

# Nominalizations: a lexical semantic proposal

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# Goal

Considering the framework of MGL (Montagovian Generative Lexicon), to formalize deverbal polysemous nouns, as *construction*. A clean and rich type ontology for nominalizations helps to make clear the different meanings that these words can assume and how the interactions between them work.

# Outline

- Montagovian Generative Lexicon
- Eventive Nominalizations - Brazilian Portuguese case
- Application
- Co-predication
- Conclusion

# Montagovian Generative Lexicon

Proposed by Retoré, Mery, Bassac (2007, 2010) and Mery(2011), it is a type-theoretical account à la Montague semantics, inspired by Generative Lexicon, Montague semantics and F system (GIRARD, 1971).

Montague semantics with several types to  $e$  and, at least, one type  $t$ ;

Based on System F, a second-order system proposed by Girard(1971) that allows us quantifying over types.

# Lexical entry - MGL

- one main  $\lambda$ -term (mandatorily used once);
- optional  $\lambda$ -terms, if needed (used when needed, possibly several times).

$\langle \lambda x^{animal}.(salmon^{animal \rightarrow t} x);$

$Id = \lambda x^{animal}.x, \quad f_M^{animal \rightarrow food}, \dots \rangle$

(1) “This **salmon** is fast.” (main  $\lambda$ -term)

(2) “We had **salmon** last night”. ( $f_M^{animal \rightarrow food}$ )

# Polysemous Deverbal Nouns

Here, we focus on “action nominals”/ “**eventive** nominalizations”: formed by a verb base and headed by suffixes conventionally named as “transpositional” in the linguistic literature.

(3) At noon, the authorities suddenly **suspended** the celebrations.

(4) The sudden **suspension** of the celebrations by the authorities

# Brazilian Portuguese Eventive Nominalizations

- Seven different meanings

Event (**v**), Resultative State (**state**), Physical Result ( $\phi$ ), Abstract **Result**, Collectivization, Locative, Instrument

- Nine nominalizer suffixes

-ção, -mento, -ura/-tura/-dura, -agem, -da/do, -ncia/-nça, -ia, -mo, zero morpheme

*construção* (construction), *estacionamento* (parking), *assadura* (baking), *lavagem* (washing), *parada* (stop), *falência* (bankruptcy), *fotografia* (photography), *acrécimo* (addition), *registro* (register)

# Examples

(5) *A **assinatura** do contrato levou três horas.* (**event**)

The **signing** of the contract lasted three hours.

(6) *A **assinatura** dura três meses.* (resultative **state**)

The **subscription** lasts three months.

(7) *A **assinatura** está torta.* (**physical result**)

The **signature** is crooked.

(8) *A **assinatura** custou caro.* (abstract **result**)

The **signing** was expensive.

(9) *A **administração** está louca.* (collectivization).

The **administration** is crazy.

(10) *A **saída** é aqui.* (locative)

The **way out** is here.

(11) *A **obturação** está quebrada.* (instrument).

The **filling** is broken.



# Suffix -ura

around 100 words formed by **-ura** on Brazilian Portuguese dictionaries;

non-productive suffix;

**participle** + *ura* =

**aberto** + *ura* = *abertura* (opening, aperture)

**assinado** + *ura* = *assinatura* (signing, signature)

**escrito** + *ura* = *escritura* (writing, scripture, writ)

**assado** + *ura* = *assadura* (baking, baked, rash)

## Suffix *-ura* and polysemy

(12) *A **assinatura** do contrato atrasou três meses.* (event)  
The **signing** of the contract was delayed three months.

(13) *A **assinatura** no contrato era minha.* (physic result -  $\phi$ )  
The **signature** on the contract was mine.

(14) *Você pode cancelar a **assinatura**.* (resultative state)  
You may cancel such **subscription**.

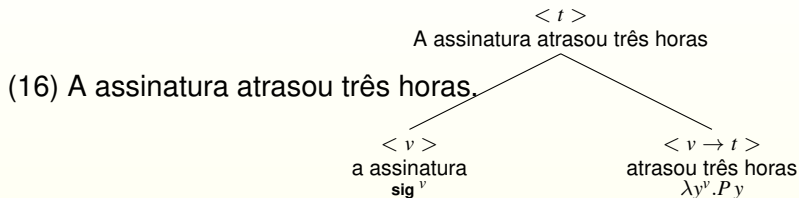
(15) *Sua **assinatura** marca um novo estágio importante.* (abstract result)  
Its **signing** marked an important new stage.

