

WHAT USE IS HALF A CLAUSE?

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The erroneous notion ... has been that the intermediate stages in the evolution of structures must be useless – the old saw of ‘What use is half a leg or half an eye?’ (Carroll, 2005, 170-171).

1. *How to Halve Syntax*

Focusing on the evolution of syntactic structures, the first goal of this paper is to show that ‘half-clauses’ do exist, and that they are indeed used and useful, even in present-day languages. Moreover, there is reason to believe that comparable (proto-syntactic) creations constituted an evolutionary stepping stone into more complex syntax (see e.g. Pinker & Bloom (1990) and Jackendoff (1999, 2002) for the proposal that syntax evolved gradually).^a Intriguingly, in modern-day languages, such half-clauses actually serve as the foundation upon which finite clauses/sentences are built, leading to quirks and complexities that best befit a gradual evolutionary scenario.

The following (half-)clauses will be discussed, in comparison to their full counterparts: ‘incredulity’ clauses (e.g. *Sheila sad?!*) (Section 2), perfective clauses (e.g. *Problem solved.*) (Section 3), and Serbian perfective unaccusative clauses (Section 4).^b Relying on the theoretical framework of Minimalism (e.g.

^a My goal is also to demonstrate that a case for gradual evolution of syntax can be made even using the tools of Minimalism, the mainstream syntactic theory, although Chomsky himself does not subscribe to the gradualist view (see e.g. Chomsky 2005 and references there). The challenges for subjecting syntax to evolutionary scrutiny are greater than with other domains, as originally pointed out by Bickerton (e.g. 1990, 1998) (see also Newmeyer, 2003, and references there), leading to the wide-spread view, summarized in Berwick (1998, 338-339), that “there is no possibility of an ‘intermediate’ *syntax* between a non-combinatorial one and full natural language – one either has Merge in all its generative glory, or one has no combinatorial syntax at all ...”

^b In a similar sense, certain marginal ‘exocentric’ (i.e. headless) compounds, available crosslinguistically (e.g. *dare-devil*, *kill-joy*, *scare-crow*, *turn-coat*), can be seen as ‘half-compounds,’ in comparison to the more articulated endocentric counterparts (e.g. *joy-killer*, *head-turner*, *mind-reader*) (see Progovac 2007b and other papers quoted there). The former also precede the latter in child language acquisition.

Chomsky, 1995), I will show that the full counterparts of each of these clauses involve at least one additional layer of syntactic structure, and are thus at least double in syntactic size.^c Moreover, even though half-clauses and their full counterparts partly overlap in their function, they also exhibit a degree of specialization (with respect to e.g. mood, tense, aspect and agreement). As put in Carroll (2005, 170-171), “multifunctionality and redundancy create the opportunity for the evolution of specialization through the division of labor...”

2. *Incredulity Half Clause: Specialization for Mood*

Modern syntactic theory (including e.g. Chomsky, 1995, 2001) analyzes every clause/sentence as initially a small clause (SC), call it half-clause (examples (a) below), which gets transformed into a full/finite clause, considered to be a T(ense) P(hrase), only upon subsequent Merger of tense (examples in (b)), and subsequent Move of the subject to TP (examples in (c)) (e.g. Stowell, 1981, 1983, Burzio, 1981, Kitagawa, 1986, Koopman & Sportiche, 1991, Hale & Keyser, 2002). In other words, the layer of TP is superimposed upon the layer of small clause:^d

- (1) a. Small Clause: [_{SC/AP} *Sheila sad*]
 b. [_{TP} *is* [_{AP} *Sheila* [_{A'} *sad*]]] →
 c. Sentence: [_{TP} *Sheila* [_{T'} *is* [_{AP} *t* [_{A'} *sad*]]]]
- (2) a. Small Clause: [_{SC/VP} *Peter retire*]
 b. [_{TP} *will* [_{VP} *Peter* [_{V'} *retire*]]] →
 c. Sentence: [_{TP} *Peter* [_{T'} *will* [_{VP} *t* [_{V'} *retire*]]]]
 (“t” stands for the trace of the moved subject.)

