論　文

Minimalist Yoda

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要　旨

ヨーダとは，スター・ウォーズのキャラクターで，英語をOSV言語として話す。本文では，ミニマリスト統語論を元に，ヨーダの話す文を分析し，その統語論に関する様々な問題点を取り上げる。本論文で取り上げる構文は，並列構文・tough構文・命令文と軽動詞構文・副文である。さらに，日本語とバントゥのショーナ語の例も分析する。統語論学者の間で議論の的になっている，Kayne（1994）の「反対称性仮説」を日本語に適用し，その問題点を指摘する。

Keywords: Yoda（ヨーダ），Japanese（日本語），Shona（ショーナ語），Minimalist Syntax（ミニマリスト統語論），Antisymmetry Hypothesis（反対称性仮説）

1. Introduction

In this paper I shall try to outline the minimalist structure of several sentences uttered by the character Yoda in the motion picture *Star Wars Episode II: Attack of the Clones* (May 16th 2002). Yoda is the little green-skinned and three-fingered Jedi Master who interacts (chronologically) with Obi-wan Kenobi, the teacher of both Anakin Skywalker, who goes on to become Darth Vader, and his son, Luke Skywalker, the major protagonist of the *Star Wars*-series.

In the English original, Yoda speaks a language that is not quite English, but something like English in an OSV word-order, though sometimes OVS word-order is also found. Since English is a rather rigid SVO word-order language, to make Yoda's language—and thus by inference his whole being—as mysterious and strange as possible, while still guaranteeing a coherent reception by the audience, required a deviation from rigid English. In other languages, such as in the German version, this works, too, but in the Japanese version, Yoda speaks antiquated Japanese which departs only very rarely from the canonical SOV word-order, instead of speaking a language with a word-order radically different from Japanese.

This should give linguists, in particular all those working in the areas of Universal Grammar, psycholinguistics and cognitive linguistics, some pause. In recent years, in particular by Kayne (1994, 2000, 2004) the idea has been advanced that there are really no languages with strict verb-first (such as Irish) or verb-last order (such as Japanese). If this were to be completely true, one of the questions I would put to the advocates of this Antisymmetry Syntax Hypothesis is why a Japanese version of OSV-Yoda was in fact not used in making the Japanese versions of the *Star Wars*-series. If Antisymmetry were true, and Japanese had an SVO word-order, it should work as OSV-Yoda with Japanese words. There has even been a proposal that Japanese was an OVS word-order language. Thus, if Japanese was a covert SVO or OVS word-order language, why is it that Japanese native speakers do not understand utterances with such word orders—even if all the words were in Japanese?

While this is indeed a worthy topic, my outline below will be more prosaic. In the next section I will briefly outline my working assumptions for the minimalist analysis I shall provide in section 3.

2. Minimalist Working Assumptions

Though still a 'research project in progress', the literature on Minimalism is already huge[1].

1 For this reason a concise literature cannot be provided here. However, the main proposal for Minimalism is outlined in Chomsky (1995), as well as in earlier works. My own starting point is best described by Hornstein, Nunes & Grohmann (2005). The strict derivational approach that I shall use is outlined in Epstein & Seely (2006). A readable, but rather uncritical account of the historical developments leading to Minimalism is given in Carnie (2008). For criticism, one has to turn to Matthews (2007) and in particular to Culicover & Jackendoff (2005).

There are many differences of opinion, of which many are central to a unified understanding of Minimalism.

I shall rely on two basic Minimalist concepts: *Merge* and *Copy*. In recent literature, for instance Boeckx (2008), the point has been emphasized that *Merge* and *Copy* are basically the same operation, and further, that the products of these operations are also the same. Therefore, *Merge* is held to be *External Merge* where at least one of two syntactic (root) objects engaged in merging has engaged in any prior operation, while *Copy* is thought to be *Internal Merge* where a syntactic object already externally merged expands the structure by being displaced. In a very general sense, this is indeed correct. However, it turns out that there is also an asymmetry between the two operations: first, a syntactic object can obviously not be *copied* (i.e. internally merged) if it has not already been *merged* i.e. externally merged (/added to the structure). Second, different assumptions must hold concerning the adequacy of a syntactic object undergoing *Merge* and *Copy*. It is generally understood that *merged* syntactic objects must first be subject to the operation *Select*. However, *copied* syntactic objects are subject to *Checking*, i.e. the adequacy (/necessity/possibility) of *Copy* must be verified by the *copied* syntactic object *checking* features that remained unchecked in its prior position.

Since I shall undertake a practical application of Minimalist syntax, I will not engage in a further discussion on basic Minimalist terminology, but rather state my own intention of how to use the terms.

First, I shall take *Select* as granted[2], and thus dispense with the respective

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2 By doing so I am giving Minimalism more leeway than it deserves. See Culicover & Jackendoff (2005, 90 n8) citing Postal who disputes the validity of the *Select* mechanism. *Select* operates on a *numeration* (Chomsky 1995), an unordered list of lexical elements which are in turn *selected* and then *merged*. Postal points out that a numeration must be considered as language-specific, but that this language-specificity breaks down if expressions from two languages are combined:

(i) He said "yokatta". = He said "[that was] good" (in Japanese).

Evidently *yokatta* is not an English expression, and as such it cannot be an element of an English numeration. While Postal also has other examples, it is a weak argument because numerations could still take extra-numerative expressions *en bloc*. That something like this is likely to be true, can be seen because *yokatta* in (ii) does not conform to English syntax rules that range over numeration elements:

(ii) *He said that *yokatta*.

formulae.

Second, wherever I use the operation *Copy* I will try to clarify the feature checking. This will, due to the quasi-natural structure of Yoda, sometimes require covert features. As such I understand all structural elements that are not realized at PF, i. e. operators, *pro* etc. In particular, the copying of objects or other material into a C-category requires the assumption of an operator that *contracts* a structure or substructure from below VP. I must emphasize that the assumption of such an operator is purely based on the necessity to generate the final structure, and that any direct evidence for the existence for such operators does not exist. Thus, evidence for operators and evidence for structural categories is not the same. Displacement of elements can be evidence for silent categories such as I, if cliticization is impossible:

(1) Will we have/* we've finished the rehearsal? Radford (1997: 113)

Because there is a position in the IP from where *will* has been copied, *have* cannot cliticize to *we* in (1), since it is not structurally adjacent. This kind of evidence is evidence for the existence of category *positions* but not evidence for *elements* that must occur in these positions. Most evidence for covert elements in Minimalism pertains to LF, the logical-semantic interpretation interface. While the assumption of the existence of such an interface is reasonable, no evidence has yet been provided that this interface does have the actual format Minimalism assumes it to have. Thus, the assumption of covert operators mostly satisfies theory-internal necessities. When this assumption is expanded to actual linguistic structure, further proof should be required[3].

Third, as has long been known, the position *out of which* syntactic objects are copied matters for the position *into which* they can be copied. Therefore the terms *head movement*, *A-movement*, and *A'-movement* have long been a staple of generative

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3 Culicover & Jackendoff (2005) go even further and question the entire existence of LF. They argue that it is not syntactic structure that is semantically checked at LF, but a pre-syntactic semantic level called Conceptual Structure licenses those syntactic substructures that cannot entirely be generated in syntax. They also argue against empty nodes, silent operators, and iterated application of movement operations, all of which I show are necessary in order to analyze Yoda according to minimalist propositions.

terminology. I shall try to analyze Yoda along these lines, too. Head movement is always strict, i.e. heads must move from a 0-position to another 0-position. A-movement involves subject and objects, and must result in positions where the copied elements can check features pertinent for subject- or objecthood. A'-movement will comprise copying of structure from below VP into spec-C position. These are the copy operations that require a covert operator in C.

