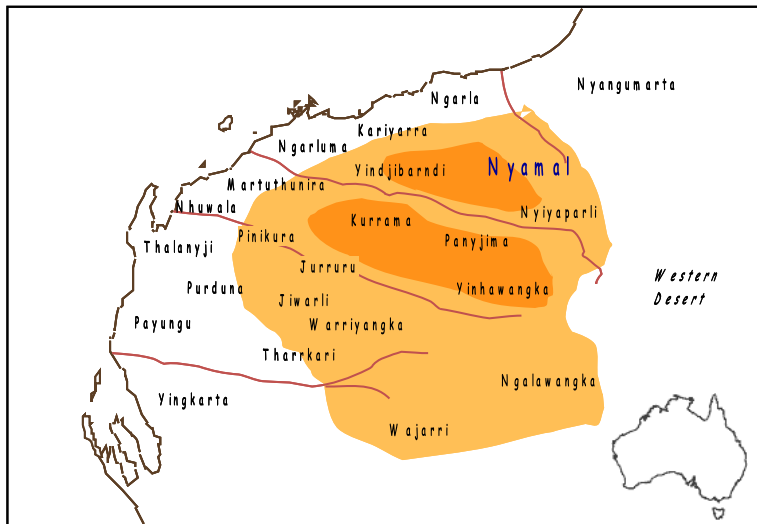# Change of Stage vs. Change-of-Individual
## The Nyamal Usitative

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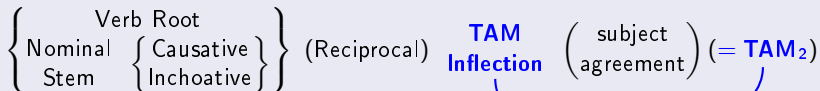Paris

# Pilbara languages

# Nyamal

**Relationships**

- Pama-Nyungan family (largest Australian lg. Family)
- relatively conservative member of Pilbara language group

**Broad typology**

- highly agglutinating, mainly dependent-marking
- subject agreement on verbs in finite clauses
- complex (multiple) case marking system (Dench 2009)
- complex subordinate clause patternsD s
- witch-reference, special case selection strategies depending on clause type (Dench 2006)
- few monomorphemic verb roots ($< 70$): verb stems are derived
- no formal distinction between N and Adj classes

# Nyamal verb structure

$$\left\{\begin{array}{c}\text{Verb Root} \\ \text{Nominal} \quad \left\{\begin{array}{c}\text{Causative} \\ \text{Inchoative}\end{array}\right. \\ \text{Stem}\end{array}\right\} \quad (\text{Reciprocal}) \quad \textbf{TAM Inflection} \quad \left(\begin{array}{c}\text{subject} \\ \text{agreement}\end{array}\right) (= \textbf{TAM}_2)$$

Verb stems are comprised of either:

- a mono-morphemic verb root
- a nominal stem (root + optional adnominal inflection) plus either an 'inchoative' or 'causative' verbalising suffix
- one of the above plus the reciprocal derivational suffix

Some TAM inflections involve a discontinuous clitic element following the subject agreement suffix (or occasionally a non-subject post-verbal pronoun)

# Nyamal verb classes

Verb stems fall into one of two open conjugation classes,* which determine the form of the final TAM inflection.

The case frames of verb stems (in finite clauses) are:

| intransitive | NOM | *nyina*-∅ 'sit, stay' | |
|---|---|---|---|
| extended intransitive | NOM DAT | *wajarri*-∅ 'look for' | } ∅-class |
| transitive | ERG ACC | *punga*-L 'hit' | |
| ditransitive | ERG ACC DAT | *manya*-L 'give' | } L-class |
| | ERG ACC LOC | *jurtima*-L 'tell' | |

There are two irregular verbs: *ya(na)*- 'go', *kati(nya)*- 'carry, take/bring'

**caveat: the INCH conjugation class is *not* semantically inchoative**

# Nyamal verb classes

There are just two verbs in the L-conjugation that do not fit the characterisation of the class as 'transitive':

wurnta-L   come                          wurtama-L   wait for

The conjugation classes are 'eventualizing functions' (= Aktionsart parameters) (Caudal et al 2009a, 2009b):

- ∅-conjugation includes:
  - atelic CoS verbs,
  - atelic inaccusative CoS verbs,
  - activity verbs deprived of a controler/causer subject
- L-conjugation includes
  - accomplishments
  - achivements & activities with 'external causation'

selection of TAM suffix forms is determined by conjugation class. . .

