a clear case for syntactic environments conditioning the occurrence of kaltye and itelare-, but rather refer to what is essentially a contrast in the semantics of the two verbs, a contrast that they try to

33 Compare English OTHER-ELSE, which are clearly syntactically-constrained allolexes of the same prime: OTHER appears before all NSM nominals, like ‘people’ and ‘things’, except the indefinites, like ‘someone’ and ‘something’, which take the postnominal ELSE. This is a robust contrast, such that e.g. *‘They saw some people else’ is clearly ungrammatical.
convey in the free translations via the phrases ‘knowledgeable of’ versus ‘actively aware’ in (1) and (2) above.

In fact, if the free translations above are anything to go by, the most likely exponent of KNOW in Mparntwe Arrernte is kaltye. For whereas kaltye is translated as simply ‘know’/’knowledgeable’, H&W’s reference to “active awareness” in their translation of itelare- suggests that there is some extra semantic content involved in this concept, in addition to KNOW. In support of this analysis is the fact that Van Valin and Wilkins (1993: 523) define kaltye as ‘know (x,y)’, while attributing a more complex meaning to itelare- involving both ‘know’ and ‘think’.34 Furthermore, note that there is an example appearing later in H&W’s paper which contains a construction conforming to basic syntactic frame of KNOW, and here kaltye is used (p. 294):

(3) [...] kele unte kaltye anteme ane-me ingkirreke-ke

OK 2SG:S know now be-NPP all-DAT

‘… “so now you know everything”’

Thus while H&W aren’t prepared to deliver a verdict on the issue (pp. 289, 308), I would argue that the evidence they present is sufficient to support the idea that kaltye is the Mparntwe Arrernte exponent of KNOW prime, and itelare- definable in terms of it (possibly with the addition of a component involving THINK, given Van Valin and Wilkins’ (1993) suggestion). This case shows us that when faced with two or more possibilities for the exponent of a prime, and where there is no strong case for syntactic allolexy, two things should be done to attempt to identify

34 Though their exact definition is rather obscure: ‘think (x) about something.x.knows.be.in.mind’.
the exponent: 1) determine which form is used in translations of the proposed canonical sentences (or other basic sentences instantiating the proposed syntactic frames of the prime); and 2) consider whether one of the concepts conveys more semantic content than the other, and if so, attempt to explicate it in terms of the seemingly more basic concept. Not until both of these proved unsuccessful might there be cause for concern for the existence of KNOW in the language.

3.2 Acehnese

According to Durie, Bukari and Mawardi (1994, henceforth DBM), there is a problem with the identification of KNOW in Acehnese, an Austronesian language from Aceh, Indonesia. The perceived problem consists in the fact that certain “epistemological classifiers” – suffixes translated into English via wh- words, who, what, when etc. – are obligatorily present on what the would-be exponent of KNOW in this language, the verbal stem tu-. Thus the issue according to these authors is that while tu- is a prima facie good candidate for the Acehnese exponent of KNOW, this form never appears alone, but is instead always accompanied by such markers, which often cannot be formally isolated from the tu- form, for example:

(4) Lôn-tu-ho  geu-jak.

1-know-whither 3-go

‘I know which way he/she went.’

(5) Lôn-tuso  ureueng  nyan.

1-know:who person that
‘I know who that person is.’ (or ‘I know that person’)

(6) ... hana soe toepeue rasia nyan.

NEGBE who know:what secret that

‘... no-one would have known that secret.’

(7) ... Na ta-tujan kapay bungka?

NEGBE you-know:when ship leave

‘Do you know when the ship leaves?’

As DBM put it, these examples show that Acehnese “always require[s] one to say more than just KNOW” (p. 175). Why is this a problem? Well, DBM argue that if other languages do not exhibit the same “epistemological classification of KNOW”, then we are faced with “a classic type of non-translatability, but at the most primitive level in the metalanguage” (loc. cit.). As I understand it, the argument is that because the only way to use tu- is via the above forms (tuho, tusoe etc.), we have reason to think Acehnese has a basic conceptual division between different kinds of knowing (knowing what, knowing who etc.), which doesn’t necessarily exist in other languages, and therefore it is problematic to think of Acehnese tu- as representing the more minimal concept of KNOW.

I will argue that while it is still not entirely clear which form(s) represent the Acehnese exponent(s) of KNOW, the data presented by DBM (1994) don’t give us reason to worry, especially in light of certain advances in the grammar proposed for KNOW. But before going on, a preliminary point on morphological complexity

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35 This alternative translation is offered by Xie (2016): according to his Acehnese consultants, such sentences “are ambiguous between an acquaintance/familiarity reading [i.e. I know that person] and an epistemic reading [i.e. I know who that person is]” (p. 4).
should be made. The existence of obligatory markers on the *tu-* stem does not, in and of itself, constitute a reason against the idea that *tu-* is the Acehnese exponent of the KNOW prime. This is no different from the many languages (including familiar European languages) in which *person* and *number* are obligatorily marked on many forms of the verb. There is no general reason to treat different forms of a verb as instantiating different basic concepts, rather than regarding the stem as carrying one meaning, and any markers as carrying others; this points holds whether the markers convey person, number, or indeed “epistemological” features.

As I see it, then, the reason DBM considered this feature of Acehnese to be problematic comes down to the primacy that was afforded to the ‘know that’ frame then proposed to exist for KNOW, but which has since been discarded. That is, I think the authors were trying to reconcile the fact that *tu-* , taken alone (i.e. minus any epistemological classifiers), appeared to be the prima facie best candidate for the exponent of KNOW (because it is the common denominator in a whole host of constructions translated with ‘know’), with the fact that one of its marked forms, *tupeue* (‘know+whether’), is used in ‘know that’ constructions (p. 176). Because the know-that construction was then hypothesised to be one of the universal syntactic frames of the KNOW prime, *tupeue* had to be treated as an instantiation of KNOW, in addition to the bare form *tu-* . As we saw in §2.3.2, however, this frame has since been discarded. What I think also influenced DBM’s analysis was the fact that the constructions ‘knowing (someone)’ and ‘knowing (a place)’ were not yet definitively recognised as semantically complex and distinct from ‘knowing (something)’, meaning it would have been unclear how to treat the Acehnese forms like *tusoe* in (5). But again, now that explications for the experiential knowing
concepts ‘knowing (someone/these people)’ and ‘knowing (this place)’ have been proposed, this is no longer an issue.

So there is no need to regard the forms used in the Acehnese equivalents of ‘knowing that —’, ‘knowing (someone/these people)’ and ‘knowing (this place)’ as basic instantiations of KNOW. Which form, then, should be considered the exponent of know? To establish this, we need to know which form(s) would be used in translating canonical sentences. While none of the examples in DBM (1994) involve such sentences, one example appears in Durie (1985: 162) that may be telling:

(8) Jih hana i teu-pue sa pue
He NEGBE 3 know-what one what

‘He doesn’t know a thing’

This example broadly fits the syntactic frame ‘X knows something’, so assuming it isn’t a marked way to express ‘X doesn’t know anything’, it can be regarded as close to a canonical sentence. And if this is right, then teupue must be regarded as an instantiation of the Acehnese exponent of the prime. Now whether or not the bare stem tu- or indeed the form tupeue (‘know+whether’) should be considered (an) allolex(es) of the prime depends on what forms occur in the other syntactic frames, such as in the canonical sentence ‘He knows much (many things) about things like this’. At this stage, then, it seems to me that the best bet is to identify teupue as instantiating the Acehnese exponent of KNOW, with an open question as to whether it has one or more allolexes. 36

36 Note that Zhiguo Xie, who has worked with Acehnese speakers on the epistemological classifiers, has the intuition that tupeue (‘know+whether’) might be used in the trivalent sentences, though is unsure (Xie, personal communication, 15 March 2016). If so, tupeue would have to count as an allolex.
The case of Acehnese reveals two important points. One is that language-specific morphological complexity does not necessarily correlate with semantic complexity, a point I will return to presently in consideration of Evans’ (2007) analysis of Dalabon. Another is that, just as we saw with Arrernte, it is the canonical sentences, i.e. basic sentences that obey the syntactic frames of the prime, must be our guide in testing for the existence of that prime in a given language.

3.3 Dalabon

3.3.1 Morphological vs. semantic complexity and the issue of “resonance”

Dalabon is a Gunwinyguan language spoken in Arnhem Land, Australia. Unlike in the previous two cases, Evans (2007, 2010) explicitly presents this case as a counterexample to the universality of the KNOW (and THINK) primes, stating that “neither ‘think’ nor ‘know’ should be treated as semantic primitives in Dalabon” (p. 91), and that “there are no verbs that exactly represent ‘think’ or ‘know’” in the language (p. 92). The central thread of Evans’ (2007) challenge is as follows: because the most obvious candidates for the Dalabon exponents of KNOW and THINK, bengkan and bengdi, are built up from a bound root √beng (which, according to Evans, is the equivalent of English ‘mind’; p. 76) it is mistaken to regard Dalabon as having semantically unanalysable exponents of the KNOW and THINK primes. Instead, Evans argues, it is the root √beng that should be taken as conceptually primitive in Dalabon. I will first assess this idea, given that it is the main argument in the paper, before dealing with two further issues that arise from Evans (2007, 2010) discussion of bengkan, related to the possible polysemy of the concept (§3.3.2).
The main line of evidence Evans offers in support of his analysis that √beng is conceptually basic is the existence of a range of meanings that are built on this root, not only bengkan and bengdi but other broadly “cognitive” concepts, such as benghbengkan (‘recognise, identify’), bengyihbon (‘pay attention’) and bengwudjmú (‘(neglectfully) forget about’). The idea seems to be that the existence of a wide variety of cognitive concepts that are based on √beng constitutes evidence for this root playing a pivotal role in the Dalabon conception of the cognitive domain, and thus it is via √beng that bengkan (‘know’) and bengdi (‘think’) must be understood. Evans (2007) thus uses morphological features of Dalabon cognitive verbs to argue for a semantic analysis of the concepts they stand for.

Goddard & Wierzbicka’s (2014b: 16ff) respond in some detail to this challenge. The main thrust of their argument is that contra Evans, we cannot be guided by language-specific morphology in our assessment of whether a language has distinct exponents of the NSM primes. This position might be summed up by the dictum “morphological complexity does not entail semantic complexity”. That is, the fact that a lexeme is made up of formally divisible elements is not sufficient evidence for its conceptual complexity. Thus for example, the fact that the English exponent SOMEONE appears to have formally distinguishable elements, ‘some’ and ‘one’, does not show that it is semantically decomposable in terms of them, nor does it constitute evidence for the conceptual basicness of these smaller elements. It is important to understand what would, on the NSM hypothesis, show that ‘someone’ is conceptually complex and composed of semantic primitives ‘some’ and ‘one’. The answer: an adequate definition of ‘someone’ in terms of the elements ‘some’ and ‘one’, in addition to evidence showing that ‘some’ and ‘one’ (and any other elements appearing in the proposed definition) are wholly cross-translatable. Absent
such an analysis, and on the grounds that someone has so far been found to be cross-translatable, it is taken an NSM prime, and the ‘some’ and ‘one’ elements that appear in the English exponent are deemed to be (semantically) irrelevant.

