

HCC class lecture 15

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Activities 2.0

Components:

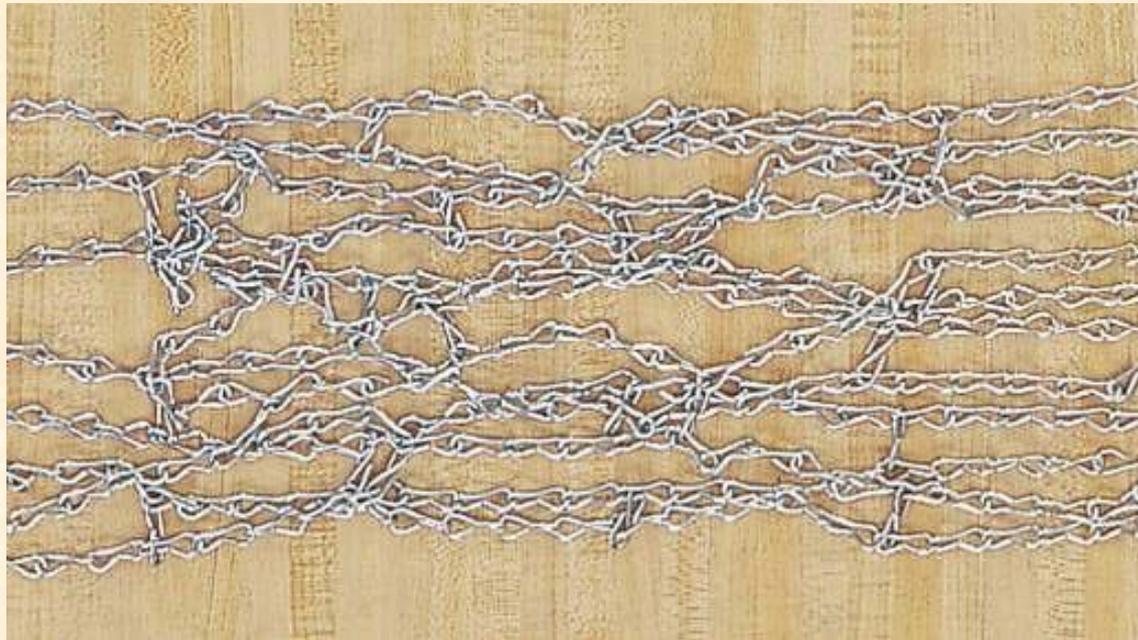
- Subject/Actors
- Object
- Tools
- Action Chains
- Aspect
- Situations
- Roles/Relations

We are talking about *internal* (mental) models of activity.

Action Chains

Think of a network of connected links (actions).

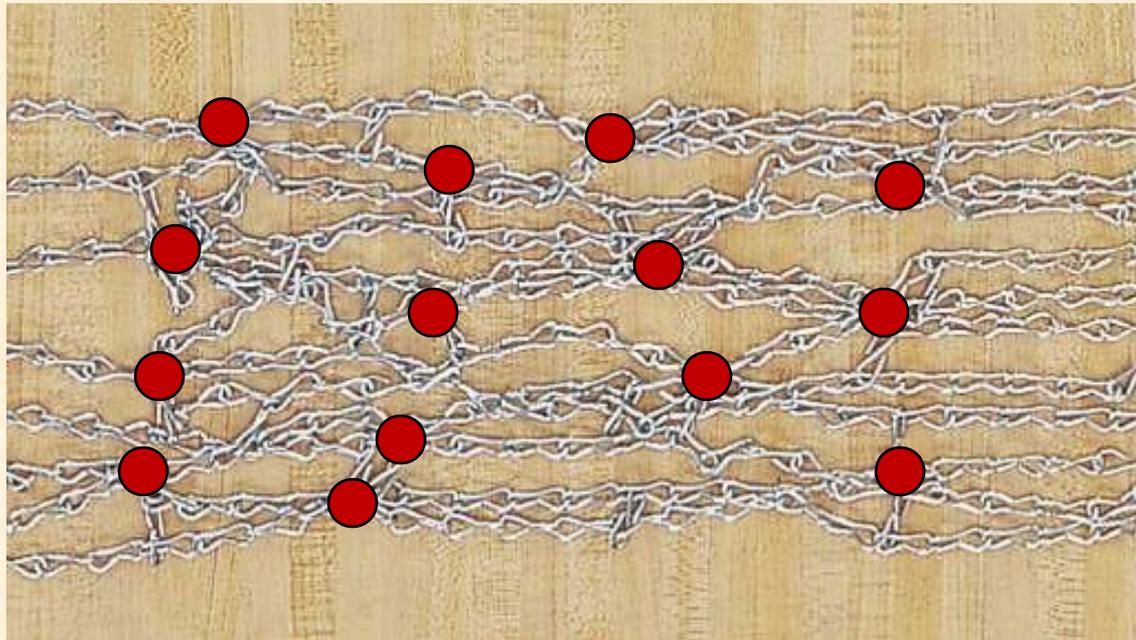
Structure is hierarchical, defined by “landmarks” in the chain.



