

Norms and Exploitations: Mapping Meaning onto Use

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The Problem

How do people use words to make meanings?

How can meanings be derived and processed?

Some ordinary sentences:

- I hazarded various Stuartesque destinations like Bali, Florence, Istanbul...
- His fit seemed to have abated.
- Chopper ... is bringing the hood to the burbs.

Theoretical Background

- Prototype theory (Rosch; Fillmore; Lakoff; Langacker)
- Preference semantics (Yorick Wilks)
- Slot-and-filler grammar; functional grammar (Halliday)
- Empirical analysis of discourse and lexis (Sinclair)
- Lexical statistics: mutual information (Church and Hanks)
- Generative lexicon theory (Pustejovsky)

Focus on the probable. On the basis of what *has* happened, predict what is *likely* to happen. (Don't try to account for *all* possibilities.)

Norms

- Based on *correlations of collocations*
 - measured by statistical significance of co-occurrence.
 - Word Sketch Engine [demo]
- Descriptive (not prescriptive).
- Patterns discovered by systematic, empirical Corpus Pattern Analysis (CPA)

Exploitations

A problem for the corpus analyst:

- People don't just say the same thing, using the same words, over and over.
- They also *exploit* norms in order to say new things, or in order to say old things in new and interesting ways.
- Exploitations include metaphor, ellipsis, word creation, figures of speech, etc., etc.

Example of a CPA Verb Norm

abate/V BNC frequency: 185 in 100m.

1. [[Storm]] abate [NO OBJ] (11%)
2. [[Flood]] abate [NO OBJ] (4%)
3. [[Problem | Emotion]] abate [NO OBJ] (64%)
4. [[Person | Action]] abate [[Nuisance]] (19%) (*Domain: Law*)

[[Storm]] abate [NO OBJ]

dry kit and go again. The **storm abates** a bit, and there is no problem in
ling. Thankfully, the **storm had abated**, at least for the moment, and the
sting his time until the **storm abated** but also endangering his life, Ge
storm outside was beginning to **abate**, but the sky was still ominously o
bag to the ocean. The **storm** was **abating** rapidly, the evening sky clearin
after dawn the **storm** suddenly **abated**. Ruth was there waiting when the h
t he wait until the **rain storm abated**. She had her way and Corbett went
storm. By dawn the **weather** had **abated** though the sea was still angry, i
lcolm White, and the **gales** had **abated**: Yachting World had performed the
he **rain**, which gave no sign of **abating**, knowing her options were limite
n became a **downpour** that never **abated** all day. My only protection was
ned away, **the roar of the wind abating** as he drew the hatch closed behi

[[Flood]] abate [NO OBJ]

ted that the *flood waters* were **abating** and in Kent the high tide came a
ia had departed and the *floods* **abated**. Crocker 's engraving was publishe
better when the *flood-waters* **abate** on the upper reaches of the rivers

[[Problem]] abate [NO OBJ] (selected)

ripped on the table and *his anxiety* abated a little. This talented, if 'soft landing' in which *inflation* abates but growth continues moderate. Fortunately, *much of the fuss* has abated, but not before hundreds of that *her initial awkwardness* had abated # for she had never seen a es if *some inner pressure* doesn't abate. He wanted to play at the fun Baker in the foyer and *my anxiety* abated. He seemed disappointed and hained at the time. When *the agony* abated he was prepared to laugh with pability. However, when *the threat* abated in 1989 with a ceasefire in *the Intifada* shows little sign of abating. It is a cliché to say that h he declared *the recession* to be abating, only hours before the pub *he ferocity of sectarian politics* abated somewhat between 1931 and 1 self; *the pain* gradually began to abate spontaneously, a great relief, after *the shock* had begun to abate, the vision of Benedict's sn y calm, control it!) *The fear* was abating, the trembling beginning to been arrested and *street violence* abated, the ruling party stopped b

[[Person | Action]] abate [[Nuisance]]

