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Theory, Data, and the Epistemology of Syntax

Abstract Syntactic theory has tended to vacillate between implausible methodological extremes. Some linguists hold that our theories are accountable solely for the corpus of attested utterances; others assume our subject matter is unobservable intuitive feelings about sentences. Both extremes should be rejected. The subject matter of syntax is neither past utterance production nor the functioning of inaccessible mental machinery; it is normative — a system of tacitly grasped constraints defining correctness of structure. There are interesting parallels between syntactic and moral systems, modulo the key difference that linguistic systems are diverse whereas morality is universal. The appropriate epistemology for justifying formulations of normative systems is familiar in philosophy: it is known as the method of reflective equilibrium.

The tendency for the study of language to swing between opposed extreme positions is very familiar to those who have followed the subject for a while.

Second-language teaching, for example, has swung between communication-free structure-drilling and explanation-free whole-language immersion — between treating the language as dead and treating the students as babies. And in developmental linguistics we have seen both the radical empiricist view that all knowledge arises out of sensory experience through common-sense reasoning and nothing is innate, and the nativist claim that an innate grammar-building mental organ equips infants to acquire language with essentially no 'learning' at all (the rise of statistical approaches in the last two decades is a reaction to the latter, and a sign of the pendulum swinging back again).

Similarly, in comparative syntactic theory the austere structuralist doctrine that languages could "differ from each other without limit and in unpredictable ways" yielded to the heady optimism of universals-hunting in 60s, and ultimately to absurdities like Neil Smith's remark that Noam Chomsky has "shown that there is really only one human language" (1991:1; Chomsky never actually said any such thing). A reaction to this led to the new parochialism seen in Evans & Levinson (2009).

In methodological matters, which will be my concern here, the extremes have been the data-fixated view that I will call **corpus fetishism** and the self-deluding reflection on one's own idiolect that I will call **intuitional solipsism**.

W. S. Allen's statement in 1957 of the way linguists work was that "the linguist's gospel comprises every word that proceeds from his informant's mouth—which cannot, by definition, be wrong", whereas "as a matter of principle, whatever the informant volunteers *about* his language (as opposed to *in* it) must be assumed to be wrong" (Strevens 1966: 18–19).

Halliday (1966) wrote in broadly similar terms of how "The linguist['s] … object of observation is the text: he describes language and relates it to the situations in which it is operating. Thoughts do not figure in the process since we cannot describe them."

In a review of Halliday, Postal (1969:412) asked what could be the point of "this preposterous methodology, … this philosophy which is not and cannot be followed." In Postal's hands and those of many other generative grammarians, however, linguistics turned toward a strange meditative intuition-seeking that all but severed its connection to empirical facts. Epistemological solipsism claims that although I know I exist and have a mind, I can never be sure about you. The intuition-centred syntactician says "This sentence is grammatical for me, but I can never be sure about whether it is for you."

The implication is that languages can never be shared or public or external. And that is surely absurd: to say that we have no access to the language spoken by Angela Merkel just isn't true; to say that the Institut für Deutsche Sprache has no subject matter except certain internal and individual systems of mental representation is perverse.

Corpus fetishism is related to the position that on Language Log I have called the 'everything-is-correct' stance.[1] It echoes Allen's position that everything the native speaker utters is "by definition" correct. Sometimes it is allied to the view that nonstandard dialects are not even to be recognized as distinct from the standard: they are to be accepted and defended and submitted only to the criterion of intelligibility within their community.

But an opposing view that I call the 'nothing-is-relevant' stance is also often encountered among the nonlinguistic public. There are people who seem to believe that no evidence is or could be relevant to revision of the rules of grammar. They are not intuitional solipsists, though, because they appear to have no faith whatever in their own intuitions.

For example, it has been alleged in some usage guides that pronouns may not take a genitive noun phrase as antecedent: thus *Einstein's theories made him world famous* would be judged a grammatical mistake. Arnold Zwicky reported (in a Language Log post on 8 October 2003.[2]

> When a colleague posted to the newsgroup sci.lang that possessive antecedents were just ungrammatical, and I mailed him an example from his own writing, he was inclined to think that he should just be more vigilant.

