Paraphrasing Paraphrased

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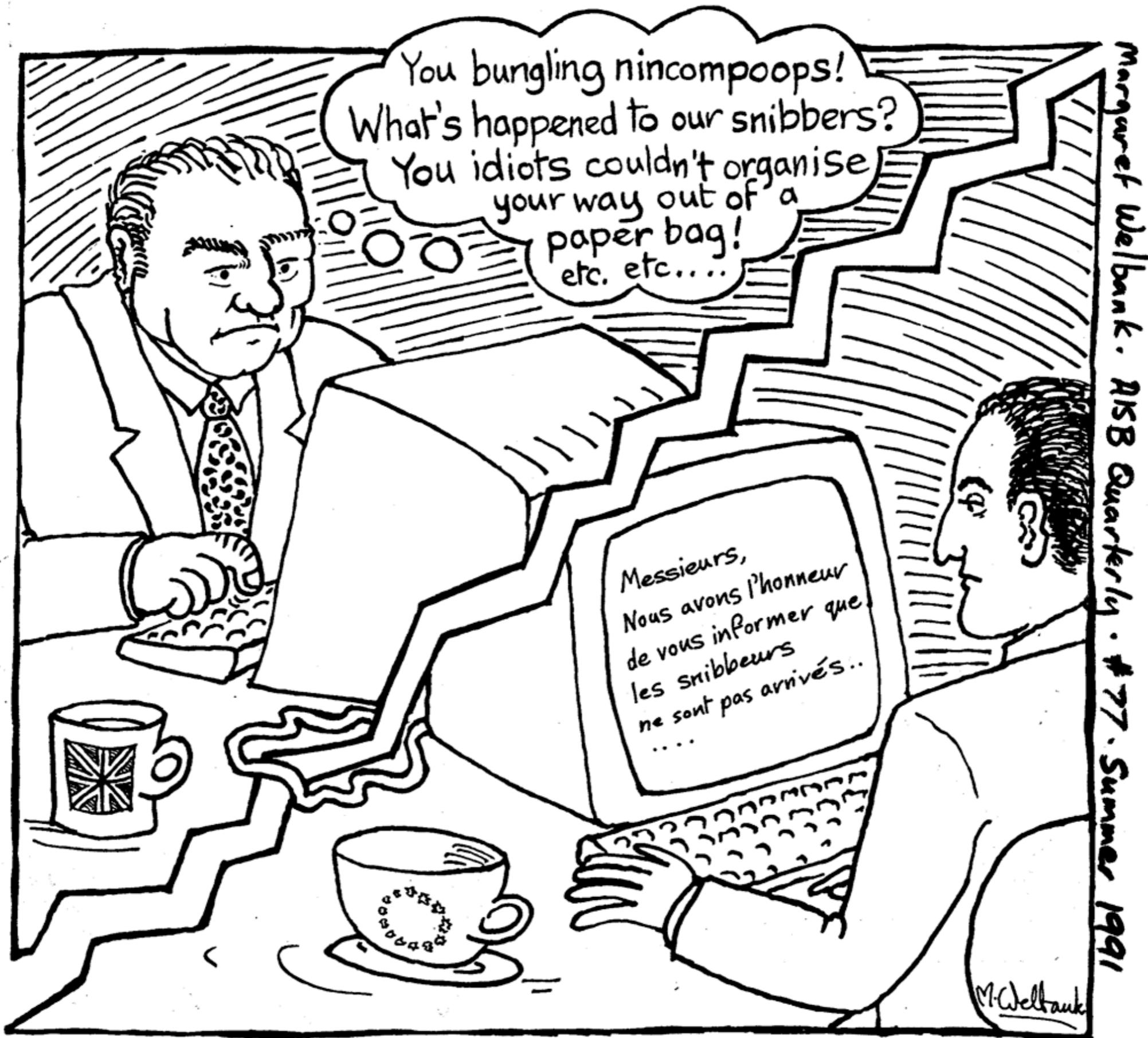
Bridging the Language Barrier with Intelligent Systems

A paraphrase

The canonical paraphrase

- *The glass is half-empty.*
- *The glass is half-full.*

Inverses of relationships

- *The company acquired four daily newspapers from Worrell Enterprises.*
- *Worrell Enterprises sold four daily newspapers to the company.*

- *Only 30% of the students passed the exam.*
- *Most of the students failed the exam.*

Syntactic variations

- *At least 13 people were killed by a suicide bomber on a bus in downtown Jerusalem this morning.* ← Central point = killing

- *A suicide bomber blew himself up on a bus in downtown Jerusalem this morning, killing at least 13 people.* ← Central point = bomber's actions

Lexical variation

- *Emma pleurait, et il s'efforçait de la consoler, enjolivant de calembours ses protestations.* (Gustave Flaubert, *Madame Bovary*, 1857)

- *Emma cried, and he tried to console her, adorning his words with puns.*

- *Emma burst into tears and he tried to comfort her, saying things to make her smile.*

