Language, Culture and Mind
Independence or Interdependence?
The market of the mind

- The Computational & Representational Mind
  - Fodor, Johnson-Laird, Jackendoff

- The Embodied Mind
  - Varela, Thompson & Rosch; Lakoff & Johnson

- The Extended & Distributed Mind
  - Merleau-Ponty, Vygotsky, Clark, Hutchins

- The Discursive and Dialogic Mind
  - Bakhtin, Harré, Marková, Wertsch

- The Shared Mind
  - Husserl, Wittgenstein, Trevarthen
What is cognitive science?

- The interdisciplinary study of the mind
- Psychology, Linguistics, Artificial Intelligence, Philosophy, Anthropology, Neuroscience* (*also interdisciplinary)
- The term dates from the 1960’s / 70’s but the idea is older.
- Is cognitive science an inheritor of, or replacement for, general psychology?
- Where do we stand now in Cognitive Science?
Three fundamental philosophies of mind

- Mind is autonomous and exists in its own mental realm: of Forms or Ideas
  - From Plato through Descartes to Frege
- Mind is in the brain. It is an aspect of matter and a property of the brain and the embodied nervous system
  - Spinoza, Darwin, Helmholtz, Wundt, Cognitive Neuroscience
- Mind is in society. It is intersubjective and communal.
  - Vico, Marx, Vygotsky, Wittgenstein etc.
If we accept that mind-and-brain are somehow one there are *two possible unifying steps*

- Ground the *autonomous mind* in the brain, and define our object of study as the *Mind/Brain* – a physical symbol system (Classical Cognitive Science)
- Ground the *social mind* in both the brain and the intersubjective and cultural context (Situated, embodied, enactive cognitive science)
The Conundrum of the Mind/Brain

- This brain is my brain. That brain is your brain. I cannot share your brain and you cannot share mine. The brain is a part of the individual organism.

- However, I can share your thoughts. Mind is shared and mind is social.

- The primary vehicle (in adults) for sharing thoughts is language.
Two Paradigms in Cognitive Science

- Classical Rules & Symbols Cognitivism
  - Formal
  - Nativist
  - Modular
  - Abstract, general models
  - Universalist
  - Monologic
  - Logocentric - linguistic
  - Methodological individualism
  - Disembodied mind
  - Algorithmic

- Situated, Embodied Enactive Cognition
  - Functional
  - Epigenetic-developmental
  - General principles of learning and organization
  - Contextual & particular
  - Interactional-dialogic
  - Multi-modal
  - Extended and distributed mind
  - Embodied mind
  - Connectionist
Two views of language, communication and learning

- **Formalism**
  - **Language** is a formal system of rules and symbols.
  - **Communication** is transmission of ideas.
  - **Learning** is the internalization of the system on the basis of linguistic input.

- **Functionalism**
  - **Language** is a semiotic vehicle and a cognitive tool.
  - **Communication** is symbolic action in an intersubjective field.
  - **Learning** is situated, embodied and socially scaffolded.
Language from a formalist point of view

- An infinite set of sentences (early Chomsky)
- A rule governed system of symbols, possessing the features of:
  - **Productivity**—the combinatorial rules enabling the generation or construction of novel legal sentences (or of an infinite set of legal sentences)
  - **Systematicity**—stability of symbolic value across lawful combinations, eg
    - *The lecture is in Leiden*
    - *The lecture in Leiden takes place in June*
Formalism and the problem of stability of meaning

- Formalist theories are *syntax driven*—the rules determine the possible forms of legal combinations.
- For a formal description of language to “hook up” with the world, a semantics is required that maps sentences to *objective states of affairs*.
- This referential relationship must be *determinate and objective*.
- The mind is therefore considered to be “a *syntactically* driven machine whose state transitions satisfy *semantical* criteria of coherence” (Fodor and Pylyshyn).
- Therefore, formalist theories require strict *compositionality* to account for systematicity: the meanings of legal combinations are built up from the meanings of their constituents.
The problem of meaning and the formalist solution

- Natural language expressions are difficult to characterise in terms of strict compositionality:
  - *The lecture is in Belo Horizonte*
  - *The lecture in Belo Horizonte takes place in August*

- Formalist theories of natural language therefore prefer to posit *general* meanings instead of polysemy.