Zwicky encountered the attitude again when he took half a dozen examples of genitive antecedents from the works of Louis Menand, who had endorsed the supposed rule, and sent them to the author. The reply was simply that the arbitrariness of a rule, and the difficulty of always obeying it, should not mean that we should give up the attempt.

Simon Heffer (2010:xviii) provides another clear example of 'nothing-is-relevant' thinking, when he says:

> As a professional writer, I happen to believe that the 'evidence' of how I see English written by others, including some other professional writers, is not something by which I wish to be

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[1] See http://itre.cis.upenn.edu/~myl/languagelog/archives/001843.html

[2] See http://itre.cis.upenn.edu/ myl/languagelog/archives/000030.html

> influenced…because in some degree it is, by the codified usage that seems sensible to me, wrong.

The wrongness of which Heffer speaks consists in "the choice of the wrong word; the use of faulty grammatical constructions; and an absence of logic." But not an absence of evidence, it would seem.

The 'nothing-is-relevant' stance is sometimes presented in the guise of modesty: my own writing may be imperfect, the writer confesses, but if even I make mistakes, that only means that we should all try harder. George Orwell (1946), for example, says almost exactly this:

> Look back through this essay, and for certain you will find that I have again and again committed the very faults I am protesting against.

The very rules he himself advocates are by his own admission impossible for him to follow. Such is the irrationality of the 'nothing-is-relevant' camp.

On the other side, corpus linguistics based on huge corpora has been gaining popularity as a methodology for syntax. But it will fail to have the effect it should on theoretical linguistics if its adherents fall into the extreme 'everything-is-correct' trap. When faced with corpus evidence, intuitional solipsists tend to defend themselves by insisting that there are performance errors in all corpora, so one cannot trust them; moreover, the idea of pure, cleaned-up, error-free corpora gives the game away by admitting that intuition is needed, for once one admits intuitional evidence, the corpus has no further role and its testimony can be ignored. That is an unfortunately extreme position.

But so is treating the corpus as if it were the object of study, rather than just an imperfect and highly incomplete reflection of a small finite sample of the results of using the object of study. What, for example, is the point of the tendency seen in some grammars of the last ten years toward using corpus-derived examples for illustration? Why is it that some grammarians seem to think that every example in a reference grammar should come from a corpus? It seems to me it is not even generally desirable, let alone fully feasible. Neither the Quirk-Greenbaum-Leech-Svartvik *Comprehensive Grammar* (Quirk et al. 1985) nor *CGEL* pursues such a policy. When *CGEL* illustrates clause type (p. 853), it does it with invented sentences that are parallel in all but clause type:

[1]	Declarative	*You are generous.*
	Imperative	*Be generous.*
	Closed Interrogative	*Are you generous?*
	Open Interrogative	*How generous are you?*
	Exclamative	*How generous you are!*

There would be no point in using corpus examples with citations instead; illustration should be distinguished from investigation. And anyway, there simply isn't a sharp line dividing intuition-guided editing of attested material from intuition-guided invention of new material.

One reason for rejecting corpus fetishism is that the corpus is never large enough, and never can be, and is always skewed. Chomsky was right to note this. Even with gigantic corpora, frequency information is utterly flaky. According to the Web 1T 5-gram corpus produced by Google researchers, the most common 5-word sequence is *send a private message to*. It occurs 26,672,131 times.[3] This is an utterly useless piece of information. This piece of boilerplate text on large numbers of related pages has no interest at all. The entire top 20, with the number of occurrences for each, is shown in Table 1.

send a private message to	26,672,131
property of their respective owners	25,640,531
this result in new window	24,059,811
the property of their respective	24,891,265
are the property of their	24,938,581
Open this result in new	24,059,963
site constitutes acceptance of the	21,556,427
brands are the property of	21,139,112
and brands are the property	21,113,548
trademarks and brands are the	20,975,334
User Agreement and Privacy Policy	20,917,050
Designated trademarks and brands are	20,820,815
this Web site constitutes acceptance	19,723,554
the eBay User Agreement and	19,808,132
of this Web site constitutes	19,703,371
of the eBay User Agreement	19,850,627
eBay User Agreement and Privacy	19,807,811
constitutes acceptance of the eBay	19,850,700
acceptance of the eBay User	19,850,253
Web site constitutes acceptance of	19,724,386

