

Subject index

- A**
- a, frame determiner, 17–18, 56–57
Absity, 43, 44–72, 98, 126, 189–191
abilities, 72
examples of, 52–55, 73
hiding disambiguation in, 96–97
implementation, 56
inabilities, 59–72, 73
Absolute adjectives, 69
ACCOMPANIER case, 7
actually, 71
Adjectival, 145
Adjectival/present-participle ambiguity, 145
Adjective phrase, 63, 139
Adjective-phrase/prepositional-phrase ambiguity, 139, 141
Adjective/present-participle ambiguity, 139, 142
Adjectives, 48, 49, 69, 139, 213
as nouns, 144
absolute, 69
intensional, 69
measure, 69
role, 69
ADJ-to-V ambiguity, 148
Adverb attachment, 133–136, 184–185
Adverbs, 7, 31, 48, 50, 71, 184–185
again, 71
AGENT case, 7, 9, 61, 109, 111, 115, 169, 217
All-readings hypothesis, 85, 91–94, 152
Ambiguity
and heart rate, 84
case, 7–9
categorial, 5–6, 86, 92–94, 143, 149, 157
definition of, 5
in Amhara culture, 205–206
in Somali culture, 205
in non-Western cultures, 205–206
lexical, 4–6, 69, 112, 157, 212–213
definition of, 4–6
local, 11
morphological, 212
structural, 9–12, 38, 131–152, 215
analytic, 137–149
as closure problem, 150–152
attachment, 131–136
non-example, 134–136
definition of, 9–12
Amhara culture, ambiguity in, 205–206
Anaphors, 4, 38, 81, 209
focus for referents, 17
psychological reality, 18
surface count, 4
and, 49
Anti-promiscuity rule, 102
Applications of this research, 192
Arguments, abstract representation of, 192
Artificial counterexamples, 20, 173, 176, 191, 194
Artificial intelligence, 32–34, 39
in military systems, 194
assert function, 16, 17
ATN parser, 19, 81, 82, 198
structural disambiguation in, 152–153
attr, 68
Auxiliary, 48, 50
- B**
- Backward chaining, 16
Base rules
correspondence to semantic rules, 45
for *be*, 65–66
for pseudo-words, 51
of grammar, 45, 55
Base-structure rules, 19
be, 30, 62–66
frame semantics for, 64
BE, syntactic category, 65
BE2, syntactic category, 66
because, 49
Biuniqueness condition, 8
Blocks world, 15
Boltzmann machine, 214
Boots-And-All Theory of Language Comprehension, 212
BORIS, 196
Bottom-up priority, 42, 196