What is also crucial about this response is that it doesn’t deny that speakers may notice when two or more primes share part of their morphological form, and may consequently judge there to be a certain connection between the concepts. This is an example of what is called resonance in the NSM literature, which broadly describes the ways in which exponents of a prime can “feel” different in different languages, whether due to their form or to local polysemies (Wierzbicka 1996: 30; Goddard & Wierzbicka 1994: 35f). Thus just as the exponents someone and something have a certain resonance for English speakers because of the shared element ‘some’, so Dalabon speakers may feel that there is a similarity between bengkan and bengdi, on account of their common root. But the idea is that such matters are not strictly semantic, just as the feeling of relatedness we may get from two words that rhyme is explained by their shared phonological features, and has nothing to do with their meanings. In the case of shared morphological form, however, the feeling of resonance may lead us to the intuition that the concepts are interdefinable, or that they are both definable in terms of the shared element plus other material. From the NSM point of view, however, this intuition is mistaken. And it is mistaken simply because there is no reductive and fully cross-translatable way of explaining the meaning of ‘someone’ and ‘something’ in terms of ‘some’ plus other material, nor, it is hypothesised, the meaning of bengkan and bengdi in terms of √beng.

I believe this is a satisfactory answer to why the presence of √beng in two Dalabon exponents, bengkan and bengdi is not an issue for the distinctness of the
KNOW and THINK primes in this language. That said, I do think much more needs to be said on the issue of resonance. In particular, it seems to me that we need richer answers to questions about the significance of local polysemies and about cases of shared morphological form of two or more primes. If such similarities are not indicative of compositional semantic relationships, why do they happen? Are there similar types of morphological complexity of the primes found across languages, and if so, what do such typological facts tell us? It seems to me that even if we agree that language-specific polysemy or formal complexity cannot steer semantic analysis, answering such questions is important and interesting.

3.3.2 Two further challenges: polysemy of bengkan?

But it seems to me that Evans (2007) has another reason for claiming that in Dalabon “there are no verbs that exactly represent ‘think’ or ‘know’” (p. 92), namely the fact that both bengkan and bengdi each appear to have a wide range of meanings (i.e. beyond that of ‘know’ and ‘think’), some of which seem to partially overlap. For example, Evans lists ‘remember’, and ‘think’ as other possible translations of bengkan, and ‘attend to’ and ‘remember’ as additional meanings bengdi (p. 73). In this section, I aim to show why this polysemy, if such it is, is unproblematic for the claim that bengkan is the Dalabon exponent of KNOW. First let’s consider some of Evans’ (2007) examples of bengkan in its ‘know’ capacity:

(9) Nunh ngah-dja-benga-na, mak nga-bengmukm-iya,

DEM 1-just-keep.in.mind-PR NEG 1-forget-F

mak nga-bengmukm-i, ngah-dja-yidjja-n kanum-ngan-kah.

NEG 1-forget-PR 1/3-just-have-PR ear-1SGPoss-LOC
‘I still **know** that, I haven’t forgotten. I still hold it in my memory / in my mind’
(lit. ‘in my ear’) (p. 78).

(10) Mak nunh keninjh burra.**benga-n**  burrah-bomung.

NEG DEM what 3DU/3-keep.in.mind-PR 3DU-be.ignorant

`burrah-karrā-warhwa-n.`

3du/3-culture-not.have.in.mind-P

‘…they don’t **know** anything, they are forgetting their culture’ (p. 87).

Interestingly, though Evans glosses **bengkan** as ‘keep in mind’ (in keeping with his analysis that √**beng** is a semantically primitive concept in Dalabon), he translates it as ‘know’ in each case here. As Goddard & Wierzbicka (2014b:17f) argue, it is unclear why ‘keep in mind’ should be preferred over ‘know’ in such cases.37 Nevertheless, there are other uses of the word that appear to be quite different, such as some examples that Evans translates as ‘remember’ (2007: 88):

(11) Nunh  **ngah-dja-benga-n,**  mak  nga-bengmukm-iyan,

DEM  1/3-just-keep.in.mind-PR  NEG  1/3-forget-F

mak  nga- bengmukm-û.

NEG  1/3-forget-PR

‘I still **remember** his face, I’ll never forget it.’

(12) Ngah-die-bukirribo-ng  bah  kodj-ngan-kah  **ngah-dja-benga-n**

1/3-face-dream-P  but  head-1SG.Poss-LOC  1/3-just-keep.in.mind-PR

---

37 Of course, Evans (2007) would cite the morphology of the verb as the reason (the element -kan derives from a word meaning ‘carry’, suggesting to Evans that *bengkan* has a meaning like ‘carry in mind’), but as I have argued, the issue is why we should take etymological analysis as informative on semantic facts.
mak nga-kodj-mukmu.

NEG 1-head-be.buried

‘I saw a face when I woke up and I keep thinking about it / keep remembering it, I can’t forget the face.’

Goddard & Wierzbicka (2014b: 18) argue that there isn’t good evidence for bengkan having a distinct sense of ‘remember’, suggesting that an alternative translation of (11), “I still know his face. I’ll never forget it”, works just as well. I am not sure this is satisfactory, given that the contrast with ‘forget’ in both (11) and (12) suggests to me that there may be extra semantic content here, more than just know (perhaps involving a component like ‘I am thinking about it (=his face’) ). Furthermore, I am unsure whether it generally makes sense (in English at least) to talk of “still knowing”, in the sense of continuing to know something, which seems to be the sense conveyed by (11). Perhaps, then, bengkan is genuinely polysemous, contra Goddard & Wierzbicka (2014b), having a meaning somewhat similar to English ‘remember’ (the explication of which involves both know and think, see Wierzbicka 2007). But what must be understood is that this does not present a problem for the hypothesis that Dalabon has a distinct exponent of the KNOW prime. Of course, bengkan having other meanings than those ascribed to the KNOW prime is important for Dalabon-specific semantic analysis, and identifying these other meanings would require detailed semantic investigation. But the point is that no number of possible polysemies of bengkan can affect the claim that this form should be considered the Dalabon exponent of KNOW, provided the meanings can be
distinguished, by using the canonical sentences to isolate the prime, as well as the standard tests of polysemy discussed in §1.2.\textsuperscript{38}

There is one final challenge to address, hinted at in Evans (2007) and alluded to again in his (2010): the idea that \textit{bengkan} can also mean ‘think’, and thus that the concepts ‘know’ and ‘think’ are not discrete in Dalabon. Specifically, Evans claims that \textit{bengkan} “covers both ‘know’ and ‘think’, with the exact sense coloured by aspect and context” (2010: 516). In his original study of (2007), however, though ‘think’ is listed as one of the possible glosses of \textit{bengkan} (pp. 73, 77), there is only one example presented where it is actually translated as such, \textit{viz.} example (12) above. However, it isn’t clear that ‘think’ is the best translation here, given that both ‘keep thinking about it’ and ‘keep remembering it’ are offered in Evans’ free translations. Without clearer examples, I don’t see cause to worry about the distinctness of \textsc{think} or \textsc{know} primes. And note that if, as I suggested in relation to example (11), there is another meaning of \textit{bengkan} that is akin to English ‘remember’, then (12) could just as well be taken as instantiating that complex meaning, and not as an instance of the prime \textsc{know}, nor indeed, of \textsc{think}.

3.4 East Cree

Junker’s (2008) analysis of East Cree, an Algonquian language spoken in Quebec, presents a possible challenge for the identification of the \textsc{know} prime, analogous to the case of Dalabon. But unlike in the case of Evans (2007), Junker (2008) does not see the matter as showing that East Cree has no exponent of \textsc{know}. The issue, then, involves the fact that East Cree has a verbal element occurring in all the East Cree

\textsuperscript{38} Space does not permit me to discuss \textit{bengdi}, but the same goes for any additional meanings that this lexeme may be shown to have.
exponents of the mental predicate primes, THINK, WANT and KNOW, which might call into question whether such concepts are truly conceptually basic in this language. Consider the following East Cree exponents of the mental predicate primes (from Junker 2003: 181):

Table 3. Mental predicate primes in East Cree (intransitive/transitive pairs)

<table>
<thead>
<tr>
<th></th>
<th>ITEYHTAM/ITEYIMEU</th>
</tr>
</thead>
<tbody>
<tr>
<td>THINK</td>
<td></td>
</tr>
<tr>
<td>WANT</td>
<td>NITUWEYHTAM/NITUWEYIMEU</td>
</tr>
<tr>
<td>KNOW</td>
<td>CHISCHYHTAM/CHISCHYI-EU</td>
</tr>
</tbody>
</table>

As underlined above, the exponents of East Cree mental predicates all contain the morpheme -eyi-, which Junker describes as “act[ing] like a classifier of mental activities” (p. 182). Nevertheless, according to Junker (2003: 181), speakers “refuse to decompose” the above forms, supporting the idea that they are semantically primitive. And Junker (2008) actually cites canonical sentences of the primes, such as ‘Ekun ka iteytahk: “...”’ (‘X thought like this: “...”’), ‘Chinituweyimitin’ (‘I want you to do it’), and ‘Nichischeckyhten’ (‘I know it’), which shows the distinctness of these meanings in the East Cree language.

However, there is one prima facie puzzling finding made by Junker (2003). In surveying East Cree speakers about the meaning of verbs containing -eyi- (of which there are many more than the three exponents above), she found that all speakers “agreed that some element of iteyimu ‘she/he is thinking’ […] is involved in all the -eyi- verbs”, including the exponents of KNOW, WANT and FEEL (2003: 182). What are we to conclude from this seemingly contradictory finding? How is it that
East Cree speakers both refused to separate the morphological elements of *chischeyihtam* (KNOW) etc., and consented to the idea that all -eyi- verbs contain a ‘thinking’ component? But I would argue that this is unsurprising. Assuming Junker obtained the latter information via direct elicitation—i.e. by simply asking speakers whether they agreed that an element of ‘thinking’ (*iteyimu*) was involved in verbs containing -eyi-—then this intuition of East Cree speakers finding can be explained by resonance. That is, the presence of the -eyi- morpheme in *chischeyihtam*, *iteyimu* and *nituweyimeu* creates a resonance effect for East Cree speakers, leading them to express the belief that a semantic relationship holds between them, despite the fact that they are unwilling to separate out the relevant morpheme when presented with it in situ.