Action Chains

To be concrete, we can realize these using probabilistic language models, e.g. n-gram models.

Such models will apply at several levels.

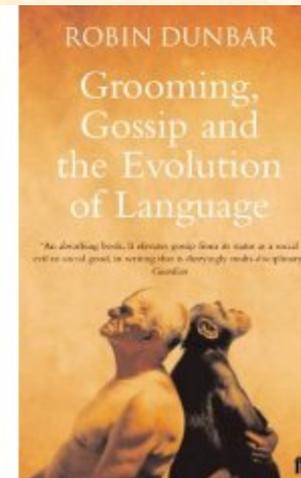


Action Chains

- Hand-shaking
- Musical performance
- Moving around the house
- Starting the car
- Team sports

Dialog Action Chains

- Formal greeting
- Purposeful speech acts
- Smalltalk
- Storytelling: elements
 - Displacement in time
 - Space/situation
 - Action at multiple levels
 - Many actors + voices
 - Description of emotion and desire



Dialog Action Chains

- Formal greeting
- Purposeful speech acts
- Smalltalk
- Storytelling: purpose
 - Social, grooming, reinforcing ties
 - Sharing information about resources and hazards
 - Passing down knowledge via myths
 - Navigation, songlines

Activity Surfacing

We say an activity is “on the surface” when actions are influenced by that activities’ action chains.

Via situations:

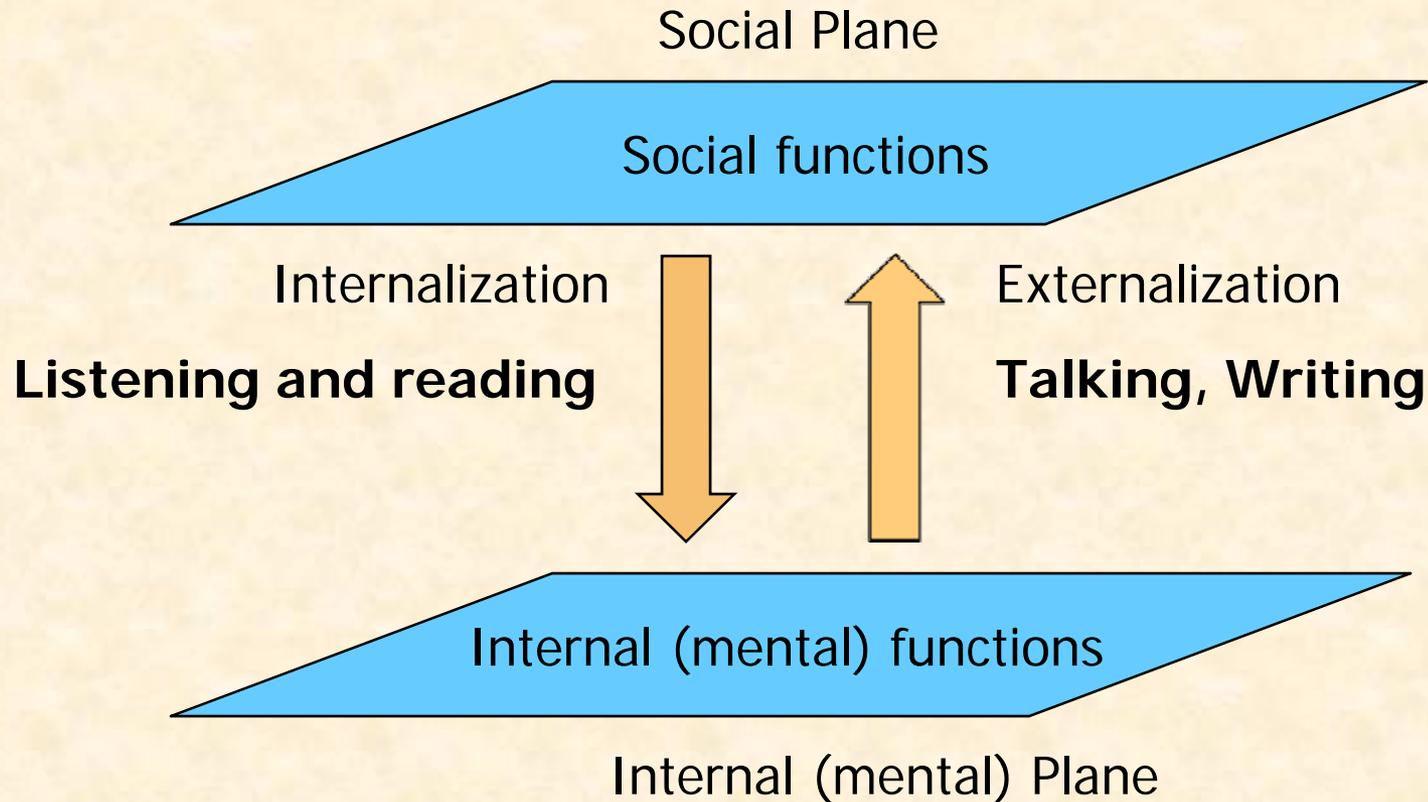


Activity Surfacing

But activities can surface simply by their “match” to the unfolding action – generative probabilistic models support this.



Internalization/Externalization



Activity Surfacing

With a Bayesian formulation, the prior probability of an activity increases with its prevalence in the past.

The more often an activity surfaces, the more likely is the subject to produce its constituent actions.

The result is a linear genetic system for words and phrases.

And the corollary is power law behavior.

Activity Mixing

A key insight from Language disciplines is the presence of multiple “voices” or “keys” during behavior.

So in general, not one but several activities should be on the surface.

Example:

Forms of address: sir, ms, your honor, dude, darling etc.

Gambits: praise, humility, acceptance, refusal etc.

These need to be adapted to the listener and situation.

Activity Mixing

Example:

Stories that incorporate the “voices” of actors in the narrative, different social voices for the narrator, and the voice of the addressee.

While voices are not the same as activities, a story will normally surface activities related to what the actor is doing in the narrative. The corresponding action chains are the real “voices.”

Bakhtin’s multivocality is realized through this mechanism in a very general way.

Activity Mixing

Dynamics:

As discourse moves, activities will also surface dynamically.

E.g. smalltalk moves to elder care, the listeners own experience with elder care surfaces, snippets of dialog are recalled.

The result is an intertextual mixture of prior experience, a “fabric of quotations” in Barthes words.

Activity Mixing - Keying

Play:



Activity Mixing - Keying

Parody, Polemic:

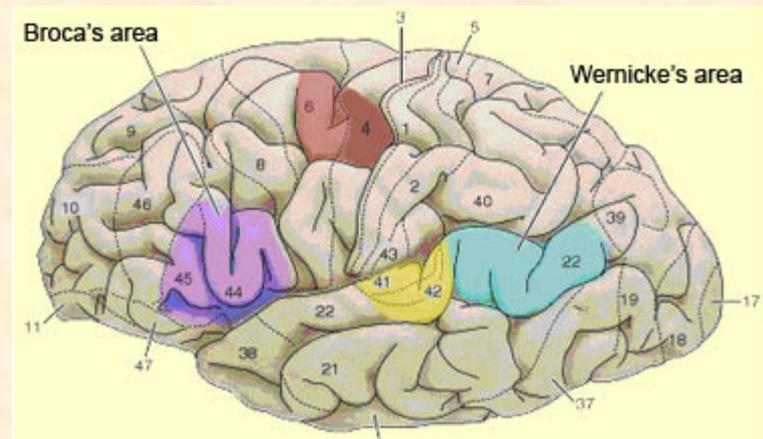


Language as Action

- We're arguing that the action chain framework should work equally well for verbal and non-verbal action.
- But how realistic is this?