(DOMAIN: Law. Register: Jargon)

o undertake *further measures* to **abate the odour**, and in Attorney Ge
us methods were contemplated to **abate the odour** from a maggot farm
s specified are insufficient to **abate the odour** then in any further
as *the inspector* is striving to **abate the odour**, no action will be
t *practicable means* be taken to **abate** any existing *odour nuisance*,
ll equipment to prevent, and or **abate odour pollution** would probabl
rmation alleging the failure to **abate a statutory nuisance** without
t I would urge *you* at least to **abate the nuisance of bugles** forthw
way that *the nuisance* could **be abated**, but the decision is the dec
otherwise *the nuisance* is to **be abated**. They have full jurisdiction
ion, or the *local authority* may **abate the nuisance** and do whatever

Part of the lexical sets [[Problem]] and [[Emotion]] as subject of the verb ‘abate’

From BNC: {fuss, **problem**, price *war*, anti-lesbianism, hysterical media clap-trap, disruption, awkwardness, scourge, slump, **fighting**, *pressures*, *shock*, inflation, the Mozart frenzy, land hunger, working-class militancy, looting, recession, hostility, **tensions**, intimidation, ferocity of sectarian politics, epidemic, diplomatic isolation, **symptoms**, dispute, ...} {*anxiety*, fear, nationalist **feravour**, emotion, **rage**, *anger*, fury, pain, ...}

From AP: {threat, crisis, **fighting**, hijackings, protests, **tensions**, anti-Japan **fervor**, violence, bloodshed, **problem**, crime, guerrilla attacks, turmoil, shelling, shooting, artillery duels, fire-code violations, unrest, inflationary **pressures**, layoffs, **symptoms**, bloodletting, revolution, murder of foreigners, public furor, eruptions, bad publicity, outbreak, jeering, criticism, infighting, the risk of armed confrontation, crisis, ...} {**rage**, **anger**, panic, animosity, concern, ...}

Lexical sets in CPA

1. Select 'seed' examples manually.
2. Computer program finds other members of the set by cluster analysis of corpus data.
3. Analyst verifies candidate additions to lexical sets.
4. Tentative disambiguation of other verbs, using established lexical sets.
5. Analyst verifies the tentative disambiguations.

In CPA, every line in the sample must be classified

The classes are:

- Norms
- Exploitations
- Names (*Midnight Storm*: a racehorse not a storm)
- Mentions (to **mention** a word or phrase is not to **use** it)
- Mistakes (e.g. *learned* mistyped as *leaned*)
- Unassignables

Lexical sets are contrastive

- Different in kind from syntactic structures.
- In principle, lexical sets are open-ended.
- In practice, a lexical set may have only 1 or 2 members, e.g. take a {look, glance}.
- The ‘same’ lexical set differs from verb to verb:
 - [[Problem]] in “[[Problem]] abate” is not the same as [[Problem]] in “[[Person]] solve [[Problem]]”
- No certainties; only probabilities.
- Probabilities can be measured.

A more complicated verb: 'take'

- **61 phrasal verb patterns**, e.g. **take** [[Entity]] **away**, **take** [[Garment]] **off**, [[Plane]] **take off**, **take** [[Enterprise]] **over**.
- **105 light verb uses** (with lexically specific objects), e.g. [[Event]] **take place**, [[Person]] **take ... {photograph | photo | snap | picture}**, [[Person]] **take {the plunge}**.
- **18 generic, semantically 'heavy' uses** (with direct object denoting a semantic class), e.g. [[Person]] **take** [[PhysObj]] [Adv[Direction]].
- **13 adverbial patterns**, e.g. **take** [[X]] **seriously**, **take** [[Child]] **{into care}**.
- **TOTAL: 204**, and growing (but slowly)

Are CPA patterns mutually exclusive?

- They should be! They are intended to be!
 - But sometimes there is genuine ambiguity, e.g.:
[[Person]] take { [POSDET] place }
... **He took his place** ...

Better:

[[Person]] take { [COREF POSDET] place } *and*
[[Person 1]] take { [[Person 2]]'s place }

Finer distinctions: 'take + place'

- `[[Event]] take {place}`: **A meeting took place.**
- `[[Person 1]] take {[[Person 2]]'s place}`:
 - **George took Bill's place.**
- `[[Person]] take {[COREF POSDET] place}`:
**Wilkinson took his place among the
greats of the game.**
- `[[Person=Competitor]] take {[ORDINAL] place}`:
The Germans took first place.

Nouns

- Noun norms are different in kind from verb norms.
- A different analytical apparatus is required.
- ‘Gnomic’ prototypical statements can be derived from a corpus about each true noun. (Examples for *storm* follow.)

storm (literal meaning) (1)

WHAT DO STORMS DO?