Fourth, I shall assume the VP-internal-subject-hypothesis, and I shall also assume light verb constructions when necessary. Although it will become necessary in the analysis of more complex sentences, I shall not use a finely structured CP (Rizzi 1997) until then. Thus, until this point I shall assume only a general CP.

3. Some Yoda Sentences and Their Minimalist Structure

I shall start with very short and simple sentences. After the Yoda example I shall explicate the derivation. The symbol '+' means *Merge*, and if it is accompanied by a striked-out structure to the right of the arrow it means *Copy*. Small caps denote features, operators, abstract predicates etc. A step-by-step explanation follows.

3.1. Two Simple Sentences

(2) A visitor we have.

1. a + visitor → [$_{\text{D'}}$ a [visitor]]
2. have + D' → [$_{\text{V'}}$ have [$_{\text{D'}}$ a [visitor]]]
3. we + V' → [$_{\text{VP}}$ we [$_{\text{V'}}$ have [$_{\text{D'}}$ a [visitor]]]]
4. PRES + VP → [$_{\text{T'}}$ PRES [$_{\text{VP}}$ we [$_{\text{V'}}$ have [$_{\text{D'}}$ a [visitor]]]]]
5. we + T' → [$_{\text{TP}}$ we [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~we~~ [$_{\text{V'}}$ have [$_{\text{D'}}$ a [visitor]]]]]]
6. CONT + TP → [$_{\text{C'}}$ CONT [$_{\text{TP}}$ we [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~we~~ [$_{\text{V'}}$ have [$_{\text{D'}}$ a [visitor]]]]]]]
7. a visitor + C' → [$_{\text{CP}}$ a visitor[$_{\text{C'}}$ CONT [$_{\text{TP}}$ we [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~we~~ [$_{\text{V'}}$ have [$_{\text{D'}}$ ~~a~~ [~~visitor~~]]]]]]

In step (2.1) merge of *a* and *visitor* forms a D'. Since there is no striking reason to expand to DP, I shall leave it at that. Step (2.2) adds the verb *have* to form V'. Step (2.3) merges *we* as the thematic subject of V'. In step (2.4), the tense feature PRESent tense is merged and forms T'. In step (2.5) the thematic subject *we* is copied to the spec-T position where it checks φ-features (compatibility of number, for instance). In step (2.6) the covert operator CONTraction is merged with TP. In the last step (2.7), the object is copied into spec-C to form CP. The object thereby satisfies the checking of the CONT feature which demands that a V-internal element must be copied to spec-C. This is all straightforward, and identical to English, besides the obvious addition of CONT.

(3) Truly wonderful the mind of a child is.

1. truly + wonderful → [$_{AP}$ truly [wonderful]]
2. BE + AP → [$_{V'}$ BE [$_{AP}$ truly [wonderful]]]
3. a + child → [$_{D'}$ a [child]]
4. of + D' → [$_{P'}$ of [$_{D'}$ a [child]]]
5. mind + P' → [$_{N'}$ mind [$_{P'}$ of [$_{D'}$ a [child]]]]
6. the + N' → [$_{D'}$ the [$_{N'}$ mind [$_{P'}$ of [$_{D'}$ a [child]]]]]
7. D' + V' → [$_{VP}$ the [$_{N'}$ mind [$_{P'}$ of [$_{D'}$ a [child]]]] [$_{V'}$ BE [$_{AP}$ truly [wonderful]]]]
8. PRES + VP → [$_{T'}$ PRES [$_{VP}$ the [$_{N'}$ mind [$_{P'}$ of [$_{D'}$ a [child]]]] [$_{V'}$ BE [$_{AP}$ truly [wonderful]]]]]
9. D' + T' → [$_{TP}$ the mind of child [$_{T'}$ PRES [$_{VP}$ ~~the~~ [$_{N'}$ ~~mind~~ [$_{P'}$ ~~of~~ [$_{D'}$ ~~a~~ [~~child~~]]]] [$_{V'}$ BE [$_{AP}$ truly [wonderful]]]]]
10. CONT + TP → [$_{C'}$ CONT [$_{TP}$ the mind of child [$_{T'}$ PRES [$_{VP}$ ~~the~~ [$_{N'}$ ~~mind~~ [$_{P'}$ ~~of~~ [$_{D'}$ ~~a~~ [~~child~~]]]] [$_{V'}$ BE [$_{AP}$ truly [wonderful]]]]]]
11. AP + C' → [$_{CP}$ truly wonderful [$_{C'}$ CONT [$_{TP}$ the mind of a child [$_{T'}$ PRES [$_{VP}$ ~~the~~ [$_{N'}$ ~~mind~~ [$_{P'}$ ~~of~~ [$_{D'}$ a [~~child~~]]]] [$_{V'}$ BE [$_{AP}$ ~~truly~~ [~~wonderful~~]]]]]]]]

In step (3.1) *truly* and *wonderful* merge to form AP. I assume *truly* to reside in spec-A. In step (3.2) this AP is merged with an abstract predicate denoting 'existence' to from V'. Steps (3.3–6) detail the construction of the complex D' *the mind of a child*. In step (3.3) *a* and *child* merge to form an indefinite D'. This D' is merged with *of* in step (3.4). I assume *of* to be a preposition thus forming at least a P' with the D'. A further expansion of P' is not required so I shall leave it at that, but nothing hinges on that (besides the act how such an expansion would be motivated). In step (3.5), *mind* is merged with P' to form N'. Again I see no motive for expanding to NP. Finally, the complex D' is assembled in (3.6) by merging *the* with N'. And yet again, expansion to DP does not seem to be required. Step (3.7) merges D' built in (3.3–6) with V' built in (3.1–2) to from VP. To his VP PRES is merged to form T' in (3.8). In (3.9) D' is copied to spec-T in order to satisfy its φ-features (3rd sg) expanding to TP. At this stage, the tense element should interact with the existential abstract verb to form the PF-object *is*. No copying is required to achieve this. In (3.10), this TP is merged with CONT to form C'. Finally, AP is copied to spec-C to satisfy CONT. This forms the CP.

3.2. Coordination

The next example (see example 5 below) requires some speculations about coordination. Evidently, there is a coordinated adjectival structure. This means that a coordination mechanism must be outlined, at least tentatively. The problem is compounded by the fact, that *disturbing* is a derivational adjective because it consists of the verb stem *disturb* and the adjectival suffix *–ing*. Generative Grammar in all its stages has been notorious for assuming that morphological products are either part of the lexicon or are generated in syntax[4].

In this case, this is relevant because there are two possible ways to derive the coordinated construction: one is to assume that *dangerous* merges with the coordinator, the other is to assume that the coordinator merges with *disturbing*. The first alternative is 'nicer' because it allows an explanation of why it is *disturbing* and not *disturb* that must merge next. Namely, it would force a structure such as [A [V disturb]-ing]. It also is in line with the Incremental Hypothesis proposed in Phillips (2003).

The second alternative however, allows one to make use of a copy function of the coordinator. Furthermore, the structure of coordination must still be coherent with the overall architecture of X'-syntax. This would require a coordinator to be in a position to exert control over features of the conjuncts that must be sufficiently similar to warrant the coordination. Therefore, a coordinator must be positioned in a head position, while the conjuncts must occupy complement and specifier positions

4 A recent prominent example is Beard (1995). The counter position is taken by Aronoff & Fudeman (2005) who argue for morphology being an area distinct from phonology and syntax.

inside the coordinator phrase. I shall therefore assume [CONJUNCT2 [COORDINATOR [CONJUNCT1]]] as the structure of a coordinator phrase[5]. There are some features of conjunct 1 that must percolate to the head position where they must be satisfied by any elements that are merged into the spec position. These features cannot be pure category features because different categories can be coordinated: *hopeful and yet in trepidation* is but one of many examples that show that different syntactic categories can indeed be coordinated. One must therefore assume some functional feature such as [OBJect] which would apply to the coordinated structure in (4). Such types of feature however, arguably cannot be checked purely in the syntactic domain, but are subject to semantic checking at LF.