^c With some modifications, as one reviewer suggests, the insights of this paper may also be expressed in Chomsky’s later work on phases (e.g. Chomsky 2001). However, I present this paper without introducing formalisms of particular versions of the Minimalist framework, not only because of the lack of space to introduce such formalisms to interdisciplinary readers, but also because they change from year to year, and vary from researcher to researcher. Another reviewer in fact complains that there are already too many theory-internal assumptions in the paper. Instead, I base my paper on the discoveries and claims which are reasonably uncontroversial in this framework, which have withstood the test of time and empirical scrutiny, and which both predate Minimalism and survive into its later versions. These claims include the layering of sentential structure and the derivation of the sentence (TP) from the underlying small clause (half-clause), as discussed in the following section.

^d In this paper, I abstract away from the assumption in Minimalism that there are two verb phrases in a clause, a vP and a VP, and for ease of exposition just represent the whole vP/VP shell as VP. However, I believe that the vP shell can also be seen as an evolutionary innovation, which was at some point superimposed over the layer of VP, introducing agency and transitivity. This paper only discusses intransitive clauses.

The (a) examples involve only one clausal projection, which is sometimes referred to uniformly as SC (Small Clause), while other times it is considered to be the projection of the predicate, thus an AP (Adjective Phrase) in (1), and VP (Verb Phrase) in (2). The full finite clauses in (c) have at least two layers of clausal structure: the inner SC layer, and the outer TP layer. Full clauses even have two subject positions: one in which the subject is first Merged as the subject of the small clause ('t' in the (c) examples), and the other in which the subject actually surfaces, after Move. In fact, in certain sentences, both subject positions can be filled (see e.g. Koopman & Sportiche, 1991):

(3) [TP *The jurors* [T' *will* [VP *all* [V' *rise*]]]].

In this sense, then, a SC is indeed half a clause in comparison to the corresponding finite clause. But, what use is half a clause like that? In fact, each of these half-clauses can be shown to have some utility even in modern-day languages, as illustrated below (see Progovac, 2006, and references there).^c

(4) *Sheila sad?! Peter retire?! Him worry?! All rise! Everybody out!*

While full tensed counterparts (TPs) specialize for indicative mood and assertion, half-clauses in (4) seem restricted to (elsewhere, non-indicative) 'irrealis' functions, ranging over expressions of incredulity, commands, wishes.

In the evolutionary perspective, if there was a stage of proto-syntax characterized by such small clauses, then in that stage such clauses may have been able to express assertions as well, there not yet having arisen the opportunity for the division of labor.^f The emergence of Tense/TP would have created such an opportunity for specialization between half-clauses and full finite clauses. A similar scenario has been reported for the grammaticalization of tense and indicative mood in more recent times, in pre-Indo-European (pre-IE). According to e.g. Kiparsky (1968), there was a form unmarked for tense and mood, injunctive, which, upon the grammaticalization of tense, began to specialize for non-indicative/irrealis moods.^g Arguably, child language

^c The syntactic analysis of this kind of 'nonsentential' speech is based on Barton (1990), Barton & Progovac (2005), and Progovac (2006) (see also Tang 2005 for some discussion). Fortin (2007), who embeds her analysis in the phase framework of Minimalism (e.g. Chomsky 2001) also argues for the nonsentential analysis of certain syntactic phrases, such as adverbials, vocatives, and bare unergative verbs, but she specifically argues against such an analysis of any propositional constructs, such as small clauses in (4), which are the sole focus of this paper.

^f Progovac (2007a, b) argues that this small clause grammar represents a 'living fossil' of an early stage of grammar (according to Ridley (1993, 525), living fossils are species that have changed little from their fossil ancestors in the distant past, such as e.g. lungfish). The notion of language 'fossils' was introduced in Bickerton (1990, 1998), and adopted for syntax in Jackendoff (1999, 2002).

^g In this injunctive stage of pre-IE, according to Kiparsky (1968), it was possible to express time by temporal adverbials, which, unlike grammaticalized tense, were neither obligatory nor associated with a specific functional position, and which can best be described as adjuncts. In fact, in Greek and

acquisition proceeds in the comparable fashion (e.g. Radford, 1988, Lebeaux, 1989, Ouhalla, 1991, Platzak, 1990), providing, at the very least, corroborating evidence for the syntactic simplicity/primacy of half-clauses (small clauses), relative to finite TPs.^h

3. *Perfective Half Clauses in English: Specialization for Time/Aspect*

English also makes use of marginal perfective clauses such as (5), which can also be characterized as half-clauses with respect to their full counterparts (6).

