A Semantic Syllabus for Computer Science based upon Corpus Data

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CLR

W. F. Mackey (1965)

Language Teaching Analysis, IUP

- ☐ We cannot teach everything so we must select, and we cannot teach what we select in one day, so we must sequence it.

- ☐ Selection (what is important?)

- ☐ Sequencing (what order is best?)

Selection

Selection

- Natural Language is huge.

Selection

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- We can't teach it all.

Selection

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- We can't teach it all.

- Fortunately, not all parts are equally huge.

Selection

- Natural Language is huge.

- We can't teach it all.

- Fortunately, not all parts are equally huge.

- or equally important.

Selection

Selection

- Prepositions (about 75?)

Selection

- Prepositions (about 75?)

- Conjunctions (about 150?)

Selection

- Prepositions (about 75?)

- Conjunctions (about 150?)

- Time expressions (300?)

Selection

- **Prepositions (about 75?)**

- **Conjunctions (about 150?)**

- **Time expressions (300?)**

1. before
2. behind
3. below
4. beneath
5. beside
6. besides
7. between
8. beyond
9. but
10. by
11. concerning
12. considering
13. despite
14. down
15. during
16. except
17. excepting
18. excluding

Selection

- Prepositions (about 75?)

- Conjunctions (about 150?)

- Time expressions (300?)

Selection

- **Prepositions (about 75?)**

- **Conjunctions (about 150?)**

- **Time expressions (300?)**

1. or
2. otherwise
3. perhaps ...
4. plus
5. previously
6. provided (that),
7. providing (that),
8. since
9. since (because)
10.   so
11.   so if
12.   so long as,
13.   so that
14.   so therefore
15.   so when
16.   so, after
17.   still
...
and to make matters worse
ただでさえ

Selection

- Prepositions (about 75?)

- Conjunctions (about 150?)

- Time expressions (300?)

Selection

Prepositions (about 75?)

Conjunctions (about 150?)

Time expressions (300?)

1. *For*
2. for half an hour
3. for more than a week
4. for the better part of an hour
5. for the entire twenty minutes
6. *Over*
7. Over the last few weeks
8. Over the last half of the project
9. Over the next three to five years
10. Over the past year
11. Over the same period, …
12. Over the weekend
13. Over the years,

Selection

Selection

verbs!

Selection

verbs!

- **Verbs**

Selection

verbs!

- Verbs

  - control sentence structure

Selection

verbs!

- Verbs
  - control sentence structure
  - are difficult

Selection

verbs!

- Verbs

  - control sentence structure

  - are difficult

  - are not vast (perhaps 3-4000?)

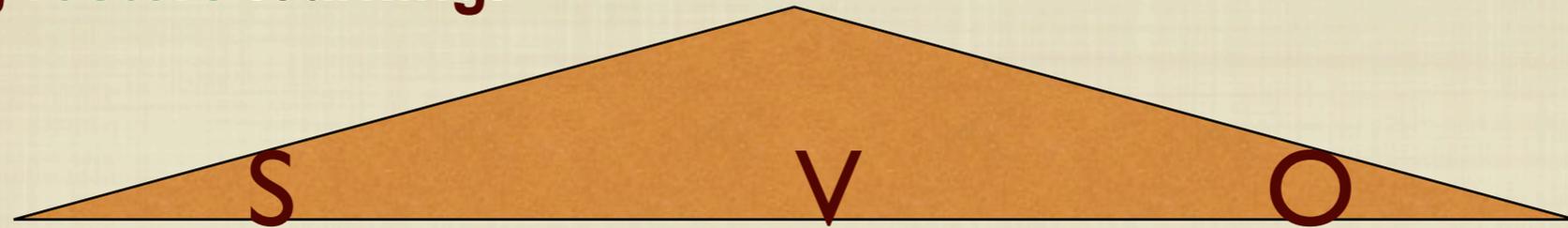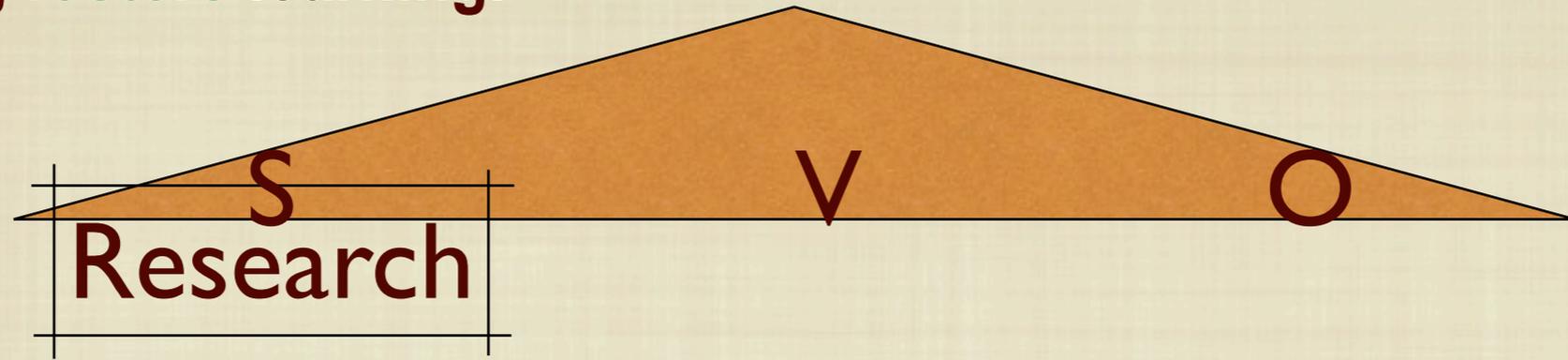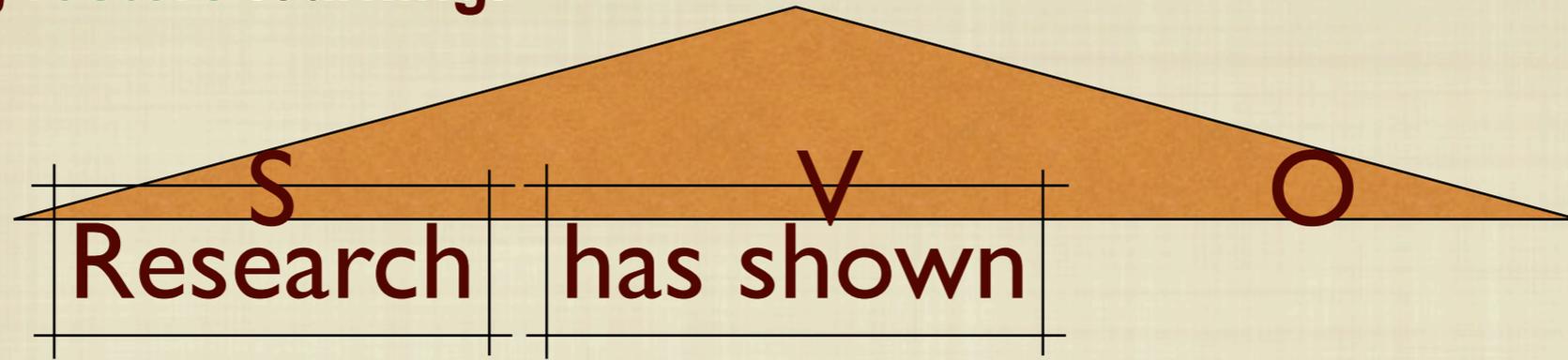- **Research has shown that providing instructional prompts in computer-based learning environments designed to support example-based learning fosters learning.**

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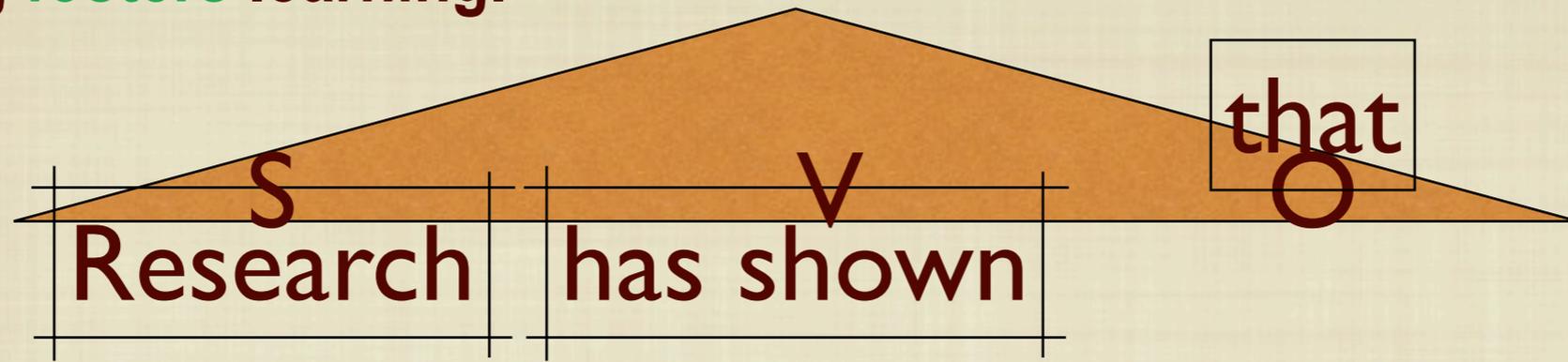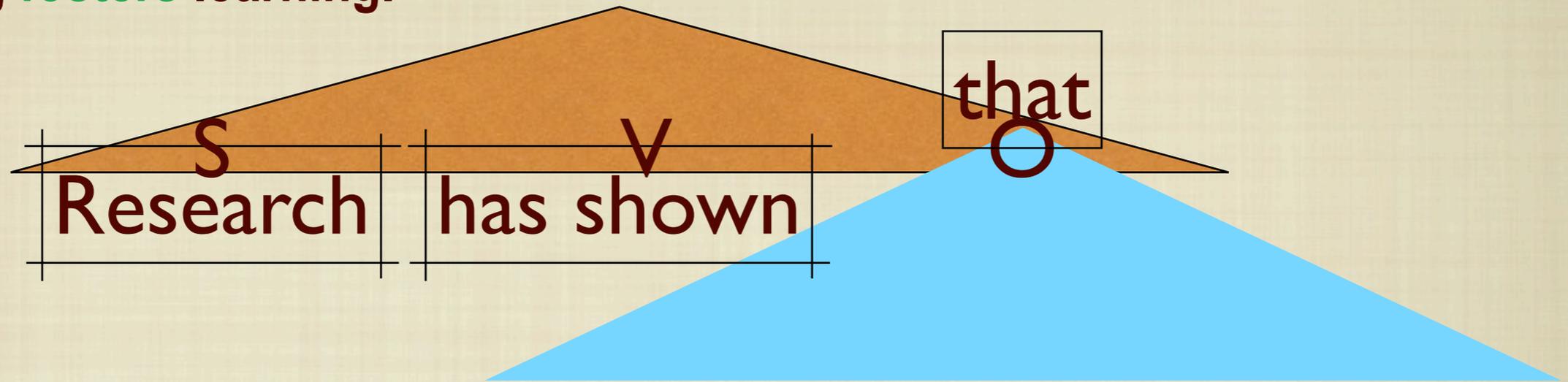- **Research has shown that providing instructional prompts in computer-based learning environments designed to support example-based learning fosters learning.**

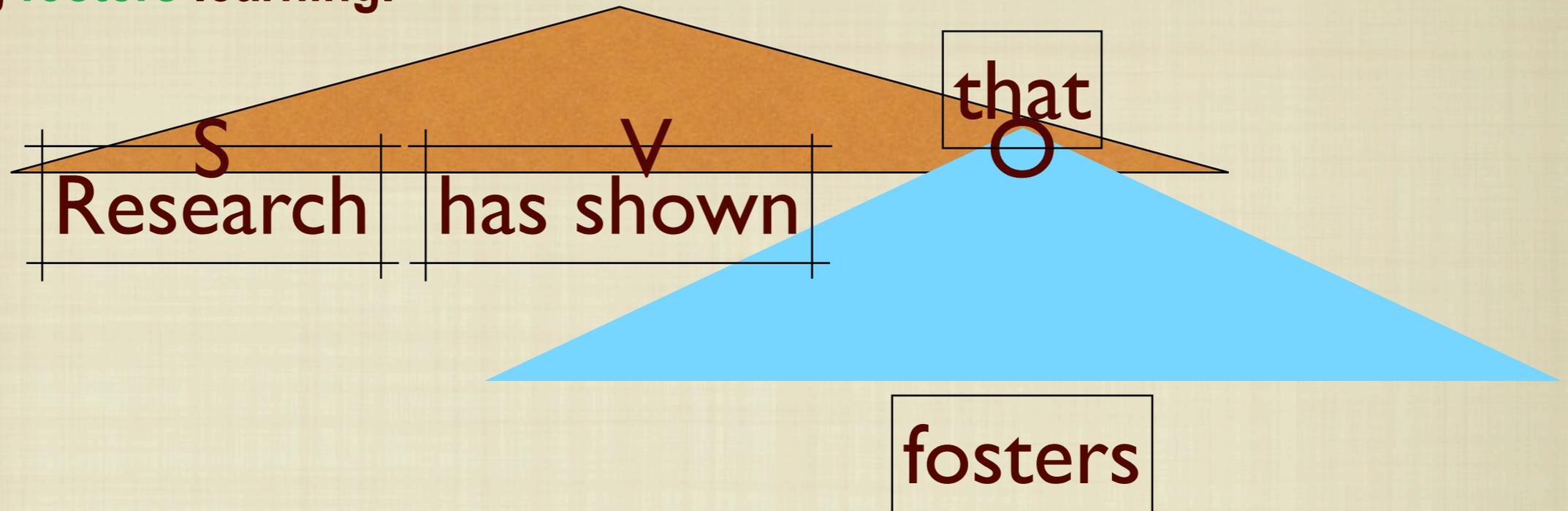S   V   O

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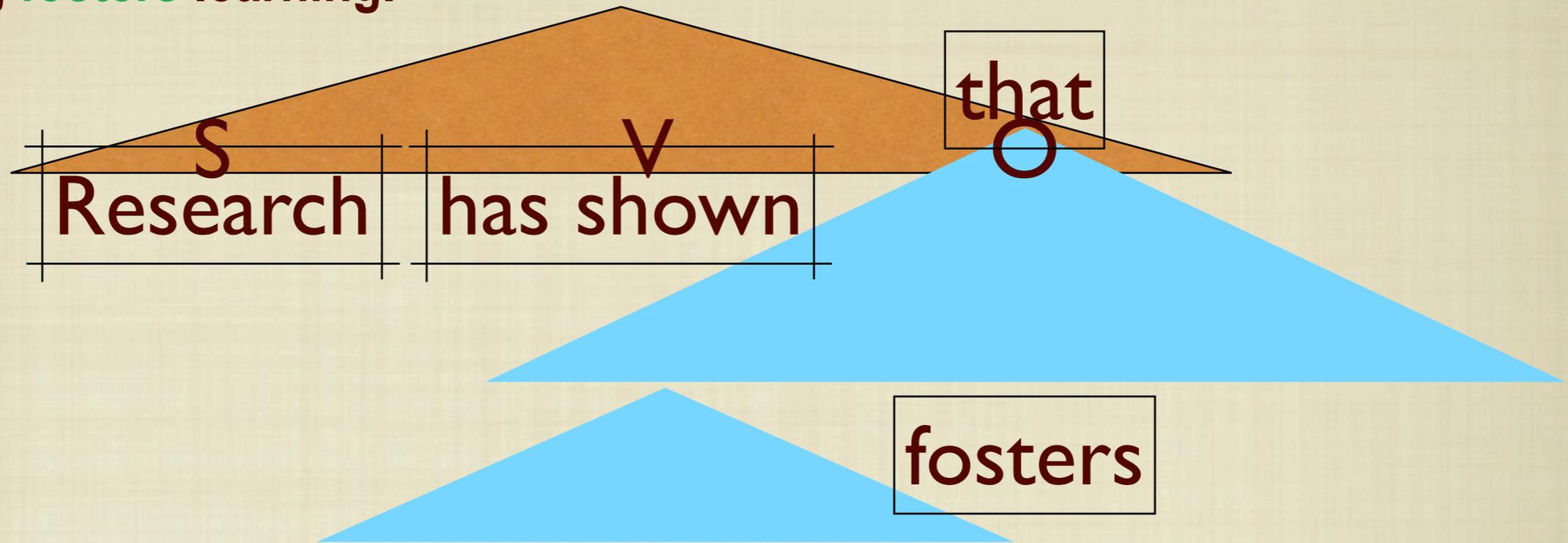Research