# The usititative in previous work

"The usitative is a past habitual or customary past. It describes an action assumed to have occurred more than once in the (usually) remote past and to be typical of a past. In this way, the usitative neatly parallels the present. Both describe a customary, but the usitative is specified as ocurring in the past."

"The usitative often occurs in narratives describing a customary sequence of activities. The difference between the usitative and the present in such narratives is that the usitative describes a practice that is no longer followed."

"Historical narratives, usually recounting personal history, use similar sequences of usitative verb forms ... [T]he usitative can be used even where an event occured only once (and is thus not habitual)."

## The usitative: basic facts

Generally describes past habits without current relevance
Nyamal usitative admits two aspectual readings, (aspectual
viewpoint, Smith 1991):

Imperfective viewpoint uses: past habits/properties such that given
temporal perspective interval $t$, propositional content
$\varphi$ it describes (noted ), $t \subset e$

Perfective viewpoint uses: $e : \varphi \subset t$

$\rightarrow$ suggests that the usitative is aspectually underspecified (very
much like English *used to*)

# The usitative: imperfective uses

(i) past habits/practices that are no longer followed:

(1)  Yamu-rna    ngaja     pirrapirra-karni
     goUSIT-1sg  1sgNOM    pearlshell-ALL
     I used to go for pearlshell.

# The usitative: imperfective uses

(i) past habits/practices that are no longer followed:

(2)     Malya-ngarri-yamu papa-ngka, kunyjakunyja-rri-yamu.
wet-INCH-USIT     water-LOC soft-INCH-USIT
Kunyjakunyja-rri-yamu, purri-lkamu-ya. Purri-lkamu-ya
soft-INCH-USIT          pull-USIT-3pl    pull-USIT-3pl
papa-ngka-kulya. Parlkarra-la, wanyja-lkamu-ya parlkarra-la
water-LOC-ABL aside-LOC    put-USIT-3pl     aside-LOC
pujaparri-yarta. Pujaparri-yamu, punga-lkamu-ya
dry-PURP         Dry-USIT        hit-USIT-3pl
warnta-karta-lu,    yurlayurla-rri-yarta.
stick-PROP-ERG frayed-INCH-PURP
It would get wet in the water, get soft. It would get soft and they
would pull it out. They pull it out of the water. On one side,
they'd put it aside to to dry. It would dry out and they would hit
it with a stick to fray it.

# The usitative: perfective uses (I)

(ii) 'existential hapaxes' (in the sense of Onfray 1989), i.e. turning points in an individual's life, radically altering its nature; such readings typically occur with a limited range of event descriptions, cf. *marry*, *leave* (*a job*, *a place*...), *die*...):

(3)     Then he malkarri-ngarri-yamu    now
                    pass.away-INCH-USIT
        And then he passed away.

(4)     Pirirri-ngarri-yamu-ngka pala-ngka?
        man-INCH-USIT-2sg       that-LOC
        You came to be a man there?

# The usitative: perfective uses (I)

(ii) 'existential hapaxes' (in the sense of Onfray 1989), i.e. turning points in an individual's life, radically altering its nature; such readings typically occur with a limited range of event descriptions, cf. *marry*, *leave* (*a job*, *a place*. . . ), *die*. . . ):

(5)     Kati-yamu nganya   warilangu-karni
        take-USIT 1sgACC Warralong-ALL
        I was taken to Warralong Station.

(6)     pirirri-ngarri-yamu-ngka Cane.River-la       nyunta
        man-INCH-USIT-2sg       Cane.River-LOC 2sgNO
        You became a man at Cane River meeting camp.