(5) *Problem solved. Case closed.*

(6) *The problem is solved. The case is closed.*

Again, as established in the previous section, modern syntactic theory derives the full counterparts from the small clause layer, by adding a TP layer, and by moving the subject into it:ⁱ

(7) a. Small Clause: [_{SC/VP} [*Problem solved*]]

b. [_{TP} *is* [_{VP} *the problem* [_{V'} *solved*]]] →

c. Sentence: [_{TP} *The problem* [_{T'} *is* [_{VP} *t* [_{V'} *solved*]]]]

While the determiner *the* (instantiating the DP layer) is obligatory in the TP domain, it is not in the SC domain, suggesting that the subject of the half-clause does not check/assign structural nominative case (see Progovac, 2006). This surprising property is more readily observable with pronoun subjects in half-clauses, which surface in the (default) accusative form, rather than nominative form (e.g. *Him retire?!*, *Me first!*). It is as if half-clauses do not have enough functional power to give their subjects a structural case. In Minimalism, structural nominative case is typically associated with the projection of TP.

In contrast to the incredulity clauses of the previous section, the perfective half-clauses in (5) can and do express statements/assertions – their anchoring in time and reality is most probably facilitated by the perfective

Sanskrit, verbs are commonly put into (what looks like) present tense when modified by adverbs denoting past time (Kiparsky, p. 47), and this is considered to be a vestige of the Proto-IE injunctive. To respond to a reviewer's question, it is probable that the use of temporal adverbs preceded the grammaticalization of tense in the evolution of syntax. In this view, the availability of relevant words (in this case temporal adverbs) does not imply the existence of a corresponding functional projection (in this case TP), but it can potentially lead to its grammaticalization.

^h For the opposing views on L-1 acquisition, see e.g. Guasti (2002) and references therein. For some old and some recent views on the relationship between ontogeny/DEVO (development in children) and phylogeny/EVO (development in species), the reader is referred to e.g. Ridley (1993), Rolfe (1996), Fitch (1997), Carroll (2005), Locke & Bogin (2006).

ⁱ Here and elsewhere in this paper, I abstract away from the possibility that there may be intermediate functional projections involved in the derivation of these clauses, such as perhaps Asp(ect)P or Agr(eement)P, or that the theme subjects in (5) could be Moved from complement positions (see Progovac 2006 for some discussion). Even if these projections and derivations turn out to be necessary, they would not take away from the basic argument here that half-clauses lack at least one layer of functional structure found in full finite clauses.

(completed) aspect of the participle form. Even though of a different nature, specialization with respect to full clauses/TPs is evident here as well: while their full counterparts can range over different times, half-clauses specialize only for reporting on events which have just manifested themselves, in the here-and-now, disallowing modification by adverbs denoting remote past:

(8) ??*Problem solved three years ago.* ??*Case closed three years ago.*

Serbian unaccusative perfective clauses share this property with English perfective clauses, as will be shown in the following section.

4. *Unaccusative Half Clauses in Serbian: Time, Aspect, Agreement, Word Order*

Consider the following examples of full/finite (perfective) unaccusative clauses in Serbian:

(9) *Pošta je stigla. Vlada je pala.*
 mail_{F3SG} AUX.3SG arrived_{FSG} government_{F3SG} AUX.3SG fallen_{FSG}
 ‘The mail has arrived.’ ‘The government has fallen.’

Unaccusative verbs (e.g. *arrive, fall, come, appear*) are analyzed crosslinguistically as starting/Merging their subjects as complements/objects of the small clause, rather than as its subjects (e.g. Burzio, 1981). Given this widely accepted analysis, full/finite unaccusative clauses are derived as follows:

(10) a. Small clause: [_{SC} *pala* [_{NP} *vlada*]] →
 b. [_{TP} *je* [_{VP} *pala* [_{NP} *vlada*]]] →
 c. Sentence: [_{TP} *vlada* [_T *je* [_{VP} *pala* t]]]

Again, there is a half-clause layer involved in the derivation of the full clause, but this time, following the logic of unaccusative syntax, the subject is Merged after the verb. Again, what use is half a clause like that?