3.5 Kalam

3.5.1 A more “general” mental predicate?

The final case I will consider is that of Kalam, a Trans–New Guinean language spoken in the Western Highlands Province of Papua New Guinea and analysed by Pawley (1994). Similar to Evans (2007) claim about Dalabon, this case represents a “classic” challenge to the discreteness of more than one prime. Pawley claims that the verbal stem (*nŋ-*) has a “more general” meaning than three NSM primes: KNOW, THINK and FEEL (p. 392). He argues that *nŋ-* should instead be seen as “denoting awareness, conscious perceiving, that is, both sensing and cognising, in which the perceiver is (at least partly) in control, or at least is a wilful actor” (*loc. cit.*). Because of the complexity of this case, I will first set out Pawley’s (1994) analysis and the evidence he cites in support of it, then show why I think the data doesn’t support
Pawley’s conclusion. However, I then argue that in light of the additions of the primes SEE and HEAR to the NSM inventory, Kalam *nŋ* does in fact present an issue for the discreteness of KNOW, which I suggest requires further and possibly somewhat novel testing to resolve.

To see why Pawley argues for his analysis, let us first consider the examples of *nŋ*- expressing what he dubs “the most common senses of the English verb *know*” (1994: 394):

(13) *(Tp)* \( mdp \; n\text{ybin}.*

(\text{place}) \; \text{he.stays} \; \text{i.know}

‘I know (the place) where he is’

(14) \( Cn \; \text{tap} \; \text{kun} \; \text{ak} \; \text{tap} \; \text{tme} \; \text{ak} \; \text{n\text{y}bun}.\)

\( \text{we} \; \text{thing} \; \text{such} \; \text{this} \; \text{thing} \; \text{bad} \; \text{this} \; \text{w\text{e}.know}\)

‘We know that this sort of thing is bad’

(15) \( B \; \text{nb} \; \text{ak} \; \text{kaj} \; \text{tmel} \; \text{ak} \; \text{n\text{g}ak}^{39} \; \text{ak} \; \text{...}\)

\( \text{man} \; \text{such} \; \text{this} \; \text{magic} \; \text{strong} \; \text{the} \; \text{h\text{e}.\text{knew}} \; \text{the}\)

‘This man knew very powerful magic …’

The problem, according to Pawley, lies in the fact that these are not the only uses of this morpheme. In support of his analysis that *nŋ*- means something more general than KNOW, THINK and FEEL, Pawley offers a range of examples in which *nŋ*- is translated into English with a variety of ostensibly very different meanings, for example (1994: 392f):

\(^{39}\) This is a variant of *nŋ*- of the Ti Mnn dialect (Pawley 1994: 392).
(16) Kaj kuy ṅbin.
    pig  odour  I. perceive

    ‘I smell pork’

(17) Kuj ṅ(y)-i  cp nagngayn.
    magic  learn-SS:PRIOR  victim  I.will.kill

    ‘I will learn/acquire knowledge of magic and kill people’

(18) Apan ma-ṅbin, mnm-nad apan.
    you.have.said  not-I.know  language-your  you-have.spoken

    ‘I didn’t understand what you said, you spoke in your own language.’

(19) Tmuk agek ṅbin.
    thunder  it.sounds  I.perceived

    ‘I heard thunder’

(20) Kotop-yp enen m-ap ṅḥan?
    house-my  why  not-come  you.see

    ‘Why haven’t you come to see my house?’

In addition, Pawley also points to the fact that Kalam has a range of lexicalised phrases involving ṅ-: including ṃsn ṅ- ‘dream’ (lit. ‘sleep perceive’), tumd ṅ- ‘hear’ (lit. ‘ear perceive’) and ṃdn ṅ- ‘see’ (lit. ‘eye perceive’) (p. 393). For Pawley, the existences of such complex forms, with such a variety of cognitive and sensory meanings, supports the idea that ṅ- has a more general meaning than that proposed for the NSM prime KNOW. But particularly problematic, according to
Pawley, is the complex form *gos nj*-{}, which is the most ready translation of English ‘think’ and is thus the most obvious candidate for the Kalam exponent of the prime THINK (1994: 394):

(21) Gos  njl  agak  ypd  mdeb

thought  having.perceived  he.said  straight  it.was

agl  knak.

having.decided  he.slept

‘Only when he thought everything was in order did he sleep.’

If (21) is judged to be just one use of a unitary concept represented by *nj*{-{}}, then obviously the discreteness of the exponents of THINK and KNOW looks to be in jeopardy.

And what about the uses of *nj*{-} that present a problem for the idea that Kalam has a distinct exponent of FEEL? Pawley cites only one sentence with *nj*{-} where the translation involves English ‘feel’, as follows (p. 393):

(22) np  mapn  ngeben

you  liver  L.feel

‘I feel sorry/affection for you’

Again, if this example is understood as an instantiation of the prime FEEL, rather than an extended meaning of the *nj*-{} verb, then this would present a problem for the NSM proposal that the FEEL and KNOW primes represent universally distinct concepts.
On the basis of evidence presented here, Pawley summarises what he considers to be the problem with establishing the existence of Kalam exponents of the mental predicates, KNOW, THINK, and FEEL, saying that it is “not that Kalam does not have specific translation equivalents of KNOW, THINK and FEEL, but rather that these notions are aspects of a more general concept” (p. 393).

3.5.2 Responding to Pawley

What can we conclude from Pawley’s (1994) study of Kalam about the universality and discreteness of the KNOW, THINK, and FEEL primes? It will be easiest to first consider the identification of Kalam exponents for THINK and FEEL, before addressing the question of whether ny- can legitimately be regarded as the Kalam exponent of KNOW. As far as THINK is concerned, we saw above that Kalam has a complex form gos ny-, which appears to be only ever translated into English as ‘think’ (Pawley 1994: 394f). As Wierzbicka (1994a: 455) argues in her response to Pawley (1994), there is no reason, then, not to take this complex form as the Kalam exponent of THINK. Just as in the case of Dalabon, morphological complexity cannot be taken as equivalent to semantic complexity, so the fact that the ny- stem is found in gos ny- is no reason to treat the morpheme as independently meaningful in this context, in the sense of having its own paraphrasable semantic content.\(^{40}\) In fact, there is some positive support of the hypothesis that gos ny- is distinct from ny- in the fact that one can translate the contrastive sentence “I think (\(p\)) but I don’t know”, where gos ny- is used for ‘think’, and ny- for ‘know’ (Pawley, cited in Wierzbicka 1994a: 455f). And note that just as in the case of Dalabon, we need not deny that

\(^{40}\) Note, however, that the examples of gos ny- offered by Pawley do not look particularly close to the canonical sentences for THINK currently proposed for the prime, so (as ever) further testing is required.
Kalam speakers may be aware of the similarity between *gos nŋ* and *nŋ*, a phenomenon that is explicable in terms of resonance (§3.3.1).

As for **FEEL**, Pawley similarly provides only one example where *nŋ* is translated as ‘feel’, namely (22) above. However, (22) is a quite clearly language-specific emotion expression, and is far from being a canonical sentence for **FEEL**. Thus this sentence cannot be regarded as a test for the Kalam exponent of **FEEL** (or indeed, of **KNOW**). And as we have seen, it is not problematic if the exponent of a prime has additional, language-specific meanings, even if the explications of those meanings involve other primes. Consider that English ‘feel’ is sometimes used to mean something much closer to ‘think’, as in “I feel (that) he is a poor leader”; both **THINK** and **FEEL** would probably figure in the explication of this sense of the word. Just as this English-specific polysemy does threaten the discreteness of the English exponents **THINK** and **FEEL**, so the use of *nŋ* in an emotion construction like (22) does not affect whether this morpheme cannot also be considered the Kalam exponent of **KNOW**. Moreover, note that *nŋ* is not actually among the verb stems that Pawley discusses when considering possible candidates for the prime **FEEL** (1994: 396). Thus I would argue that we don’t have reason to consider sentences like (22) to bear on the existence of Kalam counterparts of **KNOW** and **FEEL**.

If it is right that *nŋ* is not the exponent of either **THINK** or **FEEL**, does this mean it can be considered the legitimate Kalam exponent of **KNOW**? As mentioned at the beginning of the section, I think this proposal does hit a snag, in light of the introduction of the experiential primes **SEE** and **HEAR**. But before I outline this problem, it is worth clarifying that the additional (non-prime) meanings of *nŋ*, like

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41 Consider that English has no emotion term befitting an admixture of ‘feeling sorry’ and ‘affection’.
‘smell’ and ‘learn/acquire knowledge’, seen in sentences (16) and (17), shouldn’t be deemed problematic. As I have already argued, language-specific polysemy involving an exponent of a prime is not an issue, provided that the additional meanings can be pinpointed and given an adequate analysis via NSM explication. Thus as long as meanings such as that in (16), where \textit{nn}- is translated as ‘smell’ can be explained in terms of primes (no doubt including \textit{nn}-), then the proposal that Kalam has a discrete exponent of \textit{KNOW} prime can be sustained. As to exactly what and how many additional semantically complex meanings Kalam \textit{nn}- has, this requires detailed semantic analysis to establish, which remains to be conducted.

Similarly, the array of complex forms \textit{nn}- appears in, such as \textit{wsn nn}- (‘dream’, lit. ‘sleep \textit{nn}’) doesn’t present difficulties. If the response given in the cases of Dalabon \textit{bengkan} and Kalam \textit{gos nn}- are correct, namely that morphological analysability does not necessarily entail semantic analysability, then there is no reason to regard the existence of a form like \textit{wsn nn}- (‘dream’) as bearing on the question of whether \textit{nn}- is the proper exponent of \textit{KNOW}. Note, however, that \textit{wdn nn}- ‘see’ (lit. ‘eye \textit{nn}’), and \textit{tumd nn}- ‘hear’ (lit. ‘ear \textit{nn}’) look to be the best candidates for the more recently introduced primes \textit{SEE} and \textit{HEAR} (neither of which were part of the NSM inventory at that time), and as such, these particular complex forms need to be posited as semantically unanalysable phrasemes, on par with \textit{gos nn}-. But once again, several primes sharing one morphological root is unproblematic in principle, and there is no more an issue with regarding \textit{wdn nn}- as the Kalam exponent of \textit{SEE}, and \textit{tumd nn}- the exponent of \textit{HEAR}, as there is with regarding \textit{gos nn}- as instantiating the prime \textit{THINK}. 

44
3.5.3 “Interprime” polysemy of nŋ-?

However, I do think there is a residual issue with Kalam nŋ-. The problem I see is with examples such as (19) and (20), where nŋ- alone (i.e. not as part of a complex form) is translated as ‘see’ and ‘hear’, viz. the meanings of two other NSM primes. Note that neither example has any disambiguating material besides the nature of the object of perception (e.g. ‘thunder’, a paradigmatic example of something heard). Further, note that the entries in the English-Kalam dictionary (Pawley 2011) list both nŋ- and tumd nŋ- as translations of ‘hear’ and both nŋ- and wdn nŋ- for ‘see’, with the plain nŋ- stem actually being listed first for both entries.