# The usitative: perfective uses (II)

(iii) Life-period ('individual-level period'): bounded period at the end of which the subject of the predication changes (end of one's childhood/education period...)

(7)     Parrirti-ngarri-yamu-rna      yari-ngka
        grown.up-INCH-USIT-1sg Yari-LOC
        I grew up at Yari Station.

# Accounting for the data

The usitative is aspectually underspecified

NOT a case of a special kind of perfective viewpoint tense
therefore its perfective/imperfective readings are triggered by the
semantic content of $\varphi$ (sentential prop. cont.) + interpretative
contextual constraints

The issue we face is one of *ontological characterization* of $\varphi$
accounting for the observed phenomena

## Accounting for the data

Core role here played by the notion of change of individual, an ontological correlate of the notion of *change of state*, but applied to individuals (as opposed to mere *stages of individuals*)

Stages vs. Individuals: in the sense of Carlson (1977, 1979, 1986)

# Ontology (1)
## Background

Individuals vs. Stages of individuals                    Carlson (1977)

- individual = entity conceived independently of its spatio-temporal extension
- stage = spatio-temporal "slice" of individual
- an individual is realized by its successive stages
- stages ≈ events

# Ontology (2)
## Model

$\mathcal{M} = \langle \mathcal{A}, \mathcal{E}, S, F \rangle$

- $\mathcal{A}$ = a set of individuals
- $\mathcal{E}$ = a set of events (hence stages) (f.t.s.o. simplification times are special cases of events)
- $S$ = a set of relations and functions structuring $\mathcal{A}$ and $\mathcal{E}$
- $F$ = interpretation function

# Realisation relation **R**
Carlson (1977)

**R** relates individuals to stages

- **R** is a relation on $\mathcal{E} \times \mathcal{A}$      ($\mathbf{R} \in S$)
- $\mathbf{R}(e, x)$ means that $e$ is a stage of $x$.
- It also means that $x$ is involved in $e$.
  Thus **R** stands for an underspecified theta-role (assuming a Neo-Davisonian event semantics)
- The set $\{e \in \mathcal{E} \mid \mathbf{R}(e, x)\}$ is somehow the "story" (or life) of $x$.

# Temporal structure on $\mathcal{E}$

We assume (in $S$) the usual temporal and mereological organization of events (and times).

- $e < e'$ means that $e'$ is "later than" $e$
- $e \ll e'$ means that $e'$ is later than $e$ and does not abut with it
- $e \subset e'$ means that the temporal extension of $e$ is included in that of $e'$
- $e \sqsubset e'$ means that $e$ is a subevent of $e'$
- etc.

# Transition relation $\preccurlyeq$

$\preccurlyeq$ is a partial order on $\mathcal{A}$ and $\mathcal{E}$     ($\preccurlyeq \in S$)
- If $x$ and $y \in \mathcal{A}$, $x \preccurlyeq y$ means that "$x$ carries on with $y$" or "$x$ becomes $y$"
- If $e$ and $e' \in \mathcal{E}$, $e \preccurlyeq e'$ means that "$e'$ is an outcome of $e$"

$\preccurlyeq$ is antisymmetric:
- If $x \preccurlyeq y$, then $y \not\preccurlyeq x$.

$\preccurlyeq$ is a "meet" relation:
- For any $x$ and $y \in \mathcal{A}$ or $\mathcal{E}$, if $x \preccurlyeq y$, there is no $z$ s.t. $z \neq y$ and $x \preccurlyeq z$.

$\preccurlyeq$ is (very) partial:
- most individuals and events are not $\preccurlyeq$-related.

# M-Inds

- The notion of change of individual is based on $\preccurlyeq$:
  $x \preccurlyeq y = $ "individual $x$ changes into individual $y$"

- We need to identify a continuity across the changes.

- Assume that $\mathcal{A}$ includes a special sort of individuals M-Ind (as meta-individuals).