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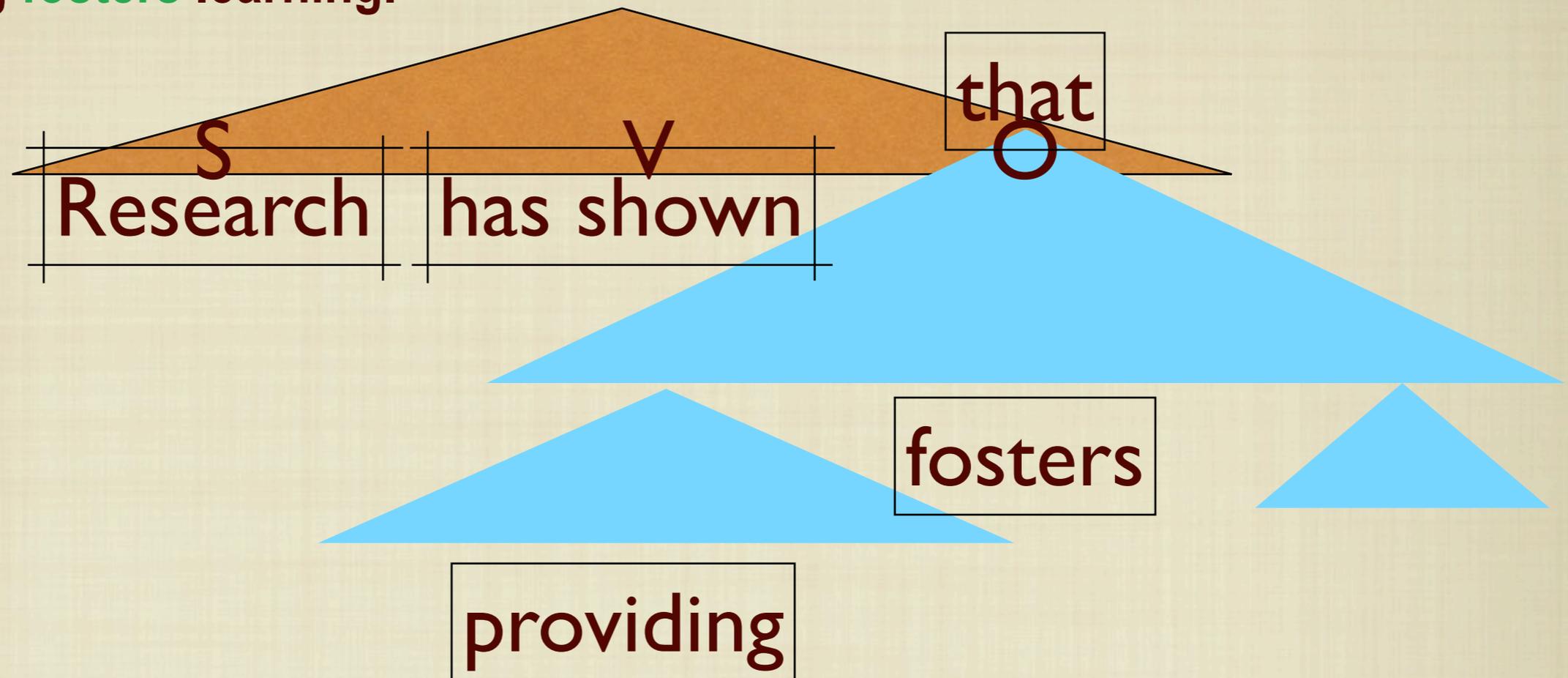- Research **has shown that** providing instructional prompts in computer-based learning environments **designed** to **support** example-based learning **fosters** learning.

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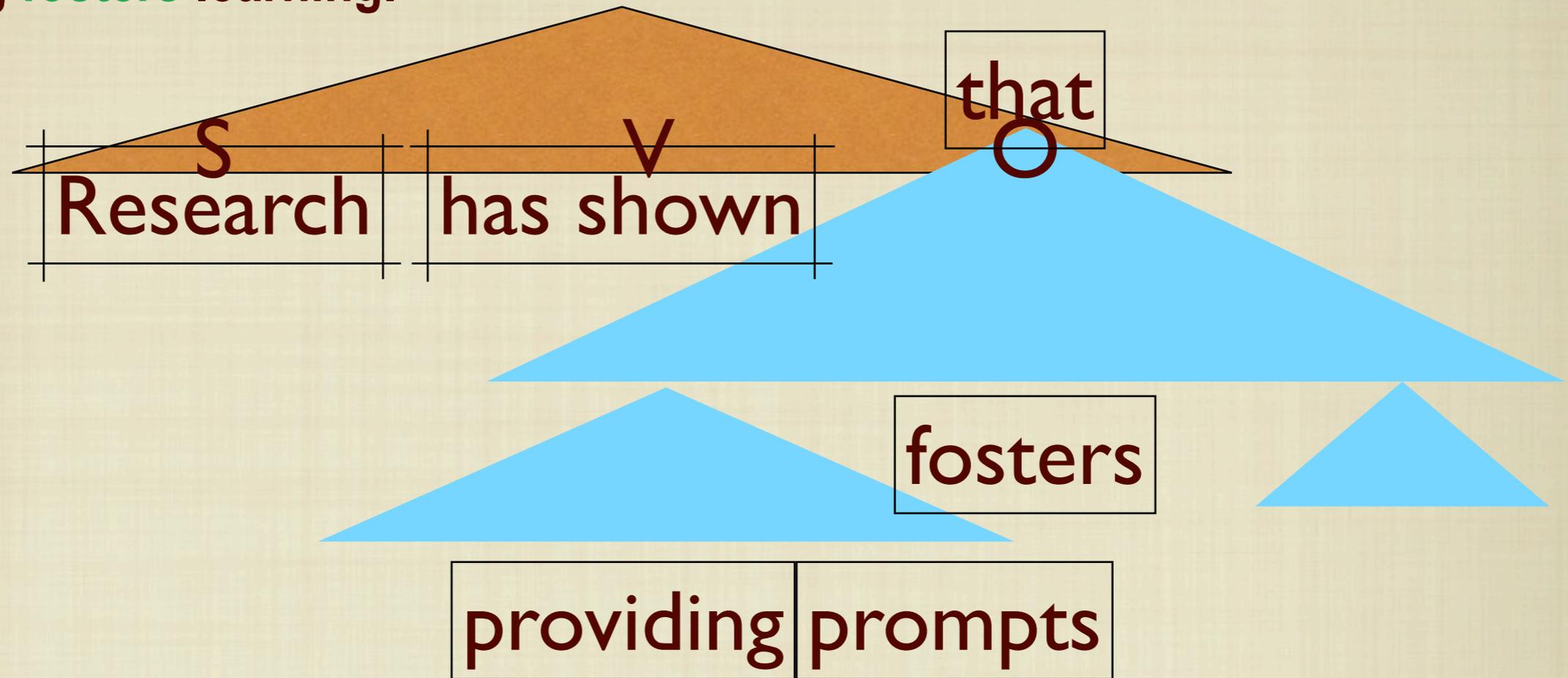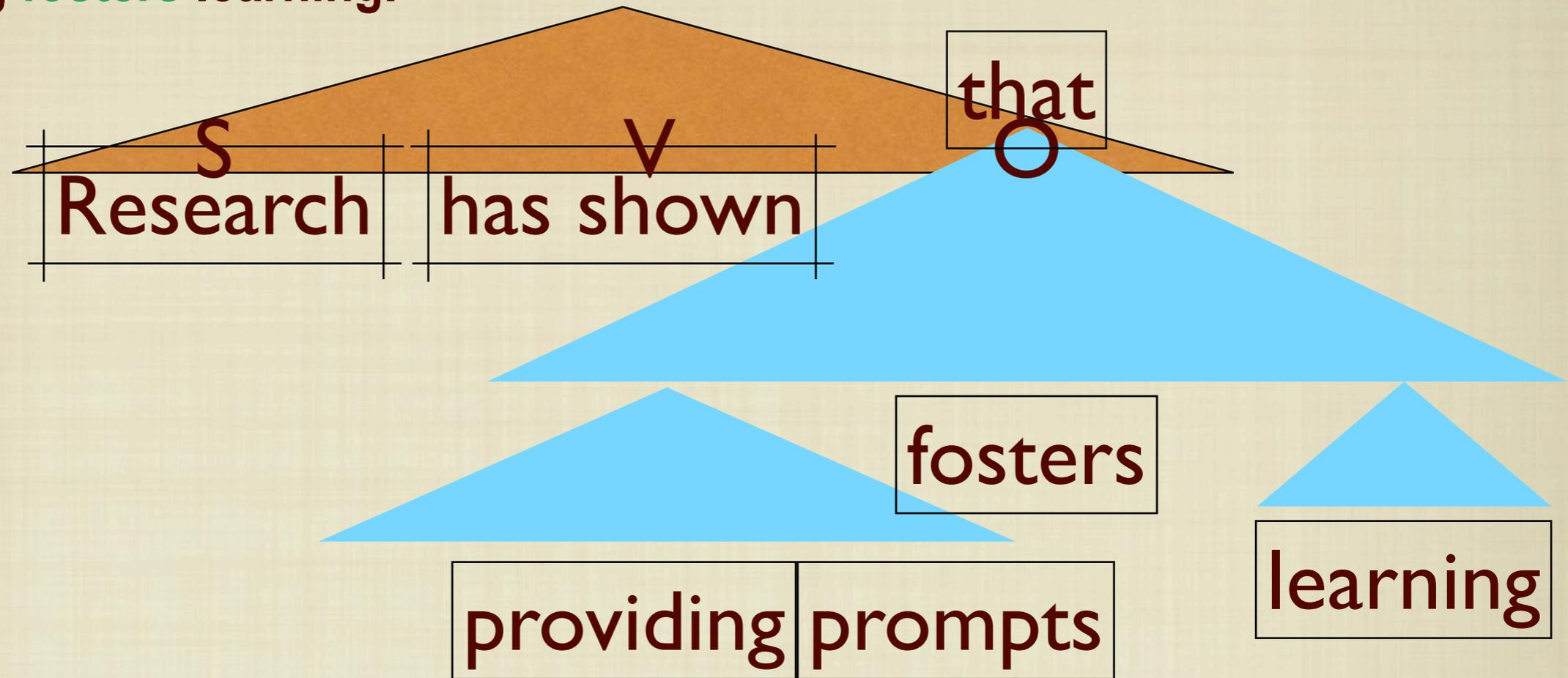
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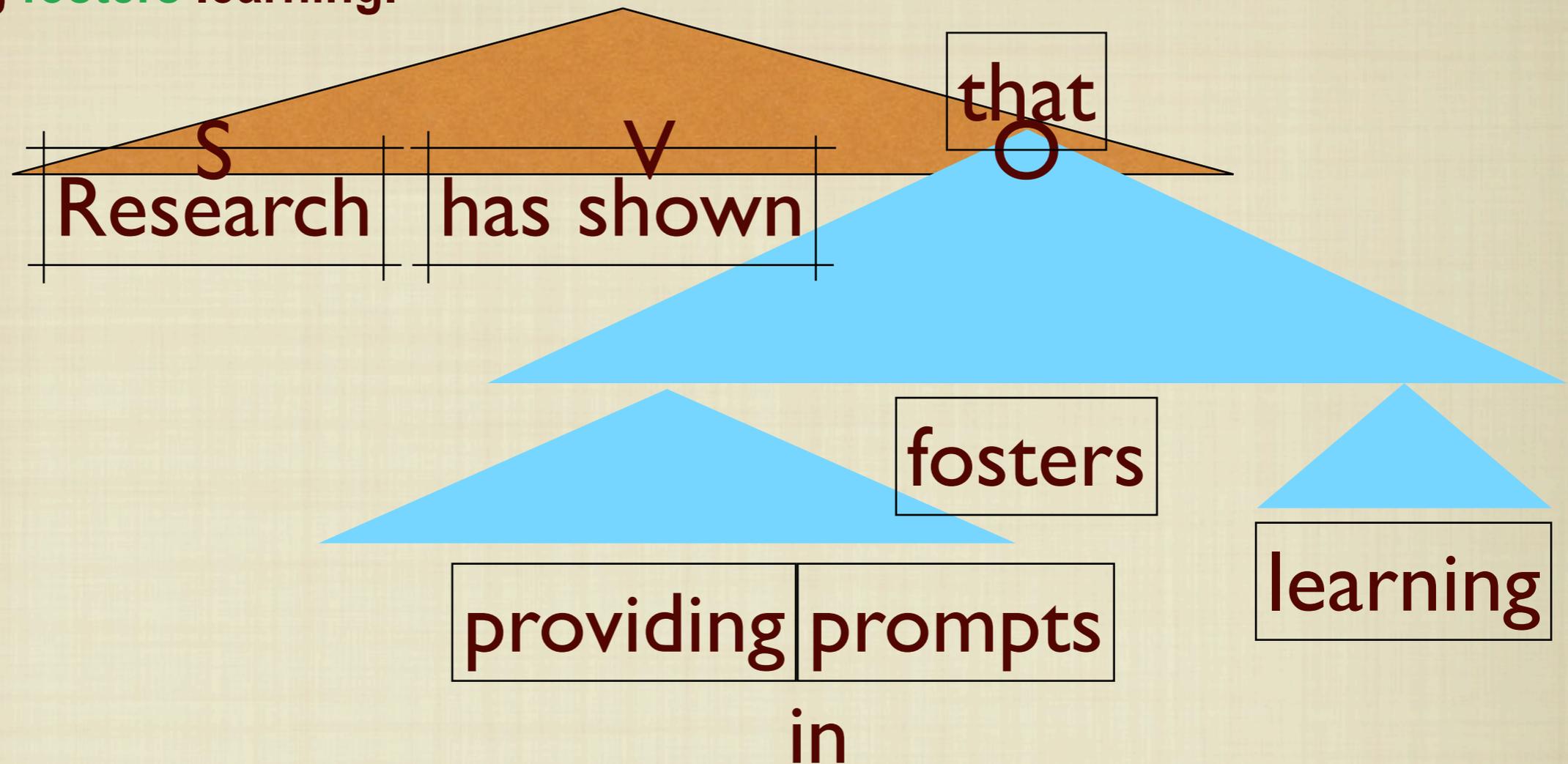O
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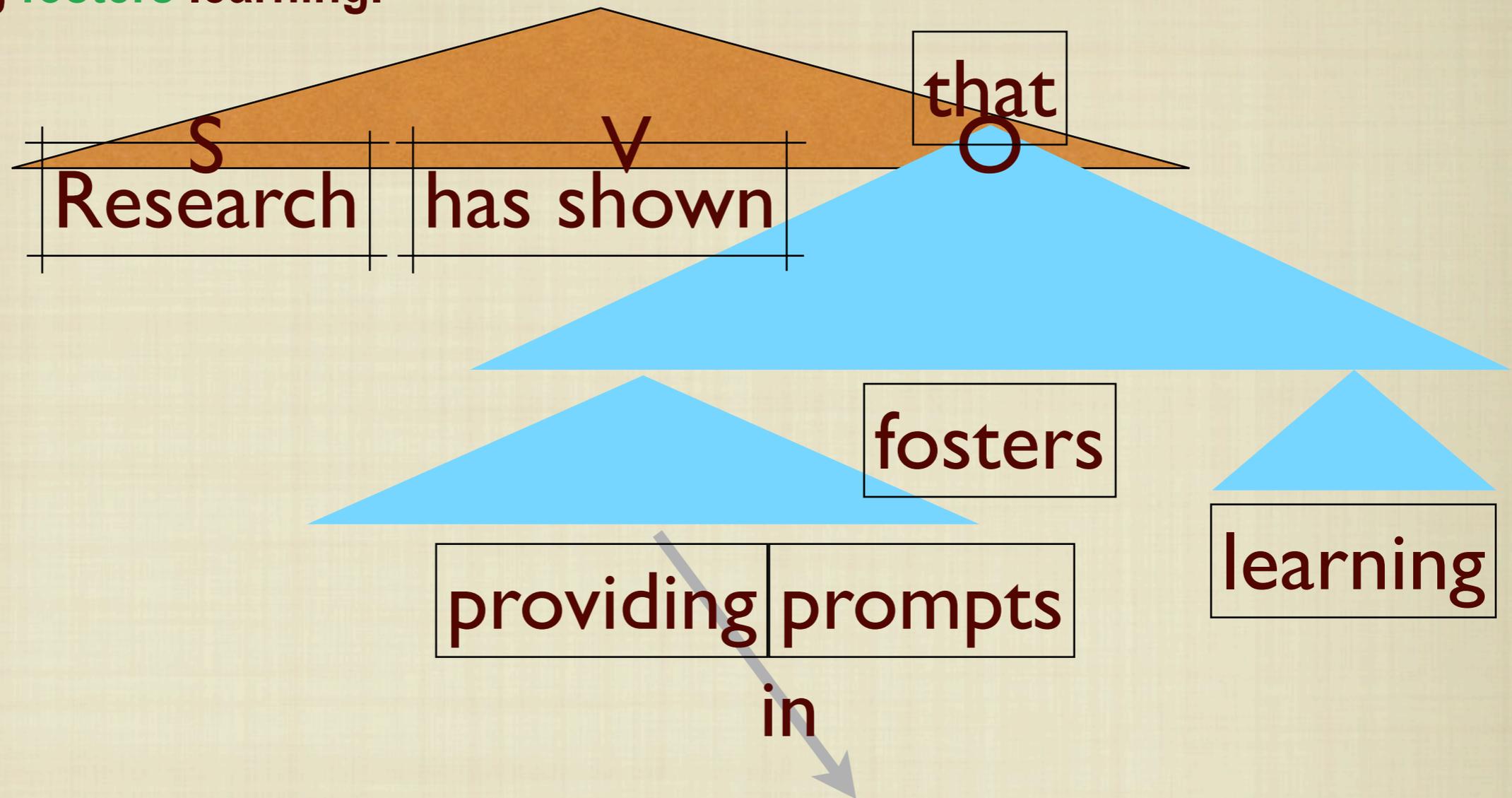Research

