The slippery slope of knowing how to

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Information-action alternations

- Same CEP takes two different types of CCs, one expresses information, the other action
- "Belief-intent alternation" (Jackendoff 1985)

(1)   a.   *B convinced A that the sky is green.*

    b.   *B convinced A to give up linguistics.*

(2)   a.   *A forgot that the sky was green.*

    b.   *A forgot to wipe his feet at the door.*

    $\rightarrow$ CEP meaning stays roughly the same, CC meaning changes

'know that' vs. 'know how to'

- A cross-linguistically common alternation that seems to be similar at first sight: 'know' + information vs. 'know' + action

- Expectation: sufficient knowledge with respect to (the truth of) an information vs. sufficient knowledge with respect to performing an action → factual vs. procedural knowledge

(3) Toqabaqita (Southeast Solomonic; Lichtenberk 2008: 991, 1012)

    a.   *nau kwasi* **thaitoqoma-na** *[n=o*   *mataqi]*
          1SG 1SG.NEG know-3SG.OBJ COMP=2SG.NFUT be_sick

       'I didn't know that you were sick.'

    b.   *thaari naqi qe*   **thaitoqoma-na** *qasia naqa [kuki-la-na*   *raisi]*
          girl   this 3SG.NFUT know-3SG.OBJ INT   INT   cook-NMLZ-3 rice

       'This girl knows very well how to cook rice.'

'know that' vs. 'know how to'

(4) Pichi (English-lexifier creole; Yakpo 2019: 330, 168)

    a.   *yu* **sabí** *[sé yá só sɔn wích dé]*
        2SG know QUOT here like_this some sorcerer COP.LOC

        'You know that here there are sorcerers.'

    b.   *di mán e nó* **sabí** *[tɔ́k Panyá]*
        DEF man 3SG.SBJ NEG know talk Spanish

        'The man doesn't know how to speak Spanish.'

'know that' vs. 'know how to'

(5) Yauyos Quechua (Quechuan; Shimelman 2017: 108, 173)

    a.   *mana ya*   **yatra-ni-chu** *[pi ka-sha-n-ti-pis]*
           NEG   EMPH know-1-NEG who be-PRF-3-ACC-ADD

        'I don't know who it was, either.'

    b.   *[puri-y-ta]*   **yatra-n-ña-m**
           walk-INF-ACC know-3-DISC-EVD

        'She can already walk.'

'know that' vs. 'know how to'

(6) Hinuq (Nakh-Daghestanian; Forker 2013: 158, 265)

    a.   *diž*   *[ɬu=qen*   *Ø-aqʼeˀ-s-ɬi]*   **Ø-eqʼi-yo**   *gom*
        1SG.DAT who=at_least I-come-RES-ABST I-know-ICVB be.NEG

        'I do not know who came.'

    b.   *hayɬo-z*   *[Ø-uh-a=tow]*   **Ø-eqʼi-n**   *gom*
        3SG.M.OBL-DAT I-die-INF=EMPH I-know-UWPST be.NEG

        'He could not die.'

'know that' vs. 'know how to'

(7) Neverver (Central Vanuatu; Barbour 2012: 371, 153)

    a.   *be*   *ei*   **i-rongil**   *[na*   *ni-khavukh*   *nebror]*
          but   3SG   3REAL:SG-know   1SG   1REAL:SG-plant   nebror_yam

        'But he knows I planted Nebror yams.'

    b.   **ni-rongil**   *me*   *[nib-lav*   *nitvilam*   *ang*   *nib-lik*   *i-okh]*
          1REAL:SG-know   just   1IRR:SG-get   mat   ANA   1IRR:SG-pass   PSNPR-2SG

        '(If I had a mat,) I could just give the mat to you.'

'know that' vs. 'know how to'

(8)   Daakaka (Central Vanuatu; von Prince 2015: 368, 371)

a.   *a*   *nge*   *mo*   **kuowilye**   *[na*   *ma*   *sengep*   *mo*   *nok]*
      but   3SG   REAL   know   COMP   REAL   be_open   REAL   finish

'And he already knew that it was open.'

b.   *te*   *mw=i*   *or*   *yo*   *swa*   *na*   *vyanten*   *kevene*   *ya*   *to*
   CONJ   REAL=COP   place   taboo   one   COMP   man   every   3P   REAL.NEG

      kuowilye   *[ka*   *ya=n*   *vyan]*
      know   MOD.COMP   3PL=NEC   go

'It's a sacred place where not everybody can go.'

