

# SemNet Abstract/Concrete Selectional Restrictions

# Methods

- Assess verb's argument's selectional restrictions
  - Many verbs require concrete or abstract arguments
- Determine concreteness of arguments (using outside resources, such as MRC database or Brysbaert concreteness ratings)
- If argument's concreteness doesn't match the verb's selectional restrictions, the verb use is non-literal
  - Figuring out the threshold can be done effectively using machine learning (Logistic Regression, SVM, etc)

No Comments

# destroy-44

Members: 31, Frames: 3

POST COMMENT

## CLASS HIERARCHY

DESTROY-44

NO SUBCLASSES

## MEMBERS

KEY

ANNIHILATE (WN 1)	DEVASTATE (FN 1; WN 1; G 1)	MUTILATE (FN 1; WN 1, 2, 3)	SMOKE (G 4)
BLIGHT (WN 1)	DISFIGURE (WN 1)	OBLITERATE (FN 1; WN 4; G 1)	UNDO (G 1, 3)
BLITZ (WN 1)	EFFACE (WN 3; G 3)	RACK (WN 8; G 1)	UNMAKE
DAMAGE (FN 1; WN 1; G 1)	EXTERMINATE (FN 1; WN 1; G 1)	RAVAGE (WN 2)	VAPORIZE (FN 1)
DECIMATE (WN 2)	EXTIRPATE (WN 1)	RAZE (WN 1)	WASTE (WN 5, 9; G 3)
DEMOLISH (FN 1; WN 1; G 1)	LEVEL (FN 1)	RUIN (FN 1; WN 1; G 1)	WRACK (WN 1)
DESECRATE (WN 1, 2)	LOUSE_UP	SHATTER (FN 1; WN 1, 3; G 1)	WRECK (WN 1; G 1)
DESTROY (FN 1; WN 1, 2; G 1)	MAIM (WN 1)	SHIPWRECK (WN 1; G 1)	

## ROLES

REF

- AGENT [+INT\_CONTROL]
- PATIENT [+CONCRETE]
- INSTRUMENT [+CONCRETE]

# Destroy examples

Metaphorical:

- (1) Perhaps **he** was trying to destroy **the influence of a group** he felt were trying to rule the world.
- (2) **They** do not want, do not want to destroy **the lofty image of themselves** in the child's mind.

Literal:

- (1) **The bomb** destroyed **the building**.