Table 1: The top 20 most frequent 5-word sequences on the web

What you get is still dominated by junk: bits of boilerplate from commercial websites such as the eBay terms of service; standard wording shared by millions of Facebook profiles; parts of frequently-used lists needed on many different kinds of page.

As John Cowan commented on Language Log: “it seems a reasonably safe conjecture that ‘Trademarks and brands are the property of their respective owners’ is the most common sentence on the Web, and therefore probably the most common sentence of written English as a whole.” Indeed, it is doubtless the most frequently attested written sentence in the entire history of the English language.

And things are no better if you move to rarer 5-grams that occur only a million times each (see Table 2).

[3] See http://languagelog.ldc.upenn.edu/nll/?p=1231

The take-home message is that in some ways actual frequency is almost as unrevealing and unimportant as Chomsky said it was. And it's no good saying that a corpus needs to be more representative: the boring pieces of boilerplate above *are* representative, that's the whole problem. What you mean is 'representative of the sort of thing we want to pay attention to in studying the structure of English'. But that's an intuition-guided concept!

ND OH OK OR PA	1,012,023
State University of New York	1,011,879
NY NC ND OH OK	1,011,482
Ivoire Croatia Cuba Cyprus Czech	1,011,221
browser does not support script	1,010,343
poster 's website AIM Address	1,007,641
in TripAdvisor 's popularity index	1,007,567
a great domain name at	1,007,579
Visit poster 's website AIM	1,007,875
Get a great domain name	1,007,806
great domain name at eNom	1,006,715
d d d d d	1,006,434
See more of the brand	1,006,237
your web hosting at eNom	1,005,283
MD ME MI MN MO	1,005,327
Get your web hosting at	1,005,294
is the responsibility of the	1,003,710
NM NY NC ND OH	1,003,534
part of The New York	1,001,557
Shopping help About this site	1,001,307
Islands Faroe Islands Fiji Finland	1,001,073
Philippines Pitcairn Poland Portugal Puerto	1,000,489
have not been able to 1,000,387	

Table 2: 5-word sequences attested a million times on the web

Let me briefly describe a case study in which corpus methods failed me, at least initially. English allows phrases that appear to involve predicates in prenucleus function in concessive adjuncts headed by *though*, as in *happy though I am*. To get some sense of the frequency of this construction using an untagged corpus, I searched for *though* in the *Wall Street Journal* corpus and simply eyeballed the first thousand occurrences. (Actually I had to read 1,003 of them, because three of the tokens were not intended as tokens of the word I was searching for: they were typos for either *thought* or *through*. And I will have missed any cases where an intended *though* was misspelled as *thogh* or *tough* or whatever; I only looked at cases of the letter sequence *though*.)

I found that of the sentences containing that letter sequence, numbers 225, 449, 671, and 673 were instances of the construction I'm talking about. Here they are:

[2] a. *Skilled though they are, the Asbury-Olivers make mile-high mistakes, including his announcement of a coming AIRSOW.*

b. *While nobody currently expects these hearings to force President Reagan's resignation, the investigation will show that administration officials*

conducted covert foreign-policy operations that, well-intentioned though they may have been, turned out to be confused, duplicitous failures.

c. *My retirement income, modest though it may be, is based on dividends spread out over 12 utility companies for diversification protection.*

d. *Incredible though it may seem, sales of Japanese cars are falling as higher prices and increasing competition demystify their once-magical allure for Americans.*

Thus if my sample was representative for this genre, about 0.4 percent of the tokens of the correctly spelled tokens of *though* head instances of the construction. (Notice, this is essentially the same as the number of instances of *though* that were misspellings!)