The second alternative would also be backed by Binding Theory. Consider (4):

(4) a. I rescued [Paul$_i$ [and [his$_i$ books]]].
b. *I rescued [his$_i$ books [and [Paul$_i$]]].

Example (4) shows that *his* must not be in a higher position than *Paul* in order not to be able to c-command it, thus complying with Condition B of Binding Theory. However, other structures of the conjuncts that do not violate Binding Theory are possible. A strong counter-argument against the structure in (4) is the treatment of sentential coordination. But maybe a unified treatment of coordination is not possible, as there are phenomena such as gapping 1. that apply at the sentential level, and 2. that are not evident in quite a lot of languages[6]. For instance, Japanese does not exhibit gapping. Nevertheless, I shall employ the structure in (4) in order to analyze the coordination in (5) below:

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5 This construction is used in Deane (1992) and Postal (1993) to analyze left-subordinating *and*. Culicover & Jackendoff (2005, chap. 13) take a different approach in assuming a flat structure.

6 Gapping only occurs in the second conjunct. In Minimalism it is yet unclear how the elements of the second conjunct are merged and—more importantly— how they are labeled if no verb is merged to the structure. It may well be that following Culicover & Jackendoff (2005, chap. 14) gapping is semantic coordination that forces a paratactic structure in some languages, i.e. it constitutes a syntax-semantics mismatch.

(5) Dangerous and disturbing this puzzle is.

1. and + disturbing → [$_{\text{CO'}}$ and [$_{\text{A}}$ disturbing]]
2. dangerous + CO' → [$_{\text{COP}}$ [$_{\text{A}}$ dangerous] [and [$_{\text{A}}$ disturbing]]]
3. BE + COP → [$_{\text{V'}}$ BE [$_{\text{COP}}$ [$_{\text{A}}$ dangerous] [and [$_{\text{A}}$ disturbing]]]]
4. this + puzzle → [$_{\text{D'}}$ this [puzzle]]
5. D' + V' → [$_{\text{VP}}$ this [puzzle] [$_{\text{V'}}$ BE [$_{\text{COP}}$ [$_{\text{A}}$ dangerous] [and [$_{\text{A}}$disturbing]]]]]
6. PRES + VP → [$_{\text{T'}}$ PRES [$_{\text{VP}}$ this [puzzle] [$_{\text{V'}}$ BE [$_{\text{COP}}$ [$_{\text{A}}$ dangerous] [and [$_{\text{A}}$disturbing]]]]]]
7. D' + T' → [$_{\text{TP}}$ this [puzzle] [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~this~~ [~~puzzle~~] [$_{\text{V'}}$ BE [$_{\text{COP}}$ [$_{\text{A}}$ dangerous] [and [$_{\text{A}}$ disturbing]]]]]]]
8. CONT + TP → [$_{\text{C'}}$ CONT [$_{\text{TP}}$ this [puzzle] [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~this~~ [~~puzzle~~] [$_{\text{V'}}$ BE [$_{\text{COP}}$ [$_{\text{A}}$ dangerous] [and [$_{\text{A}}$ disturbing]]]]]]]]
9. COP + C' → [$_{\text{CP}}$ dangerous and disturbing [$_{\text{C'}}$ CONT [$_{\text{TP}}$ this [puzzle] [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~this~~ [~~puzzle~~] [$_{\text{V'}}$ BE [$_{\text{COP}}$ [$_{\text{A}}$ ~~dangerous~~] [~~and~~ [$_{\text{A}}$ ~~disturbing~~]]]]]]]]]

Steps (5.1–2) form the merging of the coordinated structure as discussed above. At step (5.2) *dangerous* must check a pertinent feature such PRED in order to properly merge. Steps (5.3–9) are already familiar. BE merges with COP to form V' in (5.3). D' is assembled (5.4) and merged with the V' to form VP (5.5). PRES merges with VP (5.6), and D' is copied to spec-T checking φ-features (5.7). CONT merges with TP (5.8), and finally sub-VP COP is copied to spec-C checking the CONT feature (5.9).

3.3. *tough*-Construction

The next sentence is an example for a *tough*-construction. This construction is assumed to contain a covert operator as a position variable for the object (here: *the future*)[7]. In the English sentence

(6) The future is impossible [for me/you etc.] to see.

7 So argues Radford (2004: 234).

it is assumed that the verb *see* is merged with an operator OP whose index is later (presumably at LF) compared with those of other elements in the sentence. If a likely candidate such as *the future* is available and not indexed with another element, interpretation proceeds to identify OP with *the future*. This serves to maintain proper θ-role marking. For instance, in (6) *the future* does not have the θ-role of the subject of *impossible* but must have that of an object of *see*.

However, there is something inherently wrong with this assumption[8]. If the operation *Merge* is considered to work 'bottom-up' then how does one know whether to merge a covert operator such as OP with *see*? This would require far reaching foresight insofar as one had to wait until *the future* is merged in order to satisfy the assumption of posing an operator at the *initial* step of the derivation. I shall therefore assume that *the future* is merged with *see* in object position and then copied into higher positions.

(7) Impossible to see the future is.

1. the + future → [$_{\text{D'}}$ the [future]]
2. see + D' → [$_{\text{V'}}$ see [$_{\text{D'}}$ the [future]]]
3. to + V' → [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ the [future]]]]
4. *pro* + I' → [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ the [future]]]]]
5. impossible + IP → [$_{\text{A'}}$ impossible [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ the [future]]]]]]
6. D' + A' → [$_{\text{AP}}$ the future [$_{\text{A'}}$ impossible [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ ~~the~~ [~~future~~]]]]]]]
7. BE + AP → [$_{\text{V'}}$ BE [$_{\text{AP}}$ the future [$_{\text{A'}}$ impossible [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ ~~the~~ [~~future~~]]]]]]]]
8. D' + V' → [$_{\text{VP}}$ the future [$_{\text{V'}}$ BE [$_{\text{AP}}$ ~~the future~~ [$_{\text{A'}}$ impossible [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ ~~the~~ [~~future~~]]]]]]]]]
9. PRES + VP → [$_{\text{T'}}$ PRES [$_{\text{VP}}$ the future [$_{\text{V'}}$ BE [$_{\text{AP}}$ ~~the future~~ [$_{\text{A'}}$ impossible [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ ~~the~~ [~~future~~]]]]]]]]]]
10. D' + T' → [$_{\text{TP}}$ the future [$_{\text{T'}}$ PRES [$_{\text{VP}}$ ~~the future~~ [$_{\text{V'}}$ BE [$_{\text{AP}}$ ~~the future~~ [$_{\text{A'}}$ impossible [$_{\text{IP}}$ *pro* [$_{\text{I'}}$ to [$_{\text{V'}}$ see [$_{\text{D'}}$ ~~the~~ [~~future~~]]]]]]]]]]]

8 Culicover & Jackendoff (2005: 344) make the same point. They furthermore distinguish two different types of *tough*-construction, one which expresses the difficulty of performing a task, and the other one which expresses the difficulty of an object over which to perform a task.