This may be a case of “interprime polysemy”, i.e., a case in which two or more primes are instantiated by the same word in a given language. But why is this a problem? After all, we have seen that language-specific polysemy of an exponent should never be regarded as an objection to the prime, provided that the different meanings can be distinguished by standard tests, e.g. identifying disambiguating grammatical contexts. This should be no different in the case of primes, in which their syntactic frames can do the job of disambiguation. That is, all that should be required is that the lexical form appearing in the syntactic frame, can only have the meaning ascribed to PRIME\textsubscript{x}, whereas its appearance in the syntactic frame, forces a different meaning, namely that of PRIME\textsubscript{y}.\footnote{Where the meanings of PRIME\textsubscript{x}, PRIME\textsubscript{y}, etc. are obviously not specifiable by any definition but are established by means of cross-checking across languages.}

However, in this case such disambiguation is less straightforward. For while KNOW, HEAR and SEE do each have their own set of syntactic frames (Goddard 2008: 72ff), in virtue of being in the same “category” of mental/experiential primes they also share one frame, namely ‘X — SOMET\textsc{thing}’ (‘I know something’, ‘I saw something’ and ‘I heard something’). Thus in the Kalam sentence (yad) tap ebap
nŋbin (‘I nŋ-(ed) something’), nŋ- could instantiate KNOW, SEE or HEAR, with only discourse context disambiguating the meaning.43 More generally, the issue is that in cases of interprime polysemy involving primes of the same or similar “category”, some of their syntactic frames may overlap.

There are several possible responses to this problem. One is to counter that it is sufficient that some of the syntactic frames are uniquely associated with the meaning of one prime and are incompatible with the meanings of others. Thus for example, it might be reasonable to say that the Kalam translation of the substantive topic frame for KNOW (‘I know some things about things like this’) does uniquely identify nŋ- in its KNOW capacity, and excludes the SEE and HEAR meanings. I think this is part of the right answer, but I do not think it definitively rules out the hypothesis that Kalam nŊ- is a single semantic primitive, which has all the combinatorial possibilities currently posited for NSM primes KNOW, SEE and HEAR: ‘X nŋ-(s) something’, ‘X nŋ-(s) something about things like this’, ‘X nŋ-(s) something in this place’, and so on.

Another counterargument is that irrespective of the interprime polysemy, if the supposedly more general meaning of nŋ-, covering KNOW, HEAR and SEE meanings, cannot be stated in a reductive, cross-linguistically universal paraphrase, then Pawley’s proposal cannot get off the ground (à la Wierzbicka 1994a: 456). On the NSM view, comparison with other languages is the yardstick of any prime claim, so if an equivalent of nŋ- does not exist in other languages, and if there is no way of defining it a way that could be explained in all other languages, then the proposal that nŋ- means something more general than KNOW, HEAR, and SEE falls flat. Ultimately, this is an assumption of the theory, which may not be accepted by those

43 (Andrew Pawley, personal communication, 13 May 2016).
who aren’t already sympathetic to the NSM project. But note that it is an assumption that makes sense if we take the psychological view of NSM seriously. That is, if the NSM primes are essentially the “atoms of thought”, part of cognitive apparatus shared by all human beings, it is implausible to suppose that Kalam has an unanalysable perceptual predicate more general in meaning the concepts used by speakers of all other languages.

Nevertheless, my suggestion to resolve the issue of Kalam $np$- involves embracing the idea that certain hard cases of polysemy may require investigation into speakers’ semantic representations beyond standard tests of polysemy and other language-internal tests. That is, I think this is a case which might benefit from the kind of wider behavioural experiments pointed to in §1.3. One possibility that I think could be testable in this way is that $np$- in (19) is actually understood by Kalam speakers as an elliptical form of $tumdn$- (‘hear’), and similarly that $np$- in (20) is elliptical for $wsn$ $np$- (‘see’). What would support such an analysis would be if native speakers automatically interpreted $(yad)\ tap\ ebap\ n\ ybin$ (‘I $np$-(ed) something’), when uttered out of context, as ‘I know something’, with only the ‘hear’ and ‘see’ meanings being possible when situated in contexts that would make that meaning obvious (such as by earlier reference to thunder). Assuming it were practicable, I suggest that this is the very sort of case in which a controlled experiment designed to test speaker intuitions would be helpful. In the meantime, those sympathetic to the KNOW hypothesis should take a bet that such testing would bear out the hypothesis that the primes KNOW, SEE and HEAR are just as distinct for Kalam speakers as they are for speakers of other languages. Absent plausible counterexamples from other languages, it would be unreasonable to abandon the hypothesis that KNOW is a universal and primitive concept on this (underexamined)
case alone. In fact, this bet about the distinctness of these primes in Kalam despite their identical lexical form is theoretically valuable; it amounts to NSM having some “predictive power”.

3.6 Other unresolved issues

As may be expected, various smaller outstanding issues relating to the exponents of KNOW in other languages that have emerged during NSM research, which require further data or analysis to be resolved. I will give one example here, from the Austronesian language, Mangaaba-Mbula, as analysed by Bugenhagen (2002). Bugenhagen argues that there is a problem with the syntactic frame ‘X knows something about something/someone’ in this language, going as far as to say that “it is not possible […] to construct a trivalent sentence of this type with the exponent of KNOW” (2002: 12f). In his discussion, he points to Stanwood’s (1997) study on the NSM exponents in Hawaiian Creole English, stating that Stanwood found this syntactic frame to be “problematic” in this language, and thus that the trivalent option for KNOW may need to be eliminated altogether from the combinatorial possibilities posited for the prime. Looking more closely at Stanwood’s (1997) study, however, we see that he does not claim that this valency option is “problematic”, but rather notes that it is not well-attested, given that his corpus contained only one example (1997: 212), as follows:

(23) Daets wai in da mil, dei sei .... Wel, ai dono mach abaut mil.

That's why in the mill, they say .... Well, I don't know much about the mill.
The trivalent valency option is a productive syntactic frame in NSM explications, so should not be discarded without good reason. Ideally, then, further research would be conducted on Mangaaba-Mbula (or nearby languages) to establish whether such constructions really are absent.

Another important and more general issue, mentioned at several points throughout this chapter, is that many of the published studies that attest to the existence of KNOW in various languages rely on examples that are quite far from the recently proposed canonical sentences. A new wave of testing in these languages is thus necessary to ensure that the exponents conform to the current combinatorial possibilities proposed for KNOW, which, as we have seen, have undergone important changes in recent years.

Chapter 4. The (un)analysability of ‘know(s)’ in analytic epistemology

In the following two chapters, I move from the linguistic part of the thesis to the more philosophical side of things. That is, we have so far been concerned with the KNOW hypothesis proper; now we will be concerned with the interdisciplinary question about how the KNOW prime relates to the philosophical literature on know(ledge). As we will see, while epistemologists often talk about ‘theories of knowledge’ they are typically focussed on the application of the word ‘know(s)’, hence this notation.
to approaches to analysing knowledge in analytic epistemology.\textsuperscript{45} Chapter 5 will focus on the other half of the NSM claim about \textsc{know}, viz. its universality, considering whether it is threatened by the “experimental philosophy” findings of Weinberg \textit{et al.} (2001), which appear to show that there is cultural variation in epistemic intuitions.

More specifically, the present chapter concentrates on Williamson’s (2000) knowledge-first thesis, which is essentially a rejection of the analytic project\textsuperscript{46} in analytic epistemology. The analytic project refers to the attempt to reductively define the concept of knowledge; Williamson’s (2000) knowledge-first thesis directly challenges this project, proposing instead that ‘know(s)’ is both conceptually irreducible and psychologically fundamental. Such a view is obviously strongly reminiscent of the claim that \textsc{know}, as an NSM prime, represents a semantically (and psychologically, on the version of NSM I am defending) basic concept. The purpose of the chapter is to consider in what ways the two positions relate.

\section*{4.1 Williamson’s knowledge-first thesis}

\subsection*{4.1.1 Background: The analytic project and the Gettier challenge}

But in order to get a grip on Williamson’s knowledge-first thesis, we must first introduce both the analytic project and the (in)famous Gettier problem that challenged the (now ex-)standard analysis of knowledge as “justified, true belief”. The analytic project, then, is one of the central concerns of traditional epistemology

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\textsuperscript{45} I will be confined to discussion of philosophy in the analytic tradition, but this is not to say that continental philosophers haven’t been just as engaged with epistemological questions (see Alcoff (1992) for an insightful introduction to continental epistemology).

\textsuperscript{46} Term due to Duncan Pritchard (2009).
(Stich 1990:2), the aim of which is to find an adequate analysis of the concept of knowledge in terms of other (putatively more basic) notions, such as truth, justification, and reliability. More precisely, contemporary epistemologists aim to isolate the necessary and sufficient conditions of knowledge attribution, that is, the conditions governing felicitous uses of the word ‘know(s)’, especially in a propositional knowledge context, as in sentences of the form ‘S knows that p’, where S is a subject, and p a given proposition.

The earliest analysis of this kind – a version of which is thought to be traceable to Plato – is the justified true belief account (JTB for short). On this, the once standard account of knowledge, S counts as knowing p if and only if the following three conditions hold: 1) S believes p; 2) p is true; and 3) S has some sort of “justification” for believing p (traditionally conceived of as something internal to the knower, such as having a good reason for thinking p is true). Such an analysis is supposed to be an account of when speakers utter (truly) sentences like ‘John knows (that) the capital of Norway is Oslo’ and ‘Lilian knows (that) there are two jewellers in town’. Until the latter half of the twentieth century, such a conception of knowledge was apparently widely accepted among analytic philosophers, with specific analyses of ‘knows’ loosely following a JTB model, such as those offered by Ayer (1956) and by Chisholm (1957).

But then came Gettier. As McGlynn (2014) writes, with just a little tongue-in-cheek: “philosophers rested content with the JTB account for […] 2500 years, until two-and-a-half pages published in Analysis in 1963 changed everything.” How

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47 According to Ichikawa & Steup (2014), “Socrates articulates the need for something like a justification condition in Plato’s Theaetetus, when he points out that ‘true opinion’ is in general insufficient for knowledge”. However, it is natural to wonder whether our concept of ‘justification’ really corresponds to whatever Plato, as an Attic Greek speaker, had in mind.

48 There are various ways of conceiving of the justification condition, e.g. on Ayer’s analysis, arguably a version of JTB, it is conceived of as the subject having “a right to be sure” that p is true (1956: 28-34).

49 But cf. McGlynn (2014: ch. 1) on the idea that the received view that JTB was the standard analysis of knowledge drastically oversimplifies the matter.
did Gettier achieve such a feat? Essentially, he presented several counterexamples to the sufficiency of the JTB analysis, i.e. cases in which a subject has a justified and true belief, and yet it doesn’t seem right to say she knows the proposition. Consider the following Gettier-style counterexample:51

(1) The Ford

Smith and Nogot work in the same office. Smith believes Nogot owns a Ford: Nogot, who has previously proved trustworthy, told Smith that he owns a Ford, and has just given Smith a ride in a Ford. From this evidence Smith infers the proposition: Someone in the office owns a Ford. Unbeknownst to Smith, however, Nogot has recently sold his Ford and is currently driving a rented car. But the proposition is true, because another person in the office, Mr. Havit, happens to own a Ford. Does Smith know that someone in the office owns a Ford?"

