A Hierarchy of Clauses in Biblical Hebrew Narrative*

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1. Syntactic structure: Linguistic System or Literary Strategy?

It is no secret with that textual analysis in Biblical Studies recently has started to shift its focus from the analysis of words and sentences to the analysis of texts as linguistic compositions.[1] Both from the perspective of biblical interpretation and of linguistic research one can welcome this development. But it is also no secret that a linguistic concentration on 'text' raises precisely those questions that are on the agenda of this conference: To what extent is it possible to produce a *grammatical* description of the linguistic mechanisms (the grammatical entities, their features and their relations) that are used in classical Hebrew to establish textual structures? More precisely: how special, how unique is each individual textual composition? To what extent can the linguistic structure of a text be analysed in general terms and categories that are part of the Hebrew language as a system?

Exegetical traditions tend to focus on the unique text rather than on general linguistic features. Older exegetical work expresses this tendency by a special interest in understanding the authors of a text: What did the author want to say with this particular text? More recent exegetical work expresses the same tendency by concentrating on the stylistics of a particular text or text type. What is the rhetorical power of this particular text? Usually exegetes do not pay much attention to the balance which might exist between what an author or an redactor may choose for the structure of a text and what the language system itself allows or forces him to do. How much of a text is system, how much is strategy?[2]

From my point of view, the task of Bible translation is the best starting point for further research in the area of syntax and text. Translators usually cannot spend too much time discussing the delicate balance between rhetorical and grammatical analysis. The effect is that translators concentrate primarily on lexical

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1 See, W.R. Bodine, 'Introduction. Discourse Analysis of Biblical Literature: What It Is and What It Offers', in: *Discourse Analysis of Biblical Literature. What It Is and What It Offers* (SBL, Semeia Studies), Atlanta: Scholars Press, 1995, p.1 - 20; C.H.J. van der Merwe, 'Discourse Linguistics and Biblical Hebrew Grammar', in: Bergen, Robert D.(ed.), *Biblical Hebrew and Discourse Linguistics*, Winona Lake: Eisenbrauns, 1994, p. 13 - 49; J. Lyons, *Linguistic Semantics. An Introduction*, Cambridge: Cambridge University Press, 1995, p. 258ff.

2 Cf. de recent volume edited by L.J. de Regt, J. de Waard, J.P. Fokkelman (eds.), *Literary Structure and Rhetorical Strategies in the Hebrew Bible*, Assen: Van Gorcum, 1996.

meaning and semantics. A discussion on Bible translation usually revolves around style and meaning, instead of around syntax[3]. Either one decides to produce a translation that in its syntax imitates the source language, the Hebrew original[4], or one decides that the translation should represent a certain stylistic freedom, required by the grammatical and idiomatic features of the target language. This seems to me to be traditional practice: syntax is a matter of constructing clauses or sentences and if one were to say something about the construction of a text, it would be the domain of stylistic and rhetorical analysis. In terms of text grammar, this means that one restricts itself to a limited set of linguistic parameters. On clause and sentence level, only verbal forms and conjunctions are registered, in order to make decisions on coordination and subordination. On text level one hardly registers any syntactic regularity, except for pronominal back reference. The identification of paragraphs, episodes, etc., are regarded a matter of content, theme and coherence.
If the word 'text grammar' is to mean anything at all, one has to address the question: to what extent is it possible to produce a grammatical description of the mechanisms that establish textual structures in Biblical Hebrew? Are there, therefore, more observations of the language system possible at text-level, than the information offered by verbal tenses and conjunctions?

1.1. An Example

To begin with a relatively simple example, Exodus 2, 9-10 is a text with *wayyiqtol*-forms only. If, as in traditional, syntactic studies, one restricts oneself to observations of the verbal forms and the conjunctions used, the discussion of text syntax and translation remains a dialogue on stylistic freedom. Translators feel they have to make a choice. One can either be reluctant to deviate from the syntax of the source language, therefore, choose to reproduce in the syntax of the target language an imitation of the serie of wayyiqtols by: "and she did", "and he did", "and she did", or one can decide that an ancient text translated into a modern, western language, requires more stylistic variation and for that reason replace the so-called *"parataxis"* of the source language by *"hypotaxis"*[5] in the

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[3] In my experience even current models of 'discourse analysis' exhibit more interest in rhetorics and models of human communication than in observations of grammar and syntax. However, recently one can observe that the various lines of research are beginning to get in touch: Bodine's recently edited volume on Discourse Analysis (see n. 1) has an interesting separate section on Grammar with contributions by Miller and Gropp.

[4] For reasons of introduction or exegetical debate it may still be wise to begin this way.

[5] For the terminology see, for example, R. Meyer, *Hebraische Grammatik III. Satzlehre* (Sammlung Göschen, Band 5765, Berlin, 1972[3], p. 81f.,90f.; R. Bartelmus, *Einführung in das Biblische Hebräisch. Mit einem Anhang Biblisches Aramäisch*, Zürich: Theologischer Verlag, 1994, formulates better: one should study Hebrew syntax as a system of its own and leave

target language, e.g., "When he did A, she did B". (see the two examples listed below). To demonstrate this I compare the text of Exodus 2, 9-10 in the RSV and the NEB. Their texts can be seen as representives of the differing choices translators may make in the debate on syntax and stylistic freedom.