11. CONT + TP → [$_{C'}$ CONT [$_{TP}$ the future [$_{T'}$ PRES [$_{VP}$ ~~the future~~ [$_{V'}$ BE [$_{AP}$ ~~the future~~ [$_{A'}$ impossible [$_{IP}$ *pro* [$_{I'}$ to [$_{V'}$ see [$_{D'}$ the [future]]]]]]]]]]]]

12. A' + C' → [$_{CP}$ impossible *pro* to see [$_{C'}$ CONT [$_{TP}$ the future [$_{T'}$ PRES [$_{VP}$ ~~the future~~ [$_{V'}$ BE [$_{AP}$ ~~the future~~ [$_{A'}$ ~~impossible~~ [$_{IP}$ ~~*pro*~~ [$_{I'}$ ~~to~~ [$_{V'}$ ~~see~~ [$_{D'}$ ~~the~~ [~~future~~]]]]]]]]]]]]]

Step (7.1) merges *the* with *future* to form D', and (7.2) merges this D' with *see* to form V'. I have omitted the next step in which V' should merge with a subject DP. It is indeed possible to assume a *pro* here which is copied to spec-I when I' is fully merged. In (7.3) infinitive *to* is merged with V' forming I' to which *pro* merges in (7.4). The resulting IP merges with *impossible* in (7.5) resulting in A'. In (7.6) *the future* is copied into spec-A checking subject features. In (7.7) be merges with AP forming V'. Again *the future* is copied into spec-V, to check subject features (7.8). The resulting VP is merged with PRES forming T' (7.9). In (7.10) *the future* is copied yet again into spec-T to satisfy φ-features (3rd sg). In (7.11) CONT merges with the TP, and in (7.12) *impossible to see* is copied into spec-C to satisfy CONT features. It is worthy of some thought whether one should also assume whether *pro* is copied or not. Since it is silent, nothing hinges on it but theory-internal assumptions. I tentatively assume that it is copied, simply for the reasons that its external-Merge position resides within the structure being copied.

The next example is rather straightforward, but I have chosen it, because its Japanese translation exhibits a strong dislocation.

(8) Begun the Clone War has.

1. Clone + War → [$_{N'}$ [Clone] War]
2. the + N' → [$_{D'}$ the [$_{N'}$ [Clone] War]]
3. D' + begun → [$_{VP}$ [$_{D'}$ the [$_{N'}$ [Clone] War]] begun]
4. has + V' → [$_{T'}$ has [$_{VP}$ [$_{D'}$ the [$_{N'}$ [Clone] War]] begun]]
5. D' + T' → [$_{TP}$ the Clone War [$_{T'}$ has [$_{V'}$ [$_{D'}$ ~~the~~ [$_{N'}$ [~~Clone~~] ~~War~~]] begun]]]
6. CONT + TP → [$_{C'}$ CONT [$_{TP}$ the Clone War [$_{T'}$ has [$_{V'}$ [$_{D'}$ ~~the~~ [$_{N'}$ [~~Clone~~] ~~War~~]] begun]]]]
7. V + C' → [$_{CP}$ begun [$_{C'}$ CONT [$_{TP}$ the Clone War [$_{T'}$ has [$_{V'}$ [$_{D'}$ ~~the~~ [$_{N'}$ [~~Clone~~]

~~War~~]] ~~begun~~]]]]]

(8.1) assembles the nominal compound *Clone War*, which by merging with the determiner is expanded into a D' (8.2). This structure merges with *begun* in (8.3). There I assume D' to be positioned in spec-V because the reading of *begun* is intransitive. The subject of transitive *begun* should be merged into a spec-v position. The resulting VP merges with *has* (as T^0) in (8.4). I have not assumed so, but it is worthy of discussion whether *has* does not actually consist of two functional morphemes: an abstract predicate HAVE and PRES. In a sentence such as *He has a boat* one should have to assume such a complex term. Even if it did, though, the derivation would only be prolonged by two steps, one internal merger of D' and one internal merger of HAVE. In (8.5) TP is formed by merging *the Clone War* to T', thereby checking φ-features (3rd sg). Steps (8.6–7) are familiar: CONT merges to TP, and D' merges into spec-C satisfying CONT.

The interesting issue here is the dislocation of the participle. After step (8.5) it is the only remaining element inside the VP. As such it must be copied. As will be shown later, this dislocation is not possible, if the VP only contains *one* element at the start of the derivation.

3.4. Excursion into Japanese

Consider now the Japanese version of (8):

(9) Hazimar.u=no=zya kuroon-sensoo=ga.
begin-PRES-NML-ESS clone-war-NOM

1. kuroon + sensoo → [$_{N'}$ [kuroon] sensoo]
2. N' + NOM → [$_{K'}$ [$_{N'}$ [kuroon] sensoo] =ga]
3. K' + hazimaR → [$_{VP}$ [$_{K'}$ [$_{N'}$ [kuroon] sensoo] =ga] hazimaR]
4. VP + PRES → [$_{T'}$ [$_{VP}$ [$_{K'}$ [$_{N'}$ [kuroon] sensoo] =ga] hazimaR] +Ru]
5. T' + NML → [$_{N'}$ [$_{T'}$ [$_{VP}$ [$_{K'}$ [$_{N'}$ [kuroon] sensoo] =ga] hazimaR] +Ru] =no]
6. N' + ESS → [$_{V'}$ [$_{N'}$ [$_{T'}$ [$_{VP}$ [$_{K'}$ [$_{N'}$ [kuroon] sensoo] =ga] hazimaR] +Ru] =no] =zya]
7. V^0-V^0 + V' → [$_{CP}$ hazimar.u=no=zya [$_{V'}$ [$_{N'}$ [$_{T'}$ [$_{VP}$ [$_{K'}$ [$_{N'}$ [kuroon] sensoo] =ga] ~~hazimaR~~] ~~+Ru~~] ~~=no~~] ~~=zya~~]]]

First some morphological explanations are required[9]: It happens to be the case that Japanese *=da* derives historically from a fusion of the particle *=de* and the partial stem of the verb *ar.u*. It is clearly a verb, since it complies with the verbal inflection paradigm, albeit defectively: *=dat.ta*, *=dar.oo*. Thus, *=da* is morphologically and more adequately analyzed as *=da*[*~~r.u~~*] where the final syllable consisting of the stem's final consonant and the ending are elided. It is further known that *=zyar.u* was an intermediate step to the development of *=da*[*~~r.u~~*], which also produced *=zya* in the same way as *=da* was produced.

Since *=zya* like *=da* has verbal features I shall assume it takes a V-position, even though no T-category can embed this V-category. I shall furthermore assume a left dislocation of all heads to the right of *kuroon-sensoo=ga* into spec-C. The reason I consider this kind of displacement possible is 1. that all heads are adjacent with no intervening material, and 2. that they form a phonological word. This may mean that this kind of displacement takes place at PF.

However, this kind of left dislocation can pied-pipe elements that are intrinsically linked to the lowest V^0. Such would be the case of manner adverbs or participles functionally linked to the verb[10].

Like (8.1), step (9.1) first merges the two nouns to form the compound N'. In (9.2), I assume the nominative case particle to merge with N' forming K'. Some proposals assume case phrases (= KP) to hold in languages that have cliticized case morphemes such as in Japanese. In (9.3) K' merges with the verb stem *hazimaR*. Capital *R* denotes an archiphoneme for the forms of the allomorphs. Since K' is the subject of an intransitive verb, it is merged into spec-V forming a VP. To this VP the tense inflection *+Ru* is merged (9.4). Again *R* denotes an archiphoneme for three

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9 For the historical developments see Narrog (1999), for Japanese glosses and morph(eme) segmentation see Rickmer (1983, 1995).

10 An example for pied-piping of a manner adverb is (i) and for a participle verb (ii):

(i) haya.ku tabe.ta=no=da, inu=ga esa=o.
quick-ADV eat-PST-NML-ESS, dog-NOM food-ACC
'(The) dog ate (the) food quickly.'