## Assinatura

$\langle \lambda x^v. (assinatura^{v \rightarrow t} x);$

$id = \lambda x^{event}. x, \quad f_R^{event \rightarrow result}, \quad f_{Ph}^{event \rightarrow \phi}, \quad f_{RE}^{event \rightarrow state} \rangle$

# Normal application



$$\lambda y^v . P y(\mathbf{sig}^v)$$

$$P(\mathbf{sig}^v)$$

$$P = [[\text{atrasou três horas}]]$$

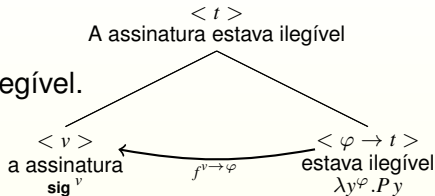
$$\mathbf{sig}^v = (\iota\{v\}(\text{assinatura}))^v = [[\text{a assinatura}]]$$

$$v = \text{event}$$

(16') The signing was delayed three hours.

# Transformation

(17) A assinatura estava ilegível.



$$(\lambda y^{\phi} \text{ilg}^{\phi \rightarrow t} y)(\text{sig}^v)$$

$$(\lambda y^{\phi} \text{ilg}^{\phi \rightarrow t} y)(f^{v \rightarrow \phi} \text{sig}^v)$$

$$(\lambda y^{\phi} \text{ilg}^{\phi \rightarrow t} y)(f \text{sig}^v)$$

$$\text{ilg}^{\phi \rightarrow t} (f \text{sig})^{\phi} : t$$

$$\text{sig}^v = (\iota\{v\}(\text{assinatura}))^v = [[\text{a assinatura}]]$$

$$P = \text{ilg}$$

(17') The signature was illegible.

# Co-predication

In prototypical sentences, one token of a word can not have both the processual and the resultative readings(cf. Pustejovsky(1995), Jezek & Melloni (2009)):

\* (18) “A **assinatura** estava ilegível e atrasou três horas.”

\* The **signing/signature** was illegible and delayed three hours.

(19) **Barcelona** a gagné trois matchs et organisé les jeux olympiques.

**Barcelona** won three games and organized the Olympic Games.

(20) (?) **Barcelona** a gagné trois matchs et organisé la santé publique.

(?) **Barcelona** won three games and organized public health.

# Co-predication in MGL

“and” =  $\Lambda\alpha\Lambda\beta\lambda P^{\alpha\rightarrow t}\lambda Q^{\beta\rightarrow t}\Lambda\xi\lambda x^\xi\lambda f^{\xi\rightarrow\alpha}\lambda g^{\xi\rightarrow\beta}\&(P(f\ x))(Q(g\ x))$

$\alpha, \beta, \xi$  are type variables

$t$  is a type

$P, Q$  are predicate variables

$x$  is a term variable

$f, g$  are functions (optional  $\lambda$ -terms)

The optional- $\lambda$  terms prevent type clash.

They are rigid or flexible.

global (rigid) vs local (flexible) operations

# Co-predication in MGL: global operations

## Global operation (rigid function)

just one transformation is allowed, which is applied globally

(21) \*A **assinatura** estava ilegível e atrasou três horas.

\*The **signing/signature** was illegible and delayed three hours.

$f$  is rigid, applied globally       $Q = [[\text{atrasou três horas}]] = \text{dem}^{v \rightarrow t}$

\*  $\&(P(f^{v \rightarrow v} \text{sig}^v))(Q(f^{v \rightarrow v} \text{sig}^v))$        $P = [[\text{estava ilegível}]] = \text{ilg}^{\phi \rightarrow t}$



# Co-predication in MGL: local operations

## Local operation (flexible function)

different transformations are allowed to be used

(22) A **assinatura** demorou horas e custou caro.  
The **signing** lasted hours and was expensive.

$$\begin{aligned} &\&(P(f^{v \rightarrow v} \mathbf{sig}^v))(Q(g^{v \rightarrow result} \mathbf{sig}^v)) \\ &\&(P(f \mathbf{sig}))^v(Q(g \mathbf{sig}))^{result} \end{aligned}$$

$P = [[\text{demorou horas}]] = \text{dem}^{v \rightarrow t}$

$Q = [[\text{custou caro}]] = \text{cus}^{result \rightarrow t}$

$\alpha = v \quad \beta = result \quad \xi = v$

$x = \mathbf{sig}^v = [[\text{a assinatura}]]$

# Conclusion

Montagovian Generative Lexicon seems to be a useful tool to formalize the behavior of polysemous nouns in different natural languages.

A strong and well defined type ontology brings us insights about how different meanings interact on co-predication contexts.

# References

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Thank you!

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# Deinite article: assinatura

$$a = \Lambda\alpha.(\alpha \rightarrow t) \rightarrow \alpha$$

$$\text{assinatura} = sig^{v \rightarrow t}$$

$$a^v = \iota^{(v \rightarrow t) \rightarrow v}$$

$$a \text{ assinatura} = \iota^{(v \rightarrow t) \rightarrow v}(sig^{v \rightarrow t})$$

$$(\iota(sig))^v$$