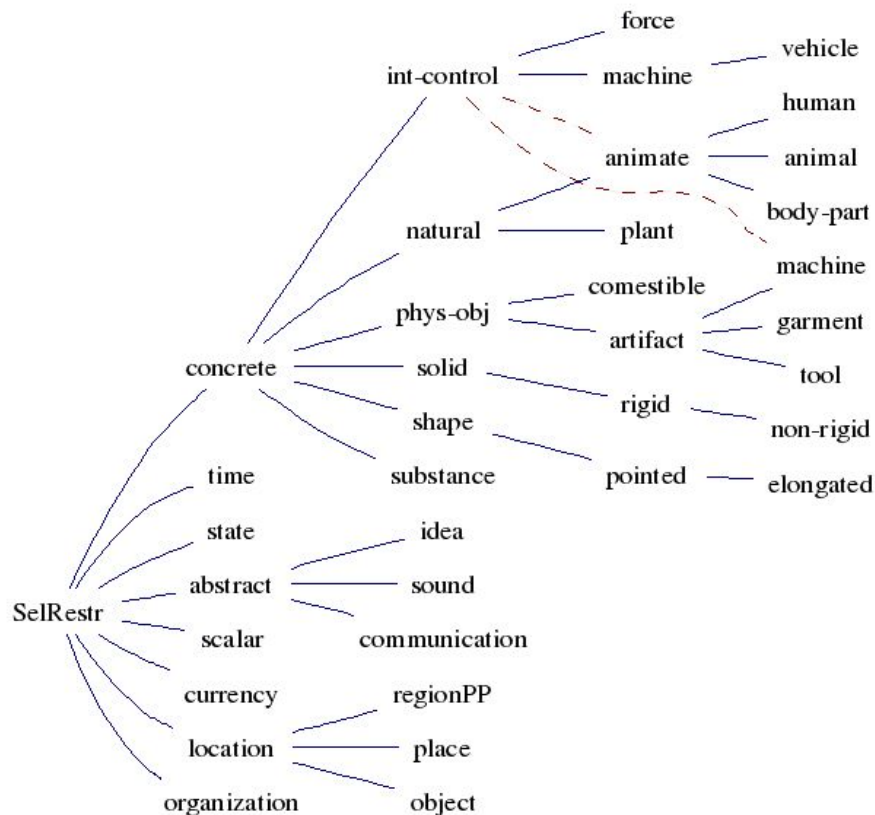
# Selectional Restrictions

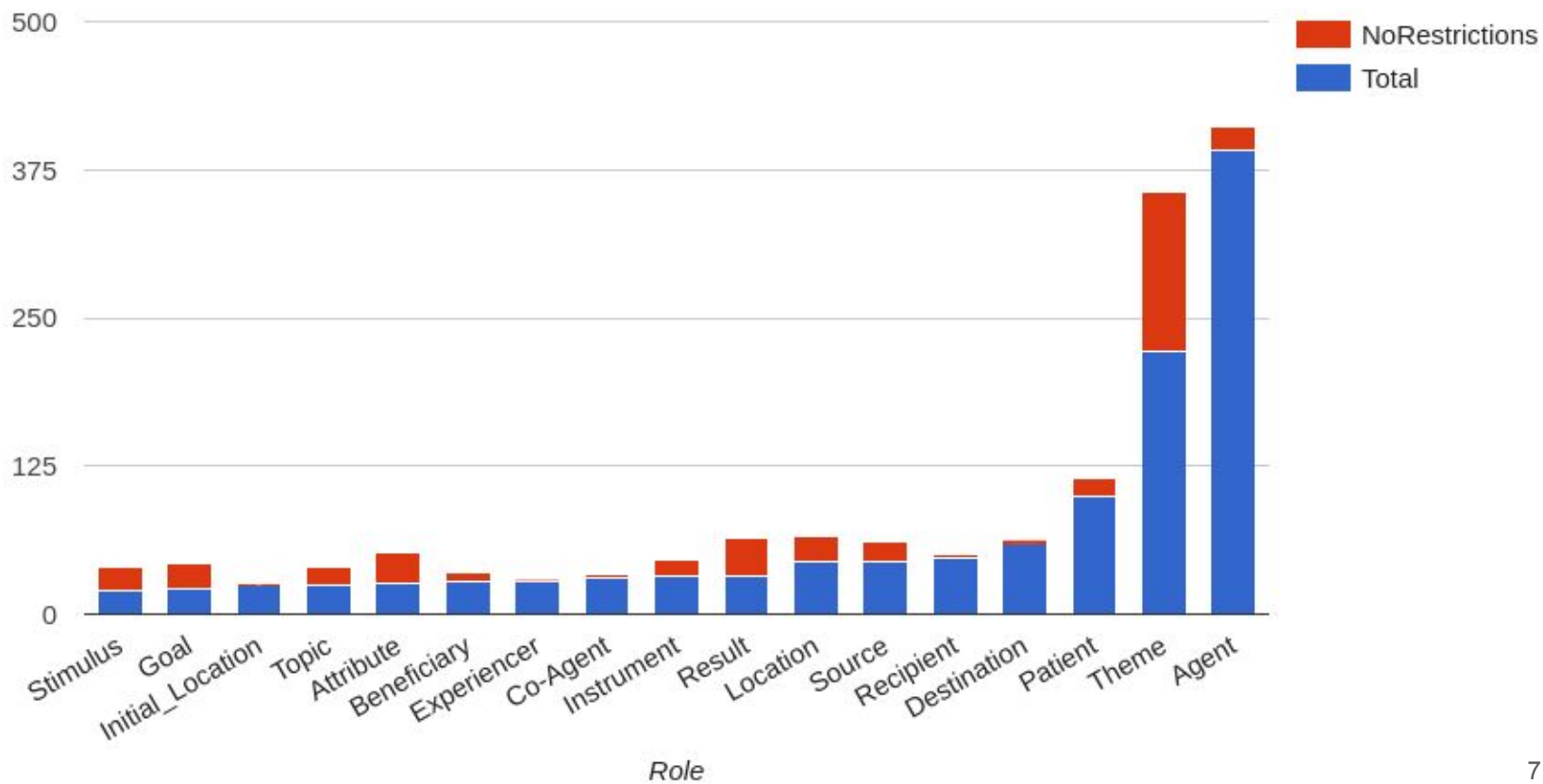
- In order to use these selectional restrictions, we need wide and accurate coverage for all verbs.
- We also need the restrictions to accurately reflect the difference between concrete and abstract arguments.