For any M-Ind $k \in \mathcal{A}$ there is at least one individual $x \in \mathcal{A}$ s.t. $\mathbf{R}(x, k)$.
All the individuals realising a M-Ind are related in a $\preccurlyeq$-chain.

# Types of predicates (S-level)

Following a Neo-Davidsonian event semantics, S-level predicates are predicates on events.

- **States or activities** descriptor: denotes a (set of) events (in $\mathcal{E}$)
  - *be sick, swim*
  - $\lambda e\, P(e)$

- **Changes of state** descriptor: (indirectly) denotes (a set of) triplets of events related with $\preccurlyeq$
  - *become sick, go somewhere*
  - $\lambda e \lambda e_1 \lambda e_2 [e_1 \preccurlyeq e \preccurlyeq e_2 \wedge P(e) \wedge P_1(e_1) \wedge P_2(e_2)]$
    (basically $P_1(e) \rightarrow \neg P_2(e)$)

NB: we assume that the arguments are introduced separately by **R** and theta-roles assignment.

# Types of predicates (I-level)

I-level predicates only apply to individuals.

- I-level property: denotes (a set of) individuals (in $\mathcal{A}$)
  - *be a man, used to swim*
  - $\lambda x\, P(x)$

- Change of individual descriptor: (indirectly) denotes (set of) pairs of individuals related with $\preccurlyeq$
  - *become a man, become a grown up*
  - $\lambda y \lambda x [x \preccurlyeq y \wedge P_1(x) \wedge P_2(y)]$
    (basically $P_1(x) \rightarrow \neg P_2(x)$)

# The "usitative constraint"

The usitative is aspectually underspecified BUT it requires the verbal predicate to be I-level:

USIT+V $\rightsquigarrow \lambda u \, P(u)$ ; $u$ : Ind

P is either V's lexical entry or a complex predicate computed from V's entry and contextual factors (a.o.).
Thus:

USIT+V $\rightsquigarrow \lambda u \, V(u)$ or $\lambda u \, \xi(V)(u)$ ; $u$ : Ind

$\xi$ is a contextual operator (function) from predicates to predicates

# From S-level to habits

A habit is expressed by an I-level predicate.

(8)     Kayarri-yamu-ma
        swim-USIT-TEMP-1sg
        I used to swim

**Carlsonian view**

$\lambda x \, \text{swim}(x)$     (be a swimmer)

or

**$\xi = $ HAB operator (Boneh & Doron 2008)**

$\lambda x \, \text{HAB}_{\text{MOD}}(\lambda e \, \text{swim}(e))(x)$   (habit derived from s-level predicate)

(except that $\text{HAB}_{\text{MOD}}(P)$ is a property of individuals rather than states)

# Changes of individual

(9)     Pirirri-ngarri-yamu-ngka pala-ngka?
        man-INCH-USIT-2sg        that-LOC
        You came to be a man there?

### Lexicalized C.o.I.

Pirirri-INCH $\rightsquigarrow \lambda y \lambda x[x \preccurlyeq y \land \neg \mathsf{man}(x) \land \mathsf{man}(y)]$

The usitative constraint is met.

# From C.o.S. to C.o.I. (I)

(10)     Kati-yamu nganya    warilangu-karni
         take-USIT 1sgACC Warralong-ALL
         I was taken to Warralong Station.

---

**Be taken to WS** (s-level C.o.S.)

$\lambda e \lambda e_1 \lambda e_2 [e_1 \preccurlyeq e \preccurlyeq e_2 \land \mathsf{take}(e) \land \neg \mathsf{atWS}(e_1) \land \mathsf{atWS}(e_2)]$

---

**Be taken to WS** (i-level C.o.I.)

$\lambda y \lambda x [x \preccurlyeq y \land \neg \mathsf{atWS}(x) \land \mathsf{atWS}(y)]$

---

atWS is now construed as an i-level predicate ($\approx$ "to live at Warralong Station") or $\mathsf{atWS}(x) = \mathsf{HAB}_{\mathsf{MOD}}(\lambda e \, \mathsf{atWS}(e))(x)$

# From C.o.S. to C.o.I. (II)

How do we get from

$\lambda e \lambda e_1 \lambda e_2 [e_1 \preceq e \preceq e_2 \wedge \text{take}(e) \wedge \neg\text{atWS}(e_1) \wedge \text{atWS}(e_2)]$

to

$\lambda y \lambda x [x \preceq y \wedge \neg\text{atWS}(x) \wedge \text{atWS}(y)]$ ?