Clause Hierarchy implied by RSV:[6]

	Text	*Vrs*	*Ln*
So the woman took ..	[<Ob> הילד] [<Su> האשה] [<Pr> תקח] [<Cj>ו]	09	42
and nursed him.	[<PO> תניקהו] [<Cj> ו] .	09	43
And the child grew,	[<Su> הילד] [<Pr> יגדל] [<Cj>ו]	10	44
and she brought him ..	[<Co> לבת פרעה] [<PO> תבאהו] [<Cj>ו]	10	45
and he became her son;	[<Co> לבן] [<sC> לה] [<Pr> יהי] [<Cj>ו]	10	46
and she named him ..	[<Ob> משה] [<Ob> שמו] [<Pr> תקרא] [<Cj>ו]	10	47
for she said,	[<Pr> תאמר] [<Cj>ו] .	10	48
Because I drew him ...	[<PO> משיתהו] [<Co> מן המים] [<Cj>כי] . .	10	49

Clause Hierarchy implied by NEB[7]

	Text	*Vrs*	*Ln*
So the woman took ..	[<Ob>הילד] [<Su> האשה] [<Pr> תקח] [<Cj>ו]	09	42
and suckled him	[<PO> תניקהו] [<Cj>ו] . .	09	43
When .. was old enough	[<Su> הילד] [<Pr> יגדל] [<Cj>ו] ↓.	10	44
she brought him ..	[<Co> לבת פרעה] [<PO> תבאהו] [<Cj>ו]	10	45
who adopted him	[<Co> לבן] [<sC> לה] [<Pr>יהי] [<Cj>ו] .	10	46
and called him M..	[<Ob> משה] [<Ob> שמו] [<Pr> תקרא] [<Cj>ו] .	10	47
'*Because*', she said,	[<Pr> תאמר] [<Cj>ו] ↓. . .	10	48
'I drew him out ..'	[<PO> משיתהו] [<Co> מן המים] [<Cj>כי] . .	10	49

Both translations can for the larger part be explained as an expression of a specific textual structure which the translators assumed to be in the text:
RSV: Some variation in the translation seems to be based on the requirements of the target language. (see the translation of the *wayyiqtol* in line 42: "So" and of the wayyiqtol in line 49: "for"). Other *wayyiqtol*'s are translated by: "and he/she did". Paragraph structuring, signalled by the use of capitals, is apparently based on the

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the categories of 'parataxis' and 'hypotaxis' alone, since these in fact are only valid for Indo-European languages, p. 144.

6 *The Holy Bible. Revised Standard version*, New York, Glasgow, Toronto, 1952/1971.

7 *The New English Bible*, Oxford/Cambridge, 1961,1971.

introduction of new explicit subjects in line 42 and 44. Other changes of subject are not marked. As a result, verse 9 is a paragraph about the 'woman' and verse a 10 is a paragraph about the 'child'.

NEB: Similar to the RSV, the *wayyiqtol* in line 42 is translated "So"; in contrast to the RSV the subordination of the *wayyiqtol* in line 44 is rendered: "When...". The *wayyiqtol* in line 46 is translated as an attributive construction: "who..."; the כִּי of line 49 is put before the wayyiqtol of line 48. Only the two cases of *wayyiqtol* that continue the subject of the preceding clause (line 43 and 47) are translated by "and did".

As a result, verse 9 and 10.a are a paragraph about the 'woman', verse 10.b is a paragraph about 'Pharao's daughter'.

Are the differences found between these two translations just a matter of choice made between the syntax of the source language and the syntax of the target language? Is the RSV, thus, actually doing better in terms of reflecting Hebrew syntax? Is the NEB to be preferred only in terms of English syntax? Or could it also be possible to argue in favour of the NEB text on the basis of the syntax of the Hebrew narrative?

The point I want to make in this contribution, is that the syntax of Hebrew narratives allows for the observation of more linguistic details, if one is ready to look for text-level patterns[8]. With this larger set of parameters, the question may be asked whether analysing textual structure is mainly a matter of stylistic skills and exegetical insights. If grammar is restricted to clause-level observations (verbal tenses and conjunctions) and if text-level analysis is taken to be only a matter of content (theme and *coherence*[9]) then the RSV version of this text is the better one. If, however, it is also possible to do grammatical analysis at text level, so that it would be able to identify syntactic signs that mark the *cohesion* and the internal hierarchy of this text, it would mean that the NEB rendering is a better representation of the text's syntactic structure, even though some features of the NEB translation clearly are adaptations to English style.

To illustrate the procedure, I present a preliminary list of 'parameters' that I registered as contributors to the hierarchy and the cohesion of the sample text.

1. grammatical clause types: Wayyiqtol(Subj); Wayyiqtol(0) and the specific sequences observed of two clauses of these types, e.g.:
   Wayyiqtol(Subj) → Wayyiqtol(Subj); Wayyiqtol(Subj) → Wayyiqtol(0);

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[8] This is, of course, the very starting point of all text linguistics in Hebrew studies, cf. the introductory remarks on 'coordination' by F.I. Andersen, *The Sentence in Biblical Hebrew*, (Janua Linguarum, Series Practica, vol. 231), The Hague, 1974, p. 61. The next step, is to experiment with parameters and procedures to establish the grammatical structure of concrete texts, rather than first producing, as Andersen did, a grammar defining the various types of clause connections assumed (<Appositon>, <Coordination>). However, the reader will understand that in experimenting with the data, for labels and categories I also make use of the work of the pioneers in this area, such as Andersen.

[9] J. Lyons, *Linguistic Semantics. An Introduction*, Cambridge: Cambridge University Press, 1995, p.263f.

2. morphological correspondences between clause constituents in two clauses;
3. lexical correspondences between clause constituents of two clauses;
4. syntactic marking of paragraphs (wayyiqtol-X [X = subject, see below. § 3]);
5. sets of actors in the text (indicated by verbs, proper names, nouns or pronouns).

These parameters are used in computerised procedures being developed for text-level syntactic analysis. The idea is that, when reading a text clause by clause, the parameters registered can be used as arguments for clause hierarchy. Thus, the syntactic structure of a text will be built up as a result of this reading process. The complexity of the procedure of identification lies in the fact that linguistic signs of various types are contributing to a text's structure.