Smith believes the proposition that someone in the office owns a Ford. His belief is justified because Nogot gave him a ride in a Ford, typically as good a reason as any to believe someone owns a certain car. His belief is true because although Nogot no longer owns a Ford, Mr Havit, who also works in the office, does own one. Yet it doesn’t seem right to say that Smith knows that someone in the office owns a Ford, notwithstanding his justified and true belief. Such cases are called Gettier-style counterexamples, or simply Gettier cases, and the intuition that they are not instances of knowledge is called the Gettier intuition. The defining characteristic of a Gettier case is just that the subject has a belief that is sufficiently justified by

50 Note that the referent of ‘us’ is a matter of debate. The majority of Anglo analytic philosophers have this intuition, but they also assume is that it extends to ordinary speakers as well. Whether or not the Gettier intuition is in fact shared by ordinary English speakers, let alone speakers of other languages, is questioned by experimental philosophers (see Chapter 5).
51 (1) is adapted from Lehrer (1965).
ordinary standards (i.e. most people would consider it a reasonable belief to hold), yet it is only true by some sort of luck (Zagzebski 1994). In other words, the factor that makes the belief justified and the factor that makes it true come apart. And if this is right, then JTB cannot be an adequate analysis of the concept of (propositional) knowledge. Of course, it is still possible that some or all of the elements (truth, justification, belief) are individually necessary components of a proper analysis of ‘knowing that’, but if Gettier intuition is correct, then they are at least not jointly sufficient.

It is no exaggeration to say that a whole philosophical literature was generated in the wake of Gettier (1963), consisting in attempts to improve upon the JTB account in light of Gettier cases, as well as the proposal of novel Gettier-style counterexamples, which led to yet further analyses to try to account for them. As McGlynn (2014) puts it, Gettier “triggered 50 years of ingenious, sophisticated, and often ridiculously complicated attempts to identify the mystery factor X that would result in knowledge when added to justified true belief (or alternatively, when replacing justification)”.

4.1.2 Williamson (2000) on the irreducibility of ‘know(s)’

It is fair to say that Williamson's (2000) knowledge-first thesis (henceforth KF) turns the traditional analytic project in epistemology quite completely on its head. It is essentially the idea that instead of trying to understand knowledge in terms of other notions or principles – whether it is the notions of truth and justification, or

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52 e.g. the Ginet-Goldman fake barn cases (Goldman 1976) (see Hetherington (1999) and Starmans and Friedman (2013: 663) on the difference between barn cases and standard Gettier cases).
53 For example, Nozick (1981) tries to account for fake barn cases (see above note) under his reliabilist account of knowledge, and Kripke (2011) critique's Nozick’s analysis, generating further Gettier-like counterexamples in the process.
modal principles like sensitivity\textsuperscript{54} – our theory of knowledge should put knowledge first. KF properly incorporates two claims, one conceptual, another metaphysical, but we will concentrate on the conceptual part of the thesis here, as it is this claim that bares closest affinity with the NSM hypothesis that \textit{know} is a semantic prime.\textsuperscript{55} The conceptual claim, then, is that ‘know(s)’ is a fundamental concept and thus cannot be analysed in terms of more basic concepts, contra the traditional analytic project, which tries to do just that.\textsuperscript{56} This is a direct attack on all conceptual analyses or definitions of knowledge both pre- and post-Gettier, whether it is Ayer’s (1956) essentially JTB account, or Pritchard’s (2005, 2009) anti-luck epistemology.

As is not unusual in the more traditional corners of analytic philosophy, Williamson’s thesis on the primeness of knowing is not based on empirical investigation. So what arguments does he put forward for the view? According to Cassam’s (2009) helpful analysis, Williamson offers essentially three lines of argument for the indefinability of ‘knows’: 1) the inductive argument, 2) the distinct concepts argument and 3) the argument from false expectations. I will discuss these in turn. The inductive argument begins with the observation that the post-Gettier literature – on the face of it, an endless cycle of analyses, counterexamples and reformulations – shows no sign of letting up. On inductive grounds, then, we have reason to believe the analytic project will never succeed. In Williamson's words, “the pursuit of analyses [of ‘know(s)’] is a degenerating research programme”

\textsuperscript{54} Nozick (1981) defends a sensitivity condition for knowledge, whereby for a subject to know some \textit{p}, her belief that \textit{p} must be sensitive to changes in its truth (if \textit{p} were false, she wouldn’t still believe it).

\textsuperscript{55} For the curious reader, the metaphysical claim is that knowing is a purely mental state, i.e. it has no non-mental properties. This is a controversial view given the “factive” nature of knowing: the fact (as it seems to most philosophers) that knowing \textit{p} entails that \textit{p} is true, unlike in the case of other mental states, e.g. believing and desiring. Williamson argues that purely mental nature of knowing follows from the truth of content externalism, using a parity of reasoning argument (see Williamson (2000: 33ff), but cf. Fricker’s (2009) critique). Note that “metaphysical” here means simply a claim about what the world is like; plausibly, this claim is actually a psychological one, given Williamson’s repeated characterisation of knowing as a mental state.

\textsuperscript{56} To be absolutely clear, note that while Williamson (2000) denies that ‘knows’ can be given a standard analysis as sought by traditional epistemologists, he does think that a very “thin” account of knowing is possible; namely, it can be understood as the most general factive mental state. But this is not in any way intended as a compositional definition or analysis of the concept.
(2000: 31). The argument from false expectations is something of an extension of the inductive argument, essentially the idea that we just shouldn't expect such a philosophically important concept as ‘knows’ to be amenable to standard conceptual analysis, given that concepts of comparable significance have similarly resisted such treatment, notably 'causes' and 'means' (loc. cit.).

And thirdly, the distinct concepts argument – the most complex of Williamson’s arguments for KF – begins with the claim that ‘knows’ is a strictly mental concept, the semantic role of which is to denote a mental state, viz. the mental state of knowing.57 If this is correct, Williamson argues, then any definition of ‘knows’ containing a non-mental component (e.g. ‘true’, ‘justified’) is “incorrect as a claim of concept identity” simply because “the analysing concept is distinct from the concept to be analysed” (2000: 30). In other words, if ‘knows’ refers to a mental state simpliciter (on par with ‘thinks’, for example), then whatever makes it distinct from other mental state predicates, it cannot involve the incorporation of non-mental features. This means that all typical definitions of knowledge are incorrect, because they invariably contain “irredundant non-mental constituents”, mostly notably the concept true (p. 30). Of course, as noted by Williamson, such an argument wouldn’t apply to an analysis of ‘knows’ containing only mental concepts, but because none of the analyses in the literature are of this kind, the distinct concepts argument makes a strong case for the KF thesis.

If the foregoing arguments are right, then the analytic project is doomed: an acceptable definition of ‘knows’, one that would be both generally agreed upon and resistant to Gettier cases, will never be attained, simply because no such definition exists. It is important to note, however, that while Williamson (2000) claims that

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57 This ties in with Williamson’s metaphysical claim about the knowing (see note 55).
the concept ‘knows’ cannot be analysed into more basic concepts, he doesn't think that no “reflective understanding” of it is possible (p. 33). In particular, a proponent of KF needn’t deny that there is something interesting to be said about people’s intuitions on when it is appropriate to apply the ‘knows’ predicate to subjects, as the responses to Gettier cases would suggest. What a proponent of KF must reject is that these intuitions point to the existence of more basic conceptual ingredients into which ‘knows’ can be decomposed.

It is natural to wonder, however, how KF can account for the fact that there are certain conditions that feature in all analyses of knowledge, especially the fact that virtually all analyses involve both truth and belief elements. What could be the explanation of this, if not that ‘true’ and ‘believe’ are components of the ‘know’ concept? As I take it, Williamson’s view seems to be that both point to non-compositional “features” of the concept. He explicitly supports the idea that ‘knows’ entails ‘true’ in some sense (p. 21); that is, if we can that a subject knows $p$, then we can also say that $p$ is true, viz. $Kp \rightarrow Tp$. But despite this “factiveness” of ‘know’, Williamson still thinks it is right to say that it is a semantically unanalysable mental concept. As for how the concept relates to ‘believe’, one idea that Williamson floats is that “the area demarcated by the concept knows might be so safely within the area demarcated by the concept believes” that one could know by apriori reflection that knowing entails believing (p. 44). In other words, it is on account of the meaning of ‘believe’ (or more specifically, ‘believe that’) that one might have the intuition that knowing entails believing, viz. $Kp \rightarrow Bp$. This is an interesting

58 And he does think that a very “thin” account of knowledge is possible; see note 56 above.
59 That is, all analyses of knowledge that I am aware of involve ‘true’. As for ‘believes’, H.A. Pritchard (1950: 86ff) presents a view that contrasts ‘knowing’ with ‘believing’, rather than considering the former as entailing latter, which, incidentally, seems more in line with the ordinary usage of these terms.
60 As mentioned in note 55, Williamson has an argument for the idea that the factiveness of ‘know’, a feature that appears to point outside the mind, doesn’t threaten the strict mental status of knowing.
suggestion, and from an NSM point of view is much more plausible than the idea that ‘know’ contains the notion of ‘believe’, given that the latter concept is not cross-linguistically universal so could hardly be a component of the universal prime \textit{KNOW} (see §5.2.2).\footnote{And see Wierzbicka (2006: 216-18) on at least one common meaning of ‘believe that’ used in ordinary English that actually contains \textit{KNOW}.} I will return to this issue of such entailment intuitions in §4.3, where I suggest that, in the case of ‘knowing’ and ‘true’, NSM provides the means for actually testing the possible entailment.

4.2 Comparing approaches: Knowledge-first and \textit{KNOW}

4.2.1 Some striking similarities

How does Williamson’s (2000) KF thesis compare to the \textit{KNOW} hypothesis? Of course, in some ways the two projects are unrelated: the KF is set squarely in the domain of analytic epistemology, and is supposed to be the foundation of a theory that would explain a host of concepts and norms already discussed in that literature, whereas the \textit{KNOW} hypothesis is a semantic thesis positing the presence of an indefinable concept in all the world’s languages. And whereas NSM uses the results of cross-linguistic semantic investigation as evidence for the prime status of \textit{KNOW}, Williamson’s view is paradigmatic of a traditional philosophical approach in appealing to philosophical argumentation over empirical evidence. Yet the views do look similar, and I would argue that there are several points where the two positions are interestingly concordant with one another. I will consider these similarities first, before looking at some of the ways in which the views diverge.
Firstly, it is pleasing to note that Williamson explicitly states his thesis in terms of ‘knows’, and not ‘knowledge’. Many epistemologists claim to be interested in the folk concept of knowing yet explicitly talk about the concept of ‘knowledge’ rather than ‘know(s)’ or ‘knowing’, despite the lack of evidence that the former concept is really a part of folk epistemology.62 Secondly, and more substantially, I believe some of the evidence used by each position could be used to bolster the other. Thus a proponent of NSM could take some of Williamson’s arguments for KF to bolster the proposal that the concept of ‘knowing’ really cannot be semantically analysed. Take the inductive argument, which was the idea that the state of the epistemological literature since Gettier (1963) points to the possibility that no adequate analysis of ‘know(s)’ will ever emerge: this would make perfect sense if the NSM proposal is right. And conversely, the fact that counterparts of KNOW have been found in all languages studied by NSM researchers thus far is the expected result if Williamson is right in asserting that there exists an irreducible ‘knows’ concept, fundamental to the epistemic lives of human beings, through which all other epistemic notions must be understood (Williamson 2000: 184–208).

