

Aug. 2, 2005

Parameter Setting

- (0) a. [Kasugano-no fuji-ha chiri-ni-te] nani-wo-ka-mo
Kasugano-gen wisteria-top fall-perf-conj what-acc-KA-MO
mikari-no hito-**no** ori-te kazasa-**mu**?
hike-gen person-nom pick-conj wear-on-the-hair-will
“Since the wisteria flowers at Kasugano are gone, what should hikers pick and wear on the hair?”
(Man'youshuu #1974)
- b. [Kado tate-te to-mo sashi-taru-wo] izuku-yu-ka imo-**ga** iriki-te
gate close-conj door-also shut-past-acc where-through-KA wife-nom enter-conj
ime-ni mie-**tsuru**?
dream-loc appear-perf
“From where did my wife come and appear in my dream, despite the fact that I closed the gate and shut the door?”
(Man'youshuu #3117)
- c. ... kimi-**ha** [tori-ga naku adzuma-no saka-wo] kefu-**ka**
you-top rooster-nom crow Eastern.country-gen slope-acc today-KA
koyu-ramu.
go.over-aux
“Are you going over a slope in the Eastern country where roosters crow today?”
(Man'youshuu #3194)

- (1) Cue-Based Learner (Dresher & Kaye 1990, Dresher 1999)
- A. UG associates every parameter with a *cue*.
 - B. A cue is not an input sentence or form but is something that can be derived from input.
 - C. Cues must be appropriate to their parameters in the sense that the cue must reflect a fundamental property of the parameter, rather than being fortuitously related to it.
 - D. A parameter value that has a default state remains in it until the learner detects its cue, which acts as the trigger to move to the marked setting.
 - E. Cues are local in the sense that each decision depends on finding a specific configuration in the input, which the learner acts on without regard to the final result. Hence, learners are not trying to match the input.

- (2) Structural Triggers Learner (Fodor 1998)
- We may therefore assume that the set of triggers is specified by UG. Triggers, then, are small structural templates that are innate, are stored by the language faculty, and constitute the parametric options offered by UG for languages to make use of if they choose to..... The learner's task is
- (a) to find these bits of structure in the sentences of the input;
 - (b) to adopt a trigger structure into the current grammar if it is indubitably present in an input sentence; but
 - (c) not to adopt a trigger structure if the input sentence has any analysis, on any grammar not yet decisively ruled out, that does not include it.

Aug. 2, 2005

- (3) Triggering Learning Algorithm (Gibson & Wexler 1994)
Given an initial set of values for n binary-valued parameters, the learner attempts to syntactically analyze an incoming sentence S . If S can be successfully analyzed, then the learner's hypothesis regarding the target grammar is left unchanged. If, however, the learner cannot analyze S , then the learner uniformly selects a parameter P (with the probability $1/n$ for each parameter), changes the value associated with P , and tries to reprocess S using the new parameter value. If the analysis is now possible, then the parameter value change is adopted. Otherwise, the original parameter value is retained.
- (4) Genetic Algorithm Learner (Clark & Roberts 1993)
- A. a *representation* of hypotheses in terms of *strings*
 - B. a set of *reproduction* operators that combine or alter existing “parent” hypotheses in order to produce new “offspring” hypotheses.
 - i. crossover
 - ii. mutation
 - C. a *measure of fitness* of hypotheses in terms of their performance in an environment (violations, superset penalty, elegance)