- The *classical cognitivist* solution to the general problem of meaning is to posit a computational *Language of Thought* (Fodor)

- Which anchors Knowledge of Language (I-language)
Formalist Cognitivism views language as an imperfect (resource-limited) “print-out” of the internal processes taking place in the computational, representational mind.

This is the basis of Chomsky’s distinction between competence and performance.

And is closely linked to Chomsky’s Argument from the Poverty of the Stimulus:
- Innateness
- Modularity
- Encapsulation

Extended by Fodor to include semantics (the Language of Thought) as well as Universal Grammar.
Cognitive-functional linguistics

- Languages are conventional symbol systems enabling *communication, conceptualization and construal*
- Languages are open inventories of *symbolic assemblies* at different levels of organization
- Languages are multi-level systems of *mapping* between linguistic conceptualization and linguistic expression
  - Fauconnier, Lakoff, Langacker, Talmy *et al.*
Functionalism: Language as a tool

- **Communicational Functionalism**: language is a communicational tool whose form or structure is shaped by its use for communication
  - Prague School Linguistics (Jakobson, Mukaróvsky)
  - Karl Bühler (Organon model)
  - Functionalist Linguistics: Dik, Givón

- **Semiotic mediation**: language is a *tool for thought* (Condillac, Vygotsky) which shapes cognition (Whorf, Sapir)
The ambiguous status of Cognitive Linguistics

- Cognitive Linguistics rejects formalism and embraces a general functional perspective—Cognitive-Functional Linguistics (C-FL)
- However, some of its leading exponents retain some of the assumptions of Classical Cognitivism in regard to:
  - Nativism
  - Theoretical and methodological individualism
  - The assumption that language reflects cognition without equally emphasizing that it transforms it.
Language as system and language as practice

- Traditional linguistic theory is based upon the analysis of language as a formal or systemic *object.*
- Language can also, however, be approached as a *practice:* anything we do that involves the use of language.
- Use-based cognitive-functional theories attempt to unify the two perspectives.
Language as a social institution

- Grammars are normative and conventional
  - Structuralism: arbitrariness
  - C-FL: conventions may be motivated

- *Norms* are intersubjectively shared rules that regulate conduct and are objects of common knowledge (Itkonen)

- Knowledge of language is not identical to language (*contra* Chomsky), because knowledge may vary inter-individually, but rules are shared between at least two people (cf Wittgenstein’s argument against a private language)
Language as a biosemiotic system and ecological niche

- Language is a biologically grounded communication system
- A system of communicative *signs* that can be analysed from the perspective of biosemiotics (semiotics=study of signs)
- Language is a species-unique ecological niche that is fundamental to human *culture*
- Language is a *biocultural niche*
Formalist theories emphasize the autonomy of syntax from meaning, and view [lexical] semantics as only trivially culturally variable. Language is autonomous from culture.

Functionalist theories recognize universal motivations, but viewing language as a part of symbolic culture, leave open a space for culturally determined crosslinguistic variation.
What do we mean by Culture

- Something shared by one group but not another (specificity and difference)
- Ways of doing things (practices)
- Ways of talking (discourses)
- Ways of thinking (mental models, schemas, worldviews)
What is cultural psychology?

- Includes, but is not identical with, crosscultural psychology as a method.
- Focuses on “the systemic and dynamic nature of culture in psychology, and psychology in culture” (Valsiner, 1995)
  - Semiotic mediation of higher cognitive processes
  - Situated learning and cognition
- From a historical-developmental perspective (Vygotsky: Cultural-historical psychology)
What is cultural linguistics?