For an explanation of the procedure for establishing syntactic structure, I again restrict the description to the example of Exodus 2,9-10. First, I will list what parameters are used as an argument for clause connections (a), second, I will present some details of the computer-assisted 'reading' process used for establishing the syntactic structure (b), third, the resulting hierarchy of clauses (c). In the fourth place I will present the resulting paragraphs and actors, with a translation (d).

a. Parameters registered

connect lines:	***arguments***	***effect***
42	after dir.speech section: wayyiqtol + new NP<Su>	new §
43 ← 42	=vb.tense; =pers.num.gen; no NP<Su>; sfx ← NP<Ob>	dep.cl.; same §
44 ← 42	=vb.tense; new NP<Su>; NP<Su> ← NP<Ob>; =lex.ילד	par.cl.; new, dep.§
45 ← 42	=vb.tense; =pers.num.gen; no NP<Su>; sfx ← NP<Ob>	dep.cl.; same §; prev.§ emb.
46 ← 45	=vb.tense; VP<Pr> ← sfx<Ob>; PP<sC> ← PP<Co>	dep.cl.; new, embedded §
47 ← 46	=vb.tense; VP<Pr> ← PP<sC>; NPsfx<Ob> ← VP<Pr>	dep.cl.; new, embedded §
48 ← 47	=vb.tense; =pers.num.gen	par. clause; same §
49 ← 48	XQatal ← Wayyiqtol(אמר); pers.1sg ← pers.3sgfem.	dir. speech section

Arguments and symbols used:

PP<Co>	*: Prepositional Phrase (Complement)*		
PP<sC>	*: Prepositional Phrase (supplementary Complement)*		
VP<Pr>	*: Verbal Phrase (Predicate)*		
NP<Su>	*: Noun Phrase (Subject)*	*NP<Ob>*	*: Noun Phrase (Object)*
lex.	*: lexeme*	*par.*	*: parallel*
dep.	*: dependent*	*§*	*: paragraph*
x ← y	*: x connects back to y*	*=*	*: of equal value*
pers.num.gen.	*: person number gender (verb)*	*sfx.*	*: pronominal suffix*

b. Procedure: 'reading' the Clause Hierarchy

From the arguments mentioned in section a., a textual hierarchy is constructed line by line. A line contains one clause or, in cases of embedding, a partial clause. For each clause a preceding clause is sought to which it can be matched best according to the parameters listed. If the clause to be posited in the hierarchy is not formally syntactically parallel, it will be presented with one identation added (see b.1.). If further clauses connect back to the same one, this will result in additional indentations (see b.2.and b.3).

b.1.

	Text	§Nr	Verse	Ln
	[<Ob> הילד] [<Su> האשה] [<Pr> תקח] [<Cj> ו]	§x	Ex 2,09	42
43 ← 42	[<PO> תניקהו] [<Cj> ו] .	x	Ex 2,09	43

b.2.

	Text	§Nr	Verse	Ln
	[<Ob> הילד] [<Su> האשה] [<Pr> תקח] [<Cj> ו]	§x	Ex 2,09	42
	[<PO> תניקהו] [<Cj> ו] . .	x	Ex 2,09	43
44 ← 42	[<Su> הילד] [<Pr> יגדל] [<Cj> ו] .	§x.1	Ex 2,10	44

b.3.

	Text	§Nr	Verse	Ln
	[<Ob> הילד] [<Su> האשה] [<Pr> תקח] [<Cj> ו]	§x	Ex 2,09	42
	[<PO> תניקהו] [<Cj> ו] . . .	x	Ex 2,09	43
	[<Su> הילד] [<Pr> יגדל] [<Cj> ו] . .	§x.1	Ex 2,10	44
45 ← 42	[<Co> לבת פרעה] [<PO> תבאהו] [<Cj> ו] .	x	Ex 2,10	45

One warning is appropriate here. One should not read these examples or the full textual schema's presented below as simple results of fully automated procedures. The actual version of the programme used for (re)constructing textual hierarchy proposes clause connections and paragraph divisions based on registrations and arguments as listed above. The user must evaluate and correct a number of these proposals. For example, the entire text of Exodus 2, to be presented below, consists of 119 lines (clauses), which implies: 118 possible clause connections. Of the machine-made proposals 82 were acceptable, 36 needed reconsideration. Clearly the text-grammatical research reported here will remain experimental for a long time to come. Moreover, I assume that difficulties in identifying all actors in a text and the complications of semantic or pragmatic analysis will make it virtually impossible for a computer programme ever to produce completely correct textual structures. The advantage of these procedures, however, lies in the possibilities of testing and experimenting with a larger corpus and of reaching a higher degree of consistency than is possible with other methods.

c. Clause Hierarchy Proposed

Text	§Nr	Verse	Ln
[<Ob> הילד] [<Su> האשה] [<Pr> תקח] [<Cj> ו]	§x	Ex 2,09	42
[<PO> תניקהו] [<Cj> ו] . . .	x	Ex 2,09	43
[<Su> הילד] [<Pr> יגדל] [<Cj> ו] . .	§x.1	Ex 2,10	44
[<Co> לבת פרעה] [<PO> תבאהו] [<Cj> ו] .	x	Ex 2,10	45
[<Co> לבן] [<sC> לה] [<Pr> יהי] [<Cj> ו] . .	§x.1	Ex 2,10	46
[<Ob> משה] [<Ob> שמו] [<Pr> תקרא] [<Cj> ו] . .	§x.2	Ex 2,10	47
[<Pr> תאמר] [<Cj> ו] . .	§x.2	Ex 2,10	48
[<PO> משיתהו] [<Co> מן המים] [<Cj> כי] . . .	Q	Ex 2,10	49

d. Resulting Paragraphs and listing of actors

Ln Type	*actor 1*	*actor 2*	*actor 3*	*lex. rep.*	*§*	*function/translation*
	'woman'	*'child'*	*'Pharao's daughter'*			
42 WayX	<Su> האשה	<Ob> הילד	. . .	.	§x	The woman took the child.
43 Way0	<Su> ↑	<Ob> sfx.הו-	. . .	.	=	and nursed it.
44 WayX	.	<Su> הילד	. . .	הילד	§x.1	When the child grew up
45 Way0	<Su> ↑	<Ob> sfx.הו-	<Co> לבת פרצה	.	§x	she brought him to ..
46 Way0	.	<Su> ↑	<sC> +sfx. לה	.	§x.1	He became her son.
47 Way0	.	<Ob> sfx.שמו	<Su> -	.	§x.2	She named him ..
48 Way0	.	.	<Su> -	.	=	and said:
49 XQtl	.	<Ob> sfx.הו-	<Su> -	.	Q	'It's because I drew him..'.