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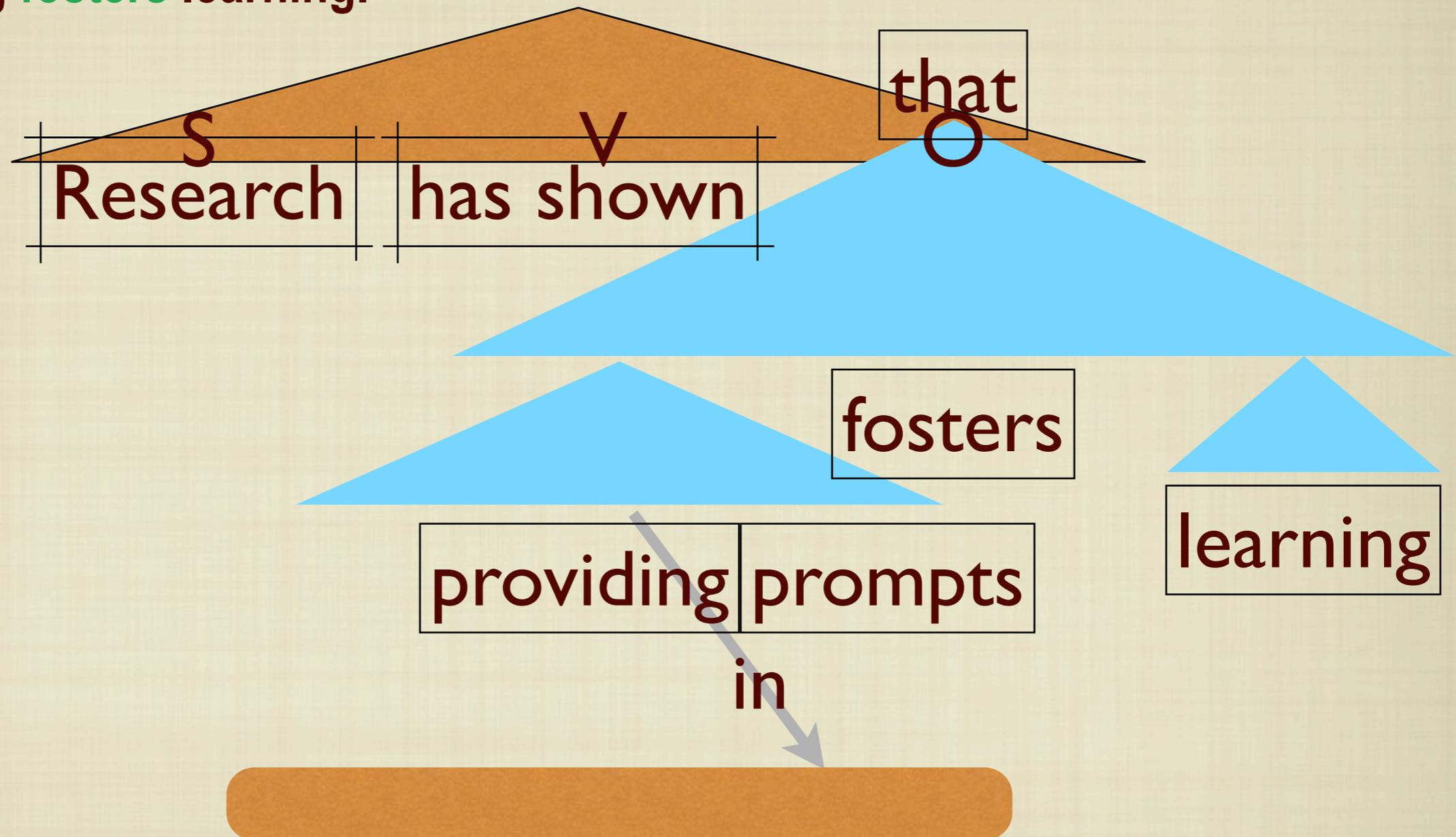
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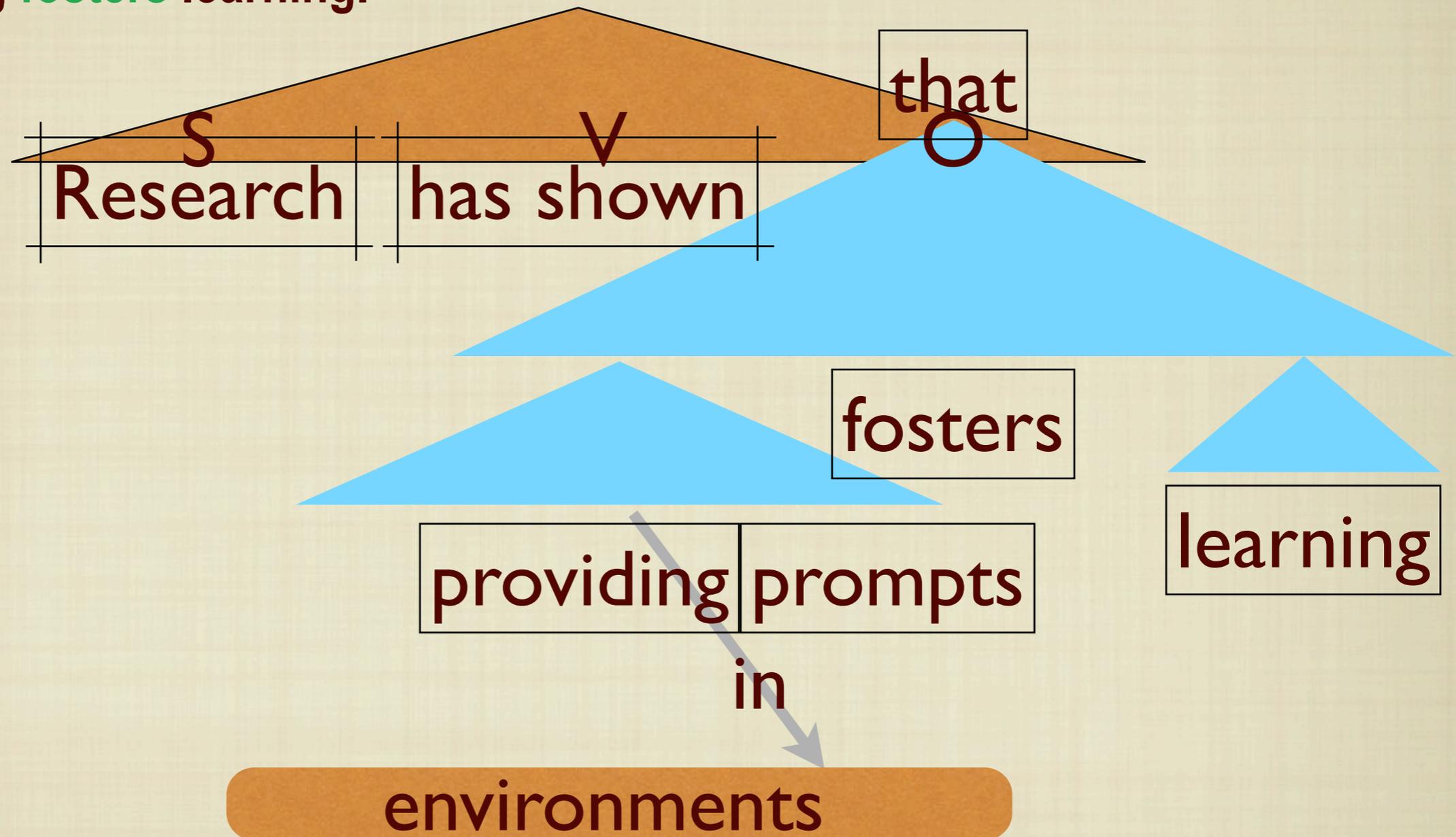S Research
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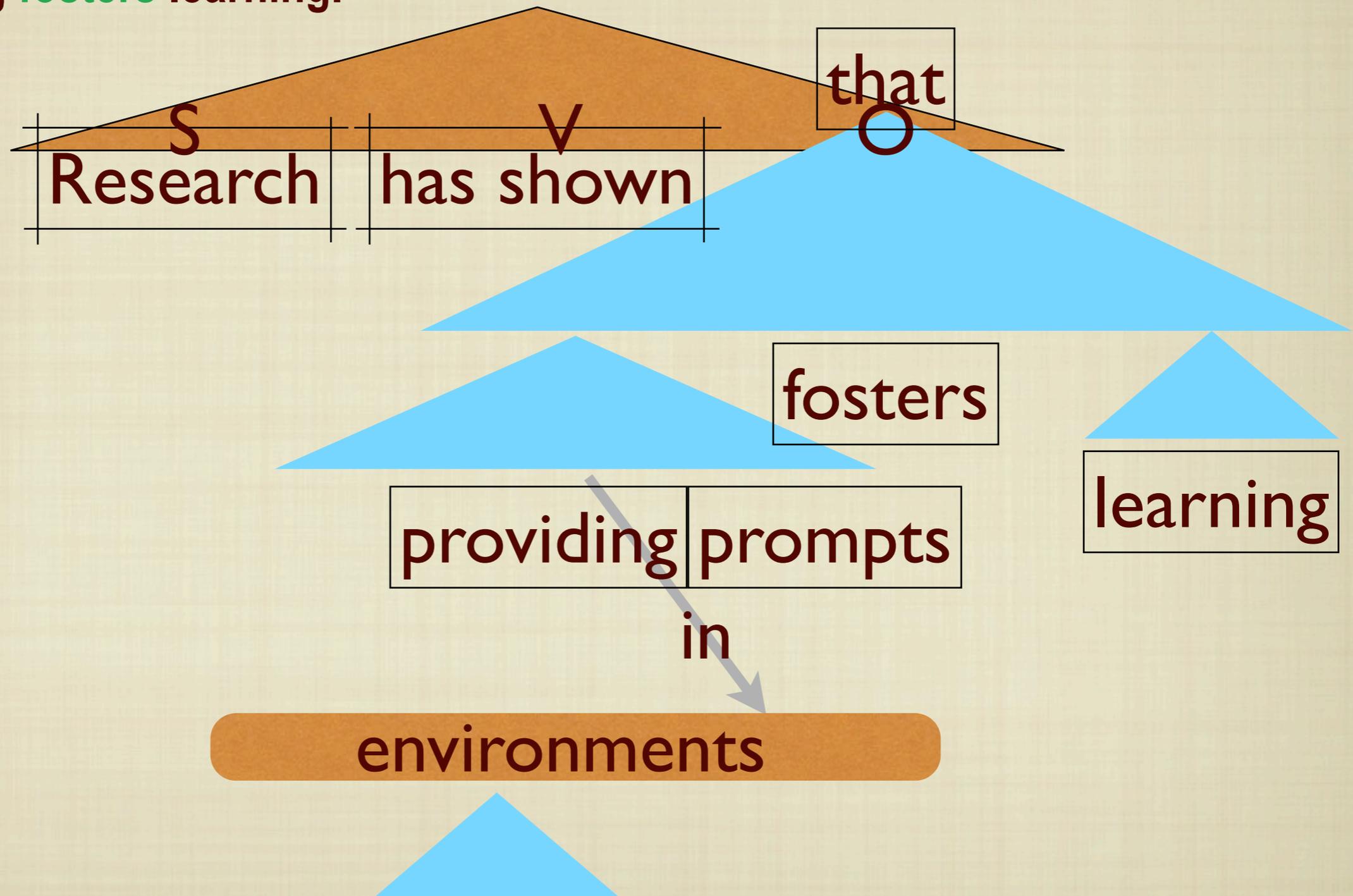Research