- “the purely linguistic inquiry is part and parcel of a thorough investigation of the psychology of the people’s of the world” (Boas, 1911).
  - cf. Wilhelm Wundt: *Völkerpsychologie*

- “Cultural linguistics is concerned with most of the same domains of language and culture [as Boasians] ... It assumes a perspective which is essentially cognitive”

- “Linguistic meaning is subsumed within world view” (cultural schemas) (Gary Palmer, 1996)
Cultural and linguistic schemas

- Schemas may be culturally specific
- For example, politeness scripts, kinship frames, schemas for cultural spaces and times
- In these cases we speak of cultural schemas or cultural models
- Cultural models are intersubjectively shared by members of a cultural community
- Cultural models may motivate grammatical facts in a language (e.g., classifier systems, spatial frame of reference, time)
Where do schemas exist?

- Schemas have been theorized at all the following levels:
  - Neural (Head, Bartlett, PDP modelling)
  - Individual psychological (Piaget, Schank and Abelson, Lakoff)
  - Intersubjective, social and cultural (cultural schemas)

- Schemas are constructs that bind together cognitive processes at all these levels, enabling the integration of individual with social cognition

- Lower level schemas are *preconceptual* and *prelinguistic* (containment, support, object categories)

- High-level schemas organizing abstract domains like time (eg clocks, calendars) are linguistically organized, conceptual, socially shared and normative: *semiotic mediation*
A case study: the conceptual mapping of space and motion to time

- The recruitment of locative words and constructions to express temporal relationships in language is widespread.
- The following examples are from English but are typical of many European languages.
- The weekend is coming.
- The summer has gone by.
- He worked through the night.
- The party is on Friday.
- He is coming up to retirement.
- I am going to get up early tomorrow.
Is this universal?

- The recruitment of spatial lexical and grammatical resources for conceptualizing time is widespread. However:
- Research into space-time analogies in language has only investigated a limited sample of languages and cultures
- Time is presupposed to be a distinct cognitive (hence linguistic) domain in all languages and cultures ("Time-as-Such")
- Are space-time analogies a fact of language, or of cognition, or of culture (or all of these)?
Cognitive artefacts and cultural schemas

- Cognitive artefacts can be defined as those artefacts which support conceptual and symbolic processes in specific meaning domains.
- Examples: notational systems, dials, calendars, compasses.
- Cultural and cognitive schemas organizing e.g. time and number can be considered as dependent on, not just expressed by, cognitive artefacts.
- Cognitive artefacts have a history: does the concept of “Time as Such” (Reified Time) also have a history?
The extended embodiment of schemas

A Medieval Clock (Lund, Sweden)
The Calendar

- Calendric systems can be considered as instruments dividing the “substance” of Time-as-Such into quantitative units.
- Calendric systems have a recursive structure in which different time interval units are embedded within each other.
- Calendar systems are cyclic and depend upon numeric systems.
The Amondawa people of Amazonia

- **Amondawa**: Indigenous Group of 115 people living in the State of Rondonia (Greater Amazonia). Community was first contacted in 1986.

- **Language**: Tupi Kawahib language – sub-branch of Tupi. Language description and ethnography have been conducted for more than 10 years (Sampaio and Silva Sinha).

- **Education**: All speakers are bilingual (Amondawa and Portuguese) except the 2 oldest people. The primary education is based on State Education Laws for indigenous peoples and the language of instruction is Amondawa; the school is located in the village. (Sampaio & Silva Sinha)
There is no abstract word meaning “time”
Past and future are not expressed in verbal morphology (no verbal tense system)
There exists a complex nominal aspect system
There are only four numerals (see below)
There are no cardinal chronologies such as:
  - ages of individuals
There are no ordinal chronologies such as:
  - yearly or monthly calendars
Amondawa number system