1.2. The first results

a. Text-level linguistic parameters.

The example was intended to demonstrate that it is rewarding to try to register more linguistic parameters in a text than classical grammars used to do. The parameters listed do contribute to textual structure, the problem, of course, being that they are effective only in a great variety of combinations. Both grammatical and lexical parameters play their part. Therefore Weinrich[10] was right in his suggestion that one should try to find a method for reading a text as a musical score, i.e., reading combinations of several kinds of signs.

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[10] H. Weinrich, 'Die Textpartitur als heuristische Methode', in: W. Dressler (ed.), *Textlinguistik*, Darmstadt: Wissenschaftliche Buchgesellschaft, 1978, 391-412.

b. Form to function.[11]

The study of narrative syntax as presented here assumes that research can begin in a descriptive way. One should start with observations of regularities in syntactic form, before categorising the linguistic data in terms of fully elaborated definitions of their textual functions. A taxonomy of simple and complex forms helps find the arguments necessary for establishing the grammatical structure of a narrative text. Better insight into text syntax will also contribute to the ongoing debate on verbal forms: do they express discourse functions and/or aspect and tense?[12] In this way the study of narrative syntax will also result in more solid grounds on which to base a translation.

1.3. The next task: Testing.

After the trial run on this first example of a short text, the parameters and procedures for clause hierarchy need to be tested on larger texts. In the next sections I will present the results of this test, namely, the clause hierarchies found and the syntactic patterns used as arguments for them. The texts analysed consist of two chapters: Exodus 2 and II Kings 1.
Experimentation with the process of registering linguistic parameters and establishing clause hierarchies revealed that the arguments to be used represent two levels of information. One level regards the morpho-syntactic and lexical patterns one can register formally in the clauses of a text. The other level is of a higher abstraction, involving the division of a text into paragraphs and the calculation of the sets of actors in these paragraphs.
Though the actual computer procedures used combine both levels of information in making proposals for clause connections, I will, for the sake of clarity, present the further testing in two steps:
First, linguistic patterns and clause connections. (§ 2)
Second, patterns of actants and the identification of paragraphs. (§ 3)

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11 For the term, see the introduction by Van der Merwe, mentioned in n.1.

12 See J. Joosten, 'Tekstlinguistiek en het Bijbels-Hebreeuwse werkwoord: een kritische uiteenzetting', *Nederlands Theologisch Tijdschrift*, 49 (1995) 265-272; cf. p. 271 on verbal forms; p. 271 on clause types. He is certainly right in his emphasis that more than just the verbs contribute to the analysis of textual structure, because, in my view, this is what text grammar is or should be pursuing. I do not agree with his statement that since verbal forms cannot have just one discourse function in a text, one needs to start from temporal and aspectual functions of the verbs. In my view the point is that the various functions of clauses and their verbs can not be derived from a grammatical paradigm. These functions are due to the phenomenon of recursion: the repeated construction of paragraphs and subparagraphs at various text levels.

2. Linguistic patterns and clause connections

To elaborate the parameters mentioned above in section 1.1., a full list of the grammatical and lexical patterns used to define clause connections in the sample texts Exodus 2 and II Kings 1 is given. The examples are taken from a broader selection: Exodus 2; 19; 24 and II Kings 1. For comparison or to illustrate certain complications, occasional reference is made to a text of a completely different type: Deuteronomy 6.
The reading of a text is regarded here as a process by which, among many other things, also these patterns of clause connections are recognised and applied by the human reader. Of course, the use of computer programming can only be an imitation of the process of recognition of the patterns listed. At the same time the recognition of these patterns is a necessary step in the analysis before semantic or pragmatic information can be applied. From this it may be clear that the contribution of computer programming to the textual analysis presented here is both crucial and limited.

2.1. Patterns

In this section I only list the linguistic patterns that have been applied to calculate the hierarchy of clauses in the sample texts. The way in which they are used has been described in section 1.2. The results of this analysis (including the analysis of paragraphs introduced in § 3) are presented with the textual schemas added to this contribution.

I. phrase-level clause atoms:

1. Attributive clauses. Asyndetic clauses with a participle connect to the immediate preceding clause (Ex.2,11);
   אשׁר-clauses connect to the immediate preceding clause (2K1,2);
2. Infinitive clauses connect to the immediate preceding clause (Ex.2,3,5,15,16 19,1; 2K1,3).
   Additional remark. From the analysis of other text types it becomes clear that it is insufficient to instruct a computer only according to the two patterns mentioned. More patterns exist, for example:
   - when the clause preceding the infinitive has אשׁר, direct connection is not always possible (Ex 24,12; cf. Dtn 6, 1 with Dtn 6,18)
   - when the אשׁר-clause is not attributive to a NP in the preceding clause, but is a complement to the preceding predicate (cf. Dtn 6,1 with 6,3 אשׁר ייטב .. לעשׂות)