- Brown University, 15, 44
Bruin, 15–16, 59, 68
buy, 106
Polaroid Word for, 107
- C**
Canned phrase, 70, 110, 195, 209–210
Cascaded ATN, 198
Case, 40, 81, 82
preferred, 155–157
Case theory, 7
Case-slot identity theory, 48
Categorial grammar, 31
Cement Semantics, 59
Clause end, 48, 50
Cleft sentence, 146, 147
Cleft/non-cleft ambiguity, 146, 147
CLEND, 51
Closure, 150–152, 155–157
counterexample, 151
definition of, 150
Cognitive modeling, 12, 20, 191
Combinatorial explosion, preventing, 175–176
Common-sense knowledge, 15
Compositionality, 14, 26, 27, 28, 32, 35–38, 39,
43, 50, 58, 61, 62, 65, 183
definition of, 27
words that violate, 71–72, 212
Compound nominal, 69–70, 144, 154–155
Conceptual dependency, 29, 193, 194, 199
Conceptual graphs, 191, 199
Conjunction, 48
coordinate, 49
not in Absity, 69
subordinate, 49
Connectionist systems, 214
Constructed path, 100
Construction rule, in grammar, 45
Context, 17–18, 78, 83, 85, 87, 158, 183
marker passing in, 114
recognition of, 77
representation of, 114
Contingent obligation, no representation in Frail, 68
Conversational implicature, 71
Counterfactual, representation of, 209
crook, Polaroid Word for, 111
CSAW, 82–83, 98, 118, 125
Cumulating evidence approach, 123
- D**
Dative movement, 162
De dicto reading, definition of, 26, 59
De re reading, definition of, 26, 59
Deadlock, in Polaroid Words, 112
Decision point problem, 85
Declarative sentence, 35–38
Declarative/interrogative ambiguity, 147–148
Decompositional semantics, 28–29, 207
Definite reference, 4, 17, 38, 40, 170, 209
Definitional *be*, 62–64, 66
Deixis, 4
Demands of design, 191
despite, 166, 217
DESTINATION case, 109, 179–180
Determiner, 31, 48, 49, 50
complex, 67
Determinism
not in idiom interpretation, 210
strict, 19, 167
Deverbal noun, 140
DIALOGIC, 198
Dictionary
on-line, 200
structure of, 200
Disambiguation
by lexical preference, 155–157
categorial, 160
effect of constituent length, 218
effect of intonation, 136, 147
effect of punctuation, 136, 146, 147
effect of reading skill on method, 78
lexical, 15, 43, 77–127, 176, 181, 183, 193–
194, 199, 200–201, 213–215
impaired in schizophrenia, 90
in MOPTRANS, 195
local cues in, 78
psychological research, 84–95
statistical approaches, 77
time course of, 121–123
structural, 15, 43, 152–186, 197, 198–199, 216–
217
decision point of, 219
in MOPTRANS, 195
time course of, 123
with spreading activation, 199
unnecessary, 194
Discourse comment, 185, 211
Discrimination net, 83, 213
Distributed representations, 200
Dominant sense, 90–92, 94, 110, 123
Dynamic verb, 61–62

E

- eat*, 206–207
Epithet insertion, 212
Epithets, 72
erase function, 16
even, 71
Exemplar Principle, 169, 178, 182
EXPERIENCER case, 217
Expert systems, 192
Extension, 59–60
 definition of, 26
Eye movements, in disambiguation studies, 161

F

- False positive**, 102, 203
feed, 206–207
Feedback to parser, 26, 38, 39, 43, 45, 58
Final Expected Argument Principle, 156, 167, 171
Flag, case, 7, 40, 50, 70, 79, 106, 112, 167
Focus, 17–18, 57, 170
Frail, 12, 14, 15–18, 33, 44, 46, 49, 58–61, 64, 105, 108, 120, 121, 168–169, 171, 191, 198, 206, 207, 209, 219
 marker passing in, 98–100
 meta-notation for, 56–57, 69
 no representation of sets, 66
 representation of counterfactual, 209
 representation of negation, 68
Frame descriptor, 46–50
Frame determiner, 17–18, 46–50, 56, 169, 191, 209
 adding negation to, 69
Frame equivalence statement, 66
Frame equivalencer, 66
Frame semantics, 207
Frame statement, 46–50
Frame-statement/frame-name, 55
Frames, 12–18, 33, 34, 41, 43, 46, 48–50, 77, 82–83, 105, 194, 201
 as intension, 60
 as script, 68
 as semantic object, 14–15
 definition of, 12
 generic, 13
 matching, 169
 transfer, 203
Frequency of word senses, 89, 90–92, 94, 110, 155
Fuzzy logic, 207

G

- Gap**
 filling, 136–137, 152
 finding, 136–137, 152, 154, 156, 177–182
 problem for Marcus parser, 221
Garden path
 semantic, 20, 88, 119, 124
 syntactic, 11, 20, 143, 150, 159–161, 181
Generalized phrase structure grammar, 197–198
Generic expression, 26–27, 43
give, 179
Government and binding theory, 217
Grammar, categorial, 31
Guugu Yimidhirr, 216

H

- Habitual action**, 61, 62, 110
Hapax legomenon, 7
have, 67
Heart rate and ambiguity, 84
Heteronym, 5, 89
Homograph, definition of, 5
Homonymy, 5–6, 83, 86, 212, 213
 definition of, 5
Homophone, definition of, 5