More paraphrases

The canonical paraphrase revisited

- *The glass is half-empty.*
- *The glass is half-full.*
- *The glass is bigger than it needs to be.*
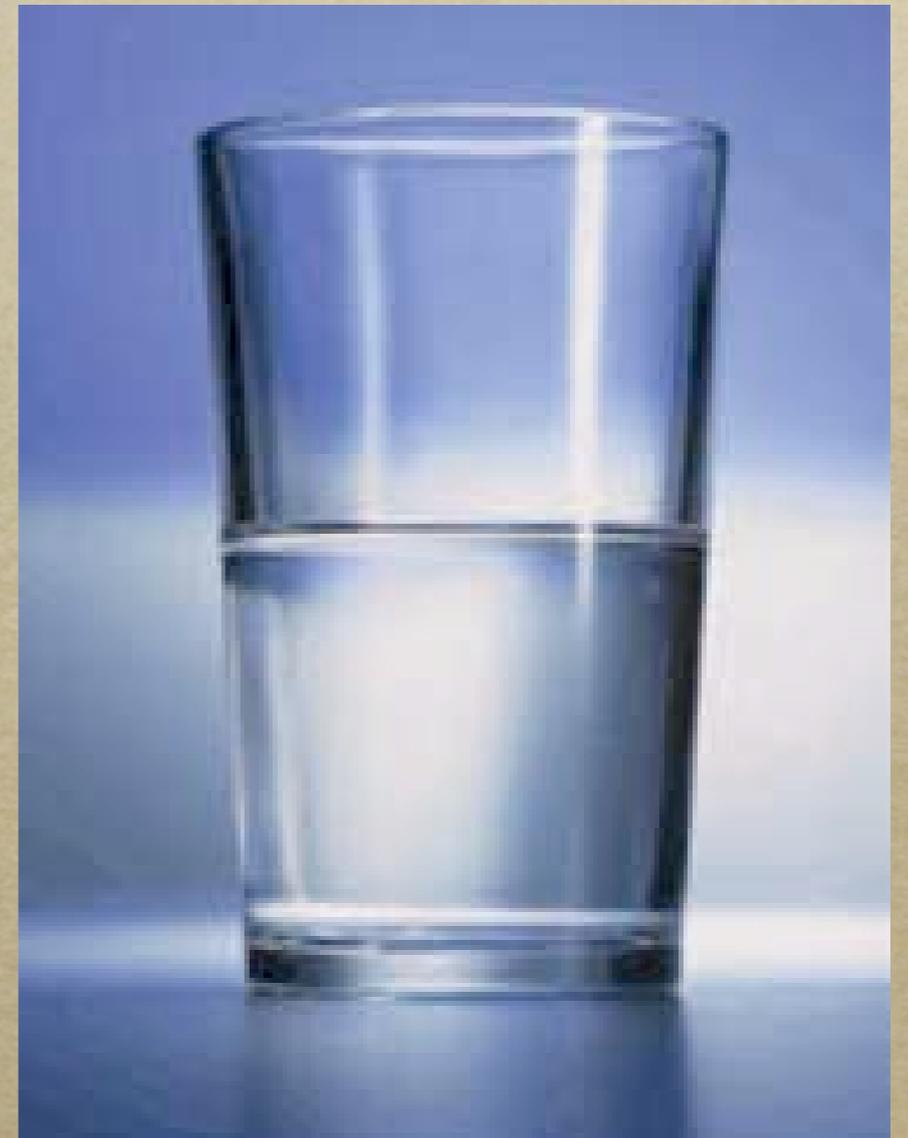
Interpretation and viewpoint

- *The U.S.-led* *invasion* *of Iraq …*
- *The U.S.-led* *liberation* *of Iraq …*
- *The U.S.-led* *occupation* *of Iraq …*

- *"You're getting in the way."*
- *"I'm only trying to help."*

Definition of paraphrase

- To paraphrase a text is to "talk about the same situation in a different way".
  - Different words or different syntax.

What's "the same situation"?

- Same truth conditions?
  Sometimes

- Same details?
  Sometimes

- Same message?
  Rarely

Paraphrases aren't synonymous

- Pragmatic differences in paraphrases:
  - Viewpoint, evaluation.
  - Fine-grained denotation.
  - Style, connotation, implication.

Viewpoint and evaluation

Large-scale paraphrasing

Viewpoint

- Viewpoint includes:
  - The mental model used to interpret or frame the situation.
  - The relative emphasis placed on the components of the model — especially, the component taken as central.

What we don't have

What we have

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Syntax and emphasis

- *At least 13 people were killed by a suicide bomber on a bus in downtown Jerusalem this morning.*

- *A suicide bomber blew himself up on a bus in downtown Jerusalem this morning, killing at least 13 people.* ← Secondary emphasis in appositive clause

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Evaluation

- Evaluation is speaker's attitude, stance, opinion, appraisal.
  - An implicit (or explicit) judgement of the goodness or badness of some aspect of the situation.

Example (1)

- *Bombardier Inc said that it can make a thinner-walled subway car, capable of cramming in an extra 35 people.*
  (*Macleans*, 19 May 2003)

  carrying ← Unfavourable

  ← Neutral

Evaluation and ideology

(Malrieu 1999)

- Evaluation must be based on system of values.

- Part of the writer's mental model or its enclosing ideologies.

Example (2a)

Bad→ *In a dramatic escalation of its assault on music piracy, the recording industry plans to start suing individuals who illegally swap copyrighted songs over the Internet.* ←*Bad*

Neutral→ *!!!Recording Industry Association of America officials said that beginning today, they will start preparing for the lawsuits by gathering information on people who make songs available for sharing over the Internet.*

(Austin American-Statesman, 26 June 2003)

Example (2b)

The RIAA (Recording Industry Association of America) has issued the biggest threat to date ←Bad *against online file-traders, saying it will sue* ←Bad *thousands of individuals into submission.* ←Neutral ←Very bad

!!!Starting Thursday, pigopolist grunts will begin combing P2P networks in search of industrious file ←Good *traders.* (*The Register*, 25 June 2003)

Frameworks of interpretation (1)

(Lakoff 1987)

- Categorization, interpretation within model or framework is basis of cognition.