Now, as it happened, none of the four that I found involve an unbounded dependency crossing a finite clause boundary. The predicate gap is always a complement of the verb *be*, which may be (a) the main clause verb or (b) in the catenative complement of an auxiliary verb, or (c) in the catenative complement of a non-auxiliary verb, or (d) in the catenative complement of the catenative complement of an auxiliary verb:

[3] a. [PP *skilled* PP *though* Clause *they are* ___

b. [PP *modest* PP *though* Clause *it may be* ___

c. [PP *incredible* PP *though* Clause *it may seem* ___

d. [PP *well-intentioned* PP *though* Clause *they may have been* ___

So this does not tell us whether the gap can be embedded **inside a content-clause complement**, as in this invented example (here '[Clause' marks the finite complement clauses):

[4] *Well-intentioned though* [Clause *many people may have imagined* [Clause *the CIA probably thought* [Clause *they were* ___]]], *their foreign-policy operations were confused, duplicitous failures.*

I thought then, and think now, that this is probably grammatical. But how could I find corpus support for this belief?

I let other linguists know that I wanted to find an example showing that this construction permitted nonlocal subordinate-clause gaps. But it was not until some eleven months later that Chris Potts happened to spot an example at the bottom of page 13 of James Gleick's *Genius: The Life and Science of Richard Feynman* (Vintage Books):

[5] *Although he sometimes retreated to a stance of pure practicality, Feynman gave answers to these questions,* PP *philosophical and unscientific* [PP *though* [Clause *he knew* [Clause *they were* ___]].

So there was at least one attested case in print. And it was in a book that I had on my own shelves, and had read!

Could such a case have been found in a balanced corpus? Ten years ago, it would have been doubtful. But things have been improving at a rapid rate: larger corpora are

appearing, and many are quite accurately tagged. On hearing about my quest in 2009, Mark Davies (the creator of COCA and other BYU corpora) ran a search on the 400 million tagged words of COCA, speculating that this pattern might turn up some hits:

[6] `[j*] though [pp*] [v*] [pp*] [be]`

This asks for Adjective + *though* + Pronoun + Verb + Pronoun + any form of *be*. And indeed, with this pattern he picked up one example, from an article in *American Scholar* by Joseph Epstein; the crucial phrase was this:

[7] *Good though he knew it was, …*

That is enough to settle my question about whether the construction can have an unbounded dependency, provided we assume—a big but familiar syntactician's assumption—that if the gap can be embedded in one finite subordinate clause it can be further embedded without limit.

One advantage of corpus investigation that I have not seen mentioned by corpus linguists, though it strikes me as important, concerns serendipity: I find that whenever I search a corpus I always learn new things that I wasn't initially looking for. One serendipitous thing I learned from the *WSJ* search mentioned above was that more than 13% of the tokens of *though* in *WSJ* are in occurrences of *even though*. Notice that *P even though Q* has the same truth conditions as *P though Q*, and both have the same truth conditions as *P and Q*. The differences in meaning here are of the kind studied by Wilson (1973) and Potts (2005): they are not part of the at-issue truth-conditional content. The high frequency with which *though* is felt to need *even* before it is an indication of how important such aspects of semantics are in real natural language use.

Large corpora, when available, are a crucially important tool. But you can't always get them when trying to settle issues that depend on low-frequency combinations, so it is essential to pay attention to other modes of access to data as well. Those modes would include (i) happenstance—specific examples you just happen to come across anecdotally through good luck, or email, or Language Log, or a friend, or an elicitation session, or an odd experience; (ii) surveying the judgments of others; and (iii) consulting your own intuition.

The latter source of data is of course beyond the pale for the true believer in corpus linguistics. Perhaps the most extreme among them is Geoffrey Sampson. His article 'Grammar without grammaticality' Sampson (2007a) was published with commentaries, including mine Pullum (2007). Sampson replied (2007b), and since then has developed his thesis into a book (Sampson 2014), where the issue is thrashed out again (96–98). Let me pick up a couple of the things that Sampson said as part of his response, because they go to the heart of my conception of syntax and its methodology, yet are seldom debated, considered, or even understood by syntacticians.