II. clause types:

1. Connecting clause types. Sets of frequent connections, e.g.:
   WayX ← WayX (Ex.2,2 ← 2,1; Ex.2,5 ← 2,2); Way0 ← WayX (Ex.2,1,2);
   Way0 ← Way0 (Ex.2,3); Way0 ← Nom.Cl (Ex.2.16);
   WayX ← W-X-Qatal (Ex.19,2f.,18);
   Way0 ← W-**לא**-Qatal (Ex.2,3); WayX ← W.Ptc.(Ex.2,5);
2. In actual practice the connection of clauses by reference to their grammatical types depends on two basic decisions:
   a. Connection two clauses of analogous construction is preferable to other connections (Cf. the examples mentioned: WayX ← WayX (Ex.2,2 ← 2,1; Ex.2,5 ← 2,2). Both clauses of each pair have NPdet). This regards:
   - both clauses that do and that do not begin with a conjunction;
   - clauses introducing new actants (NPdet, NP<subj>);
   - clauses that repeat lexical features (words, groups of words);

   b. Connnecting a clause to a preceding clause that has a conjunction **ו** (Ex.19,24 (line 107 → 105, not to 106), or **אשׁר** (Ex. 20,21), or inf.cs. (Ex.19,21 and 23) is to be avoided unless one of the following is true:
   - both clauses have an identical clause-opening type (i.e., from the conjunction to the verb (or nominal predicate) the clauses exhibit the same order of words/phrases [Ex. 20,4]);
   - the two clauses exhibit clear lexical patterns (see below, IV,1);
   - the **ו** is the only difference in clause-opening type.
3. Start of direct speech sections (e.g., WayX ← **ה**+yiqtol; Ex.2,7).
4. Connecting parts of clauses that are separated due to embedding (Ex.19,8).
5. Macro-syntactic signs, e.g., **ועתה** in direct speech section, skipping wayyiqtols.

III. word-level and phrase-level information:

1. morfological correspondences:
   identical person-number-gender of the verb; identical person-number-gender of suffix and verb or of suffix and noun phrase (Ex.2,4 ← 2,3 and Ex.2,7 ← 2,6: **אחתו** ← **ילד**; Ex. 2,16 **ותבאנה** ← **שׁבע בנות**; 2Ki1,3);
2. identical verbal forms (Ex. 2,18 ← 2,16 (3fem.pl); 2Ki,1,2)

IV. lexical patterns:

1. syntactic constructions based on lexical patterns:
   כי + **ראה** (Ex.2,2)
   מה + **ידע** (Ex.2,4)
   עוד (Hif.) → **פן** (Ex. 19,21)

לא + yiqtol → פן (Ex. 19,24)
In general: ה → אם; לא כן → כי אם

2. Lexical parallels contribute to or confirm the clause connections established with the help of syntactic data.
(Ex.2,23 ← 2,11 ויהי + .. בימים; 2Ki.1,4 ← 1,2 מלאכים)

V. Paragraph marking by special clause types:
Wayyiqtol-X and W-X-Qatal. X = Subject.
Wayyiqtol with Time reference (Ex. 2,11; 2,23)

2.2. Conclusions on clause hierarchy:

The set of syntactic parameters listed here, is a preliminary one, since it only registers features of clauses. Its use allows for some preliminary conclusions. The closing statements of section 1 can be confirmed and elaborated:

- Syntactic parameters for clause connections are effective in combinations, not individually;

- The patterns listed are not static definitions of collections of clause combinations. They are to be applied in a process of reading. This not only means that they are applied in combinations, but also that they are applied recursively. A clear example is the repeated embedding of direct speech sections, as in 2 Ki.1, 3f., 6f., or the transition from an address in direct speech to narrative speech within the same direct speech section, as in 2 Ki.1, 6 and 7. In the next section I will state that similarly, in a narrative text, paragraphs can be embedded into paragraphs.

3. Patterns of actants and the identification of paragraphs in narrative texts

The process of syntactic analysis explained thusfar has the capacity of producing a clause hierarchy of the sample texts; however, we have not yet attained a full text-grammatical analysis of these texts. Further experiment with the patterns mentioned in § 2 demonstrated that more text-level syntactic information is needed: we must identify the sets of actors in the text and the changes of subjects in order to remove a number of difficulties that remain after constructing the clause hierarchy of a text.

3.1. Examples

Compare the following segments of the text of II Kings 1 and the (partial) clause hierarchy made by applying the patterns mentioned in § 2. One can observe that the shorter direct speech sections in most cases are being presented correctly, e.g.: verse 6:

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                                [<Pr> לכו]  33 imp.  2plM 2Ki.1,06
                [<Co> אל המלך] [<Pr> שובו]  34 imp.  2plM 2Ki.1,06
[<Ob> אתכם] [<Pr> שלח] [<Re> אשר]   .   .  35 XQtl  3sgM 2Ki.1,06
      [<Co> אליו] [<Pr> דברתם] [<Cj>ו]   .  36 WQtl  2plM 2Ki.1,06
 --------------------------------+          ====
[<Su> יהוה'] [<Pr> אמר] [<Mo> כה] |   .   .  37 0Qtl  3sgM 2Ki.1,06
 --------------------------------+          ====
```

The larger narrative structures, however, still lack consistency. The sample text below reveals that this shortcoming is due to the fact that clauses with subject phrases introducing new paragraphs are not always connected properly in the schema. A more serious problem is the fact that in many cases the introduction of a new subject in narrative clauses is not explicitly marked by a determinated NP in the text. The result is a textual 'structure' that is still but a simple *sequence* of paragraphs. For example, the W-X-Qatal clause in line 11 and the WayX clause in line 25 are correctly connected, due to their respective clause types and the repetition of the constituent אליה. But the two WayX clauses in line 25 and line 26 should not have been connected: the suffix in אליו does not refer back to the prophet אליה (which a programme working with formal patterns is unable to detect!) The phrase המלאכים in line 26, however, does refer back to line 6 (which a programme can detect). So the programme should have connected lines 6 and 26 which as a result would have made the text of lines 11 to 25 a kind of embedded section.

A similar complication can be seen in lines 56 to 63: the subject of the Wayyiqtol clauses is changing a number of times, without always being marked by an explicit NP in the text. I am not certain whether a programme working with

formal patterns ever would be able to detect this. But clearly, the clause level parameters (pronouns, verbal forms, etc.) used in § 2 are insufficient to reach a final decision on syntactic structure. One needs to keep track of the actors involved in a number of clauses. The machine will be of assistance here to some level. If it always registers where a particular actor is (re)introduced, it would at least be able to calculate what set of actors is ’on stage’ when ’reading’ the next clause. So, for instance, line 56 (verse 9) introduces two new actors into the narrative (in אליו and שׂר. For that reason the ’candidates’ for the subject of the next line, ויעל in line 57 (verse 9), come from a different set of actors then the ’candidates’ for the subject of וישלח in line 56. Undoubtedly there is a limit to further grammatical calculations in this area, but it is not clear exactly where. In any case these experiments are helpful in defining the set of linguistic markers and syntactic patterns that are indicative of texual hierarchy in terms of clauses and paragraphs.

’Primitive’ clause hierarchy produced from clause-level patterns (§ 2)