  - Depends on culture and individual.

  - Important topic (under various different names) in social psychology, sociology, cognitive science, political science, law, ….

Frameworks of interpretation (2)

- Paraphrase by change of framework.
  - Basis of much literature, poetry, and humor.
  - Cause of many political, religious, and inter-personal disputes.
  - Mediator: Person who interprets and paraphrases across frameworks.

Viewpoint and paraphrase in CL

- PAULINE (Hovy 1988):
  - NLG system (not analysis).
  - Could describe a situation in many different ways.
  - Choice of content and words depended on viewpoint and conversational goals.

Viewpoint and paraphrase in CL

(Paris 1993; Hirst, DiMarco, Hovy, Parsons 1997; Reiter et al 1999)

- Tailoring text to the individual reader (with known user model).
  - Emphasize details of interest to reader.
  - Maximize persuasiveness by matching reader's viewpoint and value-system.
  - Tutoring, health communication.

Viewpoint and paraphrase in CL

(Malrieu 1999)

- Evaluative semantics:
  - Check a text for "ideological consistency".
  - Compare the ideological or evaluative aspects of different paraphrases.

Viewpoint and paraphrase in CL

- Related work in knowledge representation:
  - Faceted representations.
  - Resolution of conflicting beliefs.
  - Reasoning in and about context.
  - Structure mapping.

Summary

- Conceptual restatement is a ubiquitous and pervasive kind of paraphrase.

- Viewpoint, emphasis, and evaluation may change in this kind of paraphrase.

- Truth conditions may be different but should be compatible.

Lexical nuances of meaning

Small-scale paraphrasing

Lexical choice

- Paraphrase by replacing words with synonyms?

The President ← *More formal* addressed spoke to ← *Less formal* *the nation.*

Language dislikes synonymy

- Absolute synonymy is rare, useless.
- "Every two forms contrast in meaning." (Clark 1992; *cf* Saussure 1916)
- Language evolves to avoid synonymy, differentiate linguistic forms by nuances.
- Nuance: Small difference.

Lexical nuances

- Most "synonyms" are near-synonyms.
- Differences:
    - Denotation: *blunder, slip*.
    - Emphasis: *enemy, foe*.
    - Connotation: *fib, lie*.
    - Register: *intoxicated, drunk, plastered*
    - Evaluation: *skinny, slender*.

How do we know?

- Hard for language users to articulate distinctions between near-synonyms.

- Can't learn distinctions from corpora.

- Distinctions are explained in dictionaries of "synonyms".

  - Lexicographers as skilled users.

Webster's New Dictionary of Synonyms

A Merriam-Webster

Thousands of synonyms defined, discriminated and illustrated with quotations. Plus antonyms, analogous words and contrasting words. To help you use the right word in the right place.

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sense it is also applied, chiefly in poetry, to animals ⟨the *amorous* dove—*Gilbert*⟩ **Amative** implies merely a disposition to fall in love or a propensity for loving; it is chiefly used in describing temperaments or in analyzing character ⟨that crudely *amative* public to which our modern best sellers appeal—*N. Y. Times*⟩ ⟨he is not normally *amative*⟩ **Aphrodisiac** is applied to things (as drugs or writings) that arouse or tend to arouse sexual desire ⟨the labored unreserve of *aphrodisiac* novels and plays—*Montague*⟩

Ana passionate, *impassioned, fervid, perfervid, ardent, fervent: *carnal, fleshly, sensual

erratic eccentric, odd, queer, *strange, singular, peculiar, unique, quaint, outlandish, curious

Ana aberrant, *abnormal, atypical: *irregular, unnatural, anomalous: capricious, fickle, mercurial, *inconstant

Con normal, *regular, typical, natural: *usual, customary, wonted, habitual: *common, ordinary, familiar: conventional, formal (see CEREMONIAL): *decorous, decent, seemly, proper