The sample

Language	Family	Macroregion
Hdi	Afro-Asiatic, Chadic	Africa
Neverver	Austronesian, Central Vanuatu	Papunesia
Daakaka	Austronesian, Central Vanuatu	Papunesia
Teop	Austronesian, NW Solomonic	Papunesia
Rapanui	Austronesian, Polynesian	Papunesia
Toqabaqita	Austronesian, SE Solomonic	Papunesia
Teanu	Austronesian, Temotu	Papunesia
Pichi	English-lexifier creole	Africa
Eastern Armenian	Indo-European, Armenian	Eurasia
English	Indo-European, Germanic	Eurasia
German	Indo-European, Germanic	Eurasia
French, Catalan, Spanish, Italian	Indo-European, Romance	Eurasia
Basque	isolate	Eurasia
Itzá	Mayan	North America
Tzeltal	Mayan	North America
Hinuq	Nakh-Daghestanian	Eurasia
Sanzhi Dargwa	Nakh-Daghestanian	Eurasia
Mauwake	Nuclear Trans New Guinea	Papunesia
Yauyos Quechua	Quechuan	South America
Yakkha	Sino-Tibetan, Kiranti	Eurasia
Iquito	Zaparoan	South America

The sample
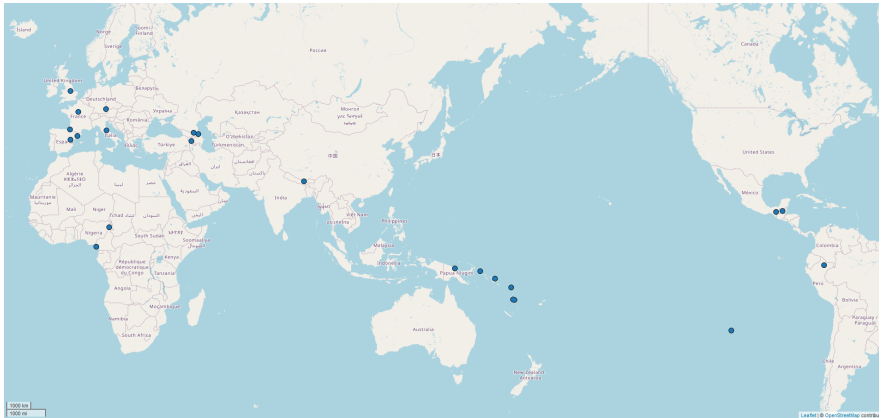
Semantic range of 'know' + action

| knowledge	procedural knowledge	'She knows how to build a tree house.'
internal ability	mental ability	'He can read.'
	physical ability	'I can run fast.'
external ability	possibility	'You can go to the station by bus'
	permission	'You may leave now.'

Some overlaps:

- 'I know how to cook' → procedural knowledge or mental ability?
- 'The child can already walk' → mental or physical ability?
- 'I can't sleep in the train' → physical ability or possibility?
- 'You can put your umbrella here' → possibility or permission?

Semantic range of 'know' + action

Language	KNO	MENT	PHYS	POS	PERM	HAB
Teanu	■	■	■	▨	■	■
Toqabaqita	■	■	▨	▨		
Yauyos Quechua	■	■	■	▨		
French, Catalan, Spanish, Italian	■	■	▨	▨		▨
Hinuq	■	■	■			■ (AP)
Iquito	■	■	▨			
Teop	■	■				
Rapanui	■	■				■
Eastern Armenian	■	■				
English	■	■				
Basque	■	■				
Tzeltal	■	■				■
Hdi	■					
Sanzhi Dargwa	■					
Mauwake	■					■
Pichi	▨	■				
Yakkha	▨					
Daakaka			■	▨	■	
Itzá		■				
German		▨	▨			
Neverver			■	■		