# VerbNet Resources

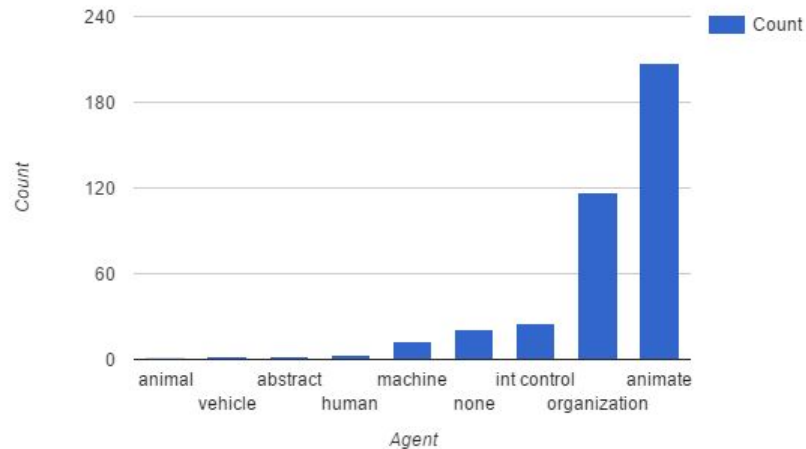
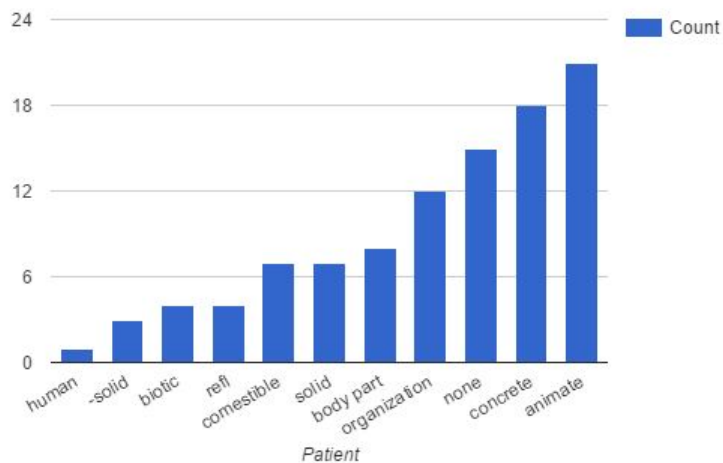
## Selectional Restriction Hierarchy

- Current SR mostly align with what we need
  - The restrictions under 'concrete' all classify concrete arguments.
  - The non-concrete restrictions have varying degrees of abstractness.
    - Can we assume that any restriction not marked +concrete implies abstract?





# SemNet Resources





# SemNet Restrictions

- Most thematic roles already have selectional restrictions.
  - There are cases that need to be updated, but the two most frequent roles are over 85% covered.
- We will be updating/refining these based on Ghazaleh's work with Qualia Structure better cover the distinction.
  - Is currency always abstract?
  - Can we count locations as concrete?
  - Are there other distinctions we can make to improve classification of figurative language?

# SemNet Updates

# SemNet Updates

- VerbNet - FrameNet Groupings
- FrameNet - VerbNet Groupings
- SemNet .3

# VN-FN Groupings

- Using our mappings from VerbNet verbs to FrameNet frames, we organized the UVI to show verbs that map to the same Frames for the same Classes.