error, mistake, blunder, slip, lapse, faux pas, bull, howler, boner are comparable when they denote something (as an act, statement, or belief) that involves a departure from what is, or what is generally held to be, true, right, or proper. **Error** implies a straying from a proper course and suggests such guilt as may lie in failure to take proper advantage of a guide (as a record or manuscript, a rule or set of rules, or a principle, law, or code); thus, a typographical *error* results when a compositor misreads a manuscript; an *error* in addition involves some failure to follow the rules for addition; an *error* in conduct is an infraction of an accepted code of manners or morals ⟨those who, with sincerity and generosity, fight and fall in an evil cause, posterity can only compassionate as victims of a generous but fatal *error*—*Scott*⟩ ⟨without understanding grievous and irreparable *errors* can be made—*Donald Harrington*⟩ **Mistake** implies misconception, misunderstanding, a wrong but not always blameworthy judgment, or inadvertence; it expresses less severe criticism than *error* ⟨he made a serious *mistake* when he chose the law as his profession⟩ ⟨a child makes many *mistakes* in spelling⟩ ⟨there is a medium between truth and falsehood, and (I believe) the word *mistake* expresses it exactly. I will therefore say that you were mistaken—*Cowper*⟩ **Blunder** is harsher than *mistake* or *error*; it commonly implies ignorance or stupidity, sometimes blameworthiness ⟨we usually call our *blunders* mistakes, and our friends style our mistakes *blunders*—*Wheatley*⟩ ⟨one's translation is sure to be full of gross *blunders*, but the supreme *blunder* is that of translating at all when one is trying to catch not a fact but a feeling—*Henry Adams*⟩ **Slip** carries a stronger implication of inadvertence or accident than *mistake* and often, in addition, connotes triviality ⟨the wrong date on the check was a *slip* of the pen⟩ ⟨a social *slip* which makes us feel hot all over—*L. P. Smith*⟩ Often, especially when it implies a transgression against morality, the word is used euphemistically or ironically ⟨let Christian's *slips* before he came hither . . . be a warning to those that come after—*Bunyan*⟩ ⟨the minister . . . comes when people are in extremis, but they don't send for him every time they make a slight moral *slip*—tell a lie, for instance, or smuggle a silk dress through the customhouse—*Holmes*⟩ **Lapse,** though sometimes used interchangeably with *slip*, stresses forgetfulness, weakness, or inattention more than accident; thus, one says a *lapse* of memory or a *slip* of the pen, but not vice versa ⟨writes well, despite occasional *lapses* into polysyllabic humor—*Geographical Jour.*⟩ When used in reference to a moral transgression,

it carries a weaker implication of triviality than *slip* and a stronger one of a fall from grace or from one's own standards ⟨for all his . . . *lapses*, there was in him a real nobility, an even ascetic firmness and purity of character —*Ellis*⟩ **Faux pas** is most frequently applied to a mistake in etiquette ⟨she was carefully instructed so that there was no danger of her making a *faux pas* when she was presented at the Court of St. James's⟩ ⟨John and I, horrified, hustled him out before he could commit any further *faux pas*—*S. H. Adams*⟩ **Bull**, *howler*, and *boner* all three are rather informal terms applicable to blunders (and especially to blunders in speech or writing) that typically have an amusing aspect. A **bull** may be a grotesque blunder in language typically characterized by some risible incongruity ⟨the well-known *bull* stating that "one man is just as good as another—and sometimes more so"⟩ or it may be a mere stupid or gauche blunder ⟨he really committed a *bull* when he solemnly introduced his new friend to the latter's ex-wife⟩ A **howler** is a gross or ludicrous error based on ignorance or confusion of ideas; the term is used especially of laughable errors in scholastic recitations or examinations ⟨a collection of schoolboy *howlers*⟩ ⟨a *howler* that turns the title "Intimations of Immortality" into "Imitations of Immorality"⟩ A **boner** may be a grammatical, logical, or factual blunder in a piece of writing that is usually so extreme as to be funny ⟨a few historical *boners* . . . such as dinosaurs surviving until medieval times—*Coulton Waugh*⟩ or it may be a ridiculous or embarrassing slip of the kind that results from a sudden lapse (as of attention or from tact or decorum) ⟨is the proprietor of a large and varied selection of diplomatic *boners*—*Rosenthal*⟩

errorless flawless, faultless, *impeccable

Ana *correct, accurate, exact, precise, right, nice

ersatz *adj* *artificial, synthetic, factitious

erudite *learned, scholarly

erudition learning, scholarship, *knowledge, science, information, lore

escape *vb* **1** Escape, flee, fly, decamp, abscond mean to run away especially from something which limits one's freedom or threatens one's well-being. **Escape** so stresses the idea of flight from confinement or restraint that it very often conveys no suggestion of wrongdoing or of danger ⟨one of the most powerful motives that attract people to science and art is the longing to *escape* from everyday life—*Ellis*⟩ ⟨eager to *escape* from the army and go back to his hometown—*Wecter*⟩ **Flee** implies haste and often abruptness in departure ⟨there was evidence that the burglars had been frightened and had *fled*⟩ It often connotes disappearance, especially when extended to things ⟨the mists *fled* before the rising sun⟩ **Fly** is interchangeable with *flee* but its use is restricted in idiomatic English to the present tense ⟨*fly*, father, *fly* for all your friends are fled—*Shak.*⟩ **Decamp** usually suggests a sudden departure to elude discovery or arrest; it commonly carries a disparaging or belittling connotation ⟨having imparted my situation to my companion, she found it high time for us to *decamp*—*Smollett*⟩ ⟨came to town, took orders, received advances of goods or money, and then *decamped*—*Jones*⟩ **Abscond** adds to *decamp* the distinctive implications of clandestine withdrawal and concealment usually to avoid the consequences of fraudulent action ⟨he had the appearance of a bankrupt tradesman *absconding*—*Meredith*⟩ ⟨determined to be a poet at any price, he *absconded* from college with his clothes and took refuge in a lonely farmhouse—*Brooks*⟩

Con *follow, chase, pursue, trail, tag

2 Escape, avoid, evade, elude, shun, eschew are comparable

A colon (:) separates groups of words discriminated. An asterisk (*) indicates place of treatment of each group.