I

- Identity *be***, 62–64, 66
Idiolectic variation, 10, 162, 179
Idioms, 209–210
Ill-formed input, parsing of, 20
Immediate path, 100
Incremental description refinement, 198
Incremental interpretation, 198
Indefinite reference, 170–171
Index, definition of, 30
Indexical expressions, 4
Indirect object, 50
Individual, 30
Individual concept, 30
INDOBJ, 51, 179
Inference, 16, 26, 29, 70, 185
 disambiguation with, 79, 111
Instance, 46–50
 as extension, 60
 frame, 13, 16, 17
INSTRUMENT case, 7, 8, 104, 105, 109, 111, 115, 132, 168
Intension, 26, 30, 31, 43, 59–61
 in Absity, 60–61
Intensional adjectives, 69
Intensional logic, 30–33, 59, 60, 193, 197

- into*, 166
 Intonation, disambiguating effect, 136, 147
 Irony, 4, 72
 ISA hierarchy, 12, 64, 102, 104, 117, 207, 213
 verbs in, 106
 ISA relation, 12, 82–83, 195, 200, 207
- J**
JARGON, 198
 Jokes, 84
- K**
KL-ONE, 13, 198
KNOBS, 193
know, 166
 Knowledge base, 33–34, 39–41
 Knowledge representation, 33
 Knowledge semantics, 34, 39–41
 Knowledge-base semantics, 32–34
KRL, 13–14
- L**
 Lambda binding, 57
 Lambda conversion, 57
 Language generation system, ambiguity in output, 221
 Language generator, relation to *Frail* and *Absity*, 53
 Late Closure, definition of, 11
 Legal information systems, 192
let alone, 71
 Lexical access question, 85, 87–95
 Lexical bias, 153
 Lexical preference, 155–157, 160–161, 167–168,
 177, 195
 for gap-filling, 220
 in prepositional phrase attachment, 172
 versus conceptual preference, 218–219
 Lexicalization of noun group, 70
 Lexicon, 96
 Linguistics, 25, 28
 Literary criticism
 made difficult, 205–206
 made simple, 203–205
 Local Association, definition of, 11
 Localist representations, definition of, 200
LOCATION
 case, 8, 71, 115
 verb modifier, 71
 Logic, as representation, 32–34, 39, 41, 197–198
 Logogen model, 88
look, 183
- Low Right Attachment, 11, 172
LUNAR, 38, 152
- M**
 Machine translation, 72, 192, 195, 198, 212
 Magic numbers, 99, 111, 123, 125
MANNER
 case, 7, 8, 166, 168
 verb modifier, 8
 Marcus parser, 11, 15, 18–20, 167, 177–178, 183,
 221
 gap finding in, 221
 operation of, 18–19
 structural disambiguation in, 153–155
 Marker passing, 70, 97–102, 106, 111, 118–121,
 123–125
 anti-promiscuity rule, 102
 as model of spreading activation, 98
 constraints on, 101–102
 constructed path, 100
 definition of, 98
 false positive path, 102, 203
 for lexical disambiguation, 100–101
 immediate path, 100
 in *Frail*, 98–100
 in representation of context, 114
 need for parallel hardware, 98
 path, 99
 path checker, 102, 203
 Meaning acquisition, 26
 Meaning extension, 26
 Measure adjectives, 69
 Mental image, 169
 Mere symbols, 190
Merriam-Webster pocket dictionary, 5, 201
 Message passing, as basis for NLU, 193
 Metaphor, 4, 7, 80, 115–117, 210
 Metonym, 115, 117
 Military applications of artificial intelligence, 194
 Minimal Attachment, 11, 162, 172
 definition of, 11, 162
 Model-theoretic semantics, 30, 34
 Modifier placement, 131
 Montague semantics, 1, 29–33, 45, 64, 197, 208
 case in, 96
 lexical ambiguity in, 30, 96–97
 lexical disambiguation in, 214
 semantic rules, 31–32
 syntactic rules, 31
MOPTRANS, 194–195, 221
 lexical and structural disambiguation in, 195
 Moral obligation, no representation in *Frail*, 68