A third interesting point of convergence relates to Williamson’s distinct concepts argument. As discussed, Williamson claims that ‘knows’ is a strictly mental concept, and therefore it cannot be defined in terms of any non-mental concepts. This is contrary to virtually every analysis of knowledge ever proposed, in which ‘true’ figures as a key component – for however we might want to characterise the concept ‘true’, it isn’t plausibly “mental”. This argument sits well with the NSM proposal that TRUE is also a prime, distinct from (and certainly not a possible component of) KNOW. In fact, the current NSM proposal about TRUE allows

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62 e.g. Ichikawa & Steup (2014), and McGinn (1984).
us to see the independence of two concepts more clearly, in that the universal grammar of true reveals just how different it is from know. In particular, the very restricted combinatorial possibilities posited for true reveal that the concept is essentially metalinguistic in character, i.e. it can only apply to what people can say or think (Wierzbicka ms.; Goddard 2008: 79). This is obviously very unlike the grammar for know, which has no such metalinguistic function, and instead shares combinatorial properties with the other mental and experiential predicates, such as want, see and hear (§2.2). Of course, this doesn’t address the issue of the intuition that ‘know’ entails ‘true’, in spite of their independence; I will discuss this in §4.3.

4.2.2 Criticisms of Williamson from an NSM perspective

Naturally, there are also some points on which the two positions do not align. In particular, I believe that the NSM perspective brings out (at least) two problems for Williamson’s (2000) thesis, and discussing them illustrates the interdisciplinary relevance of NSM. Firstly, Williamson’s (2000) view of the semantics of ‘knows’ is not in line with the current proposal for the grammar of know. That is, the philosopher focusses on propositional knowledge, taking ‘knows’ as semantically basic as it appears in sentences like ‘S knows that p’. As we saw in §2.3.2, however, the ‘know that’ construction has been shown to be semantically complex.

A second point of disagreement relates to Williamson’s (2000) argument from false expectations, viz. the idea that philosophically important concepts shouldn’t be expected to have reductive conceptual analyses. This sort of argument could never be used to support the hypothesis that knowing (or any other concept) represents an NSM prime; it is simply unjustified to assume that the concepts
deemed significant in a given philosophical tradition are universal and unanalysable. For example, mind and justice loom large in analytic philosophy, yet both are conceptually complex and culturally specific, and are therefore far from being candidates for prime membership.\textsuperscript{63} In fact, I would argue that the argument from false expectations actually fails to support Williamson’s KF thesis for the same reason. Regardless of the philosophical uses Williamson intends to make of KF, to claim that a concept is fundamental to human beings in any important sense is \textit{ipso facto} to claim that the concept is present in the conceptual systems of speakers of languages other than one’s own, for which our primary source of evidence is linguistic data. Therefore I don’t think Williamson can legitimately draw on the preoccupations of analytic philosophers to support the claim that a given concept is fundamental, any more than one could propose an addition to the NSM prime inventory based only on the impression that a certain concept from one’s native language feels simple and irreducible.

Though something of a side note, it is worth pointing out that this criticism, essentially that of ethnocentrism, doesn’t just apply to Williamson; it is an objection that can be laid against the analytic project and philosophical conceptual analysis more generally. Typical philosophical conceptual analyses involve no discussion about whether or not the concepts (neither \textit{analysans} nor \textit{analysandum}) are cross-linguistically universal. In spite of this, the resulting piece of conceptual analysis isn’t presented as being limited to the conceptual system of one linguistic or cultural group. What this means, I believe, is that the method of conceptual analysis employed in philosophy is often just a poor substitute for NSM research, because it aims at something that its methods cannot deliver, viz. a reductive analysis of a

\textsuperscript{63} On the cultural specificity of ‘mind’ see Wierzbicka (2016: 457ff), and on ‘justice’, see Wierzbicka (2006: 155-160).
concept not confined to a given language or culture. This is not to deny that philosophical conceptual analysis can shed light on our intuitions about a given concept, just that it leaves open the crucial question about whether those intuitions are bound to a specific language or culture, or instead pertain to aspects of a shared human concept.

Returning to Williamson’s (2000) view, do the foregoing criticisms suggest that the knowledge-first project in epistemology cannot stand independently of the NSM proposal about \textsc{know}? In a sense, I think this is right. That is, while it seems clear that NSM research into the properties of \textsc{know} can proceed without the philosophical arguments provided by Williamson (however insightful they may be), I would argue that the converse is not true. Important parts of Williamson’s project are not independent of the facts about the cross-linguistic semantics of ‘knowing’, and as long the NSM project continues to enjoy success, there is good reason to think that it is uniquely capable of establishing what these cross-linguistic facts are. Of course, the success of Williamson’s model of epistemology may not depend on each and every detail of the specific \textsc{know} proposal, but I do think the two criticisms discussed here warrant attention. That is, it is important that the argument from false expectations cannot properly be regarded to support the KF thesis, on pain of ethnocentrism. Similarly, the NSM finding that ‘know that’ constructions are semantically definable matters for Williamson’s view, though a treatment of how exactly the KF model should be adjusted in light of this is beyond the scope of this thesis.
4.3 Does knowing entail truth?

According to the standard picture, knowledge entails truth and belief. As I discussed in §4.1.2, Williamson explicitly supports the entailment for ‘true’, though denying that it is a constituent condition of ‘knows’, but he is not so clearly committed to the entailment for ‘believe’. But what can NSM say about these putative entailments, given that just like KF, we cannot treat either ‘true’ or ‘believe’ as semantic components of KNOW? I will not consider here how to deal with the intuition that ‘know’ entails ‘believe’, except to note that this would have to be chalked up to an English-specific (maybe even Anglo philosopher-specific) phenomenon because ‘believe’ is not a cross-linguistically universal concept (see §5.2.2). As far as the entailment between ‘know’ and ‘true’ is concerned, however, it is possible that this represents a universal intuition, given that both KNOW and TRUE are primes. And in fact, NSM provides the framework for testing these intuitions in a rigorous manner. That is, there is no reason why we couldn’t test speakers’ responses to NSM scenarios involving KNOW and TRUE in order to gauge their intuitions on whether some sort of non-compositional entailment relation exists between them. Consider these two possible “scripts” (where (3) would only be be tested in languages with equivalent propositional knowledge constructions):

(2) When I know something, if someone says it, I can think like this:

“This is true”

(3) Oslo knows that Oslo is the capital of Norway

because of this, if someone says: “Oslo is the capital of Norway” Umberto can think like this:

“This is true”
Such suggestions are rough, and it would require considerable thought to ensure that both the NSM script and experimental design are right, such that we do in fact measure respondents’ agreement that TRUE is somehow entailed by KNOW. But the point I want to make is that NSM provides the means to test this intuition about the relationship between ‘knowing’ and ‘truth’, and not just on ordinary English speakers but on speakers of a wide variety of languages. And if lay speakers of a good cross-section of languages did tend to find statements like those of (2) and (3) felicitous, then this could be argued to demonstrate a legitimate, albeit non-compositional, semantic relationship between KNOW and TRUE.

Chapter 5. Cultural variation in ‘knows’ in experimental philosophy

This chapter is focussed on connecting the universality of KNOW to the experimental philosophy literature.

5.1 Weinberg, Nichols & Stich (2001)

Before going on, let me characterise “experimental philosophy”. As Buckwalter et al. (2015) puts it, “experimental philosophers apply the methods commonly associated with psychology (experimentation, statistical analysis, developmental research, […]]) but they use those methods to address the kinds of questions that have been traditionally associated with philosophy.” Experimental
philosophy is essentially a movement in metaphilosophy, its practitioners united by shared methodological assumptions about what kind of evidence should be attended to in answering philosophical questions, especially when proposing conceptual analyses of ordinary concepts. Thus experimental philosophy often involves testing the responses of ordinary people to hypothetical scenarios, in order to evaluate the conceptual analyses proposed by traditional philosophers. Experimental philosophy methods have been applied to a range of topics in moral philosophy, free will and the mind-body problem, but our focus is on Weinberg, Nichols and Stich (2001, henceforth WNS), whose study centered on epistemic intuitions.

Before outlining the study, it is important to stress that WNS, and experimental philosophers more generally, see themselves as attacking what they take to be philosophers’ unquestioned reliance on their own intuitions in doing conceptual analysis (2001: 431–4). The target of the critique is the “method of possible cases” (e.g. Jackson 1998), which involves taking one’s “intuitions about hypothetical cases as evidence in evaluating analyses of philosophically important concepts, like the concept of knowledge” (Machery et al. 2015: 2). The problem with this method is that while traditional philosophers take themselves to be analysing ordinary “folk” concepts, they do not actually verify that their intuitions hold in the wider population. In other words, experimental philosophers ask: who exactly is the “we” who philosophers attribute a given intuition, e.g. the intuition that Gettier cases are not instances of knowing? Experimental philosophy applied to epistemology thus amounts to a challenge the analytic project as it is traditionally conceived. Note that while we will be presenting NSM-informed objections to WNS and like studies, an NSM sympathiser can perfectly well agree with experimental philosophers that the methods of the analytic project are highly questionable.
Now let us consider WNS’s (2001) findings. In the experiment we are considering, undergraduate students from different cultural backgrounds were presented with hypothetical scenarios designed to test whether or not their epistemic intuitions matched those of Anglo philosophers. Participants were divided into three categories according to their cultural background: Western (Americans with European heritage), East Asian (participants of Chinese, Japanese, and Korean descent) and Indian subcontinent (participants of Indian, Pakistani, and Bangladeshi descent). (Following WNS, I will abbreviate these to W, EA and SC.) The experiment consisted of knowledge attribution tasks, in which participants are asked to say if a third-person subject of a hypothetical scenario knows a given proposition. Several epistemic intuitions were tested, but the Gettier intuition (§4.1.1) will be our focus here. So the Gettier case presented to subjects was as follows:

(1) The American Car

Bob has a friend, Jill, who has driven a Buick for many years. Bob therefore thinks that Jill drives an American car. He is not aware, however, that her Buick has recently been stolen, and he is also not aware that Jill has replaced it with a Pontiac, which is a different kind of American car. Does Bob really know that Jill drives an American car, or does he only believe it?

Respondents were given the option to select ‘Really knows’ or ‘Only believes’. 74% of Westerners selected ‘Only believes’, thereby denying that Bob knows that Jill drives an American car. This suggests that a large majority of ordinary English speakers of European ancestry share the Gettier intuition with analytic

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64 Note that WNS also measured and found variation in responses to according to socioeconomic status, but we will not be concerned with these results here.

