



# Joint Development of Lexicon and Constructicon in FrameNet

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# Background

- 2008: FrameNet Brasil launched
- 2010: Brazilian Portuguese Constructicon launched
  - 2013: first family of constructions made available: the Para Infinitive Family
  - 2015: constructions in the English Constructicon are expanded into Portuguese
  - 2016: core constructions added

Firefox Arquivo Editar Exibir Histórico Favoritos Ferramentas Janela Ajuda

FrameNet Brasil - WebTool FrameNet Brasil WebTool MFN WebTool

200.131.61.179/maestro20/index.php/fnbr20/main Pesquisar

FrameNet Brasil WebTool 2.0

Admin Auth Structure Annotation Reports Grapher Editor Utils Messages Tools ADMIN Language torrent

### Constructions

Search Cxn Search CE Only Active: ☐ No

- Constructions
  - Absolute\_clause
  - Active\_Transitive
    - Predicate
      - cxn\_Complement\_Taking\_Verb\_Phase
      - Subject
        - cxn\_Determined\_noun\_phrase
    - Adjective\_as\_nominal.abstract
    - Adjective\_as\_nominal.anaphoric
    - Adjective\_as\_nominal.people
    - Adjuntiva\_final\_infinitiva
    - As.role
    - Aspectual\_iterativa\_dar
    - Attributive\_degree\_modification
    - Bare\_argument\_ellipsis
    - Bare\_noun\_phrase.role
    - Be\_present-participle
    - Be\_recip
    - Cláusula\_relativa
    - Cláusula\_relativa\_infinitiva
    - Cláusula\_relativa\_infinitiva\_para
    - Comparison
    - Comparison\_equality
    - Comparison\_equality\_metalinguistic
    - Comparison\_inequality
    - Complement\_Taking\_Verb\_Phase
    - Comp\_Noun\_Phase
    - Coordination
    - cxn\_a

### Active\_Transitive [cxn\_act\_trans\_dir]

**Definition**

[NP[V NP]] construction type. This construction exhibits an external Subject argument and a Predicate. The internal argument is a Direct Object.

**Example(s)**

**Construction Elements**

**Predicate** [ce\_predicate\_act\_trans\_dir] The Predicate is composed of a verb and its direct object.

**Subject** [ce\_subject\_act\_trans\_dir] The external argument of the complement taking VP.

**Relations**

rel\_evokes Transitive\_action

rel\_inheritance\_cxn\_inv Subject-predicate

TRACY 280.9 ms

# Initial Questions

- What if constructions were modeled in connection to frames the same way lexical units are?
- What if constructions could be related to one another based on their internal structure the same way frames are?
- What if constructional and framal structures were connected?

# Initial Problems

- How to model constructions in connection to frames using the Desktop?
- How to model construction to construction relations using the Desktop?
- How to decide on what belongs where?

# Initial Solutions

- Build a new DB management + annotation tool
  - WebTool
- Define criteria for deciding whether a given piece of language should belong in the lexicon or the constructicon
  - Lexical specificity
  - Frame evocation
  - Valence pattern variation

# Constructional Modeling in 4 steps

## 1. Definition

- In prose definition for human readers

## 2. Constituency

- CE creation

## 3. Unification

- Construction to Frame (CE to FE) mapping

## 4. Constraints

- CE properties

# Definition

## Split\_object [cxn\_split\_object]

### Definition

NP\_V\_NP construction type. This construction exhibits an external argument, the Subject, and a Predicate. The internal argument is a direct object. There's a part / whole relationship between the arguments, and both of them undergo some event described by the verb.

- Ex:
  - Maria quebrou o braço
  - *Maria broke the arm*
  - O celular quebrou a tela
  - *The cell phone broke the screen*



# Constituency

## Split\_object [cxn\_split\_object]

### Definition

NP\_V\_NP construction type. This construction exhibits an external argument, the Subject, and a Predicate. The internal argument is a direct object. There's a part / whole relationship between the arguments, and both of them undergo some event described by the verb.