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error, mistake, blunder, slip, lapse, faux pas, bull, howler, boner are comparable when they denote something (as an act, statement, or belief) that involves a departure from what is, or what is generally held to be, true, right, or proper. **Error** implies a straying from a proper course and suggests such guilt as may lie in failure to take proper advantage of a guide (as a record or manuscript, a rule or set of rules, or a principle, law, or code); thus, a typographical *error* results when a compositor misreads a manuscript; an *error* in addition involves some failure to follow the rules for addition; an *error* in conduct is an infraction of an accepted code of manners or morals

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表現類語辞典

藤原与一
磯貝英夫　編
室山敏昭

まちがい

間違まちがい・誤あやり・過誤かご・誤謬ごびゆう・錯誤さくご・過あやち・過失かしつ・失敗しつばい

間違まちがい〔名〕途中の操作や前提が当を得なかったために生じる、正しくない結果。また、「間違いのない男」「娘に間違いがあっては大変だ。」「間違いを犯す。」のように、気がかりで、不安なこと、過失の意にも用いられる。「しかしこれとても間違いだらけであるとしか思われませんし、きっと間違っていると思いますが父上はどうお考えでしょうか、なんだか間違っているようでございます」（太宰治＝ロマネスク）「面目玉を踏みつぶすから君も屋敷には居たたまらない。夜逃げをす

Erreur : ¶ 1 Fausse opinion. *Erreur* se dit dans tous les cas où l'on prend le faux pour le vrai (et aussi le mal pour le bien : → Écart). **Égarement,** erreur considérable, due à une sorte d'extravagance, de démence, par rapport au vrai et au bien : *Les égarements des sophistes* (ACAD.). *Flottant entre la sagesse et l'égarement* (J.-J. R.). **Illusion** (→ ce mot), erreur des sens ou de

Henri Bénac, *Dictionnaire des synonymes,* 1956

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Notes

- Typical entry describes a cluster of near-synonyms.

- Describes common meaning, and then differences — often in relative terms.

- Cluster does *not* form a hierarchy.

 - Differences may relate to arbitrary facets of meaning.
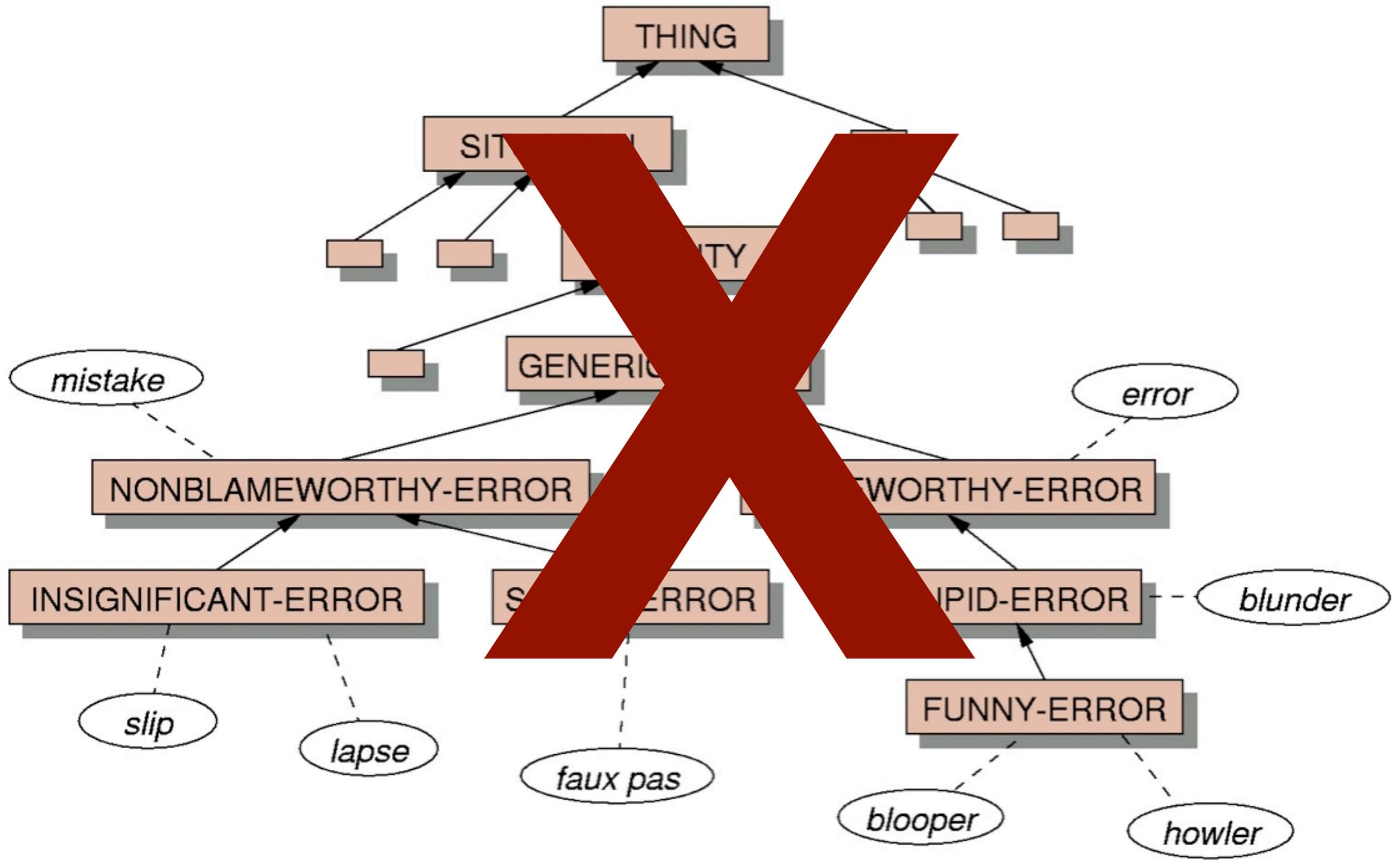
Representing and using nuances

- For computational use, need:
  - Representation formalism for knowledge of lexical differences.
  - Acquisition of this knowledge.
  - Methods to use the knowledge in analysis and generation.

