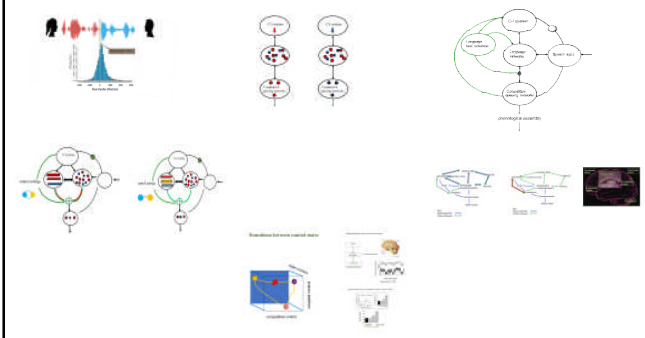

Interdisciplinary Perspectives on Code-Switching
 University of Cambridge 3rd-4th October 2016

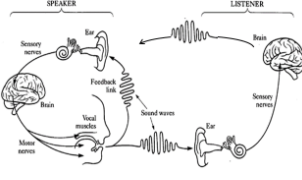

Language control and code-switching: an exploration

 David W. Green
 University College London



Conversation is a key site of language use

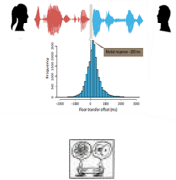
Multimodal speech and gestures convey communicative intent

Conversation as a key site of language use

Multimodal speech and gestures convey communicative intent

Turn taking



- speech production is incremental
- planning and execution are interleaved
- speech comprehension is incremental
- semantic representations are aligned
- speech entrains comprehension
- predictive processing
- share utterances by switching roles

Interactional challenge: How are demands managed?

Speech production

- interleave planning and execution
- plan: parallel representations of differentially active items
- serial order "winner takes all" mechanism

Competitive Queuing mechanism

Planning layer

Competitive choice layer

Interactional challenge: How are demands managed?

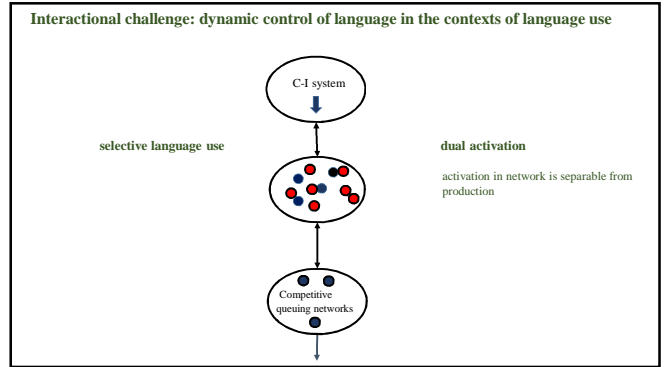
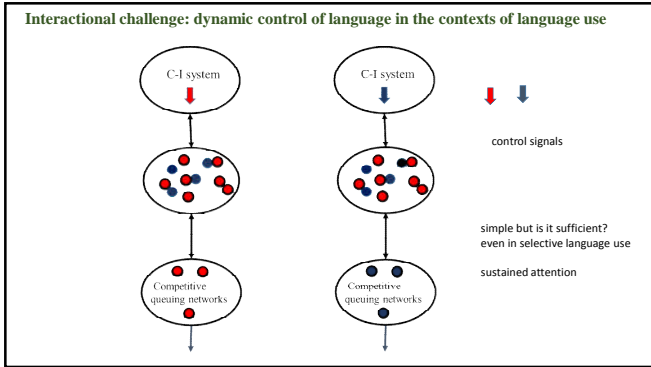
easy first	easily retrieved from memory	flexibility
plan reuse	common constructions, recently used	word order rigidity
manage competing items	alternatives for capturing meaning	rapid suppression to constrain items for production
		"reactive inhibition"

after McDonald 2013

Interactional challenge for bilingual speakers: potential of dual activation

easy first	easily retrieved from memory	item competition/flexibility
plan reuse	common constructions, recently used	construction competition
manage competing items	alternatives for capturing meaning	rapid suppression to constrain items for production
		"reactive inhibition"