```
                                                          Ln ClType     Text
                                                             § marker

  [<Co> בישׂראל] [<Su> מואב] [<Pr> יפשׁע] [<Cj>ו]   1 WayX 3sgM 2Ki.1,01
                                                             ....
   [<Aj>..ה בעד] [<Su> אחזיה] [<Pr> יפל] [<Cj>ו]   3 WayX 3sgM 2Ki.1,02
                                                             ....
        [<Ob> מלאכים] [<Pr> ישלח] [<Cj>ו]            6 Way0 3sgM 2Ki.1,02
                                                             ....
 [..אל אליה] [<Pr>דבר] [<Su>מלאך יהוה] [<Cj>ו]  11 WXQt 3sgM 2Ki.1,03
                                                             ....
                    [<Su> אליה] [<Pr> ילך] [<Cj>ו]  25 WayX 3sgM 2Ki.1,04
   [<Co> אליו] [<Su>המלאכים] [<Pr> ישׁובו] [<Cj>ו]  26 WayX 3plM 2Ki.1,05
          [<Co> אליהם] [<Pr> יאמר] [<Cj>ו]          27 Way0 3sgM 2Ki.1,05
                                                             ....
           [<Co> אלהם] [<Pr> ידבר] [<Cj>ו]          46 Way0 3sgM 2Ki.1,07
                                                             ....
            [<Co> אליו] [<Pr> יאמרו] [<Cj>ו]        51 Way0 3plM 2Ki.1,08
                                                             ....
                         [<Pr> יאמר] [<Cj>ו]        54 Way0 3sgM 2Ki.1,08
  ===============================+  .  .                     ====
  [<Su>הוא] [<PC> אליה / התשׁבי] |                  55            2Ki.1,08
  ===============================+  .  .                     ====
 [..שׂר] [<Co> אליו] [<Pr> ישלח] [<Cj>ו]            56 Way0 3sgM 2Ki.1,09
              [<Co> אליו] [<Pr> יעל] [<Cj>ו]        57 Way0 3sgM 2Ki.1,09
                                                             ....
                    [<Su> אליה] [<Pr> יענה] [<Cj>ו]  63 WayX 3sgM 2Ki.1,10
```

3.2. In search of an operational definition of "paragraph"

We consider now, how can one expand the procedures for clause hierarchy to include the identification of paragraphs and sets of actors. The distinguishing of paragraphs in a text is especially needed for the identification of 'participants'. For that reason it is impossible to work from a definition of 'paragraph' that is based on the coherence of the set of 'participants' found, since that is the goal rather than the starting point of the paragraph definition wanted. Researchers of functional grammar and discourse analysis present some definitions of what a paragraph is. Unfortunately these definitions are either somewhat vague, using words like 'often' or 'usually'[13], or they are actually conclusions based on content[14], rather than on a description of linguistic features. Therefore, the definitions of paragraph found in discourse linguistics cannot be used directly in more formal procedures of text grammar, for they would allow for too many ambiguities in the analysis. Existing definitions can be used fruitfully, however, in testing the first results of a more formal grammatical analysis. So the next task is to pursue the line of formal, distributional research as far as possible[15] and to see whether some proposals in terms of pattern of actants can be dealt with by a programme. The research, therefore, concentrates on finding an 'operational definition'[16], by attempting, first of all, to establish the set of linguistic markers

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13 Andersen, *op.cit*., p. 64: "In classical Hebrew narrative prose the onset of a new paragraph is often marked by using an explicit noun subject to refer to the prime participant, without interrupting the sequence of WP clauses." (WP means: Wayyiqtol, cf. p. 15).

14 Lowery, p. 258: proposes to define the paragraph "as that group of clauses which have the same major participants".

15 E. Talstra, 'Clause Types and Textual Structure. An experiment in narrative syntax', in: *Narrative and Comment. Contributions to Discourse Grammar of Biblical Hebrew, presented to Wolfgang Schneider on the occasion of his retirement as a lecturer of Biblical Hebrew at the "Kirchliche Hochschule" in Wuppertal*, Amsterdam, 1995, p. 166 - 180.

16 K.E. Lowery, 'The Theoretical Foundations of Hebrew Discourse Grammar', in: *Discourse Analysis of Biblical Literature: What It Is and What It Offers* (SBL, Semeia Studies), Atlanta: Scholars Press, 1995, p.103 - 130, cf. p. 119.
My intention is to take up further discussion with grammatical research of a more functional type at a later stage. First, the experiments with a computer-assisted, distributional type of research have to be continued to the point where they will have contributed fully to the construction of a data base of the syntactically analyzed text of the Hebrew Bible. However, as my paper also demonstrates, not unlike other methods, also the distributional approach exhibits a number of restrictions. In other studies therefore, dialogue with functional approaches to text syntax has started. I refer to the chapter dedicated to Longacre's work in the dissertation by F. den Exter Blokland, *In Search of Text Syntax: Toward a Syntactic Text-Segmentation Model for Biblical Hebrew Narrative.* (Applicatio 14, Amsterdam, 1995) and to my cooperation project with Nicolai Winther-Nielsen concerning the syntax of the book of Joshua: N. Winther-Nielsen, E. Talstra, *A Computational Display of Joshua. A Computer-assisted*

to which a computer programme can respond in proposing the beginning of new paragraphs in the text. Up to this point in the research, two of the most important discoveries appear to be:
a. the presence or the absence of directly observable markers in the texts;
b. the phenomenon of recursion in the applications of markers.

a. Markers

- The challenge is to work with both *direct markers* present in the text, such as an explicit noun subject in a clause, and *indirect markers* such as a shift in the set of actors. The fact of a shift in the set of actors can be detected on the basis of observations of forms. However, choosing which one of them might be the new subject in a clause cannot always be determined unequivocally on the basis of the forms observed. More research is needed to discover what additional regularities might be observable, or where the process of reading a text has to rely on a reader's semantic or pragmatic knowledge.

b. Hierarchy and Recursion

- A further challenge is the fact that paragraph markers can be used *recursively* with the effect that paragraphs in a text do not appear sequentially, but can be embedded in higher level paragraphs. A case of embedding results in 'gapping', i.e. splitting the higher level paragraph into two or more segments.
Gapping in a paragraph of a narrative text is due to two factors:
- embedding of a narrative paragraph into another narrative paragraph;
- embedding of a direct speech section in the narrative.
From the perspective of the narrative text the direct speech section may not be a clear case of paragraph embedding since it can be analysed as a direct object to a verb of speaking. From the perspective of sequentiality (i.e. analyzing a text line by line, as a computer programme does), however, there is a real gap in the higher level paragraph. (See in the textual schema presented below, for example, the text section Exodus 2,15-19, where line 90 (verse 18) and line 95 (verse 19) continue the paragraph #4.4.1., after interruption by some embedded paragraphs or direct speech sections.)