Representing near-synonymy

(Philip Edmonds 1999, Edmonds and Hirst 2002)

- Format of lexical knowledge base follows format of the dictionaries.

- A coarse-grained hierarchy of core meanings of clusters.

- Members of cluster are explicitly differentiated.
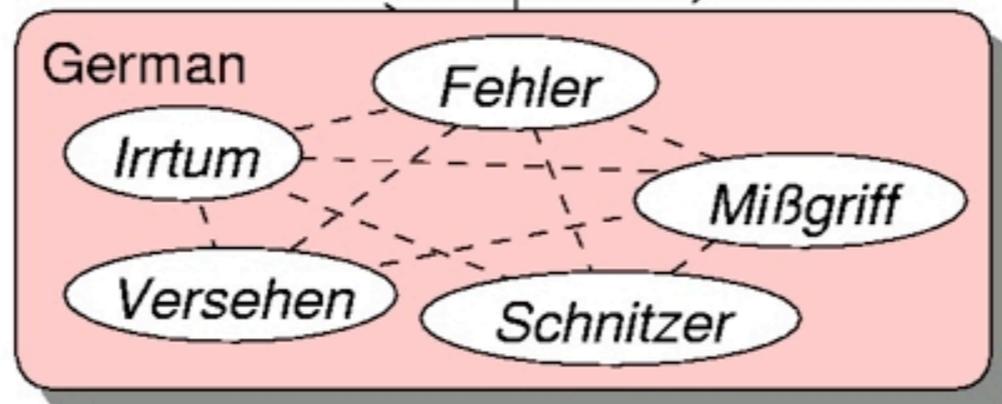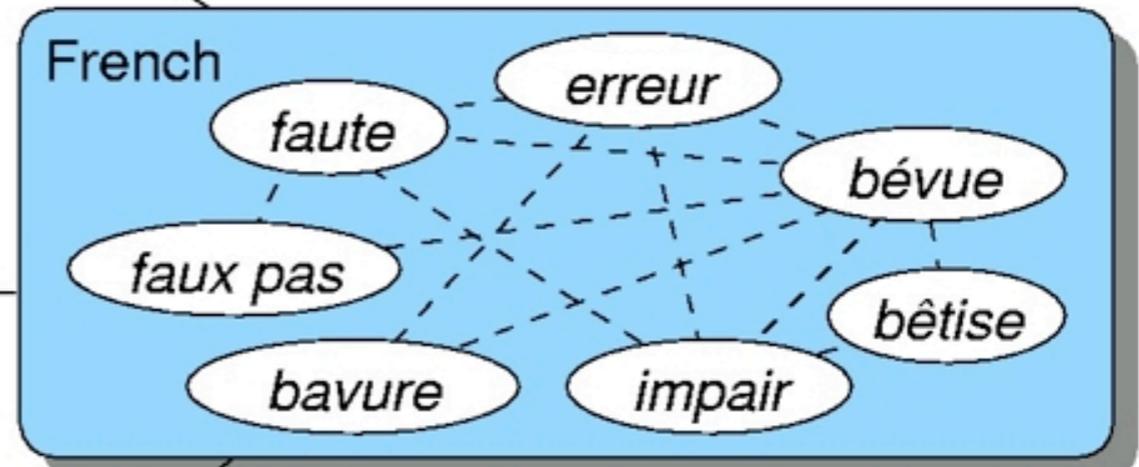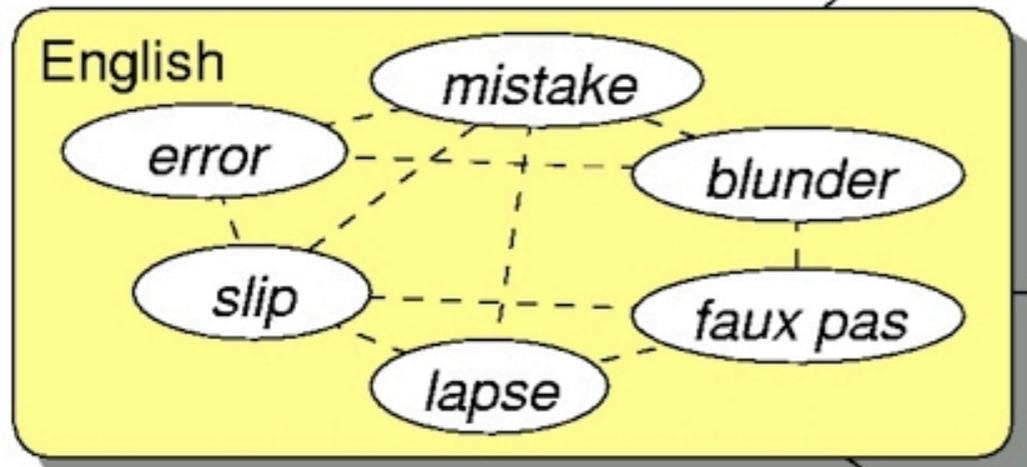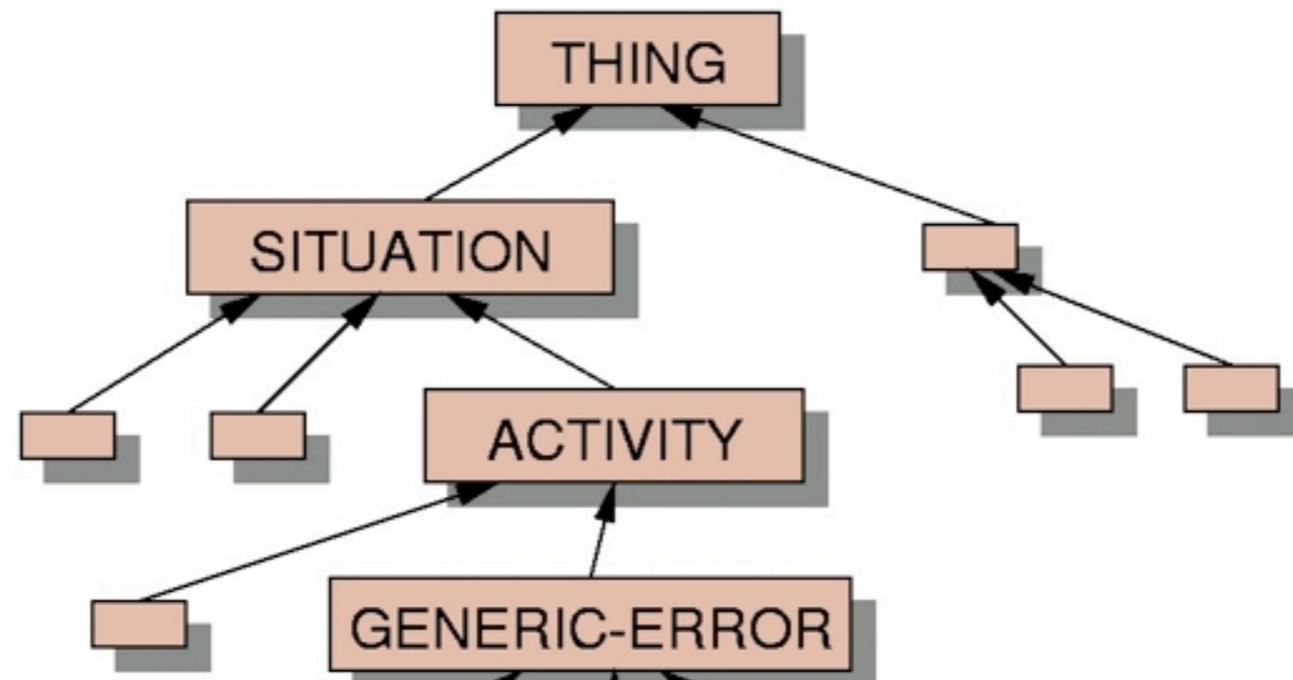
```
(defcluster Error-Cluster
 :syns (error mistake blunder slip lapse)
 :core (ROOT Generic-Error)
 :periph ((P1 Stupidity) (P2 Blameworthiness)
          (P3 Criticism (ATTRIBUTE (P3-1 Severity)))
          (P4 Misconception) (P5 Accident) (P6 Inattention))
 :distinctions
 ((blunder usually medium implication P1)
  (mistake sometimes medium implication (P2 (DEGREE 'medium)))
  (blunder sometimes medium implication (P2 (DEGREE 'high)))
  (mistake always medium implication (P3-1 (DEGREE 'low)))
  (error always medium implication (P3-1 (DEGREE 'medium)))
  (blunder always medium implication (P3-1 (DEGREE 'high)))
  (mistake always medium implication P4)
  (slip always medium implication P5)
  (mistake always low implication P5)
  (lapse always low implication P5)
  (lapse always medium implication P6)
  (blunder always medium pejorative)
  (blunder high concreteness)
  (error low concreteness)
  (mistake low concreteness)))
```