### Example(s)



### Construction Elements

**Predicate [ce\_predicate\_split\_object]** The Predicate consists of a VP and NP direct object.

**Subject [ce\_subject\_split\_object]** The subject is a NP

# Unification

## Split\_object [cxn\_split\_object]

### Definition

NP\_V\_NP construction type. This construction exhibits an external argument, the Subject, and a Predicate. The internal argument is a direct object. There's a part / whole relationship between the arguments, and both of them undergo some event described by the verb.

### Example(s)



### Construction Elements

**Predicate [ce\_predicate\_split\_object]** The Predicate consists of a VP and NP direct object.

**Subject [ce\_subject\_split\_object]** The subject is a NP

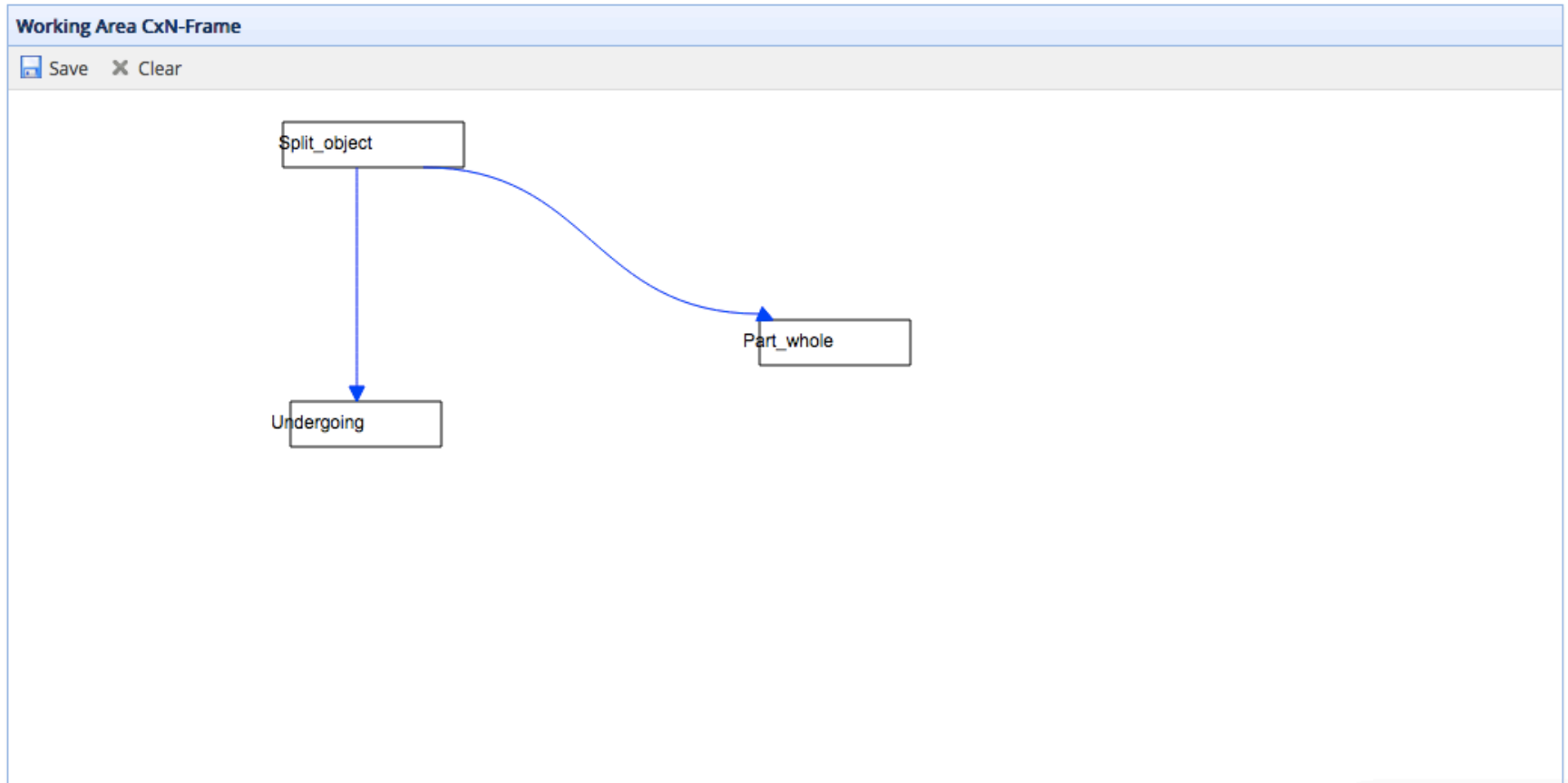
### Relations



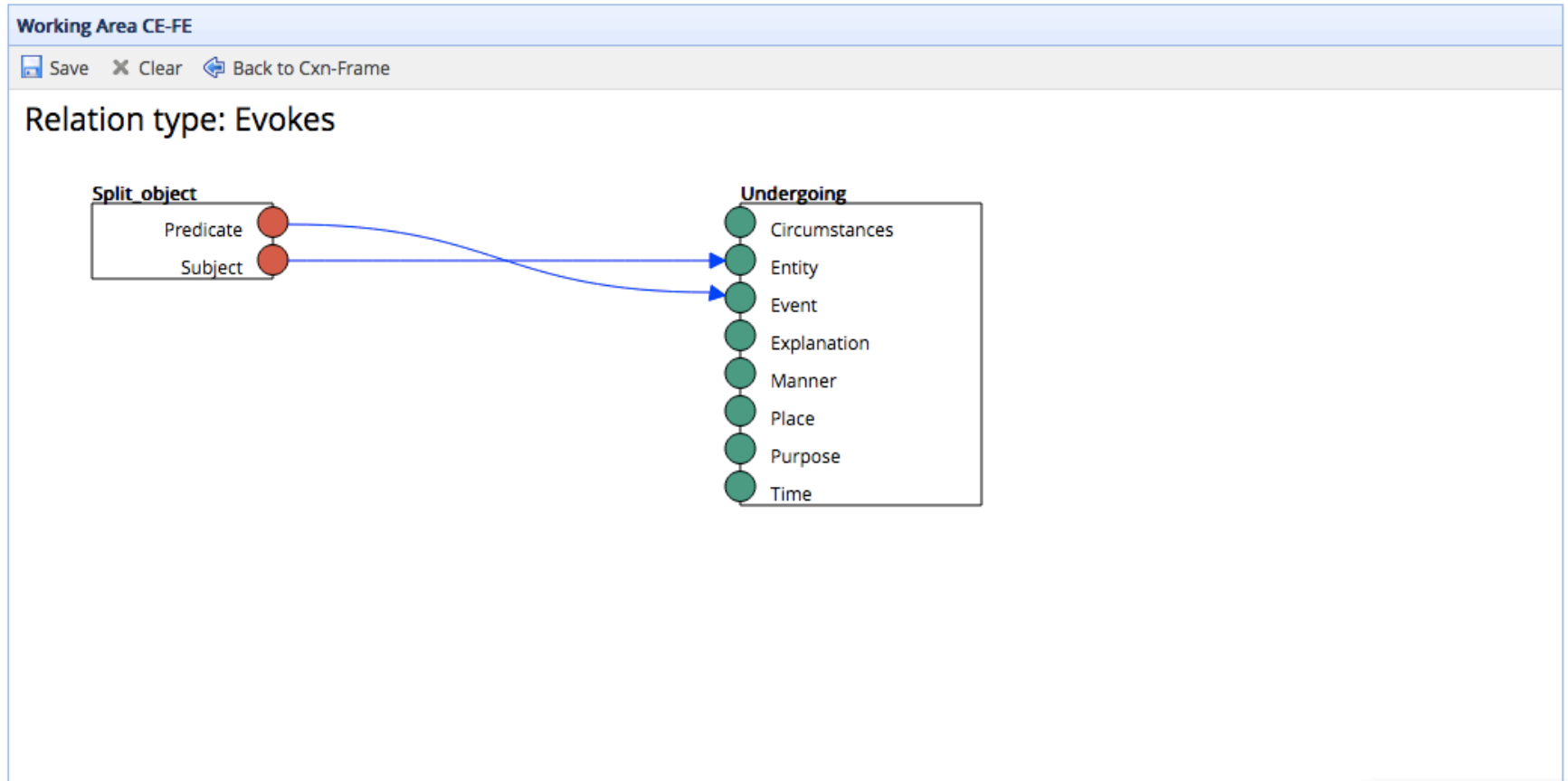
rel\_evokes                      Part\_whole, Undergoing