Interactional challenge: dynamic control of language in the contexts of language use



Interactional challenge: dynamic control of language in the contexts of language use

Interactional behaviours

switching between languages to different speakers within the same conversation

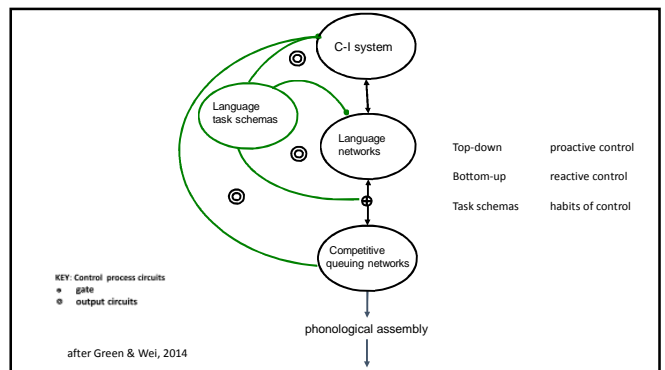
code-switching CS – inter-clausal and intra-clausal

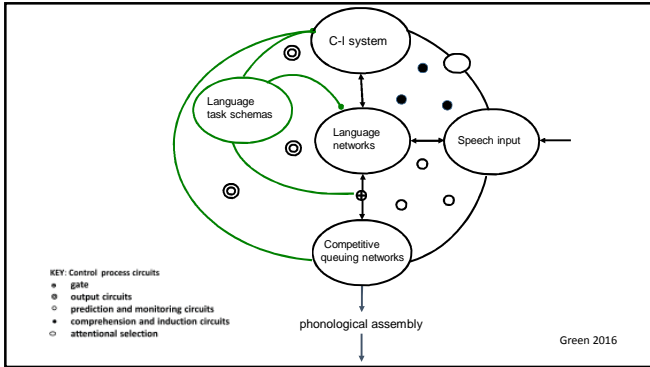
corpus data also indicate CS combined with sustained use of a single language in some communities

What is required?

a testable process control model that is necessary and sufficient


externalise control outside the language network





Interactional contexts of language use – the ecologies of language use

Single language context
 L1 at home and L2 in the work context
 e.g., Professional groups; Migrant communities....



Dual language context
 Switching within the same context as a function of addressee but not within an utterance
 e.g., Spanish-Catalan communities [Rodríguez-Fornells et al., 2012]
 Multilingual family groups


Code-switching contexts (after Muysken, 2000)

Alternation: stretches of one language alternate within a conversational turn: stable bilingual communities with a tradition of language separation

maar 't hoeft niet li-'anna ida šeft ana... Dutch/Moroccan Arabic
but it need not be, for when I see, I...

Insertion: Words/constituents from one language inserted into the utterance of another: ex-colonial settings and recent migrant communities

Chay-ta las dos de la noche-ta chaya-mu-yku. Bolivian Quechua/Spanish
There at two in the morning we arrive.



Code switching contexts contd..