- One: péi
- Two: monkõi
- Three: monkõi ape´i or ape´i monkõi
- Four: monkõi uturaipe or monkõi imememe
There are 2 seasons:

1- **Kuaripe** – "in the sun": the dry season, time of the sun

**SUBDIVISIONS:**

- **O´an Kuara** - the sun is jumping up (beginning of the time of the sun, also sunrise)
- **Itywyrahim Kuara** - very hot sun; strong sun.
- **Kuara Tuin** or **Akyririn Amana** - Small sun (ending of the time of the sun) / The time of falling rain is near
TIME INTERVALS: Seasons

2- Amana – "Rain": the wet season or rainy season

SUBDIVISION

- Akyn Amana - falling rain (Beginning of the time of rain)
- Akyrimba´u Amana or Amana Ehãi - very heavy rain or Great rain
- Amana Tuin - small rain (ending of the time of rain)
The absence of a calendar

- The interval systems of Season and Day have sub-intervals
- There is no superordinate year
- There is no name for the week or lunar month
- There are four names for lunar phases
- There is one application of the 4-item numeral system to time intervals: enumerating moons (*probably* lunar phases)
- There is no **calendric system**
The structuring of time by events and activities

- Time intervals in our culture are structured by cognitive artefacts such as calendars and watches.
- These artefacts impose a quasi-static cultural model on Moving Time.
- In contrast, Amondawa time is structured by events in the natural environment (seasons) and the social habitus (Bourdieu) of activities, events, kinship and life stage status.
- We can diagram Amondawa time, but there is a risk of distorting it by imposing “Western” cultural schemas of cyclicity and / or linearity.
Amondawa seasonal schema: Our invention or that of the community?
A people without time?

- The Amondawa do not have a calendric system
- There is no evidence of spontaneous Moving Ego and Moving Time constructions
- There is no evidence of spontaneous stative Positional Time constructions
- There is no grammaticalized time, no lexicon of Time as Such
- Although there is a complex space and motion system, and we have evidence of fictive motion in space (Talmy), there is no convincing evidence of conventionalized linguistic space-time mapping
On the other hand ...

- There is a complex nominal aspect system
- The Amondawa, like all human groups, are able to linguistically conceptualize inter-event relationships which are, by definition, temporal
- They lexicalize past and future in temporal deixis
- They have at least three *event-based* time interval systems
- They have cultural narratives of the collective past and mythic narratives
- They are not a “People without Time”, Amondawa is not a “language without time”
A provisional conclusion

- The widespread linguistic mapping between space and time, which is often claimed to be universal, is better understood as a "quasi-universal", conditional not absolute.
- Though not absolutely universal, linguistic space-time mapping is supported by universal properties of the human cognitive system and experiential correlations between spatial motion and temporal duration.
- The linguistic elaboration of this mapping is mediated by number concepts and number notation systems, the deployment of which transforms the conceptual representation of time from event based to calendric based time interval systems.
- The conceptual transformation of time interval systems by numeric notations is in part accomplished by the invention and use of artefactual symbolic cognitive artefacts such as calendric systems.
Schemas and the materiality of representation

- Schemas are where cultural and individual cognition meet and interface.
- Because schemas can be embodied in artefacts, they are also where the representation of the mind in language and symbolization achieves material structure not just in the brain but in the world.
Extended embodiment

- [It] is always difficult for the psychologist to think of anything ‘existing’ in a culture ... We are, alas, wedded to the idea that human reality exists within the limiting boundary of the human skin! (Bruner 1966: 321).

- The body is our general medium for having a world ... Sometimes the meaning aimed at cannot be achieved by the body’s natural means; it must then build itself an instrument, and it projects thereby around itself a cultural world.
  - (Merleau-Ponty 1962: 146).
Answering my question

- Language, culture and mind are interdependent aspects of our human extended, symbolic, biocultural niche
- Language shapes, and is shaped by culture
- Language is both a window into the human mind, and the foundation of all our symbolic capacities
Thank you