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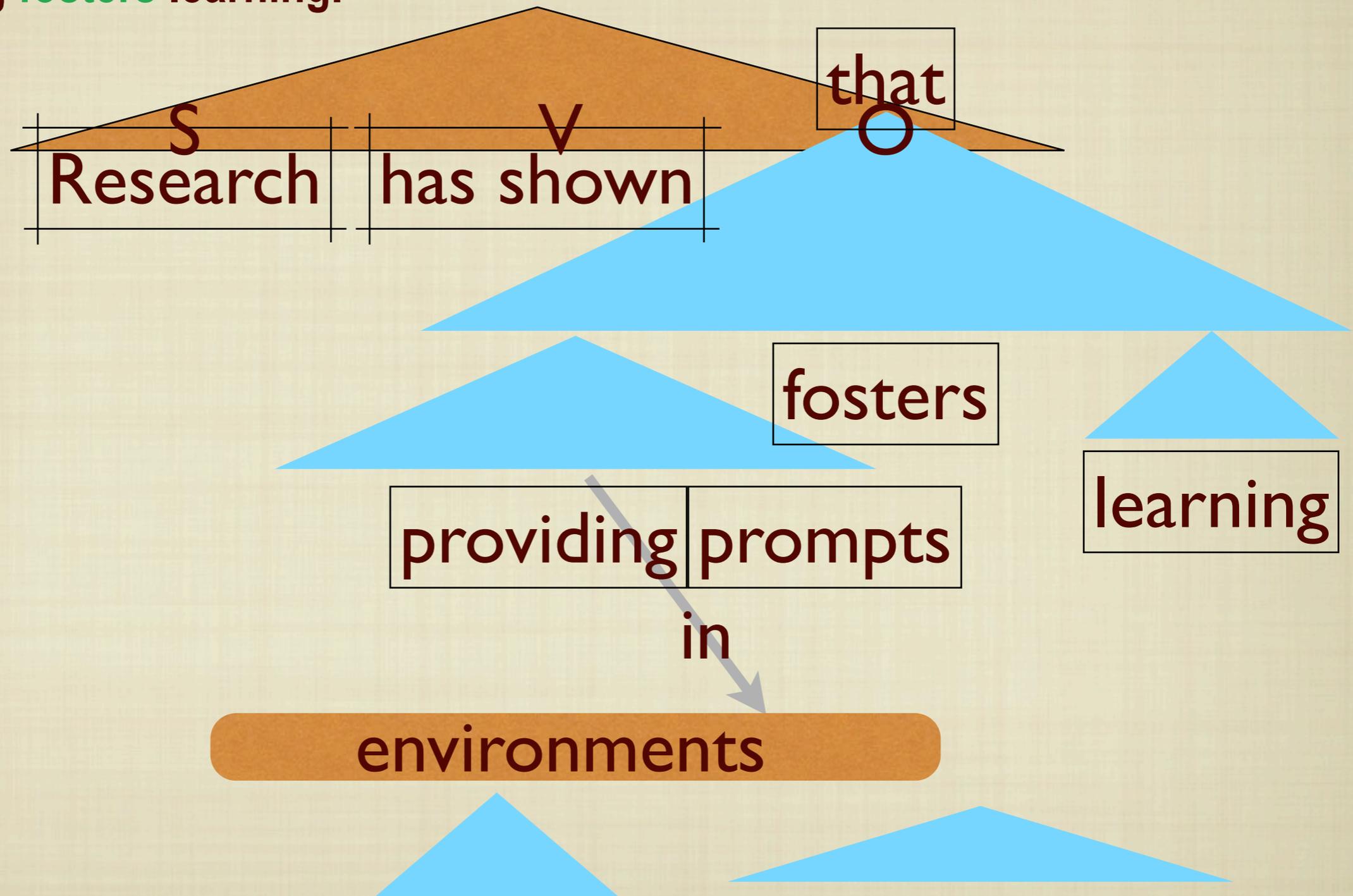
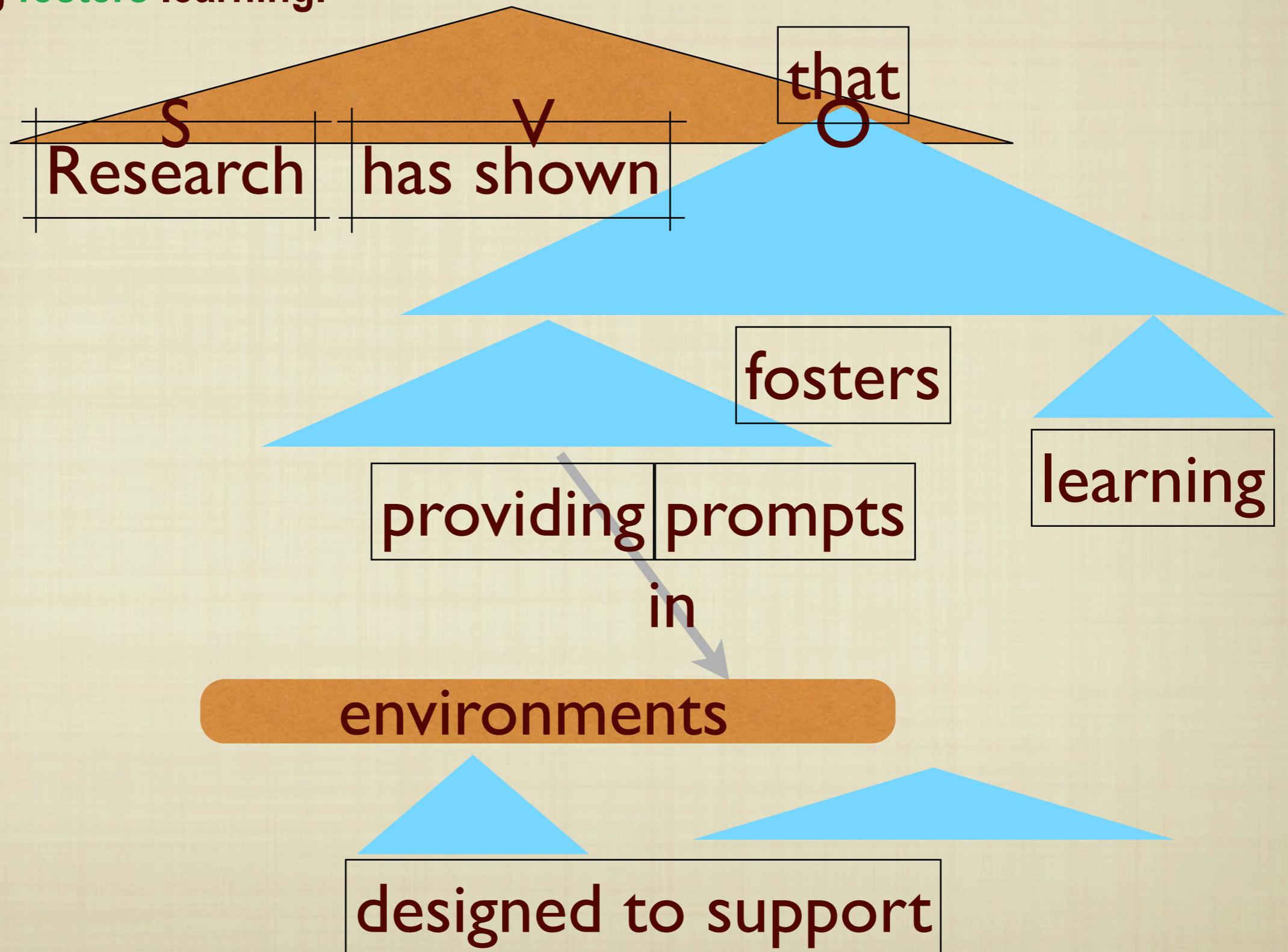- **Research has shown that providing instructional prompts in computer-based learning environments designed to support example-based learning fosters learning.**

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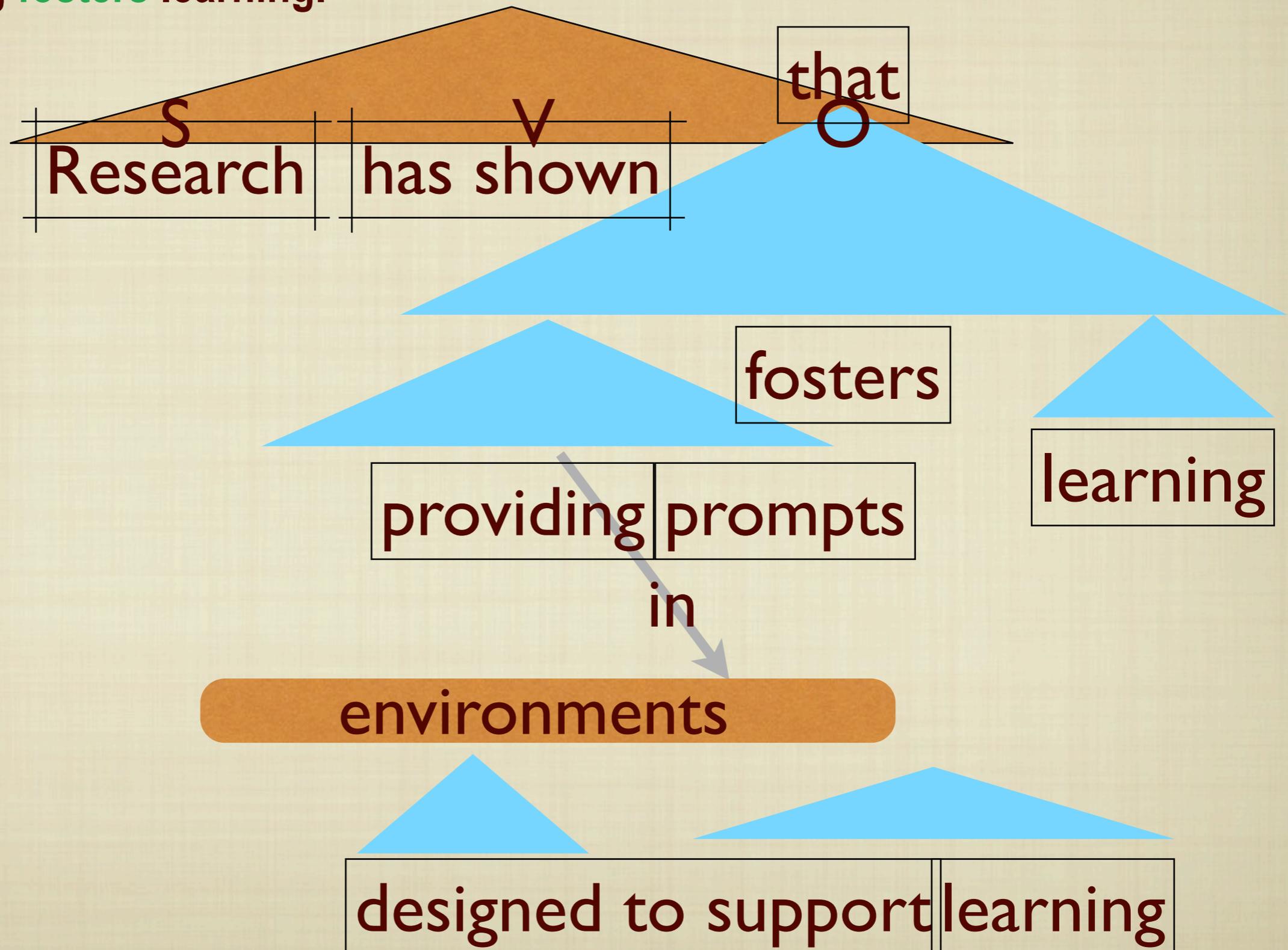S Research

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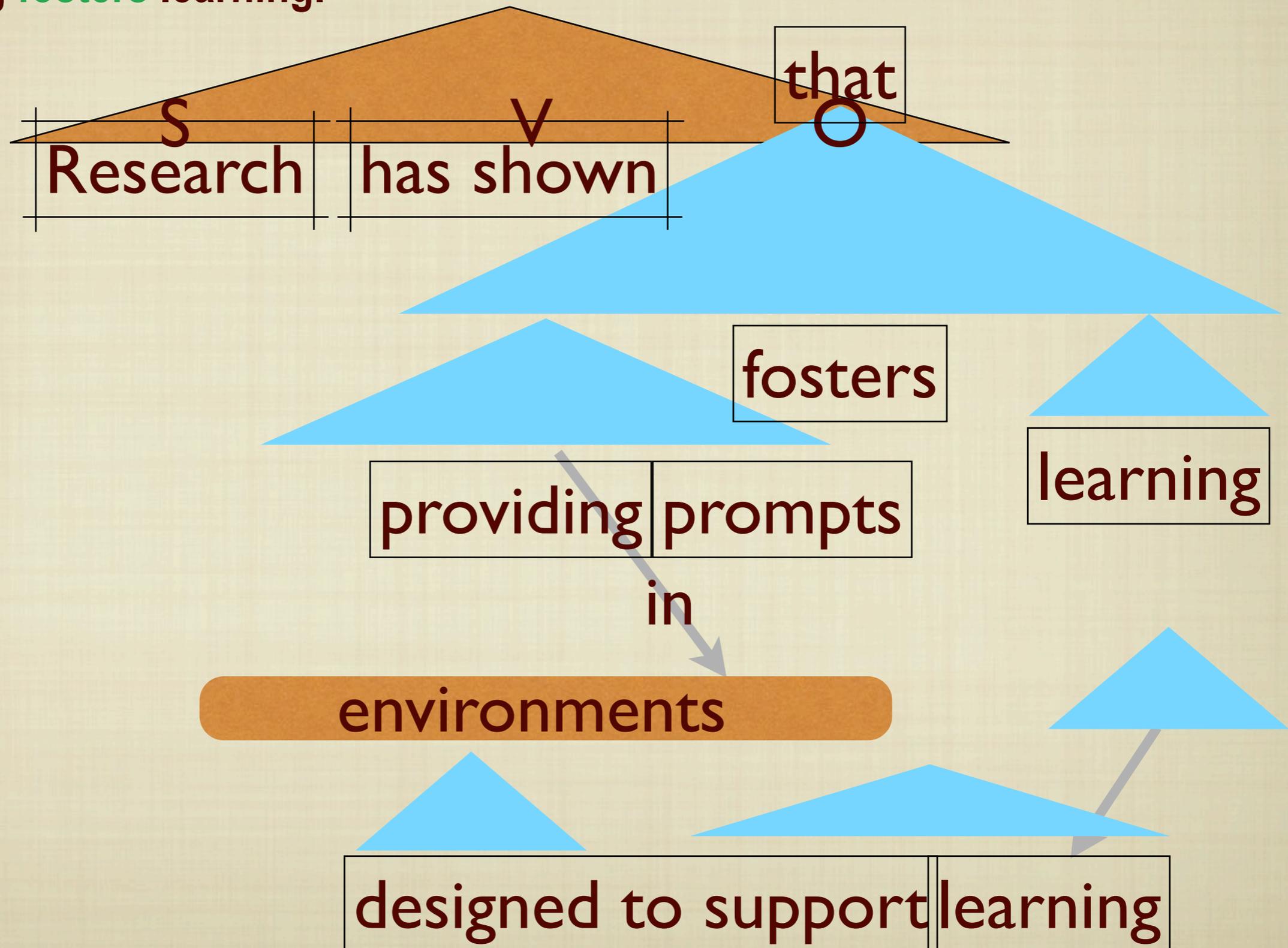**Research**