Acquiring the lexical knowledge

(Diana Inkpen 2003, Inkpen and Hirst 2001–2003)

- Knowledge acquisition from a dictionary of near-synonyms as an information extraction task.

SECOND EDITION

Choose the Right Word

A CONTEMPORARY GUIDE

TO SELECTING

THE PRECISE WORD

FOR EVERY SITUATION

S.I. HAYAKAWA

EUGENE EHRLICH,

REVISING EDITOR

"To the careful writer and speaker, this book can be invaluable." —*Saturday Review*

abjure. Do not confuse the verb *abjure* (renounce under oath) with the verb *adjure* (urge solemnly).

abrogate. Do not confuse the verb *abrogate* (cancel or repeal) with the verb *arrogate* (claim a power, privilege, etc., unduly).

absorb
assimilate
digest
imbibe
incorporate
ingest

These verbs, all relatively formal, indicate the taking in of one thing by another. **Absorb** is slightly more informal than the others and has, perhaps, the widest range of uses. In its most restricted sense it suggests the taking in or soaking up specifically of liquids: the liquid *absorbed* by the sponge. In more general uses *absorb* may imply the thoroughness of the action: not merely to read the chapter, but to *absorb* its meaning. Or it may stress the complete disappearance of the thing taken in within the encompassing medium: once-lovely countryside soon *absorbed* by urban sprawl. **Ingest** refers literally to the action of taking into the mouth, as food or drugs, for later absorption by the body. Figuratively, it designates any taking in and suggests the receptivity necessary for such a process: too tired to *ingest* even one more idea from the complicated philosophical essay she was reading. To **digest** is to alter food chemically in the digestive tract so that it can be *absorbed* into the bloodstream. In other uses, *digest* is like *absorb* in stressing thoroughness, but is even more emphatic. [You may completely *absorb* a stirring play in one evening, but you will be months *digesting* it.]