My claim is that the contribution made by clause types and verbal forms to the syntactic strucure of a text is determined only preliminarily by their position in a grammatical paradigm. Ultimately it depends on the position they take in the textual hierarchy of clauses and paragraphs. Here I rely on Wolfgang Schneider's[17] implementation of Harald Weinrich's theory of tenses. What clause types and verbal tenses contribute to a text on their own accord is quite abstract. To the reader of a text, they set a small number of switches only. They decide upon

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Analysis and Textual Interpretation (Applicatio 13), Amsterdam, 1995.

17 W. Schneider, *Grammatik des Biblischen Hebräisch,* München, 1982[5].

'communication type' (narrative or discursive), 'relief' (main line or secondary line of the communication) and 'perspective' (information preceding or following the actual communication). The actual sequence of clause types, their position in the textual hierarchy and their verbal forms determine in what segment of text the setting of these switches is valid and to what situation or time a particular segment of text might refer.

As in section 2.1, I list only the patterns used to identify paragraphs and the clause hierarchy of the sample texts Exodus 2 and II Kings 1. The process of the application of such patterns has been shown in section 1.1. The resulting main paragraph structure and the main actors are listed in section 3.4. The full texts are presented in the textual schemas below.

3.3. Paragraph Markers in narrative texts

I. Clause-level markers

1. the clause type:
   wayyiqtol-X or
   W-X-Qatal
   where the X is a NPdet marking the Subject;
2. the clause type wayyiqtol-0, i.e. a wayyiqtol clause introducing change of subject not marked by a NPdet, but marked:
   - either by a shift in person-number-gender of the verb (Ex.19,14,17),
   - or by a shift in the pattern of actors: Object or Complement of the previous clause becomes Subject of the actual clause (2Ki.1,9,11,17)..
3. וַיְהִי + Reference of Time or Place (Ex. 2,11,13,23);
4. וַיְהִי + כְּ + infinitive construct + NPdet (subject in the infinitive clause or in the following wayyiqtol clause);
5. casus pendens, with a new NPdet or the renominalisation of an actor (2Ki.1,18).

II. Markers of paragraphs of equal text level

1. The paragraphs are opened by identical clause types (both start with wayyiqtol-X, or with W-X-Qatal); X (subject) refers to a new actor Ex.2,2,5).
2. the set of actants (Subject + Object or Complement) equals the set of actants in the preceding paragraph. The roles may change, e.g.: Subject → Complement and the reverse (Ex.2, 7,8,10).

III. Markers of paragraph embedding

1. wayyiqtol-X: the Subject (X) is new or is identical to a constituent in the clause(s) of the preceding paragraph (Object or Complement) (Ex.2, 4,7,10);

2. W-X-Qatal: the clause types are different; the Subject (X) is new or is identical to a constituent in the clause(s) of the preceding paragraph (Object or Complement) (2 Ki.1,3; Ex.19,3)
3. wayyiqtol-0: the Subject is lexically or grammatically identical (person, number, gender) to an actor (Object or Complement) in the clause(s) of the preceding paragraph (Ex.2, 10,18 2Ki.1, 9,11,17).

IV. Markers of paragraph-internal cohesion:

1. continuation of verbal tense in the main (non-dependent) clauses;
2. continuation of person-number-gender of the verb;
4. lexical repetition of Subject, Object or Complement;
3. pronominal reference to verb, Subject, Object or Complement;

3.4. Exodus 2 and II Kings 1: Resulting paragraph structures

Exodus 2	§	marking: clause types and actors
verse 1	§ 1	Wayyiqtol-X (Levite)
verse 2	§ 2	Wayyiqtol-X (Woman; the child)
verse 4	§ 2.1	Wayyiqtol-X (His sister: pron.ref.)
verse 5	§ 3	Wayyiqtol-X (Pharao's daughter; the child)
verse 7	§ 3.1	Wayyiqtol-X (His sister: pron.ref.)
verse 8	§ 3.2	Wayyiqtol-X (Pharao's daughter; her: pron.ref.)
verse 8	§ 3.3.	Wayyiqtol-X (the girl; the mother)
verse 9	§ 3.3.1	Wayyiqtol-X (Pharao's daughter; her: pron.ref.)
verse 9	§ 3.3.2	Wayyiqtol-X (woman; the child; to Pharao's daughter)
verse 10	§ 3.3.2.1	Wayyiqtol-0 (son; her: pron.ref)
verse 11	§ 4	Wayyiqtol-X (ויהי + Time)
....		
verse 23	§ 5	Wayyiqtol-X (ויהי + Time)
		A compact set of §§ is concluding the text:
verse 23	§ 5.1	Wayyiqtol-X (מלך מצרים)
verse 23	§ 5.2	Wayyiqtol-X (בני ישׂראל)
verse 23	§ 5.2.1	Wayyiqtol-X (their cry for help: pron.ref.)
verse 23	§ 5.2.2	Wayyiqtol-X (אלהים; their crying: pron.ref.)
verse 23	§ 5.2.3	Wayyiqtol-X (אלהים: lex.rep.)
verse 23	§ 5.2.4	Wayyiqtol-X (אלהים)
verse 23	§ 5.2.5	Wayyiqtol-X (אלהים)

2Kings 1	§	marking: clause types and actors
verse 1	§ 1	Wayyiqtol-X (Moab; Israel)
verse 2	§ 2	Wayyiqtol-X (*Ahaziah*)
		Wayyiqtol-0 (וישׁלח He sent מלאכים)
verse 3	§ 2.1	W-X-Qatal (embedded paragraph)
		(While the מאלך יהוה had spoken to Elijah)
verse 4	§ 2.1.1	Wayyiqtol-X (and Elija had gone)
verse 5	§ 2.1	Wayyiqtol-X (subparagraph)
		(מלאכים return to 'him')
verse 9	§ 2	Wayyiqtol-0 (וישׁלח he sent to him)
verse 9	§ 2.1	Wayyiqtol-0 → Wayyiqtol-X (שׁר + Elijah)
verse 11	§ 2	Wayyiqtol-0 → Wayyiqtol-0 (וישׁב + וישׁלח he sent to him)
verse 11	§ 2.1	Wayyiqtol-0 → Wayyiqtol-X (שׁר + Elijah)
verse 13	§ 2	Wayyiqtol-0 → Wayyiqtol-0 (וישׁב + וישׁלח he sent to him)
verse 13	§ 2.1	Wayyiqtol-0 → Wayyiqtol-X (שׁר + Elijah)
verse 13	§ 2.1.1	Wayyiqtol-X → Wayyiqtol-0 (שׁר)
verse 15	§ 2.1.2	Wayiqtol-X (מאלך יהוה spoke to Elijah)
verse 17	§ 2.1.211	Wayyiqtol-0 (He died; cf. preceding dir. speech section)
verse 18	§ 2.1	cas. pendens (*Ahaziah*)

4. Concluding Statements

An analysis of textual structure in terms of general linguistic regularities should proceed to an additional analysis in terms of rhetorical strategies that may be characteristic of a particular text.

A text is organised hierarchically. This is true not only of clauses, but also of sentences and even of paragraphs. Ambiguities observed in the use of clause types (W-X-Qatal) and verbal forms (tense, aspect) can be explained in terms of their position in the textual hierarchy.

Linguistic parameters marking 'relations' and 'structure' are effective in combinations, not individually. The patterns of these combinations are applied in a process and they can be applied recursively, establishing structures and embedded structures.

Discourse analysis could be more effective if it would concentrate first on the linguistic markers used in a specific language before comparing texts on the basis of universal types of human cognition and communication.

A precise analysis of Hebrew text syntax indicates that Hebrew narrative texts exhibit less 'parataxis' than suggested by classical grammars, which argue too much only on the basis of clause level observations, i.e.: verbal tenses and conjunctions.

With respect to text-level questions and translations, classical Hebrew syntax works too much as a 'system of permitted possibilities' from which a translator may choose, rather than as a grammar explaining syntactic phenomena in the texts in a systematic way.

Exodus 2 and II Kings 1. A text syntactic analysis

Presentation