Semantic range of 'know' + action
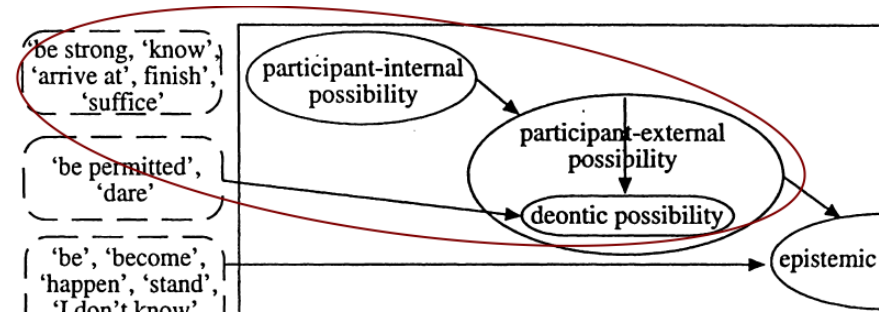
(van der Auwera/Plungian 1998: 91)

Morphosyntactic form of action CC

- Well documented that form of CC and meaning of CEP (or the whole construction) are connected (e.g. Givón 1990; Dixon 2006; Noonan 2007; Schmidtke-Bode 2014; Wurmbrandt/Lohninger 2023)
  $\rightarrow$ If 'know' + action tends to take on modal meanings, does it also behave morphosyntactically like a modal?

Morphosyntactic form of action CC

Language	CC like modal?	Number of CC types
Hdi	yes	6
Neverver	n.a.	5
Daakaka	yes	2
Teop	yes	?
Rapanui	no	5
Toqabaqita	partly	3
Teanu	yes	?
Pichi	yes	6
Eastern Armenian	partly	6
English	no	5
German	no	4
French, Catalan, Spanish, Italian	yes	5
Basque	no	6
Itzá	no	6
Tzeltal	?	?
Hinuq	yes	7
Sanzhi Dargwa	yes	8
Mauwake	no	4
Yauyos Quechua	yes	4
Yakkha	(yes)	2
Iquito	?	?

Correlations

CC like modals

Language	KNO	MENT	PHYS	POS	PERM
Teanu					
Yauyos Quechua					
Fr, Cat, Sp, It					
Hinuq					
Teop					
Hdi					
Sanzhi Dargwa					
Pichi					
Daakaka					

Correlations

CC partly like modals

Language	KNO	MENT	PHYS	POS	PERM
Toqabaqita					
Eastern Armenian					
Tzeltal					
Yakkha					

CC unlike modals

Language	KNO	MENT	PHYS	POS	PERM
Rapanui					
English					
Basque					
Mauwake					
Itzá					
German					

Correlations

- Commonly same CC type as modals
- Modal meanings besides mental ability only when same CC type as modals
- Two possible explanations:
  1. Semantic extension to other modal meanings happens more easily if the construction is structurally the same as with modals (= semantics follows morphosyntax)
  2. The construction takes on the same form as modals when the meaning gets more similar (= morphosyntax follows semantics)

Correlations

Some evidence for assimilation to modals at the stage of procedural knowledge + mental ability?

(9)   Rapanui (Polynesian)

    a.   The pattern of modals (Kieviet 2017: 526):

¿Te	ŋā	poki	e	ko	riva	[mo	o'o	ki	te	kona	aŋa	vaka]?
ART	PL	child	IPFV	NEG.IPFV	good	for	enter	to	ART	place	make	canoe

'Can't the children enter the canoe building site?'

    b.   The canonical pattern of 'know' + action (ibid.):

ko	'ite	'ā [...]	[i	te	vānaŋa	i	tētahi	'arero	...]
PRF	know	CONT	ACC	ART	speak	ACC	other	tongue	

'He could [...] speak other languages...'

    c.   One diverging example (ibid.: 488):

¿Pē	hē	koe	i	'ite	ai	[mo	tarai	i	te	mōai]?
like	CQ	2SG	PFV	know	PVP	for	carve	ACC	ART	statue

'How did you know how to carve statues?'

Conclusion and outlook

- The construction 'know' + action CC tends to develop a life of its own, extending/ shifting to modal meanings
- Some correlation between modal meanings and formal similarity to modals observable
- Next steps:
  - Try to get missing information on semantic range and morphosyntax
  - Get more precise profile of the CC types involved in both semantic and morphosyntactic terms
  - Try to find some more African, American or Australian languages with the same alternation for a more balanced sample
  - See if I can get diachronic data or data on synchronic variation (also between closely related languages) that can tell us more about semantic and structural changes

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