Example: Implicit coordination

D: A docksider
M: A what?
D: Um
M: Is that a kind of dog?
D: No, it's a kind of um leather shoe, kinda preppy pennyloafer
M: Okay, okay, got it

Matching task transcript

(Brennan and Clark, 1996)

[After that, it was referred to as *the pennyloafer*.]

Example: Explicit coordination

(by contrastive focus reduplication)

1 **G**: She [Ann] loves Saddam Hussein.

2 **M**: I'm sure she doesn't *love* Saddam. I'm sure she's interested in him as a subject, you know.

$\mathsf{SL}^G(\textit{love}) = \{\texttt{love}, \texttt{intrst}\}$

$\mathsf{SL}^M(\textit{love}) = \{\texttt{love}, \texttt{intrst}\}$

3 **G**: Right. That's what I meant.

...

14 **G**: I kind of love her.

$\mathsf{DL}^G_{14}(\textit{love}) = \{\texttt{love}\}$

15 **M**: You mean you love her like... like she loves Saddam. Right?

$\mathsf{DL}^M_{14}(\textit{love}) = \{\texttt{intrst}\}$

16 **G**: No, no. I mean, like, I **love-her**-love-her.

$\delta^{cr}(\textit{love}, \textit{love-love}) = \texttt{love}$

Arrested Development, Season 1 Episode 14

home.cc.umanitoba.ca/~krussll/redup-corpus

Concepts

Concepts are records.

$$\texttt{bird} = \begin{bmatrix} x & : & \mathit{indv} \\ c_1 & : & \mathit{has\_fethers}(x) \\ c_2 & : & \mathit{bird\_shaped}(x) \end{bmatrix} \quad \texttt{eagle} = \begin{bmatrix} x & : & \mathit{indv} \\ c_1 & : & \mathit{has\_feathers}(x) \\ c_2 & : & \mathit{eagle\_shaped}(x) \\ c_3 & : & \mathit{flies}(x) \end{bmatrix}$$

Assuming that $\mathit{eagle\_shaped} \sqsubseteq \mathit{bird\_shaped}$ we have $\texttt{bird} \sqsubseteq \texttt{eagle}$. But we can also be more granular by defining them as concepts themselves, instead of **PTypes**:

$$\texttt{eagle\_shaped} = \begin{bmatrix} x & : & \mathit{indv} \\ y & : & \mathit{shape} \\ c_1 & : & \mathit{shape\_of}(y, x) \\ c_2 & : & \mathit{quality}_1(y) \\ c_3 & : & \mathit{quality}_2(y) \\ c_4 & : & \mathit{quality}_3(y) \end{bmatrix} \quad \texttt{bird\_shaped} = \begin{bmatrix} x & : & \mathit{indv} \\ y & : & \mathit{shape} \\ c_1 & : & \mathit{shape\_of}(y, x) \\ c_2 & : & \mathit{quality}_1(y) \\ c_3 & : & \mathit{quality}_2(y) \end{bmatrix}$$

Protoype semantics

The meaning of an expression is a multi-pointed set of concepts, i.e., a pair consisting of:

1. the interpretation set and
2. a (possibly empty) set of distinguished elements (prototypes)

$$\mathbf{p} = \langle \mathbf{p}^i, \mathbf{p}^p \rangle$$

with the restriction that $\mathbf{p}^p \subseteq \mathbf{p}^i$ is called the prototype set.

This induces a graded prototypicality measure on the whole interpretation set by considering how similar an interpretation is to its closest prototype.