rel\_inheritance\_cxn\_inv      Subject-predicate

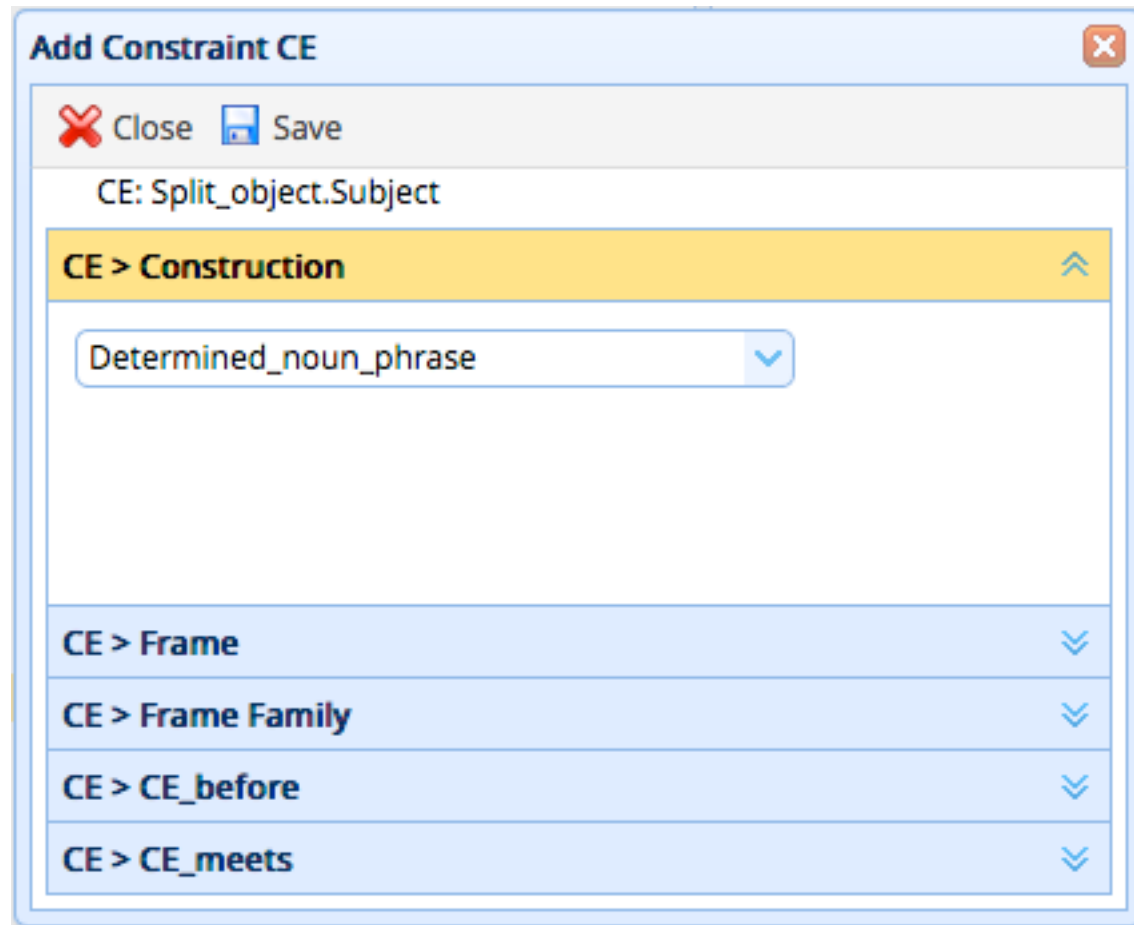
# Unification



# Unification

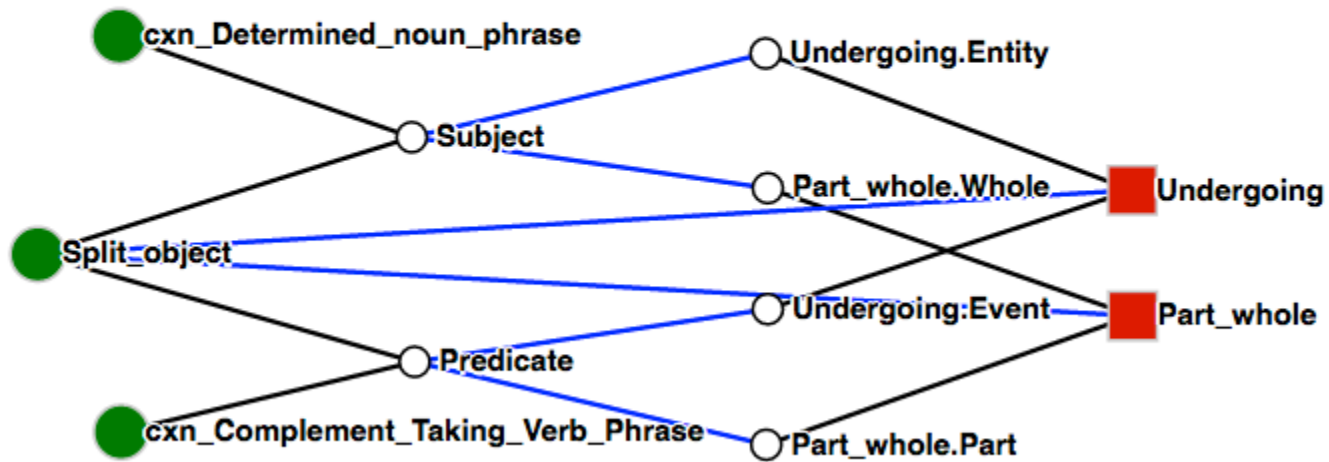


# Constraints



# Model

Split\_object Graph



# New Questions

- To what extent having both a lexicon and a construction should change the way FN-Br is built?
  - Do we need extra-thematic FEs?
  - Do we need F-2-F relations such as Causative\_of and Inchoative\_of?
  - Do we need new F-2-F relations?
  - Do we need clear cut criteria for deciding on division of labor?

# New Problems

- How to deal with...
  - coercion?
    - Ed hammered the metal safe (Thanks, Hans!)
  - the interaction between lexical and constructional semantics?
    - Ela amanheceu morta
    - *She dawned dead*
  - collocational restrictions?
    - She burst into tears
    - ?? She burst into cogitating the best solution to the issue
  - with semi-productivity?
    - Light as a feather
    - ?? Light as graphene



# New Possibilities

- Redundancy is not a problem
  - Information in the Lexicon and in the Constructicon are complementary
- Frame bearing constructions may contribute to better frame definition
  - Non-lexical frames may be validated against corpus evidence

# Impact for Multilingual Alignment

- Constructions may serve as “alignment handles” for languages with different lexicalization patterns
  - Causative alternation
  - Incorporated manner
  - Incorporated direction
  - Aspect
  - ...



# Thank you!

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