- N**
- NASL, 16, 68
- Negation
not in Absity, 69
representation in Frail, 68
- NETL, 98
- Nominalization, 166, 217
- Non-descriptive noun modifier, 144
- Non-discrete semantics, 6
- Non-restrictive noun modifiers, 70
- Notation, xii–xiii
- Noun group, 69–70, 144, 154–155
Absity and, 70
- Noun modifiers, 69–70
non-restrictive, 70
- Noun phrase, 19, 31, 48–50, 143, 170
binding, 57–58
end detection, 143–144
in Absity, 52
split, 151, 216
- Noun/present-participle ambiguity, 140, 142
- Nouns, 31, 48, 82–83, 103, 140, 213
proper 31, 48, 49
deverbal, 140
verbal, 143
- Null context, 157, 159, 160
- NULLDET*, 51
frame determiner, 208
- Null determiner, 49, 51
- O**
- OBJ*, 70, 109–110, 179
definition of, 51
Polaroid Word for, 109–110
- Object, 50
- Object-oriented semantics, 34, 41, 43
of, 166
onto, 166
- Opaque context, 26, 30, 43, 60
definition of, 26
- operate*, 106
Polaroid Word for, 105, 109–110
- or*, 49
- Ordered search hypothesis, 85, 90, 118, 152, 213
out, 183
- P**
- Paramgram parser, 16, 18–20, 44, 45, 51, 55, 64, 67, 71, 113, 114, 126, 164, 167, 177–178, 198
- Paraphrase, 36
- Parse tree, need for retention of, 4
- Parsers, 55
- Parisifal parser, 18–20, 51, 113, 145, 153–155, 164, 177–178
- Participle
attachment, 134, 146
past, 147
present, 139, 140, 145–146
- Particle, 137, 139, 182–184
detection, 182–184
- Particle/Preposition ambiguity, 137, 139
- PART-OF relation, 82–83, 200
- Passive voice, 114–115
- Path checker, 102, 203
- PATIENT case, 7, 61, 70, 79, 109–110, 115, 155
- Percept, as semantic object, 190
- Phillips network, 193
- Philosophy, 25
- Phoneme monitoring, 87–90
- PLACE
- verb modifier, 8
- verb qualifier, 8
- Plausibility, 160–162, 168–169, 178, 180, 181, 183
in disambiguation, 160–162
in prepositional phrase attachment, 168–169, 172–173
testing for, in Frail, 168–169, 180, 181
- Plural, 67
- Poetry, computational analysis, 203–206
- Polaroid Word
for bound constituent, 112–113
for determiner, 103, 114
for *buy*, 107
for *by*, 114
for *crook*, 111
for noun, 103, 107–108, 116
for noun modifier, 103, 108
for *OBJ*, 109–110
for *operate*, 105, 109–110
for particle, 183
for preposition, 103–105, 107–108, 114, 167, 178–179
for *sell*, 107
for *slug*, 103, 109
for *SUBJ*, 109, 110, 111, 114
for *the*, 114
for unambiguous word, 106
for *vending machine*, 109
for verb, 103, 105–108, 114, 116, 183
for *wh-*, 112–113, 184
for *with*, 104, 110
- Polaroid Words, 96–127, 166–167, 169, 176, 181, 189–191, 193, 199
announcement by, 108
compared to rules in MOPTRANS, 195
constraints on communication, 107
deadlock between, 112
definition of, 97
deprecated meaning, 110