In my paper I suggested that "the epistemology of grammar involves something rather like what philosopher Nelson Goodman called the method of reflective equilibrium", a method "familiar to philosophers from applications in subfields like logic, ethics, and political philosophy." It involves a procedure of comparing considered judgments (about logical validity, moral correctness, political fairness, or whatever) with

consequences of tentatively proposed principles or rules and associated theoretical considerations, iteratively revising as necessary to attain optimal coherence among them. I then added this remark:

> I take linguistics to have an inherently normative subject matter. The task of the syntactician is exact codification of a set of norms implicit in linguistic practice. (Pullum 2007:41]

Later I remarked that philosophical discussions relating the normative to the natural in matters like ethics and aesthetics deserve linguists' attention. Sampson's response (2007b:112) was as follows:

> Having begun by condemning my thesis as "extraordinary" and one that will "give corpus linguistics a bad name", Pullum proposes a view of grammatical research that departs far further than mine from the consensus. I was at least assuming that grammatical description consists of statements that are correct or incorrect: but correctness is not a concept applicable to the domains of ethics or aesthetics. (As it is often put in the case of ethics, "you cannot derive an ought from an is".)

It is baffling that Sampson imagines he can see a consensus for me to depart from, given the pendulum-swings between the corpus-bound and intuition-based approaches mentioned earlier. But traditional grammar was never about exact modelling of behaviour; it was about explaining what restrictions on linguistic behaviour one has to observe in order to be said to be using the language correctly. Grammars have always tacitly aimed to draw that line.

The undesirable aspect of the generativist contribution to syntax is not that it delimits the grammatical from the ungrammatical, but that it does so by drawing a sharp line between the perfectly grammatical sentences that are generated and material with no linguistic properties at all (everything that is not generated). I have pointed out in Pullum (2013) that it is not necessary for an explicit grammar to draw such a sharp line: a grammar consisting of a finite set of separate constraints on structure can be interpreted as defining (in a number of different ways) a finely graded classification of degrees of ungrammaticality, because for each constraint a structure may satisfy it or violate it (at one or more points). For example, [8a] is well formed, but [8b] violates the subject-verb agreement constraint, and [8c] also violates the constraint that says progressive *be* takes a gerund-participial complement, and [8d] both violates those and additionally contravenes the constraint that determiners precede nominals, and thus is even further away from being grammatical.

[8] a. *Are our children learning?*
b. **Is our children learning?*
c. ***Is our children learn?*
d. ****Is children our learn?*

The fact that some traditional grammars erred empirically by straying into prescriptivism is immaterial. Prescriptivism, which I have already discussed, has nothing to do with the normativity of the subject matter of grammar. It involves the imposition of one person's style preferences and opinions about correctness on others, confusing colloquial usages or regionalisms with incorrectness, or pontificating about the constraints they would prefer language users to observe (as in the famous case of the Fowler brothers' discussion of

relative *which* (Fowler & Fowler 1906:88–93). But none of that is relevant. The task of descriptive work is to lay down standards of correctness—not standards we ought to aspire to, but the standards that we tacitly already live by. Grammarians have never been concerned with simply cataloguing and tabulating what has occurred in texts or conversations. Jespersen's copious evidence from texts was there to illustrate that the patterns he found in well-formed expressions did occur in literature, which he assumed would almost always exemplify correct use of the language he was describing.

On the more general philosophical point, Sampson is asserting a very specific minority view, anticognitivism, as if its truth were unquestionable. He thinks there is no such thing as truth in normative domains like morality: that any claim made in a domain like morality is false. Since moral reasoning relies on the existence of moral truths, there can be no moral reasoning for Sampson: he cannot say that *Beating a man or a woman to death is wrong* entails *Beating a man to death is wrong*, because entailment and other truth-related properties do not apply to moral claims.