# VN-FN Groupings

No Comments

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POST COMMENT

### CLASS HIERARCHY

DESTROY-44

NO SUBCLASSES

### MEMBERS

KEY

ANNIHILATE (WN 1)	DEVASTATE (FN 2; WN 1; G 1)	MUTILATE (FN 3; WN 1, 2, 3)	SMOKE (G 4)
BLIGHT (WN 1)	DISFIGURE (WN 1)	OBLITERATE (FN 2; WN 4; G 1)	UNDO (G 1, 3)
BLITZ (WN 1)	EFFACE (WN 3; G 3)	RACK (WN 8; G 1)	UNMAKE
DAMAGE (FN 6; WN 1; G 1)	EXTERMINATE (FN 1; WN 1; G 1)	RAVAGE (WN 2)	VAPORIZE (FN 2)
DECIMATE (WN 2)	EXTIRPATE (WN 1)	RAZE (WN 1)	WASTE (WN 5, 9; G 3)
DEMOLISH (FN 2; WN 1; G 1)	LEVEL (FN 2)	RUIN (FN 4; WN 1; G 1)	WRACK (WN 1)
DESECRATE (WN 1, 2)	LOUSE_UP	SHATTER (FN 5; WN 1, 3; G 1)	WRECK (WN 1; G 1)
DESTROY (FN 2; WN 1, 2; G 1)	MAIM (WN 1)	SHIPWRECK (WN 1; G 1)	

<http://verbs.colorado.edu/verb-index/vn3.3.1-test-uvi/vn/destroy-44.php>

# Issues

- Some members can map to multiple FrameNet Frames:

**CUT** (FN 14, 11; WN 15, 16; G 4)

**GET** (FN 2; WN 5, 26; G 4)

- <http://verbs.colorado.edu/verb-index/vn3.3.1-test-uvi/vn/escape-51.1.php>

- Some classes have too many mappings to show:

**THICKEN** (FN 55, 13; WN 1, 2, 3; G 1)

**THIN** (FN 55; WN 1, 2, 3, 4; G 1)

- [http://verbs.colorado.edu/verb-index/vn3.3.1-test-uvi/vn/other\\_cos-45.4.php](http://verbs.colorado.edu/verb-index/vn3.3.1-test-uvi/vn/other_cos-45.4.php)

# Coherent Classes

We can find classes that map exclusively to one FrameNet frame. This allows us to explore direct mappings between classes, and expand our member mappings.

- [pit-10.7](#)
- [accompany-51.7](#)

# FN-VN Groupings

- Using VN-FN mapping files, we're also grouping VN members based on their FrameNet frames.



# FN-VN Groupings

## FrameNet Frames

View Pure Frames

Abounding\_with  
Absorb\_heat  
Abusing  
Accomplishment  
Achieving\_first  
Activity\_finish  
Activity\_ongoing

Desiring  
Destroying  
Detaching  
Detaining  
Differentiation  
Dimension  
Discussion

Omen  
Operate\_vehicle  
Operating\_a\_system  
Operational\_testing  
Opinion  
Partiality  
Participation

<http://verbs.colorado.edu/fn-html/>

# FN-VN Mappings

Mixed Frames : Those that map to a variety of VN classes.

- [Assistance](#)
- [Cause Harm](#)

Pure Frames : Those that map to only one VN class

- [Light Movement](#)

# SemNet .3

- [SemNet .2:](#)
  - VN class, member, and role mappings
- [SemNet .3:](#)
  - Restructured to put each Role on a line
  - Included mappings to FrameNet frames, as well as links to Hobbs' Image Schema