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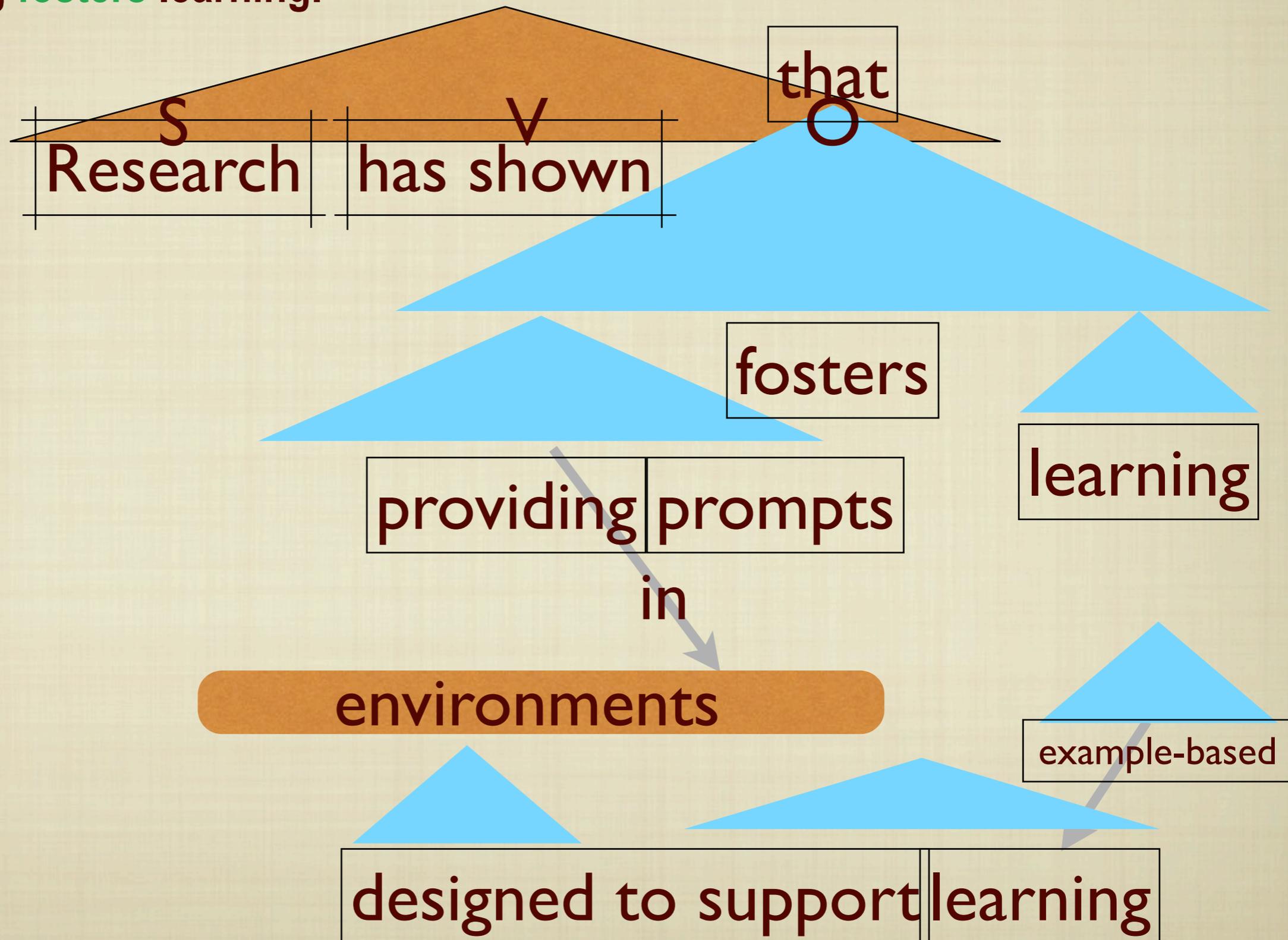- **Research has shown that providing instructional prompts in computer-based learning environments designed to support example-based learning fosters learning.**

Corpus-based research

- Computer science abstracts

  - about 1,000,000 words

  - After cleaning: about 500,000 words

  - Tagged (Claws) by POS

  - Extracted verbs and verb phrases

  - Counted by assimilation

Grading by Frequency

- Extracted verbs from GSL (about 690)

- Extracted verbs from AWL (about 370)

- Searched for 1000 most frequent verbs in Davies' academic corpus

Coverage

- Checked for overlap

  - zero overlap between GSL & AWL (1000)

  - Large overlap between Davies 1000 and combined GSL/AWL (about 50 "new" verbs)

  - Checked Overlap between combined Davies/AWL/GSL and CS List (about 730 "new verbs")

GSL

2	39175	be
9	12458	have
25	4389	do
31	3062	would
33	2903	will
35	2793	say
37	2378	make
39	2218	can
50	1849	go
54	1782	could
55	1773	state
60	1586	take
61	1577	come
63	1531	know
64	1520	see
65	1512	use
66	1488	get
67	1430	like
71	1315	work
73	1307	may
75	1270	give

AWL

1. assemble
2. assembling
3. collapse
4. compile
5. conceive
6. convince
7. unconvinced
8. depress
9. encounter
10. incline
11. invoke
12. levy
13. ongoing
14. panel
15. persist
16. pose
17. so-called
18. undergo
19. undergone
20. underwent

Davies 1000

accommodate 736

accompany   950

accomplish   1507*

account   4183

achieve   6582

acknowledge   1370

acquire   1752

act 2437

adapt   1247

add 7032

address   6413*

adjust   1485

administer 1458

admit   652

adopt   2702

affect   8645

afford   617

agree   3644

aim 1055

allow 12443

alter 1464

analyze   4045

announce 777*

ABOUT 50

1. Davies NOT in AWLGSL
2. accomplish
3. address
5. announce
6. associate
7. average
8. award
9. born
10.   capture
11.   center
12.   challenge
13.   characterize
14.   coach
15.   cope
16.   correlate
17.   cost
18.   deem
19.   derived
20.   diagnose
21.   direct
22.   document
23.   emphasize
24.   engage
25.   enroll
26.   entitle

CS Verbs

730 new verbs!

abate
abort
abound
abstract
accelerate
accentuate
accrue
acquaint
activate
adhere
afflict
age
air
alert
alias
align
alleviate
ally
amplify
anchor
anger
animate
annotate
anthologize
anthropomorphize
appeal
appraise
appropriate
approximate
arbitrate
arc
arouse
articulate
ascertain

Total

- Less than 2000 verbs

- What about sequencing?

  - frequency, of course

  - but grouping supports learning

  - semantic grouping possible?

Classification

- Four ways

  - WordNet 3.0

  - Dixon's semantic Grammar

  - Levin's verb class (about 3000 verbs)

  - Tripp's semantic classes

Overview of verb arrange
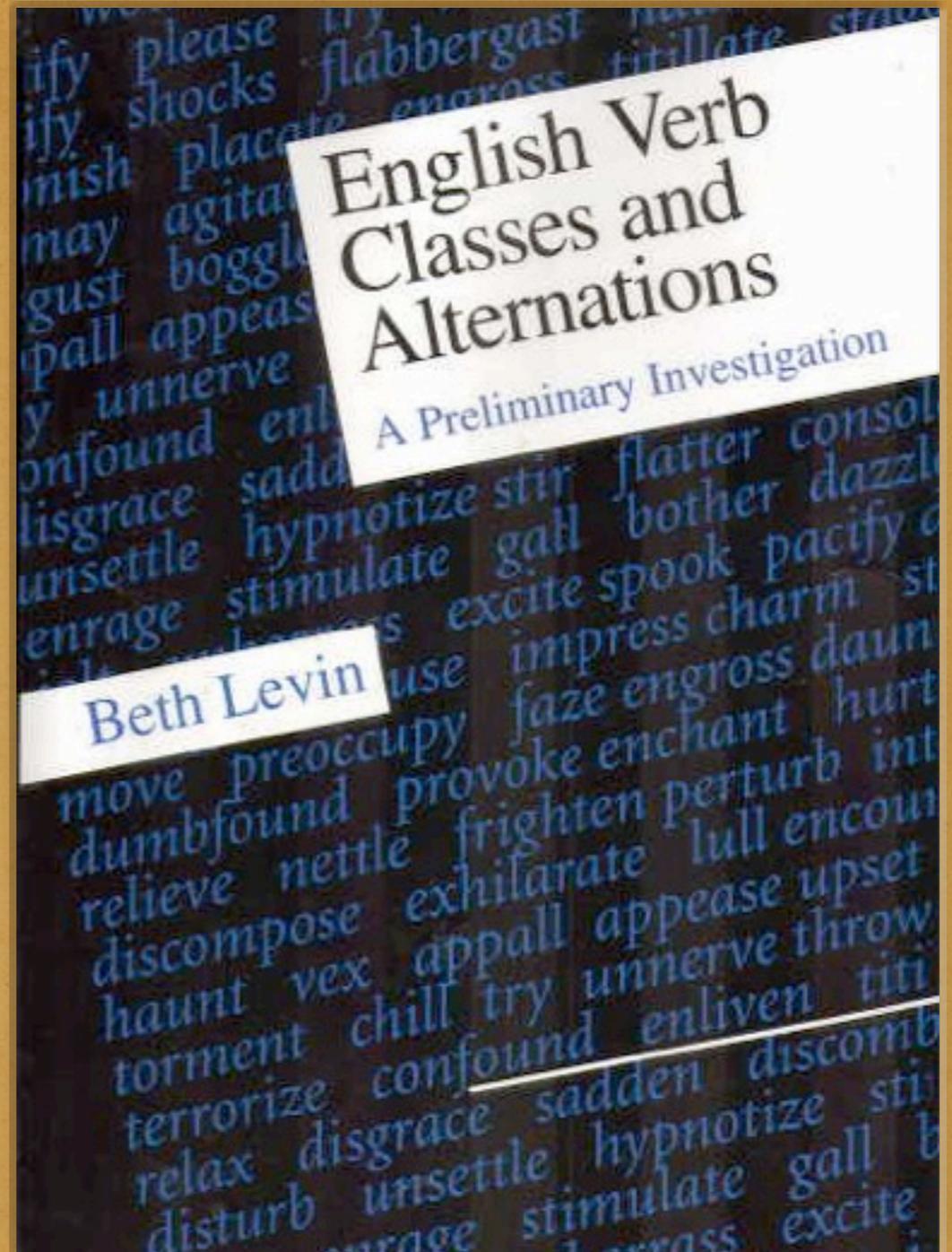
The verb arrange has 7 senses (first 5 from tagged texts)

- 1. (13) **arrange**, set up -- (put into a proper or systematic order; ``*arrange the books on the shelves in chronological order"*)
- 2. (7) **arrange**, fix up -- (make **arrange**ments for; ``*Can you arrange a meeting with the President?"*)
- 3. (3) stage, **arrange** -- (plan, organize, and carry out (an event); ``*the neighboring tribe staged an invasion"*)
- 4. (2) format, **arrange** -- (set (printed matter) into a specific format; ``*Format this letter so it can be printed out"*)
- 5. (2) dress, **arrange**, set, do, coif, coiffe, coiffure -- (**arrange** attractively; ``*dress my hair for the wedding"*)
- 6. **arrange**, set -- (adapt for performance in a different way; ``*set this poem to music"*)
- 7. **arrange**, set up, put, order -- (**arrange** thoughts, ideas, temporal events; ``*arrange my schedule"; "set up one's life"; "I put these memories with those of bygone*

Synonyms/Hypernyms (Ordered by Estimated Frequency) of verb arrange

7 senses of **arrange**

Sense 1

arrange, set up -- (put into a proper or systematic order; ``***arrange*** *the books on the shelves in chronological order''*)

- put, set, place, pose, position, lay -- (put into a certain place or abstract location; ``*Put your things here''; "Set the tray down"; "Set the dogs on the scent of the missing children"; "Place emphasis on a certain point''*)