(ii) kaet.te kit.ta=no=da, ojiisan=ga uti=e.
return-PRT come-PST-NML-ESS, old man/grandpa-NOM home-ALL
'Grandpa/(the) old man returned home.'

possible allomorphs. The resulting T' is the nominalized by merger with the particle noun *=no* forming N' (9.5). In (9.6) *=zya* merges with N' to form a V'. I have detailed my assumptions for this step above. In the last step displacement of the complex verb *hazimar.u=no=zya* takes place which merges into spec-C to close of the CP. This of course is not head-to-head-movement, but A'-movement since the landing site is not a head position. I assume this displacement to be in order only because all elements are 1. heads and 2. adjacent, even though it is evidently not a constituent that is displaced here. This, most likely, is the reason why this kind of displacement is rare in Japanese, even though structurally not impossible.

3.5. Anti-Antisymmetry

As can be seen in the derivation of (9), I have assumed a SOV ordering for Japanese. At this stage it is therefore fitting to briefly ponder how Antisymmetry[11] would fare in this case. According to this proposal, every phrase type must be of the universal S-H-C order: [spec [head [complement]]]. The quickest way to find out what the S-H-C ordering would achieve with a sentence such as (9) is to simply derivate it:

(10) Hazimar.u=no=zya kuroon-sensoo=ga. [Antisymmetry Analysis]

1. sensoo + kuroon → [$_{N'}$ sensoo [kuroon]]
2. kuroon + N' → [$_{NP}$ kuroon [sensoo [~~kuroon~~]]]
3. =ga + NP → [$_{K'}$ =ga [$_{NP}$ kuroon [sensoo [~~kuroon~~]]]]
4. NP + K' → [$_{KP}$ kuroon sensoo [$_{K'}$ =ga [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]
5. hazimaR + KP → [$_{V'}$ hazimaR [$_{KP}$ kuroon sensoo [$_{K'}$ =ga [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]
6. KP + V' → [$_{VP}$ kuroon sensoo=ga [$_{V'}$ hazimaR [$_{KP}$ ~~kuroon~~ ~~sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]
7. +Ru + VP → [$_{T'}$ +Ru [$_{VP}$ kuroon sensoo=ga [$_{V'}$ hazimaR [$_{KP}$ ~~kuroon~~ ~~sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]]
8. VP + T' → [$_{TP}$ kuroon sensoo=ga hazimaR [$_{T'}$ +Ru [$_{VP}$ ~~kuroon~~ ~~sensoo=ga~~ [$_{V'}$ ~~hazimaR~~ [$_{KP}$ ~~kuroon~~ ~~sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]

11 In the manner proposed by Kayne (1994, 2000, 2004).

9. NML + TP → [$_{N'}$ =no [$_{TP}$ kuroon sensoo=ga hazimaR [$_{T'}$ +Ru [$_{VP}$ ~~kuroon sensoo=ga~~ [$_{V'}$ ~~hazimaR~~ [$_{KP}$ ~~kuroon sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]]]

10. TP + N' → [$_{NP}$ kuroon sensoo=ga hazimar.u [$_{N'}$ =no [$_{TP}$ ~~kuroon sensoo=ga hazimaR~~ [$_{T'}$ ~~+Ru~~ [$_{VP}$ ~~kuroon sensoo=ga~~ [$_{V'}$ ~~hazimaR~~ [$_{KP}$ ~~kuroon sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]]]]

11. ESS + NP → [$_{V'}$ =zya [$_{NP}$ kuroon sensoo=ga hazimar.u [$_{N'}$ =no [$_{TP}$ ~~kuroon sensoo=ga hazimaR~~ [$_{T'}$ ~~+Ru~~ [$_{VP}$ ~~kuroon sensoo=ga~~ [$_{V'}$ ~~hazimaR~~ [$_{KP}$ ~~kuroon sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]]]]]]

12. NP + V' → [$_{VP}$ kuroon sensoo=ga hazimar.u=no [$_{V'}$ =zya [$_{NP}$ ~~kuroon sensoo=ga hazimar.u~~ [$_{N'}$ ~~=no~~ [$_{TP}$ ~~kuroon sensoo=ga hazimaR~~ [$_{T'}$ ~~+Ru~~ [$_{VP}$ ~~kuroon sensoo=ga~~ [$_{V'}$ ~~hazimaR~~ [$_{KP}$ ~~kuroon sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]]]]]]]

13. V^0~V^0 + VP → [$_{CP}$ hazimar.u=no=zya [$_{VP}$ kuroon sensoo=ga ~~hazimar.u=no~~ [$_{V'}$ ~~=zya~~ [$_{NP}$ ~~kuroon sensoo=ga hazimar.u~~ [$_{N'}$ ~~=no~~ [$_{TP}$ ~~kuroon sensoo=ga hazimaR~~ [$_{T'}$ ~~+Ru~~ [$_{VP}$ ~~kuroon sensoo=ga~~ [$_{V'}$ ~~hazimaR~~ [$_{KP}$ ~~kuroon sensoo~~ [$_{K'}$ ~~=ga~~ [$_{NP}$ ~~kuroon~~ [~~sensoo~~ [~~kuroon~~]]]]]]]]]]]]]]

Indeed, it is possible to arrive at the same output assuming a strict S-H-C ordering with the same machinery, but the price is very high[12]. For every external merge operation (10.1, 3, 5, 7, 9, 11) an additional internal merge operation (10.2, 4, 6, 8, 10, 12) is necessary, just for the reason to generate the surface word-order. One problem concerning the elegance of the whole procedure is that it lacks in parsimony. Another problem is that there is no way to decide the right order of the derivational steps, which is highly undesirable. I have chosen to follow each external merge derivation by an internal merge derivation, so as to provide a quasi-Japanese base for the next derivation. But it is not clear whether this is necessary. Could the internal merge steps be interlaced with the external merge steps in any arbitrary order (under the condition that the syntactic objects have externally merged before further

12 Culicover & Jackendoff (2005) call this “iterated raising” and argue strongly against it.

internal merge operations)? Or must syntactic objects be finished before they engage in the next derivational operation? My understanding is that syntactic object must be compiled first, before they are used in further derivations, and that from this point on their structure is opaque for further syntactic operations save those operations that run at the LF and PF interfaces (Hornstein, Nunes & Grohmann 2005). If so, then the derivation must proceed in exactly the way outlined above.

But there is still the problem of where in syntax the actual surface word-order of this sentence is produced. The ultimate surface word-order is of course assembled at PF, but how close to this word-order is the syntactic object that is shipped to PF? If no internal merge operation has taken place, and with the provision that the final displacement takes place at PF, then one should expect a structure formed solely by the steps (10.1, 3, 5, 7, 9, 11):

(11) [$_{V'}$ =zya [$_{N'}$ =no [$_{T'}$ +Ru [$_{V'}$ hazimaR [$_{K'}$ =ga [$_{NP}$ [sensoo [kuroon]]]]]]]]

It seems highly unlikely that this structure would have to be rebuild into something like (10.13) employing the steps (10.2, 4, 6, 8, 10, 12).

Wherever these steps are processed, they are steps that must be processed and thus constitute a cognitive workload. The unuttered assumption of Antisymmetry Syntax is then that languages differ in the cognitive workload they incur. In principle, this is testable, even though it may not be so in practical terms. The corollary from this assumption, however, is that—under this view—the opinion held in linguistic circles that languages are basically similar, is not true anymore. Antisymmetry Syntax has then moved into a position from where it must explain why the developments in language acquisition are *not* different for first language acquirers, i.e. babies.

3.6. Imperative and *v*

The next sentence is an imperative. As such one would expect no subject in spec-T for a language such as Yoda/English which does not have imperative inflection morphology. One would furthermore also expect the structure to extend into C, because imperatives cannot be complementized in Yoda/English.

A further issue is the necessity of assuming a *v*-construction here, but since no subject is possible, *v*' is not expanded to *v*P. Thus, there is no landing site within vP, and since parts of the VP must be displaced, I shall assume spec-T as a landing site for non-subjects, since subjects cannot execute checking in this position anyway. This is necessary because the verb *create* must be merged into *v*, thus forcing a displacement of the remaining VP material.