A diversion: The neurophysiology of action

Broca's area is the main center associated with language production.

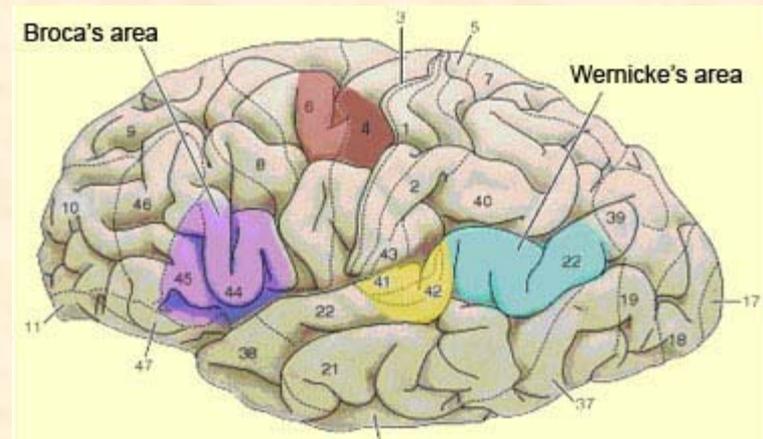


The neurophysiology of action

Some recent findings:

- Complex sequential action is also based in this area.
- Both production and recognition of action occur here*.
- Only meaningful action triggers a response.

* due to mirror neurons



Performative vs. Explanatory action

We apparently lack the ability to “explain” many of our activities.

But we have such ability for activities we are expert at.

Explanatory ability clearly develops later than the skill itself, and may even be a distinct activity.

We distinguish these two types of activity as

- Performative – a non-linguistic activity.
- Explanatory – the activity to explain and reflect on some performative activity.

Meaning

Its useful at this juncture to tackle meaning. The ultimate goal of HCI arguably is to help humans and computers “engage in the most meaningful joint action with the least effort by the human”

Lets stretch our pragmatic lens to produce a definition.

Meaning

The *meaning* of an action with respect to a *set of activities* is the *set of anticipated consequences* of that action.



Meaning – activities as context

Actions only have meanings wrt to activities, e.g. head tap.

Multiple activities are needed to interpret actions – e.g. was that a playful tap or a real blow?

Meaning is in general multi-vocal. We would like to know all the surfaced activities for the speaker when they produced the utterance.

Meaning and meeting of the minds

The more two people talk, the better the chance that they will surface the same set of activities.

It is further necessary that both actors should reach similar states within these activities, i.e. the aspects should line up well.

Example: Two players playing chess without a board by speaking moves out loud. Each has an aspect of chess-playing which is the layout of the pieces. If these are the same, the game can progress.

Meaning and consequences

Consequences are the outcomes that follow from an action, i.e. the other actions, change in aspect, and change in the object that follow from the action (usually this will be a set of probabilities).

These consequences are the minimum information that a listener needs to proceed with their next action choice.

A good action chain allows some flexibility, but performance can deteriorate rapidly as the actions on one side stretch outside of the “highly probable range”.

Activities and Motives

Identity is a set of silent narratives that cycle through our lives and connect particular actions to deep motives.

Connecting other images or stories to these narratives is a remarkably powerful motivator.

Since these narratives are surfaced most of the time, actions linked to them are very strongly favored.

Activities and Motives

Breakdowns in these narratives often lead to mental health problems.

Repair involves exposing and rebuilding these narratives (CBT and Narrative therapy).

Comments?

Comments?

Most surprising results?

Most interesting aspect?

Parts that need clarifying?

Parts that seemed useful (or not)?