Troponyms (hyponyms) of verb arrange

7 senses of **arrange**

Sense 1

arrange, set up -- (put into a proper or systematic order; ``**arrange** *the books on the shelves in chronological order*'')
- regularize, regularise -- (make regular or more regular; ``*regularize the heart beat with a pace maker*'')
- order -- (place in a certain order; ``*order the photos chronologically*'')
- order -- (bring order to or into; ``*Order these files*'')
- straighten -- (make straight or straighter; ``*Straighten this post*''; *"straighten hair"*)
- re**arrange** -- (put into a new order or **arrange**ment; ``*Please re***arrange** *these files*''; *"re***arrange** *the furniture in my room"*)
- serialize, serialise -- (**arrange** serially; ``*Serialize the numbers*'')
- alphabetize, alphabetise -- (**arrange** in alphabetical order; ``*Alphabetize the list*'')
- organize, organise, coordinate -- (bring order and organization to; ``*Can you help me organize my files?*'')
- stratify -- (form layers or strata; ``*The rock stratifies*'')
- string, thread, draw -- (thread on or as if on a string; ``*string pearls on a string*''; *"the child drew glass beads on a string"*; *"thread dried cranberries"*)
- marshal -- (**arrange** in logical order; ``*marshal facts or arguments*'')
- string -- (stretch out or **arrange** like a string)
- string out, spread out -- (set out or stretch in a line, succession, or series; ``*the houses were strung out in a long row*'')
- preen, plume -- (clean with one's bill; ``*The birds preened*'')
- stack -- (**arrange** the order of so as to increase one's winning chances; ``*stack the deck of cards*'')
- chain -- (connect or **arrange** into a chain by linking)
- pair, geminate -- (**arrange** in pairs; ``*Pair these numbers*'')
- concord -- (**arrange** the words of a text so as to create a concordance; ``*The team concorded several thousand nouns, verbs, and adjectives*'')
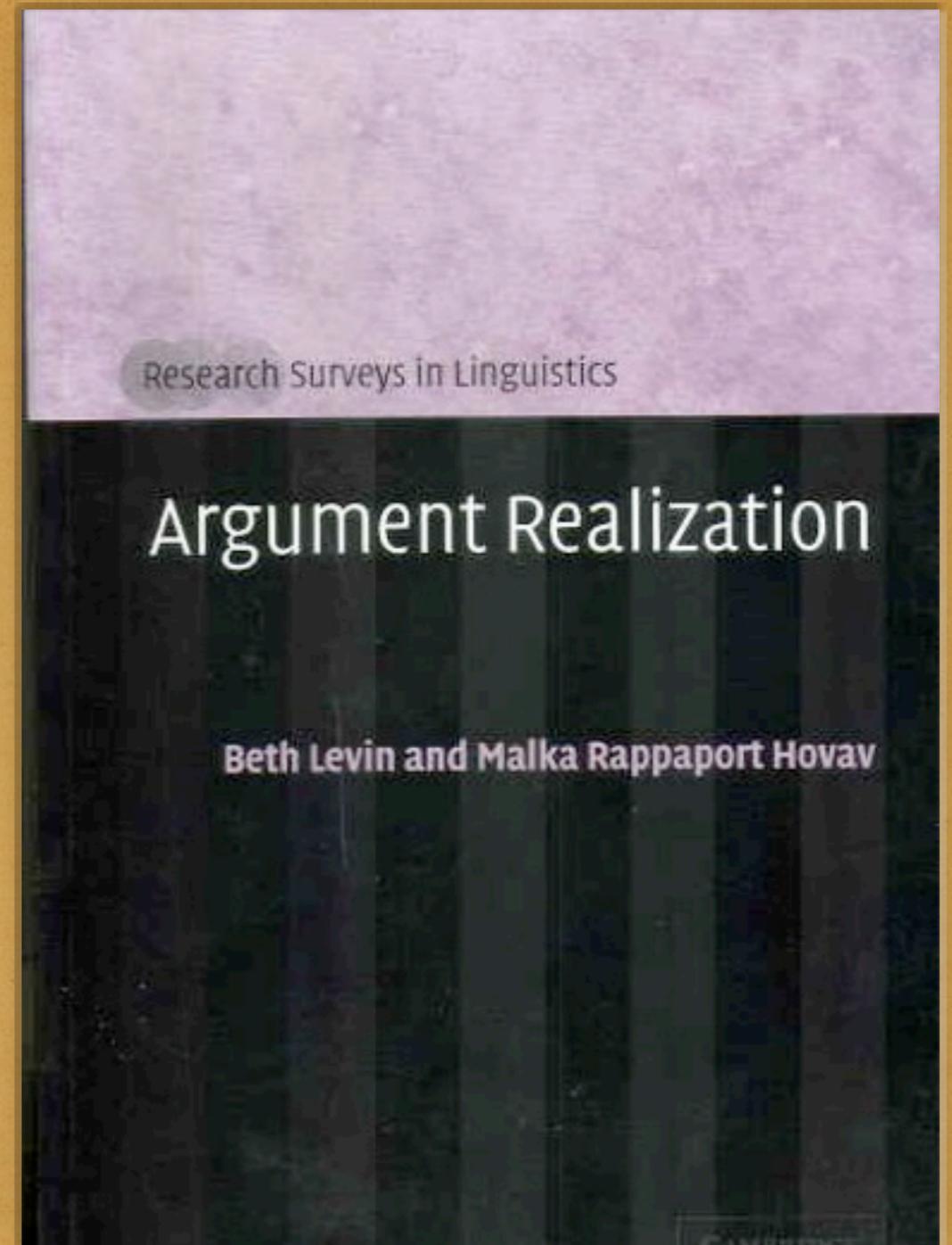
ABOUT 2800 Verbs in tagged texts

abandon v 5 4 @ ~ $ + 5 5 02228031 02227741 02076676 00613393 00614057
abet v 1 2 @ + 1 1 02549211
abhor v 1 2 @ + 1 1 01774426
abide v 2 5 @ ~ $ + ; 2 2 02637202 00668099
abide_by v 2 3 @ ~ $ 2 1 02542280 02457233
abolish v 1 3 ! ~ + 1 1 02427334
abound v 2 3 @ ^ + 2 1 02715279 02715595
abound_in v 1 1 @ 1 1 02715923
about-face v 2 2 @ + 2 1 01909042 00689068
abridge v 2 4 @ ~ $ + 2 1 00243900 00236843
abrogate v 1 2 @ + 1 1 02478584
absent v 1 2 @ + 1 1 00421535
absorb v 9 6 ! @ ~ $ + ; 9 7 01539633 00602255 02216560 01539063 00395698 02765464 00601043
01470524 00600370
abstain v 2 4 ! @ ~ + 2 2 02463426 01196037
abstract v 4 2 @ + 4 3 00692329 02276866 00734587 01008288
abuse v 4 3 @ ~ + 4 2 02516594 00203213 00845299 00203556
accede v 3 3 @ ~ + 3 1 00878348 02381397 00804139
accelerate v 2 4 ! @ ~ + 2 2 00438178 00439343
accentuate v 2 3 @ ~ + 2 1 01013367 00983333
accept v 11 5 ! @ ~ $ + 11 7 00686447 02236124 00797697 00719231 02236624 02301825 00668805
02741546 02210622 02209936 00718489
acclaim v 2 4 @ ~ * + 2 1 00861725 00861929
acclimatize v 1 2 @ + 1 1 00393677
accommodate v 7 4 @ ~ $ + 7 4 02702830 00299580 01184453 02732798 02651424 00885925 00482893
accompany v 4 4 @ ~ + ; 4 4 02716165 02025550 01728355 02716767
accomplish v 2 4 @ ~ $ + 2 2 01640855 02526085
accord v 2 4 @ ~ $ + 2 2 02700104 02255268
accost v 2 3 @ ~ $ 2 1 00990655 00781652
account_for v 2 1 @ 2 2 02635033 00939621

Influences

English Verb Classes and Alternations
A Preliminary Investigation

Beth Levin

Influences

Research Surveys in Linguistics

Argument Realization

Beth Levin and Malka Rappaport Hovav

CAMBRIDGE

Influences

LEARNABILITY
AND COGNITION

The Acquisition of Argument Structure

STEVEN PINKER

INFLUENCES

FOUNDATIONS of LANGUAGE

Brain, Meaning, Grammar, Evolution

'The most important book in the sciences of language to have appeared in many years.' Steven Pinker

RAY JACKENDOFF

INFLUENCES
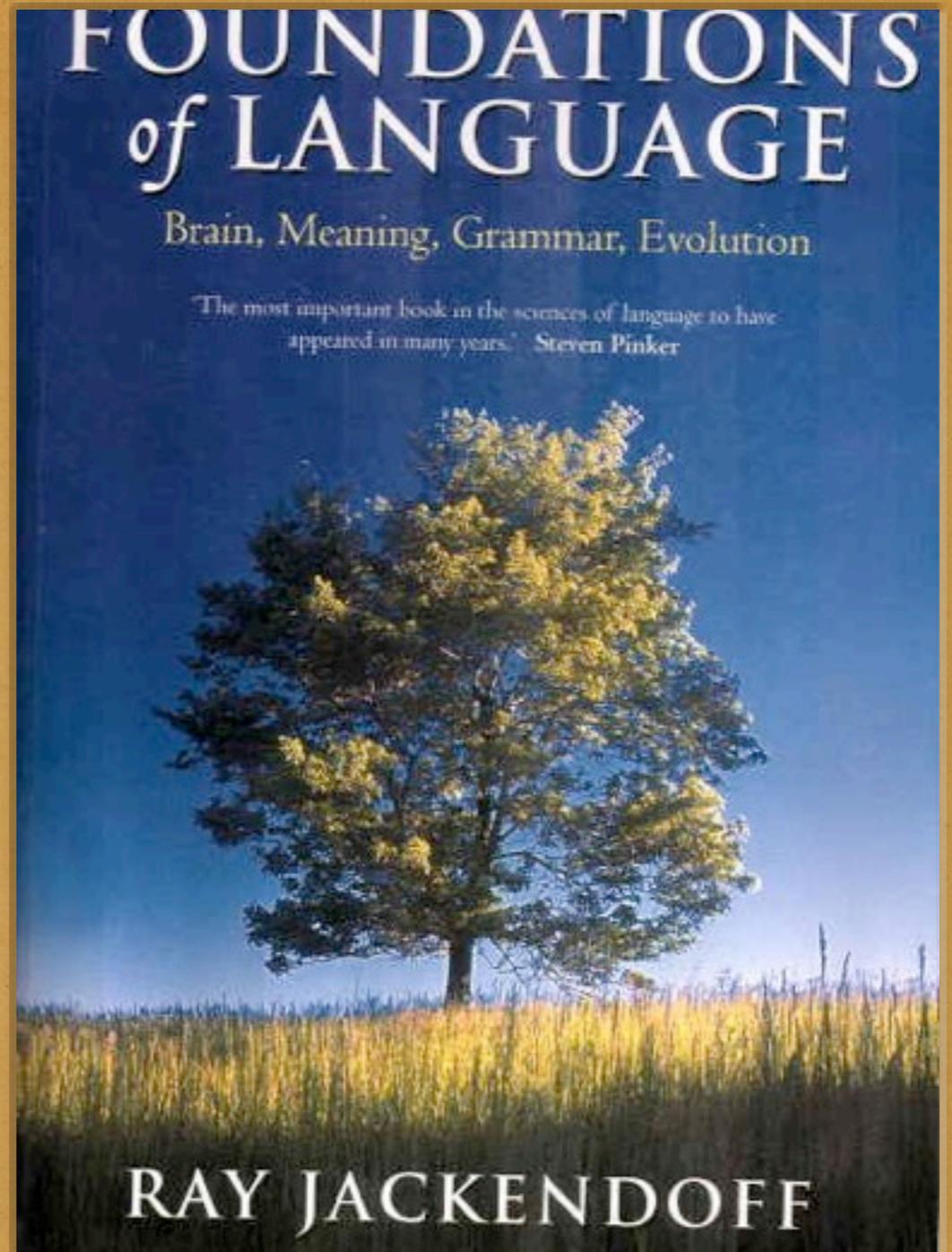
Leonard Talmy
Toward a Cognitive Semantics
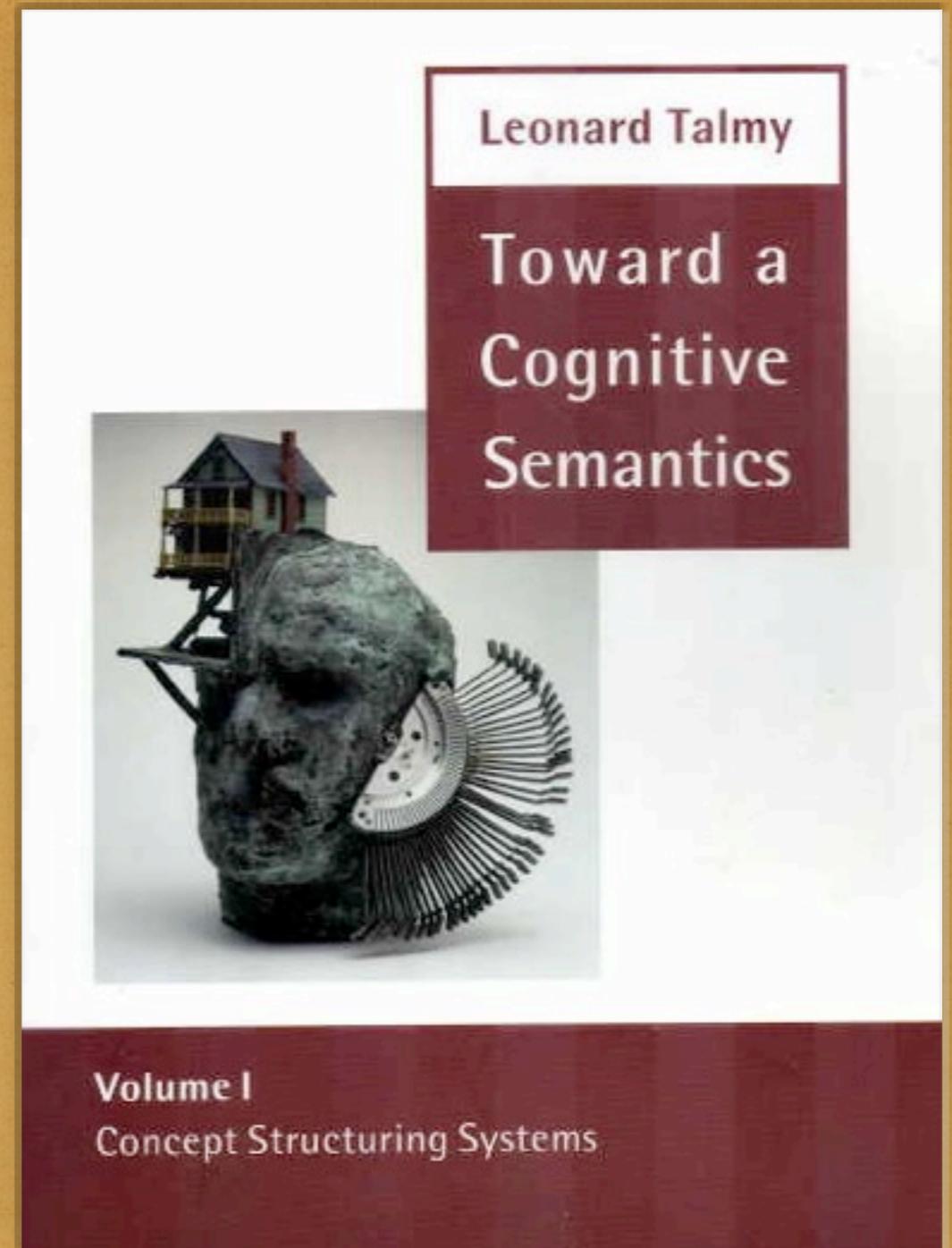
Volume I
Concept Structuring Systems

Semantic classes (1)