```
Textual Hierarchy      T12  Ln §    Ttype DCl rel MCl   VPNG  Txt.ref

  ---------------]    0.#   1 1     N     WayX << ----- 3sgM  Ex 02,01
  ------------]  .    1..   2 1     N     Way0 << WayX  3sgM  Ex 02,01
     ------------]    0.#   3 2     N     WayX << WayX  3sgF  Ex 02,02
```

The categories indicated

T Tabulation of the line, indicative of the relation of a clause to its 'mother' clause.
1 Clause type definition 1 (= distributional subtype):
- c: casus pendens
- l: ellipsis
- m: macro-syntactic sign
- d: defective clause (due to embedding)

2 Clause type definition 2 (= textual position):
- q: quotation: first clause of direct speech section
- e: embedded clause (in combination with defective clauses)
- #: first clause of a (sub)paragraph

The categories T, 1 and 2 are proposed by a computer programme and can be corrected by the user. The other categories are derived by calculation.

Ln Line Number
§ Paragraph Number (Paragraphs and subparagraphs)
Ttype Text type
- N: narrative text (starting from wayyiqtol)
- Q: discursive text (direct speech, starting from 'q')
- D: discursive text (starting from yiqtol in narrative text)

DCl 'Daughter' Clause (= grammatical subtype)
Some examples:
- NmCl: nominal clause, with <PC>
- WayX: Wayyiqtol + NP <Su>
- Way0: Wayyiqtol - NP <Su>
- WQtl: W-Qatal
- WXQt: W-X(NP)-Qatal
- WPQt: W-PP-Qatal
- WLQt: W-לֹא-Qatal
- 0Qtl: asyn. Qatal
- XQtl: .. Qatal

MCl 'Mother' Clause (grammatical subtype; as with 'Daughter' Clause)
rel relates to ('Daughter' clause, relates back to 'Mother' Clause)
VPNG verbal predicate of the 'Daughter' Clause: Person, Number, Gender

The main parsing labels used

<Pr>	Predicate	<PC>	predicative Complement (adj., nom., ptc.)
<PO>	Predicate + Object (vb.fin. + sfx.)		
<Su>	SubjectSpecifier	<Ob>	ObjectComplement
<Co>	Complement	<Aj>	Adjunct
<Ti>	TimeReference	<Lo>	LocativeReference

T12 Ln § Ttype DCl rel MCl VPNG Txt.