(12) Around the survivors a perimeter create!

1. the + survivors	→	$[_{D'}$ the [survivors]]
2. around + D'	→	$[_{P'}$ around $[_{D'}$ the [survivors]]]
3. create + P'	→	$[_{V'}$ create $[_{P'}$ around $[_{D'}$ the [survivors]]]]
4. a + perimeter	→	$[_{D'}$ a [perimeter]]
5. D' + V'	→	$[_{VP}$ a perimeter $[_{V'}$ create $[_{P'}$ around $[_{D'}$ the [survivors]]]]]
6. *v* + VP	→	$[_{v'}$ *v* $[_{VP}$ a perimeter $[_{V'}$ create $[_{P'}$ around $[_{D'}$ the [survivors]]]]]]
7. create + *v*	→	$[_{v'}$ create+*v* $[_{VP}$ a perimeter $[_{V'}$ ~~create~~ $[_{P'}$ around $[_{D'}$ the [survivors]]]]]]
8. ! + *v*'	→	$[_{T'}$! $[_{v'}$ create+*v* $[_{VP}$ ~~a perimeter~~ $[_{V'}$ ~~create~~ $[_{P'}$ around $[_{D'}$ the [survivors]]]]]]]
9. D' + T'	→	$[_{TP}$ a perimeter $[_{T'}$! $[_{v'}$ create+*v* $[_{VP}$ ~~a perimeter~~ $[_{V'}$ ~~create~~ $[_{P'}$ around $[_{D'}$ the [survivors]]]]]]]]
10. CONT + TP	→	$[_{C'}$ CONT $[_{TP}$ a perimeter $[_{T'}$! $[_{v'}$ create+*v* $[_{VP}$ ~~a perimeter~~ $[_{V'}$ ~~create~~ $[_{P'}$ around $[_{D'}$ the [survivors]]]]]]]]]
11. P' + C'	→	$[_{CP}$ around the survivors $[_{C'}$ CONT $[_{TP}$ a perimeter $[_{T'}$! $[_{v'}$ create+*v* $[_{VP}$ ~~a perimeter~~ $[_{V'}$ ~~create~~ $[_{P'}$ ~~around~~ $[_{D'}$ ~~the~~ [~~survivors~~]]]]]]]]]]

Steps (12.1–2) assemble P'. Step (12.3) merges *create* with P', and after assembling *a perimeter* in (12.4), this part merges with V' to form the VP (12.5). Then an empty light verb *v* merges with VP to create *v*' (12.6). In front of this structure merges the verb (12.7) which should be allowed because its displacement renders it on the edge of the structure even though there is no expansion. At this point in the derivation it is entirely possible that in the next step the subject of *create+v* merges into spec-*v*. However, at this point, the list on which Select operates will not have any suitable items left that could be inserted into such a position. The only elements left are *!* and CONT. Therefore, I shall assume that *v*' does not expand to *v*P. In step (12.8) an imperative element merges with *v*' to form T'. Since no spec-v was formed, *a perimeter* merges to T' in step (12.9). As to which features D' would check in this position I can only speculate. Maybe in Yoda the imperative element *!* has similar contractive properties as CONT in C. The next two steps, however, are familiar: in (12.10) CONT merges with TP, and in (12.11) P' merges with C' satisfying CONT.

3.7. Excursion into Shona

In some languages a simple *v*-projection is insufficient to capture agreement relationships. Consider the complex verb in sentence (13) which is an example from Shona, a Bantu language spoken in Zimbabwe.

(13) va.na va.no.teng.esa mi.riwo[13]
 2CL-children 2CL-PRES-sell-CAUS 4CL-vegetables
 'The children sell vegetables.'

The verb is *va.no.teng.esa* where *teng* is the stem[14] meaning 'buy'. Affixation of causative *–esa* leads to the meaning 'sell'. A highlight of Bantu verbs is their internal arrangement of valence, voice, aspect, tense and agreement markers which does not neatly correspond to the universal ordering[15]. In the above example the verb stem should be positioned to the right of the causative morpheme[16]. One can assume that the verb stem is copied to *v*.

1. teng[a] + mi.riwo → [$_{\text{V'}}$ tenga [$_{\text{N'}}$ mi.riwo]]
2. es[a] + V' → [$_{\text{AGRO'}}$ esa [$_{\text{V'}}$ teng~~a~~ [$_{\text{N'}}$ mi.riwo]]]

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13 I have taken this example from Bellusci (1991: 46 [57]) but given a more detailed morphological structure.

14 I have not segmented the final vowel of the verb. *teng.a* 'buy' is indicative, while *teng.e* is subjunctive. Both indicative and subjunctive can further receive *+i* to mark for instance imperative. Sources on Shona are Fortune (1950) Erickson (1988), Myers (1990), and Bellusci (1991).

15 The above ordering is the one proposed by Bybee (1985), and is exhibited e.g. in Japanese (minus agreement of course).

16 Rice (2000) makes the same point for Athapaskan verb structure. Unlike Athapaskan, which shows SOV order, Bantu is SVO. However, Proto-Bantu is considered to have had SOV order.

3\. teng + esa → $[_{\text{AGRO'}}$ teng.esa $[_{\text{V'}}$ ~~teng~~ $[_{\text{N'}}$ mi.riwo]]]
4\. no + AGRO’ → $[_{\text{T'}}$ no $[_{\text{AGRO'}}$ teng.esa $[_{\text{V'}}$ ~~teng~~ $[_{\text{N'}}$ mi.riwo]]]]
5\. va.na + T’ → $[_{\text{TP}}$ va.na $[_{\text{T'}}$ no $[_{\text{AGRO'}}$ teng.esa $[_{\text{V'}}$ ~~teng~~ $[_{\text{N'}}$ mi.riwo]]]]]
6\. va.na + TP → $[_{\text{AGRSP}}$ va.na $[_{\text{TP}}$ va.~~na~~ $[_{\text{T'}}$ no $[_{\text{AGRO'}}$ teng.esa $[_{\text{V'}}$ ~~teng~~ $[_{\text{N'}}$ mi.riwo]]]]]]

In (13.1) the verb *teng[a]* and the noun *mi.riwo* form V’. To this causative *–es[a]* is merged to form AGRO’ in (13.2). I do not know how to treat the indicative morpheme, and thus assume that it shifts to *v*. In (13.3) the full verb is copied to *v* to form an object which is readable at PF. Since *–es[a]* is treated as *v*, the subject *va.na* should merge into its spec position. But this step is problematic, because this is the position into which incorporated objects are merged. Therefore, the tense marker *–no–* should merge before the subject as seen in (13.4). In (13.5) the subject *va.na* merges into spec-T, and in (13.6) it is copied into spec-AGRS. This operation leaves behind the classifier prefix *va-* which is phonetically viable. The assumption of AGRSP is due to the fact that complementizers are placed before subjects in Shona, and therefore C needs to be free.

It is less clear, though, how incorporated object pronouns or respective classifiers are to be treated. I considered the subject classifier as phonologically not deleted after copying the element containing it, but an object—be it direct or indirect— would have to be treated as part of the verbal complex itself. However, this is unusual for polysynthetic languages where arguments are treated as adjuncts, if the incorporation of subject and object pronouns is obligatory[17].

A further problem arises with negation which is prefixed *ha–* to the left of the incorporated subject pronoun like in *ha.ndi.cha.taur.a* ‘I will not talk’, but to the right of it in the case of the negated imperative *–sa–* as in *mu.sa.famb.e* ‘Don’t go!” where *mu–* marks the subject as 2PL. It is not at all clear how this is to be dealt with.