Assimilate is even more emphatic about the thoroughness of the taking in than either *absorb* or *digest*—in both its specific physiological and general uses. Physiologically, food is first *digested*, then *absorbed* by the bloodstream, and then *assimilated* bit by bit in each cell the blood passes. In more general uses, *assimilate*, unlike the previous verbs, often implies a third agent beside the absorber and the absorbed—an agent that directs this process: architects who *assimilate* their buildings to the environment. The process, furthermore, often implies the complete transformation of the absorbed into the absorbing medium. *Assimilate* also suggests a much slower process than *digest* and certainly than *absorb*, which can be nearly instantaneous: It would take the city generations to *assimilate* the newcomers into the patterns of a strange life.

Incorporate is the only verb here that does not have a specific use pertaining to the taking in of liquids or of food, meaning literally embody. It resembles the aspect of *assimilate* that stresses the loss of separate identity for the absorbed quantity: *incorporating* your proposals into a new system that will satisfy everyone. It is unlike *assimilate* in lacking that verb's suggestion of necessarily careful, time-consuming thoroughness.

Imbibe, while capable of uses comparable to those for *assimilate*, is mainly rooted still to its specific use for the taking in of liquids. Even this use, and certainly any others, now sound slightly archaic and excessively formal: Do you *imbibe* alcoholic beverages? See EAT.

Antonyms: *disgorge, disperse, dissipate, eject, emit, exude.*

abstain
forbear
refrain

The verb **abstain** means withhold oneself from an action or self-indulgence. [There were six votes in favor, two against, and two *abstaining*; She *abstained* from drinking.] **Refrain** has to do with withholding an action temporarily, or checking a momentary desire: He *refrained* from scolding his child until the company left. To **forbear**, in its intransitive sense, is to exercise self-control, often out of motives of patience or charity. [Though impatient, the customer *forbore* to upbraid the harried sales clerk; The teacher *forbore* to report Johnnie's misbehavior to his parents.] See FORGO, FORSWEAR.

Antonyms: BEGIN, PERMIT.

1

absorb

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Acquiring the lexical knowledge

- Knowledge acquisition from a dictionary of near-synonyms as an information extraction task.

- Disambiguate (using WordNet senses).
  - Many clusters refer to just one sense of an ambiguous word.

Refining the lexical knowledge

(Diana Inkpen 2003, Inkpen and Hirst 2002–2003)

- Add connotative, evaluative distinctions.
  (from the *General Inquirer*, Stone 2002).

- Add more denotational distinctions.
  (from the *Macquarie Dictionary* and WordNet)

- Add knowledge of collocations and anti-collocations for each word.
  (from Web-based counts).

Using near-synonyms

(Diana Inkpen 2003, Inkpen and Hirst 2003)

- Xenon: NLG system built on HALogen (*n*-gram–based generation, Langkilde 2000).

  - Uses knowledge of near-synonyms to choose the best word to express the desired nuances.

  - Overrides *n*-gram probabilities where necessary.

Syntactic nuances of meaning

(Chrysanne DiMarco 1990, DiMarco and Hirst 1993)

- Syntactic structure affects style of text.

  - Same structure might give different styles in different languages.

- Rules to relate syntactic structure to:

  - Staticness vs dynamism.

  - Abstraction vs concreteness.

  - Clarity vs obscurity.

- Paraphrase to *maintain* style in translation.

Translation as lexical paraphrase

(Vinay and Darbelnet 1995; Manfred Stede 1996)

- Paraphrase to get most synonymous possible translation in context.

Emma pleurait → *Emma burst into tears*

Situation →

← Explication

← Result of action

Tom disconnected the wire from the sparkplug.
Tom zog das Zündkabel von der Zündkerze ab.

← Action
('pull off')

Conclusion

"That's not what I said"

Paraphrasing Paraphrased

- Viewpoints on paraphrase:
  - As change of viewpoint or evaluation.
  - As change of truth conditions.
  - As change of words and syntax.
  - As change of connotation, style, other pragmatic aspects of the message.

Some things I didn't get to say

- Analysis of paraphrase:
  - … as a linguistic phenomenon.
  - … as a literary phenomenon.
  - … as a social and psychological phenomenon.
- "Semantic prosody"

Some applications I didn't mention

- Higher-quality machine translation.
- Finer-grained analysis of content and opinion in text.
- Finer-grained NLG.
- Intelligent thesauri and writers' aids.
- Summaries, event tracking, QA, …

Research challenges (1)

- For each aspect of paraphrase:
  - Representation of knowledge.
  - Acquisition of knowledge.

Research challenges (2)

- Recognizing paraphrases.
- *Imposing* recognition of paraphrase.
- Measuring paraphrase distance.
- Explicating paraphrase differences.
  - Distinguishing paraphrase from misunderstanding.

Research challenges (3)

- Generating paraphrases on demand.
  - Linguistic restatement.
  - Conceptual restatement.
- Bringing it all together:
The automatic dispute mediator.
  - Peace in the Middle East.

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