- disambiguation cues ignored, 113–115
example of, 103, 104, 105, 107, 108–110, 126
friendships among, 107, 108, 113
guessing, 176, 214
hypothetical, 179
ignore case combination constraints, 114
ignore discourse context, 114
ignore syntax, 113–114
inabilities, 115–117, 126
not replacement for inference, 111
operation of, 106–108
packet of knowledge for, 103–106
preferred meaning, 110, 123
psychological reality, 118–125
psychological unreality, 119, 121–124
structure of, 102–106
- Polysemy**, 5–6, 7, 78, 83, 106, 212, 213
definition of, 5
- Possible world**, 30
- Pragmatics**, 16, 209–212
and lexical preferences, 157
as rug for non-compositional words, 71
relation to semantics, 4
resolving lexical ambiguity, 111
- Predicate calculus**, 15
- Predicate logic**, 33
- Predication**, 65–66
- Predicative *be***, 62–66
- Predicator**, 65
- Preference semantics**, 29, 80–81
- Preferred parse**, 9–12, 161
- Prepositions**, 31, 48, 50, 103–104, 137, 139, 166
- Prepositional phrase**, 31, 48, 51, 63, 139
attachment, 11, 131–133, 153, 158, 165–176, 178, 181, 209, 217
non-restrictive, 165, 209
restrictive, 165
algorithm for, 172–175
determinants of, 166–167
two competing verbs, 174
where prohibited to VP, 165–166
- Presupposition**, 158–161, 170–172, 178
definition of, 158
in disambiguation, 158–161
in prepositional phrase attachment, 170–172
testing for, 170–172
- Principle of A Priori Plausibility**, 160, 167
- Principle of Parsimony**, 159, 160, 167
- Principle of Referential Success**, 158–159, 167, 169–171, 178, 182, 219
- Prior choice hypothesis**, 85, 87, 91, 118, 152
- Problem solving**, 15–16, 26
- Procedural semantics**, 34–39
- Projection rules**, 198
- Prolog**, 38
- Pronouns**, 48, 209
focus for referents, 17
- Proper nouns**, 31, 48, 49
- Pseudo-determiners**, 51
- Pseudo-prepositions**, 50–51, 70, 79, 109, 166, 191, 217
psychological non-reality of, 123
- Pseudo-word**, 50–51, 58, 60
- PSI-KLONE**, 198
- Psycholinguistics**, 20
- Psychological reality**, 12, 20, 90, 118–125, 152, 161, 169, 181, 191, 212
in semantic interpretation, 42, 200
- Punctuation**, disambiguating effect, 134, 136, 146, 147, 185, 216
- Puns**, 84
- put*, 115
- Q**
- Quantification**, 43
complex, 198
- Quantifier**, 67
storage, 67
- Question**, 35, 37, 39
adverbial *wh*-, 70
in Absity, 53–55
- question, frame determiner**, 18
- R**
- Raising**, 139
- Reading skill**
effect on disambiguation error recovery, 120
effect on disambiguation method, 78
individual differences, 42
- Reading span test**, 120
- REASON case**, 8
- Reduced relative clause**, 146, 162
- Reduced-relative-clause/verb-complement ambiguity**, 146
- Reduced-relative-clause/verb-phrase ambiguity**, 143
- Referential identity**, 57
- Referential success**, 180
- Relative clause**, 49, 137, 184
attachment, 113, 133, 177, 184
non-restrictive, 182
reduced, 143
- Relative-clause/verb-complement ambiguity**, 137, 147, 160
- Relative pronoun**, 49
- Reopening of constituent**, 151, 216
- Representation of knowledge**, 202–207
non-discrete, 202
- retrieve function**, 16–17
- Right Association**, definition of, 11
- Role adjectives**, 69