Switching and adapting morpho-syntax to the same addressee

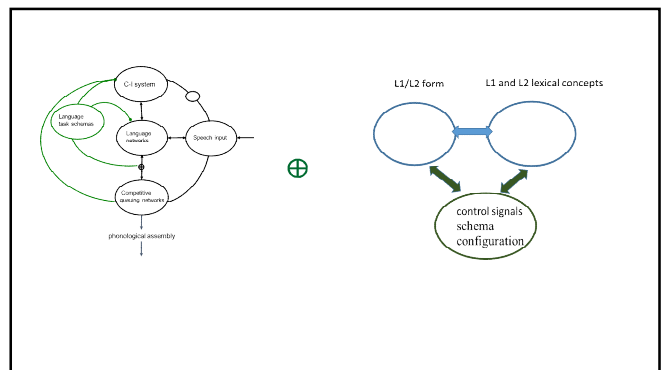
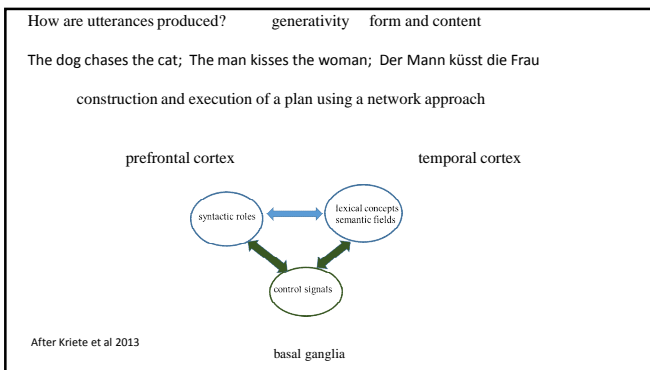
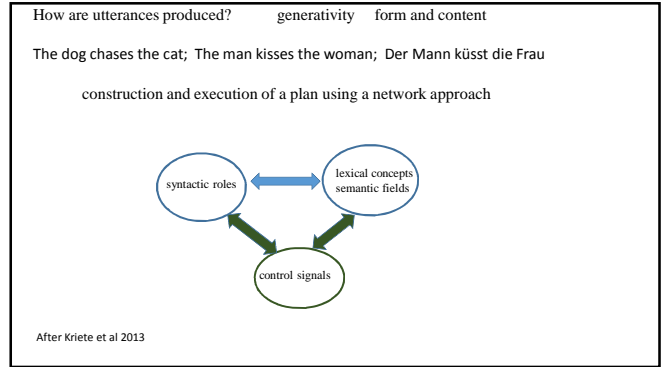
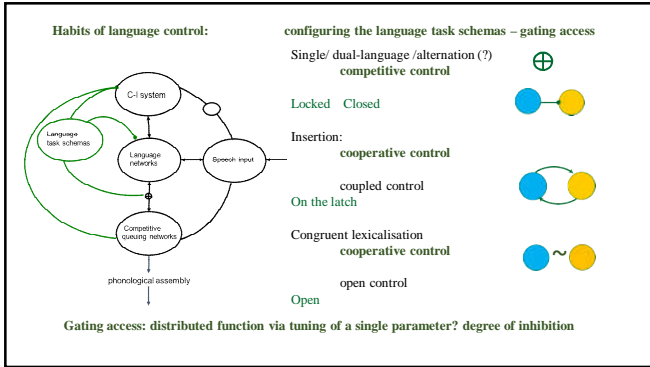
Congruent lexicalization: a shared language structure is realized with words/morphemes from different languages: second generation migrant groups and bilingual speakers of closely related languages with roughly equal prestige and no tradition of overt language separation

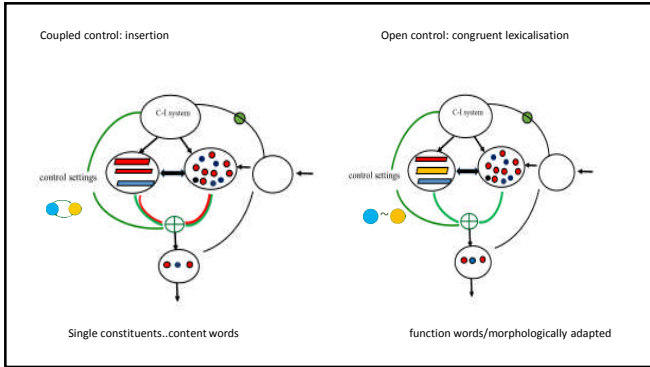
English-Tagalog Green & Abutalebi, 2013

Wala akong **cash** pang **grocery** ngayon, **if you want**, bukas na lang, **ipagdadrive** pa kita!
I do not have cash for grocery today, if you want, tomorrow, I will even drive you there!

ipagdadrive [I will even drive] is a code-switch comprising a personal pronoun, auxiliary, modifier and verb.