Be, Have

Do, Affect

Go, Happen

Semantic Classes (2)

act as
see as

Be, Have

Become,
come to be

Cause to
become

Do, Affect

Go, Happen

Make go, send, communicate
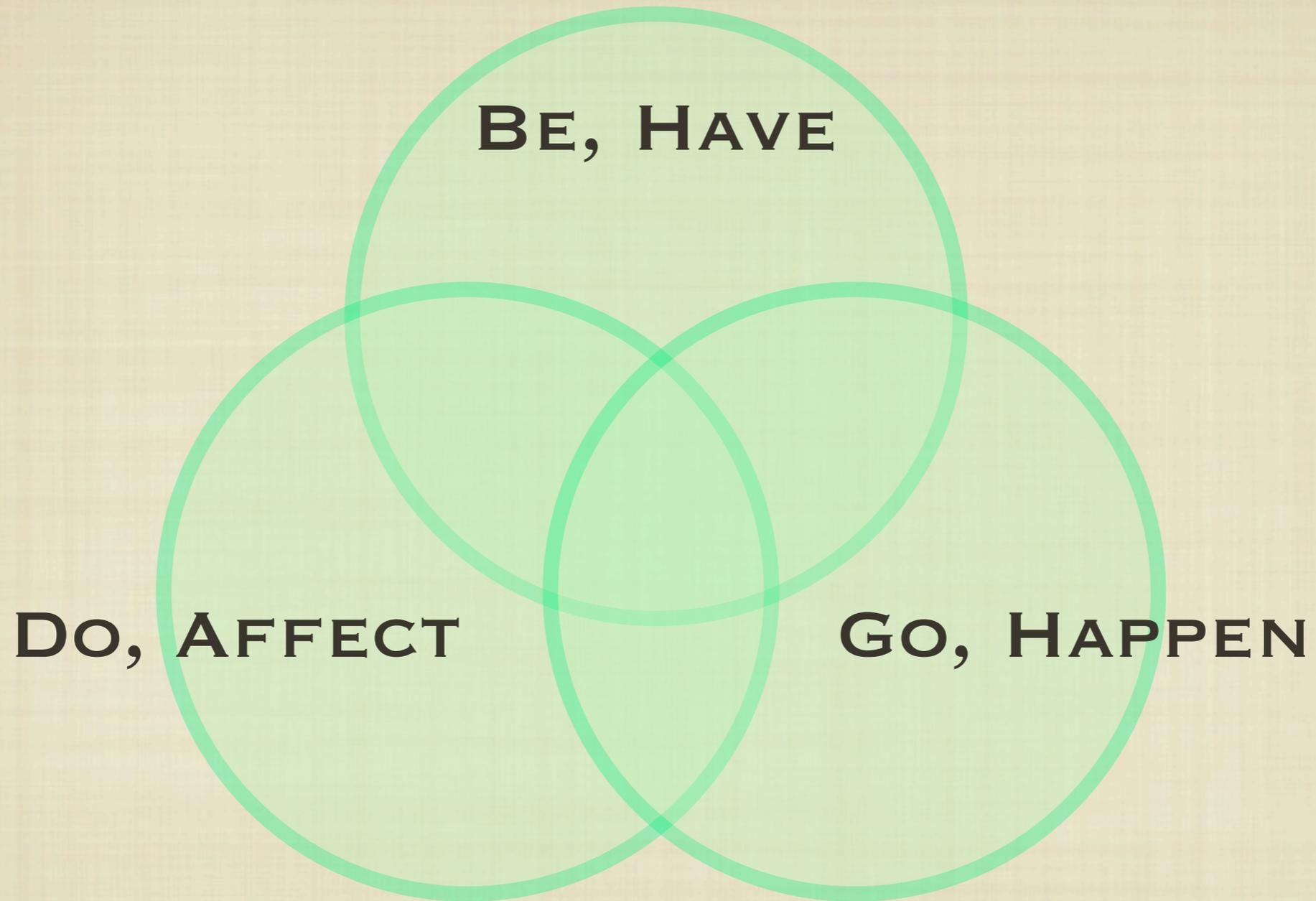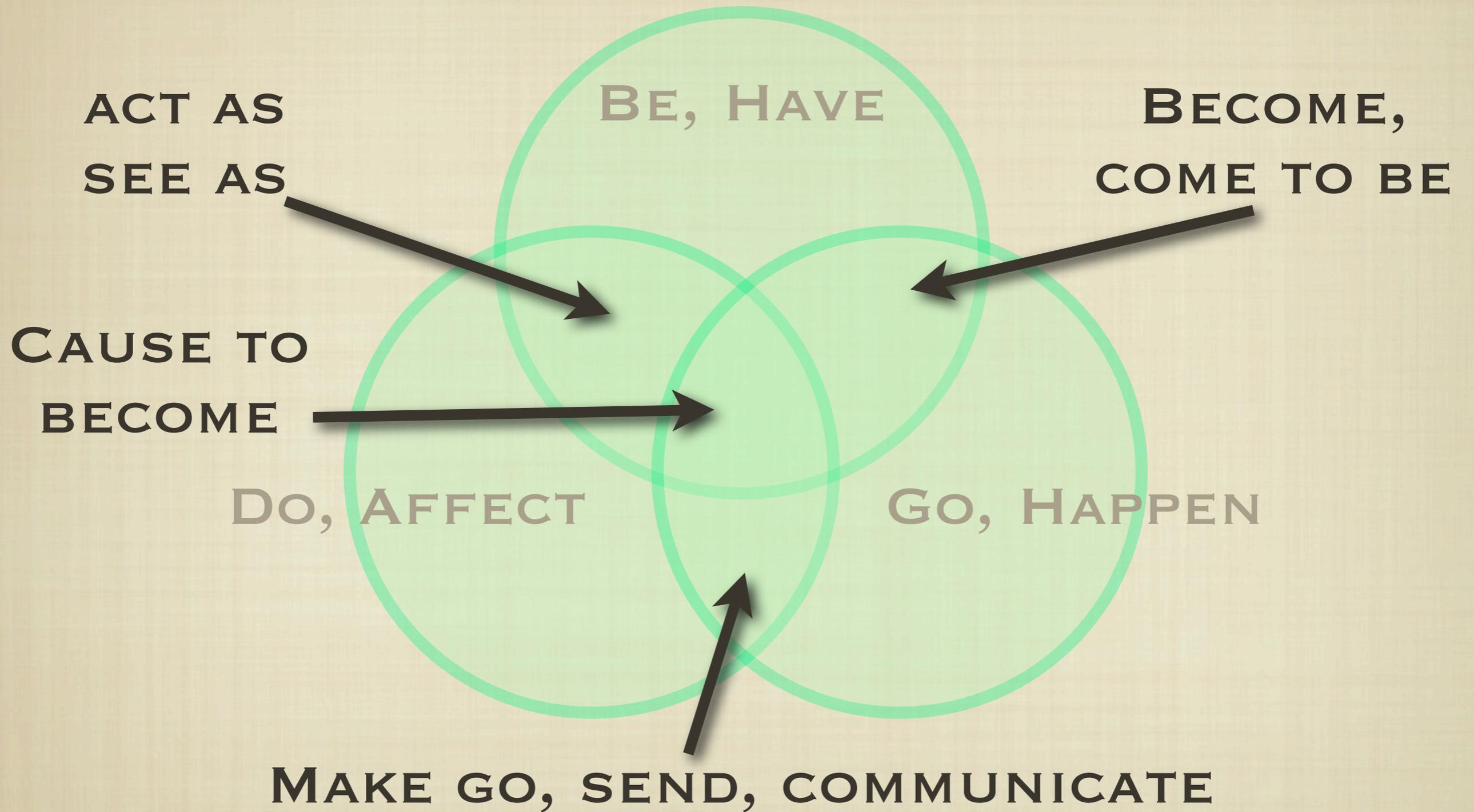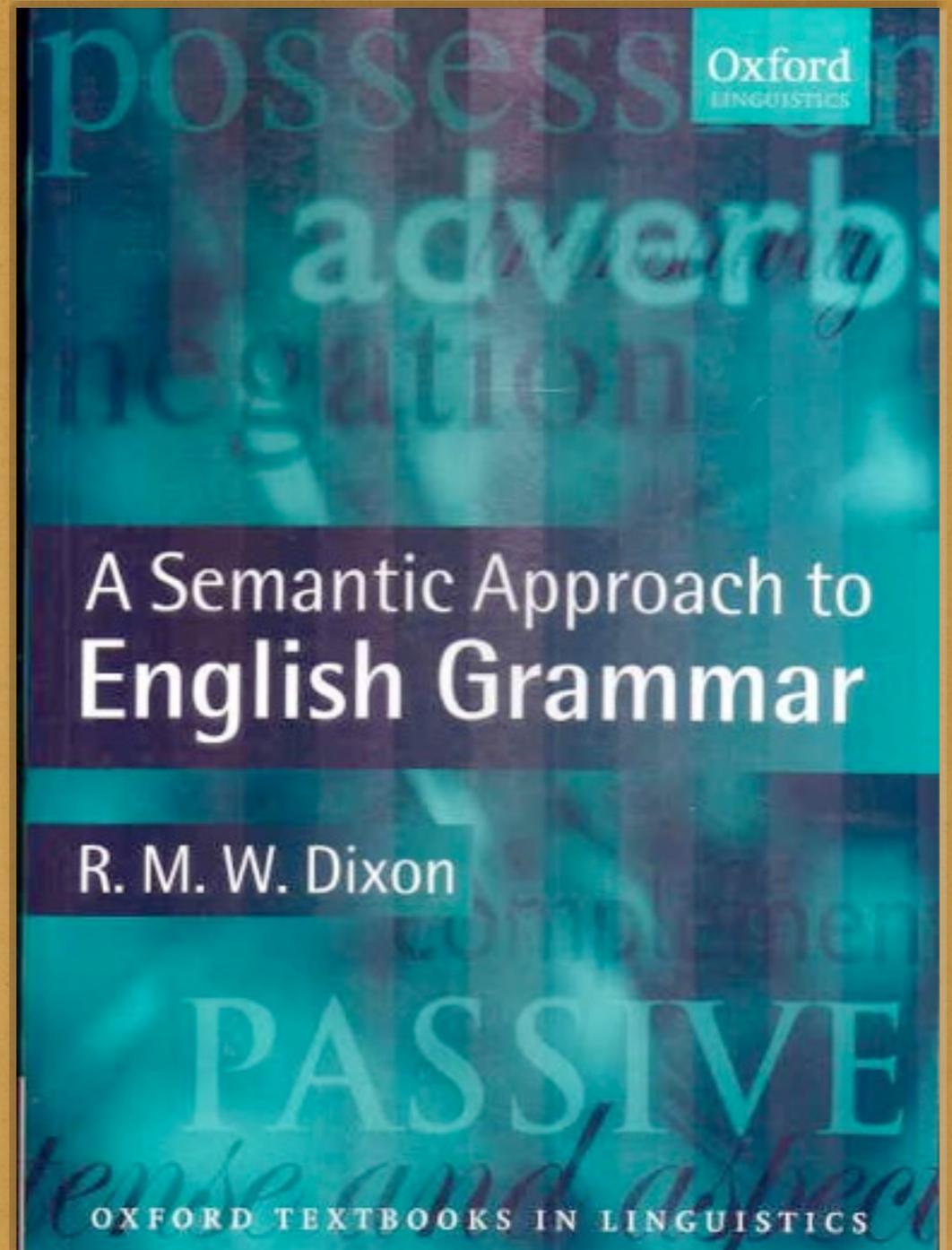
DIXON

Dixon's Verbs

- Primary

  - a: Support Noun arguments (go, hit)

  - B: Support clause arguments (1:believe, 2:encourage)

- Secondary

  - Used with other verbs (need to, try to)

Dixon

- Primary A (Concrete NVN) or (NV) or (NVNN)

  - Motion

  - Rest

  - Affect

  - Giving

Dixon

- **1A Motion**

  - **a. (Mode)** Run, walk, crawl, slide, spin, roll, turn, wriggle, skootch, swing, wave, rock, shake, climb, dive, stroll, trot, gallop, jog, dance, march, jump, bounce, swim, fly, play, ride, drive

  - ## B (motion with respect to a locus)

    - (i) Arrive, return, go, come

    - (ii) Enter exit, cross, depart, travel pass, escape, come in, go out

    - (iii) Reach, approach, visit

Dixon 1A Affect Type

✳AFFECT type (Roles: Agent, Target, Manip)

✳AFFECT-a, (come into minimal contact with Target),
  ✳touch, stroke

✳AFFECT-b, (Manip moves through the air to impact Target),
  ✳hit, strike, punch, bump, kick, knock, tap, bash, slap, spank; whip, belt, stone, cane, hammer; shoot

✳AFFECT-c, (pointed Manip penetrates the Target),
  ✳pierce, stab, dig, sting, knife, cut, prune, mow, saw, slice, chop,

✳AFFECT-d, (Manip affects the surface of Target),
  ✳rub, wipe, scrape, scratch, mark; sweep, brush, polish, wash

✳AFFECT-e, (Manip moves into/out of juxtaposition with the target),
  ✳wrap; cover; roof; dress, grease: plaster, paint, coat; surround, frame; put NP on; unwrap, uncover, take NP off, peel,

✳AFFECT-f, (Agent uses Manip to change the shape or state of Target),
  ✳stretch, extend, compress, bend, curl, fold, coil; twist, pinch, squeeze; vaporize, liquefy, solidify, melt; dissolve; freeze, cool (down), warm (up), heat (up), burn,

✳AFFECT-g, (manufacturing and cooking a Product),
  ✳build, tie, make, weave, shape, form, stir, mix, fry, bake, cook; repair; draw, write,

✳AFFECT-h, (Agent causes Target to lose its unity)
  ✳break, crush, squash, destroy, damage, wreck, collapse; tear, split, chip, crack, smash, crash; burst, explode, blow NP up, let NP off, erupt

Dixon & Levin [four verbs]

- Affect-a Touch

- affect-b Hit

- affect-c Cut

- Affect-h Break

Basic Pattern

- **Noun-Verb-Noun**

- He touched the book.

- He hit the mosquito.

- He cut the bread.

- He broke the window.

Middle Alternation

- *The book touches easily.

- *The mosquito hits easily.

- The bread cuts easily.

- The window breaks easily.

Conative Alternation

- *He touched at the book.

- He hit at the mosquito.

- He cut at the bread.

- *He broke at the window.

Body-Part Possessor

- He touched her on the arm.

- He hit her on the arm.

- He cut her on the arm.

- *He broke her on the arm.

- [NB: He broke her arm.]

Summary

	Touch	Hit	Cut	Break
Conative	No	Yes	Yes	No
Middle	No	No	Yes	yes
Body-Part	Yes	Yes	yes	No

DIXON 1B

1B verb types (Complement clauses in Sub or Obj slots; OBJ may be activity)

SEE THAT...

THINK THAT...

DECIDE THAT

SAY THAT...

LIKE DOING ...

... WORRY

ACT LIKE ...

Dixon 2A

- Semantic modification

- Obligatory linking to another verb

- S is subject of both verbs

  - will; be about to, start, keep, stop

  - try; succeed in; manage to;practice; dare to

Dixon 2b

- same but, V1 and V2 may have different S

  - want; expect; intend

- postpone, delay

Dixon 2c

- S of V1 is usually different from V2

  - make, force

  - let, allow

  - prevent, spare

  - help, support

Dixon 2d

- Arbiter (3rd role)

  - seem, appear, look

  - matter, count

What to do with all this data?

- Computerize it, of course.

- Make it interactive.