# From C.o.S. to C.o.I. (II)

How do we get from
$\lambda e \lambda e_1 \lambda e_2 [e_1 \preceq e \preceq e_2 \wedge \text{take}(e) \wedge \neg\text{atWS}(e_1) \wedge \text{atWS}(e_2)]$
to
$\lambda y \lambda x [x \preceq y \wedge \neg\text{atWS}(x) \wedge \text{atWS}(y)]$ ?

- The s-level predicate describes a stage ($e$) which is actually the last stage of $x$.
- Intuition: Last stage contextually salient w.r.t. a certain individual is the 'change of individual' boundary just like the last subpart of a any given event/stage is the boundary marking a C.o.S.

# From C.o.S. to C.o.I. (II)

How do we get from
$\lambda e \lambda e_1 \lambda e_2 [e_1 \preccurlyeq e \preccurlyeq e_2 \wedge \text{take}(e) \wedge \neg \text{atWS}(e_1) \wedge \text{atWS}(e_2)]$
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- The s-level predicate describes a stage ($e$) which is actually the last stage of $x$.
- Intuition: Last stage contextually salient w.r.t. a certain individual is the 'change of individual' boundary just like the last subpart of a any given event/stage is the boundary marking a C.o.S.

$\lambda y \lambda x \exists e [x \preccurlyeq y \wedge \neg \text{atWS}(x) \wedge \text{atWS}(y) \wedge T(e) \wedge \mathbf{R}(e, x)]$

# From C.o.S. to C.o.I. (III)

USIT (by means of $\xi$) coerces C.o.S. into C.o.I. at the level of the event structure.

- Change of state:
  Preparatory stage ($e_1$) + Inner stage ($e$) + Result stage ($e_2$)
- Preparatory stages and Result stages descriptors are converted into I-level properties (e.g. by means of $HAB_{MOD}$)
- But the Inner stage is typically an event and remains a stage. So it fits into the ("I-level") picture by bounding (or "closing") the individual whose it is a stage.
- To bound an individual amounts to relate it to another one with $\preccurlyeq$.

# A more complete picture

(13)     Kati-yamu nganya    warilangu-karni
         take-USIT  1sgACC  Warralong-ALL
         I was taken to Warralong Station.

Who is "I"?

# A more complete picture

(13)     Kati-yamu nganya    warilangu-karni
         take-USIT  1sgACC  Warralong-ALL
         I was taken to Warralong Station.

Who is "I"? The speaker's M-Ind ($k_s$).

$\exists y \exists x \exists e[x \preccurlyeq y \wedge \neg \text{atWS}(x) \wedge \text{atWS}(y) \wedge T(e) \wedge \mathbf{R}(e, x) \wedge$
$\mathbf{R}(x, k_s) \wedge \mathbf{R}(y, k_s)]$

M-Inds are not arguments of predicates; they are merely contributed by proper nouns and personal pronouns.
Thus there is only one "subject" in the semantic representation.

$+$ C.o.I. $\models$ existence of a C.o.S. ($e$).

# Lifting the underspecified aspect

- Imperfective ← assignment of an I-level (temporally unbounded) property;
- Perfective ← expression of a C.o.I. whose construction points to a salient stage (event): a C.o.S.

Now if we assume that the aspectual contribution of the usitative is aspectually underspecified, it follows from the above representations that a C.o.I. entails a C.o.S., i.e. a perfective interpretation.

The aspectual underspecification is then lifted, and the usitative is interpreted correctly.

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