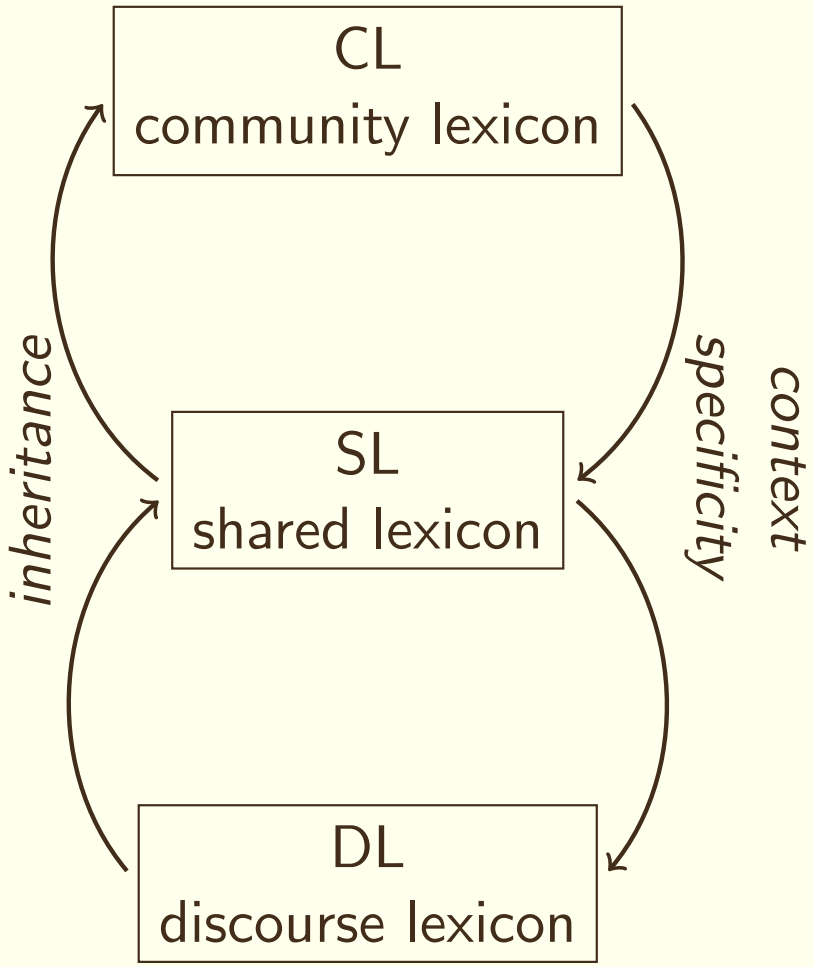
Lexicons

Given a lexicon L and an expression σ, the interpretation of σ under L is written

$$\mathsf{L}(\sigma) = [\![\sigma]\!]_{\mathsf{L}} = \langle |\sigma|_{\mathsf{L}}, \wr\sigma\int_{\mathsf{L}} \rangle,$$

where $|\sigma|_{\mathsf{L}}$ and $\wr\sigma\int_{\mathsf{L}}$ denote the interpretation set and the prototype set respectively.

The **Interactive Lexical Hierarchy**



- communal basis
- actional basis (past discourses)
- actional basis (current discourse)
- perceptual basis (context)

Explicit coordination

Given a coordination strategy c, the coordination function for c is denoted δ^c, which gives rise to a new interpretation in context:

$$\delta^c(\sigma, \tau, \rho_1, \rho_2, \dots) = \mathbf{p} = \langle \mathbf{p}^i, \mathbf{p}^p \rangle$$

- σ – The **topcial expression** is the expression that brought about the need for explicit semantic coordination (due to ambiguity or misalignment in DL)
- τ – The **coordinating expression** explicitly indicates the coordination strategy.
- $\rho_1, \rho_2, \dots$ – **auxiliary expressions** aid in the interpretation of the coordinating expression, etations are not subject to change

$$\mathsf{DL}_{t+1} := \Big(\mathsf{DL}_t \setminus \{\langle \sigma', \mathsf{DL}_t(\sigma') \rangle\}\Big) \cup \{\langle \sigma', \mathbf{p} \rangle\}$$

where σ' is either σ or τ depnding on pragmatic context.

Contrastive focus reduplication

1 **A**: Would you bring some salad to the barbecue?
2 **B**: Sure, should it be a SALAD-salad or is something like tuna salad ok?
3 **A**: SALAD-salad if possible.
...
14 **A**: Did you bring a salad?
15 **B**: Yes there is.

Semantic Role	Name	Pragmatic Role	
Topical Expr.	σ	standard form	*salad*
Coordinating Expr.	σ^{CR}	reduplicated form	SALAD-*salad*
Auxiliary Exprs.	ρ_1	indicative	*garden salad*
	ρ_1	contrastive	*tuna salad*

$$\delta^{\mathrm{CR}}(\sigma, \sigma^{\mathrm{CR}}, \rho_1, \rho_2) = \hat{\mathbf{p}} = \langle \hat{\mathbf{p}}^i, \wr\sigma\int_{\mathsf{DL}_0} \rangle$$

where:

1. $\hat{\mathbf{p}}^i$ is a restriction of $|\sigma|_{\mathsf{DL}_0}$ around $\wr\sigma\int_{\mathsf{DL}_0}$,
2. if ρ_1 is present, there is a $p \in \hat{\mathbf{p}}^i$ and $q \in |\rho_1|_{DL}$ such that $q \sqsubseteq p$, and
3. if ρ_2 is present, there is no $p \in \hat{\mathbf{p}}^i$ and $q \in |\rho_2|_{DL}$ such that $q \sqsubseteq p$.