3.8. Complement Structures

The next example is a sentence with a subordinated clause. This requires a more

17 Baker (2001) distinguishes optional and obligatory polysynthesis. Mohawk and Warlpiri require incorporation of pronominal arguments, while Chichewa and—in this case—Shona allow it.

complex CP than hitherto was necessary. Since an assumed operator CONT was positioned in C which contracted a constituent into spec-C, this position is not open for fronted subclauses. Along with Rizzi (1997) the CP must now assume a finer structure. Fronted VP material is assumed to merge to FinP, complementizers take position in ForceP.

(14) Until caught this killer is, our judgment she must respect.

1. our + judgment → [$_{\text{D'}}$ our [judgment]]
2. respect + D' → [$_{\text{V'}}$ respect [$_{\text{D'}}$ our [judgment]]]
3. she + V' → [$_{\text{VP}}$ she [$_{\text{V'}}$ respect [$_{\text{D'}}$ our [judgment]]]]
4. must + VP → [$_{\text{T'}}$ must [$_{\text{VP}}$ she [$_{\text{V'}}$ respect [$_{\text{D'}}$ our [judgment]]]]]
5. she + T' → [$_{\text{TP}}$ she [$_{\text{T'}}$ must [$_{\text{VP}}$ ~~she~~ [$_{\text{V'}}$ respect [$_{\text{D'}}$ our [judgment]]]]]]
6. CONT + TP → [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ she [$_{\text{T'}}$ must [$_{\text{VP}}$ ~~she~~ [$_{\text{V'}}$ respect [$_{\text{D'}}$ our [judgment]]]]]]]
7. D' + Fin' → [$_{\text{FINP}}$ our judgment [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ she [$_{\text{T'}}$ must [$_{\text{VP}}$ ~~she~~ [$_{\text{V'}}$ respect [$_{\text{D'}}$ ~~our~~ [~~judgment~~]]]]]]]]

Until this step the main clause has been assembled save for the subclause. In (14.1) D' is formed, and merged to the verb in (14.2). The subject *she* merges in (14.3) to form VP to which the auxiliary *must* is merged (14.4). In (14.5) *she* merges with T' to form TP. Then the operator CONT merges to TP to form Fin' in (14.6). Next follows the derivation of the subclause before it is merged to the syntactic object derived in (14.7)

8. this + killer → [$_{\text{D'}}$ this [killer]]
9. D' + caught → [$_{\text{VP}}$ [$_{\text{D'}}$ this [killer]] caught]
10. is + VP → [$_{\text{T'}}$ is [$_{\text{VP}}$ [$_{\text{D'}}$ this [killer]] caught]]
11. D' + T' → [$_{\text{TP}}$ this killer [$_{\text{T'}}$ is [$_{\text{VP}}$ [$_{\text{D'}}$ ~~this~~ [~~killer~~]] caught]]]
12. CONT + TP → [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ this killer [$_{\text{T'}}$ is [$_{\text{VP}}$ [$_{\text{D'}}$ ~~this~~ [~~killer~~]] caught]]]]
13. V' + Fin' → [$_{\text{FINP}}$ caught [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ this killer [$_{\text{T'}}$ is [$_{\text{VP}}$ [$_{\text{D'}}$ ~~this~~ [~~killer~~]] ~~caught~~]]]]]
14. until + FinP → [$_{\text{FORCE'}}$ until [$_{\text{FINP}}$ caught [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ this killer [$_{\text{T'}}$ is [$_{\text{VP}}$ [$_{\text{D'}}$ ~~this~~ [~~killer~~]] ~~caught~~]]]]]]

Assembling the subclause starts with merging *this* and *killer* to form D' (14.8). In (14.9) D' is merged with *caught* to form a VP. This VP is merged to *is* forming T' (14.10), to which D' merges (14.11). CONT then merges to TP (14.12) forming FIN', and the remaining VP material *caught* is merged in order to from FINP (14.13). In (14.14), *until* merges with FINP into which I assume is the head position of a FORCEP. My reasons for this assumption shall be detailed later. I proceed with the assemblage of the main clause.

15. FORCE' + FINP → [$_{\text{FORCE'}}$ [$_{\text{FORCE'}}$ until [$_{\text{FINP}}$ caught [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ this killer [$_{\text{T'}}$ is [$_{\text{VP}}$ [$_{\text{D'}}$ ~~this~~ [~~killer~~]] ~~caught~~]]]]]] [$_{\text{FINP}}$ our judgment [$_{\text{FIN'}}$ CONT [$_{\text{TP}}$ she [$_{\text{T'}}$ must [$_{\text{VP}}$ ~~she~~ [$_{\text{V'}}$ respect [$_{\text{D'}}$ ~~our~~ [~~judgment~~]]]]]]]]]

In the last step (14.15) the resulting structure of (14.8–14) is merged with the resulting structure of (14.1–7) to form the final structure. I have assumed that the subclause merges with the main clause and forms a FORCE phrase. This is of course debatable.

First, a reasonable assumption for the position of the subclass is a TOP phrase. At least in Yoda, that entails two problems. 1. A position in TOP phrase would require the subclause to internally merge to the structure derived up to this point. Logically, it then must have externally merged at some earlier step in the derivation. Since in this case the *until*-construction is an adjunct, it is unclear exactly where it would adjoin the tree. I would presume it could adjoin to the TP of the main clause. In my indecision, I am in good company, though, because the problem of adjunction has not yet been definitively resolved in Minimalist Syntax. 2. A further problem—at least in Yoda—is that if the FORCE position is not filled, one should assume that a subclause-main clause-construction could be complementized again. In other words, if a fronted subclause is considered to merge into a TOP position, the FORCE position should in principle be available for another complementizer. In English, the underlying language of Yoda, such constructions are possible only if the subclause is not fronted.

(15) a. Yoda said that she must respect our judgment until this killer is caught.
b. Yoda said that until this killer is caught she must respect our judgment.

c. That she must respect our judgment until this killer is caught is what Yoda said.
d.*That until this killer is caught she must respect our judgment is what Yoda said.

Concludingly, a complementizer of a subclause which constitutes the matrix clause for a further subclause and this further subclause compete for the same position. At least this is true for languages where fronting of a subclause is possible. Further evidence, however, comes from Japanese where subclauses are always positioned in front of the main clause, and which has force particles. It shows that such particles are impossible if the subclause is not finite.

(16) a. o.kaa.san=da=kara i.u koto=o kii.te age.nasai.
HON-mother-HON-ESS[~~PRES~~]-REA say-PRES matter-ACC listen-PRT give-do[IMP]
b. *o.kaa.san=da kara=yo i.u koto=o kii.te age.nasai.[18]
HON-mother-HON -ESS[~~PRES~~]-REA-FORC say-PRES matter-ACC listen-PRT give-do[IMP]
c. i.u koto=o kii.te age.nasai. o.kaa.san=da=kara=yo.
say-PRES matter-ACC listen-PRT give-do[IMP]. HON-mother-HON -ESS[~~PRES~~]-REA-FORC

As can be seen the force particle *=yo* can occur after finite *=kara* (16.c), but not if the matrix clause follows (16.b). For this reason I assume that there is a competition between complementizers, force particles, and full subclauses.

A further example demonstrates that partial VP fronting which seems to be obligatory in Yoda, does not take place, if the verb is the only remaining element in VP.

(17) If Duku escapes, rally more systems to his cause he will.

18 (16b) is wrong if no pause is inserted after the force particle *=yo*.

This example is interesting for three reasons: 1. in the *if*-clause the verb *escapes* is not fronted. 2. However, in the main clause not only are non-verbal elements of the VP fronted, but also the verb itself. In other words, (17) displays full VP fronting, not only partial fronting. In (2, 3, 5, 7, 12) and the main clause of (14) verbal complements were fronted without the verb. In (8) and the subclause of (14), however the verbs were also fronted after their subjects merged to T'. The construction of the main clause in (17) however reveals that a more complex syntactic object has been merged to Fɪɴ'. The reason might be that the verb *rally* occurs with two phrases.