1	Class	Verb	Role	SelRestrictions	FN Mappings	Image Schema	
164	wipe_manner-10.4	scour	Source	-region	Scouring	ImageSchema:wipe_manner-10.4.1	
165	wipe_manner-10.4	scrape	Agent	+int_control	Friction,Make_noise,Removing	ImageSchema:wipe_manner-10.4.1	
166	wipe_manner-10.4	scrape	Theme	+concrete,-animate	Friction,Make_noise,Removing	ImageSchema:wipe_manner-10.4.1	
167	wipe_manner-10.4	scrape	Source	+location	Friction,Make_noise,Removing	ImageSchema:wipe_manner-10.4.1	
168	wipe_manner-10.4	scrape	Destination	+location	Friction,Make_noise,Removing	ImageSchema:wipe_manner-10.4.1	
169	wipe_manner-10.4	scrape	Source	-region	Friction,Make_noise,Removing	ImageSchema:wipe_manner-10.4.1	
170	wipe_manner-10.4	scratch	Agent	+int_control	Damaging	ImageSchema:wipe_manner-10.4.1	
171	wipe_manner-10.4	scratch	Theme	+concrete,-animate	Damaging	ImageSchema:wipe_manner-10.4.1	
172	wipe_manner-10.4	scratch	Source	+location	Damaging	ImageSchema:wipe_manner-10.4.1	
173	wipe_manner-10.4	scratch	Destination	+location	Damaging	ImageSchema:wipe_manner-10.4.1	
174	wipe_manner-10.4	scratch	Source	-region	Damaging	ImageSchema:wipe_manner-10.4.1	
175	wipe_manner-10.4	squeeze	Agent	+int_control	Manipulation	ImageSchema:wipe_manner-10.4.1	
176	wipe_manner-10.4	squeeze	Theme	+concrete,-animate	Manipulation	ImageSchema:wipe_manner-10.4.1	
177	wipe_manner-10.4	squeeze	Source	+location	Manipulation	ImageSchema:wipe_manner-10.4.1	
178	wipe_manner-10.4	squeeze	Destination	+location	Manipulation	ImageSchema:wipe_manner-10.4.1	
179	wipe_manner-10.4	squeeze	Source	-region	Manipulation	ImageSchema:wipe_manner-10.4.1	
180	wipe_manner-10.4	strip	Agent	+int_control	Emptying,Removing,Removing,Removing	ImageSchema:wipe_manner-10.4.1	
181	wipe_manner-10.4	strip	Theme	+concrete,-animate	Emptying,Removing,Removing,Removing	ImageSchema:wipe_manner-10.4.1	
182	wipe_manner-10.4	strip	Source	+location	Emptying,Removing,Removing,Removing	ImageSchema:wipe_manner-10.4.1	
183	wipe_manner-10.4	strip	Destination	+location	Emptying,Removing,Removing,Removing	ImageSchema:wipe_manner-10.4.1	
184	wipe_manner-10.4	strip	Source	-region	Emptying,Removing,Removing,Removing	ImageSchema:wipe_manner-10.4.1	
185	wipe_manner-10.4	wash	Agent	+int_control	Grooming,Removing	ImageSchema:wipe_manner-10.4.1	
186	wipe_manner-10.4	wash	Theme	+concrete,-animate	Grooming,Removing	ImageSchema:wipe_manner-10.4.1	
187	wipe_manner-10.4	wash	Source	+location	Grooming,Removing	ImageSchema:wipe_manner-10.4.1	
188	wipe_manner-10.4	wash	Destination	+location	Grooming,Removing	ImageSchema:wipe_manner-10.4.1	
189	wipe_manner-10.4	wash	Source	-region	Grooming,Removing	ImageSchema:wipe_manner-10.4.1	
190	hire-13.5.3	employ	Agent	+animate,+organization	Employing	ImageSchema:hire-13.5.3	
191	hire-13.5.3	employ	Theme	+animate,+organization	Employing	ImageSchema:hire-13.5.3	
192	hire-13.5.3	employ	Attribute		Employing	ImageSchema:hire-13.5.3	
193	hire-13.5.3	enlist	Agent	+animate,+organization	Becoming_a_member,Becoming_a_member	ImageSchema:hire-13.5.3	
194	hire-13.5.3	enlist	Theme	+animate,+organization	Becoming_a_member,Becoming_a_member	ImageSchema:hire-13.5.3	
195	hire-13.5.3	enlist	Attribute		Becoming_a_member,Becoming_a_member	ImageSchema:hire-13.5.3	
196	hire-13.5.3	hire	Agent	+animate,+organization	Hiring	ImageSchema:hire-13.5.3	
197	hire-13.5.3	hire	Theme	+animate,+organization	Hiring	ImageSchema:hire-13.5.3	
198	hire-13.5.3	hire	Attribute		Hiring	ImageSchema:hire-13.5.3	
199	hire-13.5.3	sign	Agent	+animate,+organization	Hiring,Sign_agreement	ImageSchema:hire-13.5.3	

# Next Steps

- Group verbs under headers for each Frame they can map to.
  - Integrate this so that it's possible to switch between colors, alphabetical sorting, and Frame sorting
  - Other sorting options for VN-FN or FN-VN options?
- Update VN-FN mapping file to reflect changes to the new VerbNet version (3.3) and the new FrameNet version (1.7)
- Integrate FN-VN groupings into UVI for easy access.
- Options for SemNet .3?