- Storms *blow*.
- Storms *rage*.
- Storms *lash* coastlines.
- Storms *batter* ships and places.
- Storms *hit* ships and places.
- Storms *ravage* coastlines and other places.

Storm (literal meaning) (2)

BEGINNING OF A STORM:

- Before it begins, a storm is *brewing*, *gathering*, or *impending*.
- There is often a *calm* or a *lull before* a storm.
- Storms last for a certain period of time.
- Storms *break*.

END OF A STORM:

- Storms *abate*.
- Storms *subside*.
- Storms *pass*.

Storm (literal meaning) (3)

WHAT HAPPENS TO PEOPLE IN A STORM?

- People can *weather*, *survive*, or *ride (out)* a storm.
- Ships and people may get *caught in* a storm.

Storm (literal meaning) (4)

WHAT KINDS OF STORMS ARE THERE?

- There are *thunder storms, electrical storms, rain storms, hail storms, snow storms, winter storms, dust storms, sand storms, tropical storms...*
- Storms are *violent, severe, raging, howling, terrible, disastrous, fearful, ferocious...*

Storm (literal meaning) (5)

OTHER ASSOCIATIONS OF 'STORM':

- Storms, especially snow storms, may be *heavy*.
- An unexpected storm is a *freak* storm.
- The centre of a storm is called the *eye of the storm*.
- A major storm is remembered as *the great storm* (of [[Year]]).
- **STORMS ARE ASSOCIATED WITH** *rain, wind, hurricanes, gales, and floods*.

Why norms are important

- These statements about storm are stereotypical (prototypical).
- They are corpus-derived (empirically well founded).
- But also, they represent central and typical beliefs about storms: the ‘meaning’ of *storm*.
- This is where syntax meets semantics.

How we Interpret Exploitations

- His passion for Sara had begun to abate.
 - ('passion' = [[Problem]]? [[Storm]]??
[[Flood]]?? [[Nuisance]]??? ... [[Emotion]])
 - Good <--->Bad axis (esp. interpersonal)
 - We interpret words in use by analogy with their prototypical uses

Types of exploitation (1)

Dynamic metaphors:

- **Dubrovnik became a mousetrap ...**
 - Associated Press (1991)
- **A geometrical proof is a mousetrap**
 - Schopenhauer
- **The Cross was Satan's mousetrap**
 - St. Augustine

Pustejovsky's mechanism

Qualia of *mousetrap* (literal sense):

- CONSTITUTIVE = device, apparatus
- FORMAL = Spring-loaded bar mousetraps; live-catching mousetraps; glue traps; bucket traps; upside-down glass
- TELIC = kill unwary mouse
- AGENTIVE = activated when mouse enters
 - COMPONENT PARTS: physical materials (metal, wood, etc.); mechanism (spring), bait (cheese)

Types of exploitation (2)

Ellipsis (brute-force coercion):

I *hazarded* various Stuartesque destinations like Bali, Florence, Istanbul.

– The norm is: “[[Person]] hazard {guess}”

– This sentence is elliptical for “*I hazarded a guess at various destinations that might be thought to be typical of Stuart, like Bali, ...*”

- There are many other types of exploitation

Domain matters

Take [[Location]] by storm

- Military:
 - Santa Ana decided to take the Alamo by storm.
- Sport:
 - The English forwards have taken world rugby by storm.
- Fashion:
 - Her collection took the fashion world by storm
- Culture:
 - the latest novel to take Paris by storm

A syntagmatic clue for metaphoricity

Partitive ‘of’: “a storm *of* [[Entity]]”

- People *don't* (*normally*) talk about ‘a storm of rain’
- People *do* talk about ‘a storm of protest, a storm of controversy’
- You can also talk about ‘a storm of tears, a storm of emotion, a storm of locusts, a storm of feathers’

Conclusion (1): Goals of CPA

- An inventory of semantically motivated syntagmatic patterns (normal clauses)
- A lexical set clustering program
- Evidence for principles that govern exploitations of norms

Conclusions (2)

- People make meanings both by *using* norms and by *exploiting* norms
- Norms can be stated explicitly
- Exploitation rules can be stated explicitly
- The whole language system is probabilistic and preferential
- There are no necessary conditions