- How?

revMedia is now free and is very powerful

YOU CAN SAVE "STACKS" AS REVLETS (WEB-EXECUTABLE OBJECTS)

Using RunRev to generate HTML files

Generate Quizzes

```
2    put 0 into z
3    put empty into fld 4 of cd 2
4    repeat with x=1 to 12
5      --get the  field
6      put fld (x) into tField
7      --
8      --
9      set the thumbpos of scrollbar "prg" to round((x/12)*100)
10     --next repeat  --test
11     -- put (x-1)*12+1 into rankno1
12     repeat for each line xline in tField
13
14       --cycle through the field
15       put word 1 of xline into rankno
16       put word 2 of xline into sense
17       put word 3 of xline into verb
18       put wordoffset("[",xline) into g1
19       put wordoffset("]",xline) into g2
20       put word g1 to g2 of xline into gloss
21       --getframes
22       put empty into frames
23       put empty into count
24       put empty into skip
25       repeat
26         add 1 to count
27         put wordoffset("#",xline,skip) into f1
28         if f1=0 then exit repeat
29         add f1 to skip
30         put wordoffset("#",xline,skip+1) into f2
31         if f2=0 then put word skip to -1 of xline into item count of frames
32         else  put word skip to f2+skip of xline into item count of frames
33       end repeat
34       subtract 1 from count
35
```

RevTalk Program

Rank Level 77 (15 verbs) Computer Science Verb L

vel

Rank 1 Rank 2 Rank 3 Rank 4 Rank 5 Rank 6 Rank 7 Rank 8 Rank 9 Rank 10 Rank 11 Rank 12
Rank 13 Rank 14 Rank 15 Rank 16 Rank 17 Rank 18 Rank 19 Rank 20 Rank 21 Rank 22 Rank 23 Rank 24
Rank 25 Rank 26 Rank 27 Rank 28 Rank 29 Rank 30 Rank 31 Rank 32 Rank 33 Rank 34 Rank 35 Rank 36
Rank 37 Rank 38 Rank 39 Rank 40 Rank 41 Rank 42 Rank 43 Rank 44 Rank 45 Rank 46 Rank 47 Rank 48
Rank 49 Rank 50 Rank 51 Rank 52 Rank 53 Rank 54 Rank 55 Rank 56 Rank 57 Rank 58 Rank 59 Rank 60
Rank 61 Rank 62 Rank 63 Rank 64 Rank 65 Rank 66 Rank 67 Rank 68 Rank 69 Rank 70 Rank 71 Rank 72
Rank 73 Rank 74 Rank 75 Rank 76 Rank 77 Rank 78 Rank 79 Rank 80 Rank 81 Rank 82 Rank 83 Rank 84
Rank 85 Rank 86 Rank 87 Rank 88 Rank 89 Rank 90 Rank 91 Rank 92 Rank 93 Rank 94 Rank 95 Rank 96
Rank 97 Rank 98 Rank 99 Rank 100 Rank 101 Rank 102 Rank 103 Rank 104 Rank 105 Rank 106 Rank 107 Rank 108
Rank 109 Rank 110 Rank 111 Rank 112 Rank 113 Rank 114 Rank 115 Rank 116 Rank 117 Rank 118 Rank 119 Rank 120
Rank 121 Rank 122 Rank 123 Rank 124 Rank 125 Rank 126 Rank 127 Rank 128 Rank 129 Rank 130 Rank 131 Rank 132
Rank 133 Rank 134 Rank 135 Rank 136 Rank 137 Rank 138 Rank 139 Rank 140 Rank 141 Rank 142 Rank 143 Rank 144

bandon R77 [Sense 2] [to leave and never return to (SOMETHING)] [ALC] [Breen] [WordNet] [LDO] [LDOC] [Grok]
- #1 People abandoned something.
- #2 People abandoned people.

stonish R77 [Sense 1] [to cause a feeling of great wonder or surprise in (SOMEONE)] [ALC] [Breen] [WordNet] [LDO] [LDOC] [Grok]
- #1 People astonished people.
- #2 Something astonished people.

144 WEB PAGES WITH AUTOMATICALLY LINKED VERB DATA

**University of Aizu
Computer Science Verb L
Alpha List**

on (Sense#2) abandon [to leave and never return to (SOMETHING)]
d (Sense#1) abound [be abundant or plentiful: exist in large quantities]
d_in (Sense#1) abound in [exist in large quantity]
ct (Sense#1) abstract [consider a concept without thinking of a specific example: consider theoretically]
ct (Sense#3) abstract [consider apart from a particular case or instance]
rate (Sense#1) accelerate [to move faster : to gain speed]
rate (Sense#2) accelerate [to cause (SOMETHING) to happen sooner or more quickly]
uate (Sense#1) accentuate [make (SOMETHING) more noticeable]
(Sense#1) accept [to believe that what (SOMEONE) says is right or true]
(Sense#2) accept [to receive or take (SOMETHING offered)]
(Sense#3) accept [to decide to do what (SOMEONE) suggests you should do]
(Sense#4) accept [react favorably to: consider right and proper]
(Sense#5) accept [to allow (SOMEONE) to become part of a group, society, or organization]
(Sense#7) accept [to decide that there is nothing you can do to change a difficult and unpleasant situation]
mmodate (Sense#1) accommodate [be agreeable or acceptable to]
mmodate (Sense#3) accommodate [provide people with something desired or needed]
mmodate (Sense#4) accommodate [have room for: hold without crowding]

Automatically generated alphabetized list

Enter a new verb.

NEW VERB   [Enter Verb and Click.]   Any English verb. Add an asterisk* for phrasal verbs!

Irregular forms: try tried
1.1: try out
1.2: Sentence Patterns
----- Somebody tried out something.
1.3: put to the test, as for its quality, or give experimental use to
1.4: 202531625

日本語
1.1: 試験 [しけん] する examination/test/study/trial/(P)/
1.2: 試用 [しよう] する trial/experimental use/
1.3: 試す [ためす] v5s/vt to attempt/to test/(P)/
1.4: 試行 [しこう] する making an attempt/trial run/(P)/
1.5: テスト する test/(P)/

2.1: try out
[less frequent use]

2.2: Sentence Patterns
----- Somebody tried out.
2.3: perform in order to get a role
2.4: 201718535

Dynamically served verb data from SQL database

```
1   <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
2           "http://www.w3.org/TR/html4/loose.dtd">
3   <?rev
4   put "<table cellpadding='5'>"
5     repeat with x = 1 to 10
6       put "<tr>"
7       repeat with y= 1 to 10
8         put "<td>" & numtochar(x+65) && (x * y) & "</td>"
9       end repeat
10      put "</tr>"
11    end repeat
12  put "</table>"
13  ?>
14
15
16
17
```

Making cgi scripts with irev

```
1   <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
2       "http://www.w3.org/TR/html4/loose.dtd">
3   <html lang="en">
4   <head>
5       <meta http-equiv="content-type" content="text/html; charset=utf-8">
6       <title>Hello</title>
7       <meta name="generator" content="BBEdit 9.1">
8   </head>
9   <h1>Random Colors & Table with irev</h1>
10  <hr align="center" size="12" width="360">
11
12
13  <?rev
14  --
15
16  put "aqua, fuchsia, gray, green, lime, maroon, olive, red, silver, teal, white, yellow" into cx
17  put any item of cx into cx
18  put "<body style="&quote&"background-color:"&cx&quote&">"
19  put the internet date into tx
20  convert tx to dateitems
21  --put "<p>"& tx & "</p>"
22  add 14 to item 4 of tx
23  convert tx to long date and long time
24  put "aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white, yellow" into cx
25  put any item of cx into cx
26  put "<h2><p style="&quote&"color:"&cx&quote&">"
27  Put "Today's date and time:" && tx  & "</p></h2>"
28  put "aqua, fuchsia, gray, green, lime, maroon, olive, red, silver, teal, white, yellow" into cx
29  put any item of cx into cx
30  put "<table cellpadding='6' border='3'  bgcolor="&quote&cx&quote&">"
31  repeat with x = 1 to 10
32  put "<tr>"
33  repeat with y= 1 to 10
34  put "<td>" & numtochar(random(25)+65)&numtochar(random(25)+65) && (random(x) * random(y)) & "</td>"
35  end repeat
36  put "</tr>"&return
37  end repeat
38  put "</table>"
39  put "</p"
40  --
41
```

Creating CGI scripts with irev server

```
1    <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
2        "http://www.w3.org/TR/html4/loose.dtd">
3    <html lang="jpn">
4    <head>
5        <meta http-equiv="content-type" content="text/html; charset=utf-8">
6        <title>verbdataxj E&J Version 10</title>
7        <meta name="generator" content="BBEdit 9.1">
8    </head>
9    <body>
10   <b>
11   <h1>Enter a new verb.</h1></b>
12   <form action="http://e-land.on-rev.com/verbdatax10.irev" method="post" id="verb" name="verb">
13   <input name="putverb" type="text" value="NEW VERB">
14   <button type="submit" id="myverb" value="submit"><IMG SRC="../pix/EnterVerb.jpg" HEIGHT=21 WIDTH=146 ALT="btn" ALIGN="ABSMIDDLE"><STRONG>  Any English ve
15
16
17   <?rev
18   put format("<BR><hr color=seagreen align=\"left\" size=\"12\" width=\"600\"><br>")
19   --get form data
20   put  $_POST["putverb"] into vb
21   --change to sql format
22   replace "*" with " %" in vb
23   if char -1 of vb = space then delete char -1 of vb
24   if vb is empty then put "try out" into vb
25   if vb="NEW VERB" then put "exemplify" into vb
26   --open database
27   put revopenDatabase("mysql","localhost","eland_wn","eland","          ) into tConID
28   --construct statement to get five items
29   put "SELECT  lemma,GROUP_CONCAT(frame),SUBSTRING(definition FROM 1 FOR 300), synsetid, tagcount FROM vframemaps INNER JOIN vframes USING (frameid)  INNER JOIN w
30   put empty into vbx
31   --there will be a space before the %
32    if char -1 of word 1 of vb ="%" then put empty into char -2 to -1 of word 1 of vb
33   --put vb &"<BR> "--to check content of vb
34   if the number of words in vb>1 then put word 1 of vb into vbx else put vb into vbx
35   --deal with phrasal verbs
36   --get two data items ... lemma will match lemma above
37   put "SELECT lemma,morph FROM morphmaps INNER JOIN morphs USING (morphid)  INNER JOIN words USING (wordid) WHERE lemma = "&quote&vbx&quote  into tSQL2
38   --get irregular forms
39   --tconID is the connection number
40   if tConID is a number
41       then
42       --this sets up the chracter set for client-server exchange
43       revExecuteSQL tConID,"SET NAMES 'utf8'"
44       put revDataFromQuery(tab,return,tConID,tSQL) into tList
45       put revDataFromQuery(tab,return,tConID,tSQL2) into tList2
46       set the itemdel to tab
47       put the number of lines in tList into numSenses  --number of senses
48       put the number of lines in tList2 into numIrregPairs --number of base-irregular pairs
```

Using irev script to dynamically access mySQL database

MySQL Database

Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐ avlID	int(4)		UNSIGNED	No			📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ
☐ rank	int(3)		UNSIGNED	No			📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ
☐ sensenum	tinyint(3)		UNSIGNED	No			📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ
☐ lemma	varchar(64)	latin1_swedish_ci		No			📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ
☐ vDef	varchar(360)	latin1_swedish_ci		No			📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ
☐ patterns	varchar(360)	latin1_swedish_ci		No			📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ

↰ Check All / Uncheck All *With selected:* 📋 ✏️ ✖️ 🔑 ⓤ 🔧 ⓘ

🖨 Print view 🏢 Propose table structure ⑦

⧈ Add [1] field(s) ⦿ At End of Table ◯ At Beginning of Table ◯ After [avlID ▾] (Go)

Indexes: ⑦

Keyname	Type	Cardinality	Action	Field
avlID	INDEX	3315	✏️ ✖️	avlID
lemma	INDEX	1657	✏️ ✖️	lemma
sensenum	INDEX	26	✏️ ✖️	sensenum

Create an index on [1] columns (Go)

Space usage

Type	Usage	
Data	428.5	KiB
Index	94,208	B
Total	520.5	KiB

Row Statistics

Statements	Value
Format	dynamic
Collation	utf8_unicode_ci
Rows	3,315
Row length ø	132
Row size ø	161 B
Creation	Aug 26, 2009 at 09:13 PM
Last update	Aug 26, 2009 at 09:13 PM
Last check	Aug 26, 2009 at 09:13 PM

Aizu Verb List Table

Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐ **kid**	int(6)		UNSIGNED	No	0		
☐ **synsetid**	int(10)		UNSIGNED	No			
☐ kanji	text	utf8_unicode_ci		Yes	NULL		
☐ kana	text	utf8_unicode_ci		Yes	NULL		
☐ vpos	varchar(16)	utf8_unicode_ci		Yes	NULL		
☐ defBreen	mediumtext	utf8_unicode_ci		Yes	NULL		

↑— Check All / Uncheck All With selected:

🖶 Print view 🖳 Propose table structure ⊘

Add [1] field(s) ⦿ At End of Table ○ At Beginning of Table ○ After [kid ▾] (Go)

Indexes: ⊘					**Space usage**			**Row Statistics**	
Keyname	**Type**	**Cardinality**	**Action**	**Field**	**Type**	**Usage**		**Statements**	**Value**
PRIMARY	PRIMARY	27738	✏ ✗	kid	Data	3,173.8 KiB		Format	dynamic
synsetid	INDEX	5547	✏ ✗	synsetid	Index	558.0 KiB		Collation	utf8_unicode_ci
Create an index on [1] columns (Go)					Total	3,731.8 KiB		Rows	27,738
								Row length ø	117
								Row size ø	138 B
								Creation	Aug 26, 2009 at 09:20 PM
								Last update	Aug 26, 2009 at 09:20 PM
								Last check	Aug 26, 2009 at 09:20 PM

LINKED JWN TABLE

	avlID	rank	sensenum	lemma	vDef	patterns
Full Texts	1	1	1	add	to put SOMETHING with another thing or group of th...	#1 People added something. #2 Something added s...
	2	1	1	agree	to say that you will do, accept, or allow SOMETHIN...	#1 People agreed. #2 People agreed on something...
	3	1	1	answer	react verbally	#1 People answered. #2 People answered people....
	4	1	2	appear	come into sight or view	#1 Something appeared. #2 People appeared. #3 ...
	5	1	1	ask	to say or write SOMETHING to SOMEONE as a way of g...	#1 People asked. #2 People asked what [SENTENCE...
	6	1	1	attempt	to try to do SOMETHING : to try to accomplish or c...	#1 People attempted something. #2 People attemp...
	7	1	2	become	undergo a change or development	#1 People became people. #2 Something became so...
	8	1	2	begin	to start to happen, to exist, to be done, etc.	#1 Something began. #2 Some things were beginn...
	9	1	3	believe	be confident about something	#1 People believed that [SENTENCE].
	10	1	2	bring	to cause SOMETHING to exist, happen, or start	#1 People brought something. #2 People brought...

WORDNET DATA IN SQL

JPN WORDNET SYNSET LINKED TO BREEN DEFINITIONS

Field	Type	Collation	Attributes	Null	Default	Extra	View
synsetid	int(10)		UNSIGNED	No	0		
sensenum	tinyint(3)		UNSIGNED	No			
wordid	mediumint(8)		UNSIGNED	Yes	0		
lemma	varchar(64)	latin1_swedish_ci		No			
avllD	int(4)		UNSIGNED	No			
rank	int(3)		UNSIGNED	No			
vDef	varchar(360)	latin1_swedish_ci		No			
patterns	varchar(360)	latin1_swedish_ci		No			
casedwordid	mediumint(8)		UNSIGNED	Yes	NULL		
senseid	mediumint(8)		UNSIGNED	Yes	NULL		
lexid	tinyint(3)		UNSIGNED	No	0		
tagcount	mediumint(8)		UNSIGNED	Yes	NULL		
sensekey	varchar(100)	latin1_swedish_ci		Yes	NULL		
pos	enum('n', 'v', 'a', 'r', 's')	latin1_swedish_ci		Yes	NULL		
lexdomainid	tinyint(3)		UNSIGNED	No	0		
definition	mediumtext	latin1_swedish_ci		Yes	NULL		
kid	int(6)		UNSIGNED	Yes	0		
kanji	text	utf8_unicode_ci		Yes	NULL		
kana	text	utf8_unicode_ci		Yes	NULL		
vpos	varchar(16)	utf8_unicode_ci		Yes	NULL		
defBreen	mediumtext	utf8_unicode_ci		Yes	NULL		

Fully linked "View"

Conclusions

- Teach verbs

    - use semantics

- Classify verbs

    - Use runrev (media) to work with language data