65 Note that this particular case was tested on 66 Ws, 23 EAs, and 23 SCs.
philosophers: JTB is not sufficient for knowledge. The figures for subjects in the EA and SC categories, however, were quite different: a mere 47% and 39%, respectively. Apparently, then, a majority of EA and SC respondents (53% and 61%) don’t have the Gettier intuition.

As WNS see it, these results show that, for whatever reason, epistemic intuitions vary according to cultural background, directly undermining the analytic project which takes such intuitions to be fixed. For our purposes, however, the relevant question is whether such results show that these groups are working with different concepts of ‘knowing’, and thus that the concept represented by the KNOW prime may not be universal across languages and cultures.

5.2 Method and metalanguage

In this section, the first part of my response to WNS, I will argue that the study has both general and specifically linguistic methodological problems, which throw doubt on the validity of its results, thereby undercutting any possible threat to the universality of the KNOW prime.

5.2.1 General methodological issues and non-epistemic sources of variation

There are a number of ways one might question the validity of WNS’s study. A couple of the more obvious objections relating to WNS’s sample should be made with caution, however. First is the fact that the sample size is modest and very uneven across the ethnicity categories, with the Gettier case above being tested on 66 Ws compared to 23 each of EAs and SCs. While this is far from optimal, it doesn’t amount to a strong objection given that WNS chose a statistical test that is
supposed to have a good degree of statistical power on small and unequal sample sizes (Fisher’s exact). Second is the fact that the sample is very skewed in terms of education level and probably SES (Socio-Economic Status) too, with most participants being undergraduate students of Rutgers. This is certainly unideal, but it isn’t clear how it threatens their findings, i.e. it is hard to say exactly why making the participants more varied in terms of education level (or SES) would eliminate the cross-cultural variation found. However, while these shortcomings cannot be classed as objections, I would say that in light of the failure of more recent studies which aimed to replicate WNS’s findings and which involved greater numbers of participants and/or a more varied source of participants (e.g. Seyedsayamdost 2015; Turri 2013), the restricted sampling of WNS should give us pause.

The first full-blown objection comes from Starmans and Friedman (2012: 273f), who make the important point that the Gettier scenarios presented to participants in WNS are not compared with well-structured control cases, meaning that in the case of (1) above, the “Gettiered” aspect of the subject’s position was not actually isolated for testing.

A second serious objection, or set of objections, surrounds WNS’ failure to address the possible interference of non-epistemic factors in accounting for their results. That is, the cross-cultural variation that was detected may be due to differences between the groups that are totally unrelated to the knowledge attribution task. For example, there may be cultural variation in how much attention is paid to contextual or pragmatic cues, unconnected to the epistemic theme of the vignettes (Cullen 2010). Consider that Haberstroh (et al. 2002, cited in Cullen 2010) found that Chinese participants are “more sensitive to conversational norms” and

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I say ‘most’ because some of the EA data was obtained in Asia and presumably not from Rutgers students (p. 456f), even though WNS suggest elsewhere that all participants were from Rutgers (p. 439).
are more concerned with “observ[ing] the maxims of conversational conduct” than Western participants. It is possible, then, that the differences in responses between the W and EA categories might be due to differences in how the participants interpreted conversational cues implicit in the scenarios or survey instructions. For a specific example, it is possible that EA and SC participants were more likely to select “really knows” due to an acquiescence bias. The point is that even without identifying the particular pragmatic cues that could have led EA participants to respond differently, it is a live possibility that there may be a host of such factors that are jointly responsible for the results found by WNS, and it is problematic that these authors do not pause to consider any possible non-epistemic sources of the variation.

Of course, WNS are not alone in making the mistake of assuming that the results of such studies directly inform us about the (epistemic or other) intuitions of ordinary people. As Cullen (2010) puts it, experimental philosophers haven’t yet addressed how exactly “conclusions about folk intuitions follow from people’s responses to their surveys”; instead, they seem to have simply “proceeded on the assumption that intuitions can be simply read off from survey responses”. And if there is an array of possible non-epistemic factors that might (separately or together) explain the reported variation in responses, WNS’s belief that they are merely displaying the “brute facts” (p. 451) of variable epistemic intuitions is much too hasty.

5.2.2 Linguistic-specific methodological issues

67 See Johnson et al. (2005) on less affluent and less individualistic countries (including Asian countries) being more prone to an acquiescent or “yea-saying” response style.
There are also serious linguistic problems with WNS’s methods, which more directly undermine any challenge these results could pose to the KNOW hypothesis. More generally, I would argue that these problems make it unlikely that WNS’s findings bear at all on the semantics of the ‘know’ concept, their intended target.

The most glaring issue, then, is that WNS present participants with the choice between two responses: “really knows” and “only believes”, which is plainly not equivalent to the contrast between ‘knows’ and ‘believes’. That is, as is obvious from the point of view of lexical semantics, ‘really’ and ‘only’ contribute their own semantic content. So in (1) participants are simply not being asked if Bob knows that Jill drives an American car; they are being asked whether he really knows it. Consequently, WNS’s findings cannot actually be taken to pertain to the ordinary concept of ‘knows’, but instead apply to the meaning of ‘really knows’. And consider that if Wierzbicka’s (2002) explications of ‘really’ and ‘real’ are on the right track, then ‘really’ implies some sort of contrast with mere appearances, i.e. in this case, a contrast between real and apparent knowing. If this is right, then some participants in the WNS study may have felt that a greater degree of certainty was required for them to select “really knows” over “only believes”, because the addition of ‘really’ put them in mind of a stronger knowing, not the knowing of mere appearances. Whatever the best way to account for the meaning of ‘really knows’, the point remains that it is extremely unlikely that the addition of ‘really’ and ‘only’ did not influence participants’ answers. Therefore WNS’s findings do not tell us about the ordinary ‘knowing’ concept, and by extension do not bear upon the universality of the KNOW prime.

Secondly, there are also significant problems with the use of ‘believe’. Firstly, ‘believe’ is an English-specific concept which doesn’t have exact
equivalents even in all European languages (e.g. Russian; Gladvoka 2007). This limits the applicability of WNS’s findings to English concepts, which seems wrong given that WNS are trying to test cross-cultural and thus potentially cross-linguistic conceptual variation (in the sense that variation according to cultural background might be due to variation in participants’ conceptual resources, determined by their linguistic background). Worse still, it is not clear that the relevant sense of ‘believe’, used by philosophers (meaning something close, but perhaps not equivalent, to the ‘think’), is actually used by ordinary speakers. That is, in ordinary English discourse, ‘believe that’ seems to be largely reserved for cases implying “a conviction or commitment, like taking a stand on some matter of importance” (Wierzbicka 2006: 216f), as opposed to being used to talk about ordinary things that one thinks are the case, such as that one’s friend owns an American car.

A third serious linguistic criticism I have of WNS is that they that their non-Western ethnicity categories are far too coarse grained. For one thing, those EA and SC participants who speak the language of their background aren’t distinguished from those who have no competence in the language of the ethnicity they identified with. Worse still, in the case of the EA category, some of the data was obtained “in Asia” and is simply lumped together with the data from Asian-American tertiary students (p. 456f). This criticism is serious because it means that the study doesn’t control for competence in another language, and gives us no way to tell whether or not subjects could be bringing concepts from that language to bear on the task. More generally, having such coarse-grained cultural background categories means that there is no way to estimate how steeped in the culture of their background the participants were, and therefore we have no measure of the extent of the possible

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68 The scenarios were presumably still presented to participants in English, though WNS do not actually specify this.
influence of that cultural background on their responses, which is supposed to be the subject of WNS’s findings.

Finally, it should also be noted that WNS explicitly tested the ‘know that’ construction (as do all experimental epistemology studies that I am aware of)\textsuperscript{69}. While this doesn’t invalidate the results as they pertain to the meaning of that construction, it does limit the applicability of the study to those languages where an exact equivalent of the propositional knowledge construction is found. This also means that the possible relevance of such findings to the KNOW prime, for which the know-that construction is not a basic syntactic frame, is unclear.

5.3 A non-semantic explanation: Epistemic norms and cultural scripts

As a final nail in the coffin of any possible challenge to the KNOW prime, I will now show why I think that even if WNS-style conclusions were valid, it would not be problematic for the KNOW hypothesis, essentially because cross-cultural variation in epistemic intuitions is not plausibly explained in terms of the compositional semantics of ‘knowing’. That is, imagine there is genuine cross-cultural or cross-linguistic variation in knowledge attribution tasks that isn’t confounded by non-epistemic factors of the kind discussed in §5.2.1. Such variation, I contend, is most likely to be adequately explained in terms of different epistemic norms – what might be described as pragmatic differences in speakers’ application of ‘knows’ – which should be able to be captured in terms of NSM cultural scripts.

To see why this is plausible, first consider the fact that we may have all sorts of “intuitions” about the implications of utterances that are simply not plausibly part

\textsuperscript{69} e.g. Starmans & Friedman (2012), Turri (2013), Nagel \textit{et al.} (2013), Buckwalter (2014), and Machery \textit{et al.} (2015).
of the *meaning* of the concepts involved in that utterance, certainly not in the sense of their compositional semantics (the sense of meaning that is of interest to the NSM program). For example, my intuition that the utterance “A man sprinted down the street” describes a man moving faster than 10 kilometres but slower than 40 kilometres per hour is not plausibly *part of the semantics* of “sprint”, but is accounted for by more general beliefs I have about human beings and the minimum and maximum speeds at which we can run (in addition to my understanding of the meaning of words involved, of course). Other people’s intuitions about the likely running speed of the man in the scenario may very well vary, but this would be nowhere near sufficient to show that the speakers are working with different concepts of sprinting.\(^{70}\) It is simply much more parsimonious to say that people have different beliefs about the maximum and minimum speeds of human beings, depending on, no doubt, their experience and expertise on the subject. And this applies equally well to the NSM primes; that is, we should expect to have any number of such “intuitions” involving the concepts represented by the primes. Some of these intuitions may be robust across individuals and cultural or linguistic groups, others may language- or culture-specific. There may even be universal intuitions involving how the primes relate to one another, i.e. essentially non-compositional relationships between primes, as I have suggested may exist for *know* and *true* (chapter 4). But the crux is that such intuitions have no effect on the hypothesis that *know* (or any other prime) is a universal concept.

In fact, notice how difficult it would be to positively show how different intuitions resulted from genuinely semantic features of the unique knowing concepts

\(^{70}\) Perhaps some theorists *would* say exactly this, but I would counter that making this leap amounts to a complete erosion of the distinction between semantic facts and all other beliefs speakers bring to each instance of applying a word in the world, which I believe is an untenable position.
of the different groups. One would really have to provide adequate reductive analyses of the different knowledge concepts, which would have to show how Gettier cases are ruled out by the components or conditions of the *English* or *Western* concept, but not by the components or conditions of the non-Western (Indian, Chinese, etc.) concept. As we saw in chapter 4, however, no analysis of (English) ‘knows’ has yet succeeded. Pending such proposed definitions, it looks like there is a strong case for the idea that *even with* more robust findings indicating the kind of cross-cultural or cross-linguistic variation WNS set out to prove, this doesn’t *ipso facto* prove that there are different concepts of knowledge in the sense that both traditional analytic philosophers and semanticists are interested in.