As it turns out, such half-clauses (11), and necessarily with that (unaccusative) word order, are used productively in Serbian, alongside with the full finite counterparts illustrated in (9) (Progovac, 2007a).¹

(11) *Stigla pošta.* (cf. ???*Pošta stigla.*) *Pala vlada.* (cf. ?**Vlada pala.*)

As is the case with English perfective clauses discussed in the previous section, Serbian unaccusative half-clauses specialize for the here-and-now, reporting on an event that has just manifested itself. Consequently, these clauses cannot be modified by adverbs denoting remote past, such as ‘three years ago’ (?**Stigla pošta pre tri godine.*), leading again to a division of labor. Moreover, some

¹ Serbian otherwise has flexible word order, but typically SVO. The closest English equivalents occur in fossilized expressions such as *Come winter, she will travel to Rome*, which are also necessarily found in the unaccusative word order (cf. **Winter come, she will be in Rome*).

formulaic unaccusative clauses (12) are only possible as half-clauses, and not as full clauses, when used to perform a speech-act in the context of a card game:

(12) *Pala karta.* (cf. *?*Karta pala.* / *?*Karta je pala.*)
fallen card

‘The card is already on the table – you cannot take it back now.’

These clauses first of all provide a forceful argument that half-clause syntax is real: their word order can only be explained if the widely-adopted unaccusative hypothesis is coupled with the half-clause analysis. The awkwardness of the (otherwise default) SV order (11-12) makes it clear that they are not just abbreviated/elliptical versions of some finite counterparts. Rather, these half-clauses, as well as the ones illustrated for English in the previous sections, demonstrate consistent and systematic properties of a different, simpler clausal syntax: a syntax that involves one (less) layer of clausal structure, the basic (underived) word order, non-finite verb forms, default case (for details, see Progovac 2006, 2007b).

From the evolutionary point of view, it is significant that half-clauses (11) to some extent overlap in function with their full equivalents (9), even though they show a degree of specialization as well. While the participles in half-clauses contribute to the perfective aspect (but have no tense or TP), the full counterparts mark both perfective aspect (with the participle) and (past) tense (with the auxiliary). This expression of time/aspect must be redundant at least to some extent (especially for the here-and-now situations), given that only past tense auxiliaries are compatible with these participle forms. In any event, these unaccusative half-clauses demonstrate that it is possible to have simpler (non-TP) syntax and still express statements/assertions.

Agreement properties of these clauses exhibit redundancy and overlap even more obviously. As indicated in the glosses in (9), the participle form agrees with the subject in number and gender, but not in person, the type of agreement that also characterizes adjectives in Serbian. On the other hand, the auxiliary verb agrees with the subject in person and number (but not in gender).

It is as though both layers of the clause have their own subject position (see Section 2), their own separate agreement properties, which partly overlap, and their own ways of encoding time/aspect, which again partly overlap.

5. Retracing the Steps

The above established quirky (rather than optimal) properties of modern-day clauses, attested cross-linguistically, begin to make sense if they are seen as by-products of evolutionary tinkering.^k My proposal in this respect is that a layer of TP (or a comparable functional projection) was at one point in evolution

^k See Calvin & Bickerton (2000), especially the Appendix, for the idea that one should use evolutionary considerations in constraining syntax, rather than only theory-internal constraints.

superimposed upon the layer of a small clause (half-clause), the proto-syntactic construct which already was able to express some basic clausal properties: predication, subjecthood, and even some temporal/aspectual properties. If so, then half-clauses would have been useful to our ancestors. A half-clause is still useful, even in expressing propositional content – much more useful than having no clausal syntax at all, and much less useful than articulated finite syntax. This is exactly the scenario upon which evolution/selection can operate.

Even finite clauses/sentences in modern-day languages are constructed upon the foundation of half-clauses – as if the building of the sentence retraces evolutionary steps (Progovac, 2007b). Stratification accounts have been proposed for the brain development in general: according to e.g. Vygotsky (1979/1960, 155-156) “brain development proceeds in accordance with the laws of stratification of construction of new levels on old ones... Instinct is not destroyed, but ‘copied’ in conditioned reflexes as a function of the ancient brain, which is now to be found in the new one.” In this perspective, half-clauses can be seen as the older/lower structures, which are retained in, and subordinated to, the newer/higher sentential/TP structures. As put in Bickerton (1998, 353) “the creation of a new neural pathway in no way entails the extinction of the previous one. The fact that we remain capable of functioning in the protolinguistic mode ... indicates the persistence of the older link.”

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