- S**
- Sarcasm, 4
- Schizophrenia, lexical disambiguation impaired in, 90
- Scholastic Aptitude Test, 120
- Script, 33, 68, 87, 89, 118, 194
disambiguation with, 77–78
- Secondary sense, 90–92, 94
- Selectional restrictions, 79, 80–81, 82, 117–118, 152, 153, 206–207, 220
- sell*, 106, 179
Polaroid Word for, 107
- Semantic association, 78, 82–83, 97–98, 118, 124
- Semantic bias, 9
- Semantic distance, 124–125
- Semantic Enquiry Desk, 97, 164–167, 169, 189–191, 219
- Semantic interpretation, 2–4, 25–72, 83, 193, 197–199, 209–212
definition of, 2–4
incremental, 198
with spreading activation, 199
- Semantic interpreter, desiderata for, 43, 58
- Semantic network, 33, 41, 82–83
- Semantic object, 14–15, 25, 26, 30–31, 32, 43–45, 52, 58
identified with percept, 190
interpretation of, 29, 34, 39, 41
type, 45
versus “mere symbol”, 190
- Semantic priming, 86–87, 92–94, 98, 118, 119
negative, 88
of idioms, 210
- Semantic primitive, 28–29
- Semantic rule, 45, 52
- Semantic theory, desiderata for, 26
- Semantics
consumers’ attitudes to, 1
definition of, confusion over, 25
linguists’ attitudes to, 1
non-discrete, 6, 202
relation to pragmatics, 4
relation to syntax, 2, 26, 29, 31–32, 42, 43, 45
- Sentence, 48, 49
- Sentence body, 48
- Sentence wrap-up process, 122
- Sets, no representation in Frail, 66
- Similarity matching, 169, 180, 181, 203
- Simulated annealing, 203, 214
- Situation semantics, 195, 207
- Slash type, 55
- Slot
case, 7, 48, 79, 82, 104–106, 108, 112, 153
frame, 12, 13, 16, 46, 48–50, 104–106, 167
default value, 12
- Slot restriction predicate, 104–105, 117–119, 120, 168–169, 178, 179, 206–207
- Slot–filler pair, 46–50, 69, 108
definition of, 47
- slug*, Polaroid Word for, 103, 109
- Somali culture, ambiguity in, 205
- some, frame determiner, 18, 57
- SOURCE case, 109
- Space, limited representation in Frail, 68
- Speech acts, 4
- Spreading activation, 86–89, 119, 123–125, 199–200, 213
and word association, 214
decay of, 121
modeled by marker passing, 98
semantic interpretation with, 199
structural disambiguation with, 199
- STATE case, 155
- Stative verb, 61–62
- Stylistic subtleties, 211
- SUBJ*, 109, 111, 115
definition of, 51
Polaroid Word for, 109–111
- Subject, 50
- Subordinate clause, 8, 48–49
- Subtleties of discourse, 72
- Supplementive clause, 145–146
- Syncategorematic, definition of, 31
- Synecdoche, 115, 117
- Synonymy, 36
- Syntactic bias, 9–11, 152, 156, 160
- Syntactic rule, 45
- Syntax
disambiguation with, 79
relation to semantics, 2, 26, 29, 31–32, 42, 43, 45
- T**
- Tandem processing, 31–32, 42, 44, 45, 50, 52, 58, 208
- Teachable Language Comprehender, 82
- TEAM, 38
- “Temperature is ninety” problem, 30
- Text corpora, 192
- Text digestion, 192
- the*, frame determiner, 17–18, 56
- the-pl*, frame determiner, 18, 57
- Theta-role, 217
- Time, limited representation in Frail, 68
- TIME verb modifier, 8
- to-be*-deletion, 139
- Topicalization, 72
- Transfer frame, 203

- TRANSFEREE case, 110
Transformational grammar, 1, 19, 45
Transformational rules, 19
Truth-conditional semantics, 32, 38
Truth-conditional theory, definition of, 30
Type
 basic, 46–47
 constructed, 46–47
 internal, in Absity, 55
 semantic, 52
 slash, 55
Types, theory of, 30–31
Typing, strong, 14, 32, 44–50, 183, 208
 problems with, 208
- U**
up, 183–184
- V**
Vagueness, 67
Variable, frame, 46, 47
vending machine, Polaroid Word for, 109
Verb complement, 137, 139, 146
Verb modifiers, 7, 8
- Verb phrase, 31, 32, 48, 50
Verb phrase determiner, 51
Verbal noun, 143
Verbs, 29, 48, 49, 82–83, 105–106, 107, 155, 213
 phrasal, 182
 phrasal-prepositional, 182
 prepositional, 182
 stative, 61–62
- W**
Warlpiri, 216
Wax and gold, 205–206
Well-formedness of partial results, 14, 45, 190
wh, 55, 70, 136–137, 162, 177, 178, 184
 binding, 113
when, 49
with, 67, 132, 166
 Polaroid Word for, 104, 110
Word Expert Parser, 83, 103, 126, 213
Word association, 214
- Y**
yet, 71