"dense" CS behavioural level description: multiple switches between languages within a clause





Open control without morphological adjustment: Mandarin-English code-switching

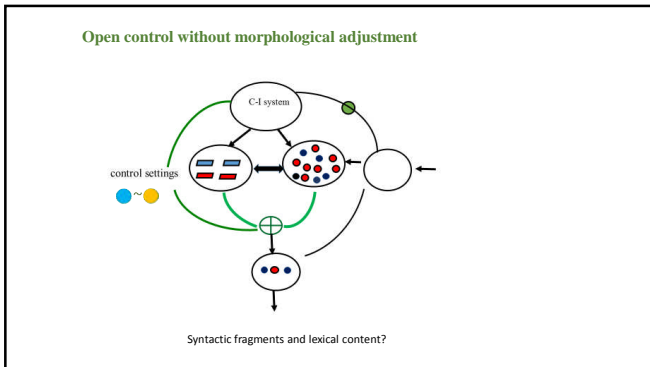
Items from different lexical categories in the two languages yield a well-formed sentence without overt morphological adjustment

You go upstairs, walk to the very end, turn left, the one at the forefront

你 (ni) up stairs, 走到底(zoudaodi), 向(xiang) left, 最(zui) front那张(nazhang).

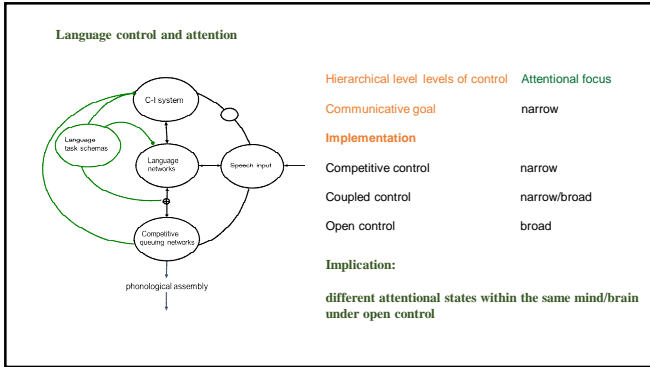
English prepositions, adjectives and nouns switched in positions that require verbs and other lexical categories.

Example from Li Wei



What characterises the control states? coordination of language resources: exploitation/exploration

Competitive control	exploiting the resource of a single language
	narrow focus of attention
Cooperative control	exploring the resource of more than one language
[especially open control]	"linguistic foraging"
	broad focus of attention



Are distinct control states associated with differences in CS vs non-CS utterances?

Hypothesis 1 No change in control state for CS

Congruent lexicalisation [relative to baseline]
dense CS/many insertions

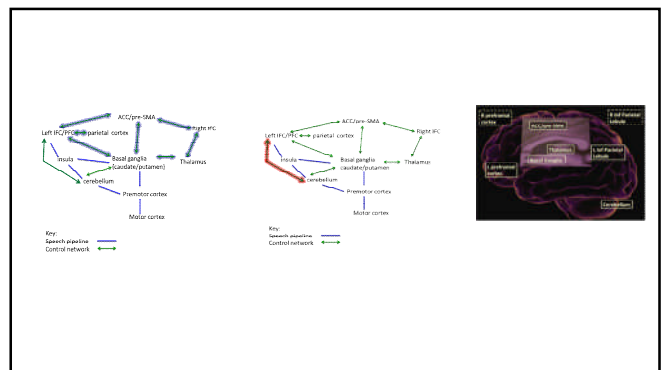
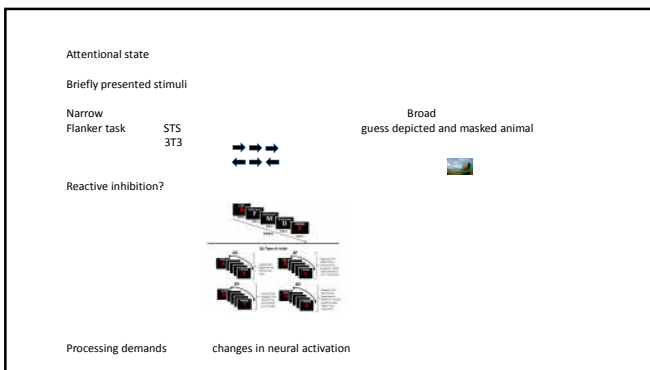
CS operates under competitive control regime
type independent
hyper use of switching circuits
narrower focus of attention
no change in reactive control