I have no space here to survey the huge philosophical literature on moral realism. Suffice it to say that study of that literature will convince you that there have been many defenses of the view that there are moral facts and that we can know them. Some of those views are non-naturalist, taking moral facts to be of a different sort than facts about the physical world that scientists investigate, but others assume naturalism, which means that they take science and philosophy to be parts of a seamless web in which neither is independent of the other.

Moral realism seems to me quite plausible even in conjunction with naturalism. And it should be easier to see how normative facts about grammar might be justified than to see how normative facts about mathematics or logic might be justified, since the constraints of grammar vary from community to community and owe something to linguistic experience in the communities where they contingently hold, whereas the truths of mathematics and logic are universal and (under many philosophers' views) are necessary and a priori, and might be said to owe nothing to experience.

I take grammatical truths to be statable in terms of simple conditions on the structure of expressions, like the ones in [9], which can be stated as very simple first-order logic formulae — though here I give just an English paraphrase:

[9] a. An imperative clause has its verb in the plain form.
b. Every adjective phrase has an adjective head.
c. Every independent clause is finite.
d. The head verb of a clause with a primary verb form agrees in person and number with the subject.
e. A pronoun that functions as subject in a finite clause takes the nominative case form.

Such statements are not evaluative; they are simple assertions about structure. Interpreted on some structures they will be true; on others they will be false. Yet in a sense they can also be seen as being in one-to-one correspondence with related statements about right courses of action. Thus ([constraints]a) says simply that imperative clauses have plain-form verbs, but it is related to a statement like "The right kind of

imperative clause to use (if you want to be regarded as speaking English) is one that has its verb inflected in the plain form."

The grammarian's task is to devise a finite set of non-evaluative statements about structure such that **a structure will satisfy all of the statements if and only if an evaluative judgment of it as well-formed would be correct**. This can be done to any desired degree of precision, using any mathematical or logical tools that enhance explicitness and make consequences clearer.

Sampson, then, is wildly off beam when he claims I contradict myself:

> Then, a page or two later, Pullum urges that grammarians need to become "a lot more conversant with ways of mathematicizing their subject matter", blithely ignoring the conflict between that recommendation and the appeal to treat linguistics as a discipline concerned with norms. The gulf between formal mathematical discourse, and discourse about norms, is about as wide as any chasm in the map of learning. (Sampson 2007a: 112)

This is an extraordinary misrepresentation. What I actually said was on a different topic, nothing to do with the normativity of the subject matter; it was this:

> It is strange for us to find ourselves unable to agree on whether essentially all strings of words are grammatical or essentially none are. This is not a happy state for the discourse in linguistics to be in. And it is not going to improve until syntacticians get a lot more conversant with ways of mathematicizing their subject matter—both the application of statistics to corpora and the use of logic and algebra to formalize claims about grammatical constraints. (Pullum 2007:43)

This empirical prediction—that discourse in linguistics will remain confusing until linguists are more familiar with mathematical tools and techniques—could not conceivably be read as conflicting with the claim that some expressions are well-formed and others are not, which is all that normativity with respect to language amounts to.

The mathematical tools I had primarily in mind, incidentally, are those of logic, and specifically model theory. A set of constraints on syntactic form can be framed in a formalized logical language interpreted on structures that idealize the structural properties of the expressions in the language under description (Pullum 2013). But Sampson just speculates a bit about how there might be some kind of mathematicizing of a utilitarian calculus in ethics, and then drops the subject as too obscure to explore:

> [I]t seems clear that Pullum is opening up a range of methodological ideas more diverse than anything I suggested, and is adumbrating them too briefly for me to feel obliged to take them on board. (Sampson 2007b:113)

But it is really not that hard to grasp what I am suggesting. The following are the main ideas:

[10] Central ideas about grammar and its evidential support

- [i] Grammars are sets of statements about structural properties;
- [ii] if an expression has all the properties the grammar stipulates then it is well-formed according to that grammar;
- [iii] if an expression lacks any of the properties the grammar stipulates, then it is ill-formed according to that grammar;

[iv] a proposed formulation of a rule or an entire grammar may be inaccurate;

[v] the aim of the descriptive grammarian is to write a grammar that is not inaccurate;

[vi] under ideal circumstances for those who know the language (and circumstances are often not ideal) short and simple sentences will often be judged grammatical iff they are indeed well-formed;

[vii] under ideal circumstances (and circumstances are often not ideal) accurate transcriptions of what individual speakers said or what individual writers wrote will be composed mainly of sentences that are indeed well-formed.