The third reason concerns binding: the initial subclause contains the referential expression *Duku* which is coreferential with *he*. In order to avoid a violation of Binding Theory, one must therefore either assume that this subclause is not internally merged in Fᴏʀᴄᴇ' or that the order of referential expression and pronoun is checked and possibly reordered at PF. Since interpretation at LF would also require an interpretable structure, and because many proposals now prefer LF as a linking structure between Spell-out and PF, one could therefore assume that the ordering of referential expression and pronoun must already be finished at Spell-out. I shall assume that here which requires me to posit an external merger of the subclause to Fᴏʀᴄᴇ'. Because this assumption entails that fronted subclauses have different derivations from those in post-main clause position, it is not an appealing proposition.

1. his + cause → [$_{\mathrm{D'}}$ his [cause]]
2. to + D' → [$_{\mathrm{P'}}$ to [$_{\mathrm{D'}}$ his [cause]]]
3. rally + D' → [$_{\mathrm{V'}}$ rally [to [$_{\mathrm{D'}}$ his [cause]]]]
4. more + systems → [$_{\mathrm{D'}}$ more [systems]]
5. D' + V' → [$_{\mathrm{VP}}$ more systems [$_{\mathrm{V'}}$ rally [to [$_{\mathrm{D'}}$ his [cause]]]]]
6. *v* + VP → [$_{v'}$ *v* [$_{\mathrm{VP}}$ more systems [$_{\mathrm{V'}}$ rally [to [$_{\mathrm{D'}}$ his [cause]]]]]]
7. rally + *v* → [$_{v'}$ rally+*v* [$_{\mathrm{VP}}$ more systems [$_{\mathrm{V'}}$ ~~rally~~ [to [$_{\mathrm{D'}}$ his [cause]]]]]]
8. he + *v*' → [$_{v\mathrm{P}}$ he [$_{v'}$ rally+*v* [$_{\mathrm{VP}}$ more systems [$_{\mathrm{V'}}$ ~~rally~~ [to [$_{\mathrm{D'}}$ his [cause]]]]]]]
9. will + *v*P → [$_{\mathrm{T'}}$ will [$_{v\mathrm{P}}$ he [$_{v'}$ rally+*v* [$_{\mathrm{VP}}$ more systems [$_{\mathrm{V'}}$ ~~rally~~ [to [$_{\mathrm{D'}}$ his [cause]]]]]]]]
10. he + T' → [$_{\mathrm{TP}}$ he [$_{\mathrm{T'}}$ will [$_{v\mathrm{P}}$ ~~he~~ [$_{v'}$ rally+*v* [$_{\mathrm{VP}}$ more systems [$_{\mathrm{V'}}$ ~~rally~~ [to [$_{\mathrm{D'}}$ his

[cause]]]]]]]]

11. CONT + TP → [$_{FIN'}$ CONT [$_{TP}$ he [$_{T'}$ will [$_{vP}$ ~~he~~ [$_{v'}$ rally+*v* [$_{VP}$ more systems [$_{V'}$ ~~rally~~ [to [$_{D'}$ his [cause]]]]]]]]]]

12. *v*' + FIN' → [$_{FINP}$ rally+v more systems to his cause [$_{FIN'}$ CONT [$_{TP}$ he [$_{T'}$ will [$_{vP}$ ~~he~~ [$_{v'}$ ~~rally+*v*~~ [$_{VP}$ ~~more systems~~ [$_{V'}$ ~~rally~~ [~~to~~ [$_{D'}$ ~~his~~ [~~cause~~]]]]]]]]]]]

In (17.1) *his* is merged with *cause* forming D'. In (17.2) this D' is merged with *to* forming P'. To this P' *rally* merges in (17.3) forming V'. In (17.4) *more* is merged to *systems* forming D'. Here I leave a possible quantificational structure open. This D' is merged to V' in (17.5) forming VP. Because neither D' so far merged is the subject, a light-verb construction is needed. Thus, a covert light verb merges with VP in (17.6). Then *rally* merges with the light verb in (17.7) without expanding the structure. In (17.8) *he* merges with *v*' to form *v*P. The auxiliary *will* merges with *v*P in (17.9) forming T'. Then *he* merges with T' checking φ-features and forming TP (17.10). In (17.11) the operator CONT merges with TP forming FIN'. After merging *v*' to FIN' thereby satisfying CONT-features in (17.12) the main clause is assembled.

13. Duku + escapes → [$_{VP}$ Duku [$_{V'}$ escapes]]
14. PRES + VP → [$_{T'}$ PRES [$_{VP}$ Duku [$_{V'}$ escapes]]]
15. Duku + T' → [$_{TP}$ Duku [$_{T'}$ PRES [$_{VVP}$ ~~Duku~~ [$_{V'}$ escapes]]]]
16. if + TP → [$_{C'}$ if [$_{TP}$ Duku [$_{T'}$ PRES [$_{VP}$ ~~Duku~~ [$_{V'}$ escapes]]]]]

The subclause is assembled by merging *Duku* with *escapes* (17.13). The resulting VP merges with PRES (17.14), and *Duku* merges with this resulting T' (17.15). In all other examples at this point of the derivation the operator CONT merges to the structure. In (17.16) however, *if* merges instead. In 'real' Yoda one would assume a resulting structure such as *if escapes Duku*. This would be in line with everything outlined above. However, such as structure was presumably judged too shaky for English speakers to comprehend–after all we should not forget that we're talking about a motion picture produced for economic purposes. Here the underlying language English interferes insofar as its principles are simply stronger than the demand on strangeness Yoda should exude. In English morphologically bound inflections prohibit movement of the verb, while morphologically free inflections move themselves.

4. Summary

In this paper I have tried to apply a Minimalist analysis to Yoda, a fictional language from the *Star-Wars* movie picture. After laying out the general framework in section 2, section 3 detailed several Yoda sentences. These comprised the following structures: coordination (section 3.2), *tough*-construction (section 3.3), imperative and *v*-constructions (section 3.6), and complement structures (section 3.8).

As a result, Yoda is peculiar for English native speakers because of its obligatory V-complement fronting. In sentences (2, 3, 5, 7, 12) and the main clause of (14) such V-complements were fronted. In sentence (8), the subclause of (14), and the main clause of (17) the whole VP was fronted. However, the subclause of (17) showed that fronting does not take place, if the verb fuses with the inflection. The counterexamples were (8) and the subclause of (14): due to the respective perfect and passive constructions, which are periphrastic in English (and thus in Yoda), the participle does not fuse with I^0, and thus is free to be fronted.

A further result was that fronting of VP-material is dependent on structure. I.e. as only constituents can be fronted (/internally merged), the whole VP had to be fronted in the main clause of (17), but not in that of (14), because the object *our judgment* constituted a syntactic object capable of merging.

Furthermore, I made three excursions: one into Japanese (section 3.4), one into Shona (section 3.7), and one into Antisymmtry (section 3.5). Section 3.4 detailed left-dislocation of V-material. Section 3.7 briefly analyzed verb-structure in Shona, which, however, must stay tentative, because it is still far from obvious how polysynthetic languages have to be dealt with. In a language such as Shona it seems that more categories are required than are desirable.

Section 3.5 took up Antisymmetry by not arguing against its core assumptions. Evidently, asymmetries do exist. In a detailed analysis of a Japanese sentence, I tried to show that Antisymmetry must posit superfluous operations just for the sake of deriving the structure. While from a theory-internal point of view that cannot be argued against, syntax must not forget that every category posited and every operation executed has ramifications for processing. It seems that Antisymmetry cannot address the different processing workloads it must tacitly assume, without compromising a core tenet held by modern linguists, namely that languages are basically the same.

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