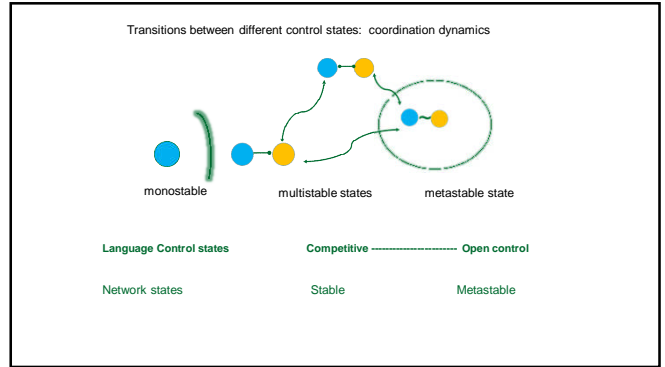
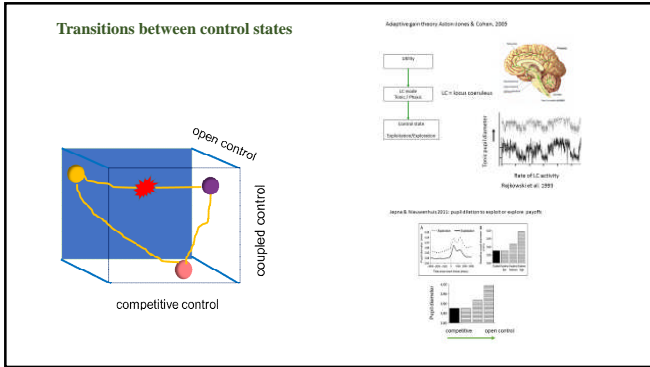
Hypothesis 2 Change in control state for CS

Congruent lexicalisation [relative to baseline]
dense CS

CS operates under a cooperative control regime
type dependent
reduced demand on switching circuit
broader focus of attention
increase in reactive control
(in production only?)

non-CS to CS
transition signals between competitive and cooperative control states





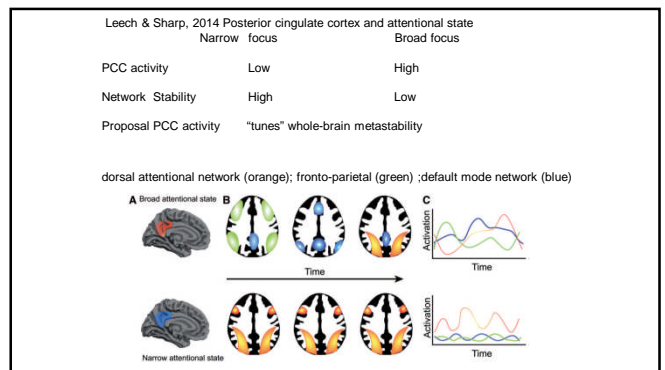
Transitions through different language control states

Detection of new "state of the world" : anterior cingulate cortex

Noradrenaline release [locus coeruleus] affects ACC activation [Tervo et al., 2014]

ACC activation affects activation of posterior cingulate cortex – PCC [anatomical links]

Activation of PCC alters network stability Leech & Sharp, 2014



Questions

What evidence is there that different types of CS are mediated by different control settings?

What are tractable behavioural tests for breadth of attention and reactive control?

Does language input entrain control states?

What evidence is there for transition between control states e.g., with the onset of CS?

Can we induce open control?

How do two parties achieve CS interaction when previously used just one of their two languages to each other?

What can we learn about the nature of the language network from studies of CS?

How does the typical interactional context of a speaker alter language processing and the neural networks involved?

THANK YOU