The parallels with the moral domain are actually quite striking, I think. I exhibit a few comparisons in Table 3.

LINGUISTIC DOMAIN	MORAL DOMAIN
Judgment of grammaticality	Judgment that an act is right
Judgment of ungrammaticality	Judgment that an act is wrong
Grammatical constraint	Explicitly stated moral precept
Construction of grammars	Codification of moral principles
Formalized grammars	Rigorously stated codifications
Universal grammar	Meta-ethics
Usage advice	Casuistry (advice-giving about morality)
Prescriptive bullying	Moral preachiness
Problematic usage points	Controversial moral questions
Corpora	Records of morally relevant behaviour
Descriptive grammar	Moral anthropology

Table 3: Parallels between linguistic and moral domains

The most salient point on which the analogy between the two domains obviously breaks down is the appropriacy of relativism. In morality, most philosophers consider relativism (the idea that something may be wrong for you but not for someone else) is anathema. For one thing, it undercuts itself (consider what a relativist has to say about the claim "It is right to assume relativism"). Grammar, on the other hand, is radically and unavoidably relativistic: just because putting the verb at the beginning of the VP is grammatically correct in English doesn't make it right in Japanese.

But the way in which we might establish and justify our beliefs in the moral domain bears a fair similarity to what we might want to maintain in the grammatical domain. Scanlon (2002:149) describes Goodman's method of reflective equilibrium as "the only defensible method of making up one's mind about moral matters and about many other subjects." What I am suggesting is not (of course) that truths about English or German syntax are a priori and necessary like the truths of morality in the view of moral realists, but that in the empirical discipline of linguistics a very similar methodological approach provides the best reconstruction of the epistemology of the subject.

For an instructive recent example of the way reflective equilibrium works in ethics, see Swinburne (2015:628ff). The way it works in syntax is essentially that we go back and forth between checking data and improving theory. We tentatively accept specific judgments, like (for example) that example [4] is grammatical, and attempt to make them

fit broader patterns of regular structure by positing general syntactic principles that explain the tentative grammaticality judgments.

If we find the general principles predict incorrectly about our judgments on other sentences, naturally we reconsider the general principles. If we find a general principle is too well confirmed for it to be lightly rejected, we turn back to consider the possibility that some of our judgments are mistaken. Going back and forth in this way, we seek an optimal fit between elegant general statements of syntactic principles and the facts of a broad array of specific judgments on sentences.

Missing here is any reference to corpora. Linguistics derives its claim to be empirical from the close fit between behaviour and grammatical constraints (not a relevant consideration in the moral domain). It would be irrational not to assume that well-confirmed regularities in actual language use point the way toward what general statements should be in the grammar (this is why the "nothing is relevant" view is stupid). What is needed for grammar is a triangular version of reflective equilibrium, involving linguistic behaviour (corpora), general constraints (grammars), and intuitive assessment of well-formedness (judgments). None of these is to be dismissed—yet crucially, none is sovereign.

We start with simple cases on which we regard our grammaticality judgments as clearly trustworthy. We formulate general statements about the structure of these clear cases, test the predictive power of the general statements, and revise them if they mispredict either judgments or corpus facts.

If judgments and general principles are firmly in conflict with the corpus on some point, we may decide that the corpus contains an error (*thought* spelled as *though* or whatever). If judgments and corpora both agree on a range of cases that are in conflict with general statements of syntax, we consider revising those statements. And so on as we journey toward optimal fit.

This looks more like an epistemology for syntax. It rejects both the crazy assumption that native speakers cannot err and the irrational claim that evidence of use cannot bear on the justification of grammatical constraints. It is reasonably sensible, and located well within the large area that the erratic pendulum of methodological fashion traverses as it swings.

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