So if epistemic intuitions, such as the Gettier intuition, are not semantic, then how are they to be explained? As I have intimated, a parsimonious answer is that they are essentially epistemic norms, the like of which should be explicable in terms of NSM cultural scripts, in particular, different norms governing when speakers of a certain group are prepared to say that some subject ‘knows’ something. Here I would like to suggest a general direction for the sort of different epistemic cultural scripts we may expect to find, pending, of course, detailed investigation in individual cases. Consider first the idea that when we as human beings say that know something, we can typically say why we know it. Thus *know* often participates in constructions like the following: ‘I know (this) because I saw it’, ‘I know (this) because I heard it’, and ‘I know (this) because people say it’. As I see it, it makes perfect sense that different groups and individuals may disagree on which sources of knowledge should be prioritised or most highly valued. In other words, we can expect groups to disagree on questions such as what constitutes good evidence and

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71 See Wierzbicka’s (1994) account of evidential markers.
who counts as a good authority. In fact, we should expect not just cultural variation in such matters, but variation between specialist groups or subcultures (such as philosophers vs. non-philosophers). For example, whether or not someone says that she *knows* something based on a dream depends on whether or not she thinks she can trust to dreams as a source of knowledge about the future, her own subconscious feelings, etc. Similarly, someone’s religious beliefs can be expected to affect whether or not she is prepared to say that she *knows* something told to her by a religious authority. Take Wierzbicka’s (in press) example of the biblical figure, Martha of Bethany, who says of her dead brother, Lazarus: “I know he will rise again”, in response to Jesus telling her ‘Your brother will rise again’. Many contemporary English speakers will find it more natural to say of Martha that she *believes* rather than *knows* that her brother will be resurrected, and this can be accounted for by different cultural (and individual) attitudes in relation to whether or not knowing can be applied to “something that cannot be logically proved or experimentally demonstrated” (Wierzbicka *loc. cit.*). Of course, giving a detailed positive account of particular epistemic norms of a particular cultural or linguistic (or specialist) group requires in-depth research in each case, beyond the scope of this thesis. But the crucial point is that as long as NSM cultural scripts can describe the epistemic intuitions of particular groups, and in so doing, account for the variation between groups, then any cross-linguistic or cross-cultural variation in

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72 Indeed, some authors already claim to have found such variation between lay speakers and philosophers, e.g. Starmans and Friedman (2012).
73 See Goddard & Wierzbicka (2015b) for an explication of *Jukurrpa* (‘The Dreaming’) in Aboriginal Australian culture, which incorporates the idea that one can know things from seeing whilst asleep (i.e. dreaming).
75 An important point here is that there is actually a cultural-historical story to be told that explains some specifically Anglo epistemic norms. In particular, there are epistemic cultural scripts of the modern Anglo world, traceable to Locke, which center on being cautious about saying one knows something unless one is completely sure (e.g. “it is not good if a person says “I know it” if they don’t know it”) (See Wierzbicka 2006: 37-41).
results of WNS-style studies do not pose a threat to the universality of the \textsc{know} prime.

5.4 The importance of metalanguage: using NSM in experimental philosophy

As a final thought, it is also worth discussing the idea that the methodology of studies like WNS, i.e. experimental philosophy studies aiming to test cultural or linguistic universality/variation in knowledge attribution, could be much improved if the scenarios were presented in language approaching NSM, perhaps an NSM “augmented” with some complex concepts to allow for more natural scenarios.\textsuperscript{76} Wierzbicka (in press) thinks “[i]t is certainly possible, and important, to investigate different cultural attitudes” to knowing, but she insists that we can only make genuine comparisons with the aid of a “common measure, a \textit{tertium comparationis}”, i.e. NSM, and in particular, the canonical sentences of \textsc{know}. As for how NSM could be incorporated in these studies, here is a suggestion of an NSM version of the question posed to WNS’s participants:

(2) \textit{Bob thinks like this: Jill owns an American car}

\begin{tabular}{lc}
True & Not true \\
\end{tabular}

(3) \textit{Jill owns an American car, Bob knows this}

\begin{tabular}{lc}
True & Not true \\
\end{tabular}

\textsuperscript{76} See Goddard & Wierzbicka (2014c: 2) on augmented Minimal English, whence I get this idea.
Constructing experimental philosophy studies in NSM is obviously especially crucial if the aim is to test intuitions in multiple languages, as in Machery et al. (2015), who set out to test the Gettier intuition on speakers of four different languages (English, Japanese, Bengali, and Portuguese). Unfortunately, this study too falls foul of the sort of linguistic methodology problems encountered by WNS (§5.2.2), but its shortcomings are instructive. For while they improved on certain aspects, by for example, asking participants only if the subject ‘knows’ or ‘doesn’t know’ (omitting both the “really knows”–“only believes” problem of WNS, and the culturally-specific ‘believe’), there is still precious little discussion of the possible metalanguage and translation issues involved. For example, they say that “Americans, Brazilians, Indians, and Japanese were much more likely to agree with the statement ‘The protagonist feels like she knows that p, but she doesn’t actually know that p’ in the Gettier cases than in the clear knowledge case” (p. 7), without any discussion of whether the concepts being used to translate the English-specific ‘actually’, or the construction ‘feels like she knows’ have exact or near equivalents in Japanese, Portuguese and Bengali. It is also interesting to note that whereas all the results of their statistical tests are reported in an appendix for the statistically proficient to inspect for problems, nowhere do Machery et al. (2015) provide the versions of vignettes as presented in the other languages, for the linguistically-informed readers to inspect for translation issues, suggesting to me the misguided assumption that the language in which the scenarios are presented is not significant, that unlike the statistical results, it is not “data”.

The upshot of this chapter is twofold: 1) the KNOW prime stands strong against what might be perceived as a potential challenge from experimental
philosophy, and 2) the methodology of such studies may be notably improved by presenting participants with something closer to NSM.

Chapter 6. Conclusion and directions for further research

The purpose of this thesis was to take an in-depth look at the semantic prime KNOW of Natural Semantic Metalanguage, considering both linguistic and philosophical aspects to the proposal that it represents a cross-linguistically universal and semantically basic concept. I hope to have shown both that the KNOW hypothesis is holding up well to cross-linguistic testing, notwithstanding some issues that require further testing to be resolved, and that the KNOW claim has a host of interesting implications for, and applications to, philosophy, both traditional and experimental varieties.

As I see it, there is no shortage of interesting directions for further research in relation to the material covered in this thesis, both within the NSM program and beyond. The most important, of course, is to continue testing the KNOW hypothesis in new languages. It is also important to revisit the languages in which KNOW has already been attested to ensure that the revised syntactic frames now associated with the prime do not present problems in these languages. One specific avenue that would be particularly worthwhile pursuing is a thorough investigation into Kalam’s interprime polysemy between KNOW, SEE, and HEAR – or if not Kalam, a language with a similar profile of polysemy between mental/experiential primes. I argued in
Chapter 3 that what is required here is to show that speakers interpret each prime as distinct concepts, despite their identical lexical form and some shared combinatorial features, and I suggested that such a case may benefit from testing beyond the standard language-internal ones, ideally involving controlled behavioural experiments measuring speakers’ semantic intuitions. A second specific issue that needs further investigation is the existence of the trivalency option in Mangaaba-Mbula (or nearby languages), in light of Bugenhagen’s comments that such constructions are absent in the language.

As far as the intersection with philosophy is concerned, there are several very promising avenues for future research, all in connection to the testing of speakers’ intuitions about knowing. Firstly, it would be interesting to test speakers’ intuitions about how KNOW relates to TRUE, to better understand the non-compositional relationship that seems to exist between these primes. Secondly, experimental philosophy studies aiming to test cross-linguistic or cross-cultural variation in epistemic intuitions could be made significantly more rigorous by implementing questionnaires based on NSM. If such variation in epistemic intuitions were then found, the next step would be to attempt to construct NSM cultural scripts to account for cultural (subcultural etc.) differences in how the concept of ‘knowing’ is applied to the world. In general, then, NSM theory and accompanying methodology presents an invaluable prism through which we can assess both the cross-cultural universality and variation in human conceptual systems. As the KNOW hypothesis, and the NSM project in general, continues to garner empirical support, we should expect it to have significant consequences, reaching far beyond semantics, both in the cognitive sciences and in philosophy, in all its many guises.
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I-ME, YOU, SOMEONE, PEOPLE SOMETHING~THING, BODY
KIND, PART
THIS, THE SAME, OTHER~ELSE
ONE, TWO, MUCH~MANY, LITTLE~FEW, SOME, ALL
GOOD, BAD

BIG, SMALL
THINK, KNOW, WANT, DON’T WANT, FEEL, SEE, HEAR
SAY, WORDS, TRUE
DO, HAPPEN, MOVE, TOUCH
THERE IS/EXIST, BE(SOMEWHERE), BE (SOMEONE/SOMETHING),
BE (MINE)
LIVE, DIE
WHEN~TIME, A LONG TIME, A SHORT TIME, (FOR) SOME TIME,
MOMENT, NOW, BEFORE, AFTER
WHERE~PLACE~SOMEWHERE, HERE, ABOVE, BELOW, NEAR,
FAR, ON ONE SIDE, INSIDE

NOT, MAYBE, CAN, BECAUSE, IF
VERY, MORE~ANYMORE
LIKE~WAY~AS

Substantives
relational
determines
quantifiers
evaluators
descriptors
mental/experiential predicates
speech
actions, events, movement, contact
location, existence, possession, specification
life and death
time
space

logical concepts
intensifier, augmentor
similarity

†Where tilde (~) indicates allolexes of a prime, that is multiple realisations of the same prime in one language, dictated by different grammatical contexts.
Appendix II. Sample explications

1. *someone’s mind* (Wierzbicka 2016)
   
   something
   
   this something is part of this someone
   
   people can’t see this something
   
   this something is not part of this someone’s body
   
   when this someone is thinking about something
   
   something happens in this part
   
   because this someone has this part, it is like this:
   
   this someone can think many things about many things
   
   this someone can know many things about many things

2. *Someone x was depressed at this time* (Goddard 2011)
   
   someone X thought like this at this time:
   
   ‘good things can’t happen to me
   
   if I want to do anything good, I can’t do it
   
   I can’t do anything’
   
   because of this, this someone felt something bad at this time
   
   like someone can feel when they think like this
   
   it is bad for someone if this someone thinks like this

3. *women* (Goddard & Wierzbicka 2014a)
   
   people of one kind
   
   people of this kind are not children
   
   people of this kind have bodies of one kind
   
   the bodies of people of this kind are like this:
   
   inside the body of someone of this kind there can be for some time a living body of a child

† Where *m* stands for a semantic molecule, that is, semantically definable “mid-level” concept, via which other concepts are understood. In this case *women* and *children* are proposed to be universal molecules, found in all languages. See Goddard (2012: 719-728) on semantic molecules.