

A Text-Hierarchical Structure of Exodus and the Analysis of Main Players

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1. Purpose of this study¹⁾

Section 1 overviews the outline of this paper. Section 2 introduces the text-hierarchical structure of Exodus and its three major divisions by the structuring principle EDSFs [**Elaborate Divine Speech formula in which a basic divine speech formula is combined with a locative or time phrase**].²⁾

2. Text-hierarchical structure of Exodus and its three major divisions

This paper uses the text-linguistics of Eep Talstra to construct Exodus's text-hierarchical structure and discovers its divisions.³⁾ It observes the linguistic

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1) This paper stems from a presentation given to the session, Gyusang Jin, "Biblical Hebrew Language and Linguistics" (Pretoria, South Africa: SBL International Meeting, 5. July. 2023.).

2) A syntactic pattern in which YHWH spoke to Moses is called a Basic Divine Speech Formula, a syntactic pattern in which a basic divine speech formula is combined with a locative or time phrase or the combination of them as an Elaborate Divine Speech Formula.

3) E. Talstra, "Text Linguistics: Biblical Hebrew", G. Khan, et al, eds., *Encyclopedia of Hebrew Language and Linguistics* (Leiden: Brill, 2017), 2, 4-5; E. Talstra, "Clause Types and Textual Structure: An experiment in narrative syntax", E. Talstra, ed., *Narrative and Comment*:

similarity between clauses (e.g., clause type, person, number, gender, the arrangement of phrases, participants in the inflection of a predicate or the suffix of a preposition or the explicit subject), judges their relationship whether the following one is subordinate to its preceding one, otherwise coordinate. For example, two clauses would be parallel if they have identical clause types and PNG (person, number, gender) and the same arrangement of phrases and participants in a reference. Otherwise, the following one will be subordinate to its preceding clause if their clause types, PNG, or the arrangement of phrases are different, and the following one opens an embedded paragraph or narrative line under the preceding one.⁴⁾ It reiterates the process from the first clause to the last one in a text. It discovers its text-hierarchical structure, where the function of word order, whose other name is a syntactic pattern or EDSF [**Elaborate Divine Speech formula**], is defined.⁵⁾ The clause type, *Wayyiqtol-X*, of EDSF, indicates

Contributions to Discourse Grammar and Biblical Hebrew: presented to Wolfgang Schneider (Amsterdam: Societas Hebraica Amstelodamensis, 1995), 169; W. van Peursen, *Language and Interpretation in the Syriac Text of Ben Sira: A Comparative Linguistic and Literary Study*, (Leiden: Brill, 2007), 143; R. Longacre, "Weqatal Forms in Biblical Hebrew Prose, a Discourse-Modular Approach", R. D. Bergen, ed., *Biblical Hebrew and Discourse Linguistics* (Winona Lake: Eisenbrauns, 1994), 50-95. He sees a text as an arrangement of lexemes, while Talstra sees a text as a form of text-hierarchical structure.

- 4) E. Talstra, "Hebrew Syntax: Clause Types and Clarchy", K. Jongeling, H. Murre-van den Berg, and V. Rompay, eds., *Studies in Hebrew and Aramaic Syntax* (Leiden: Brill, 1991), 185. It is noted that the rules to judge the hierarchical relationship between clauses are applied strictly between clauses that occur within a paragraph. However, in the relationship between clauses that open a paragraph, the clauses that have different clause types can be parallel and progress the same narrative line at the same textual level.
- 5) E. Talstra and van der Merwe, "Biblical Hebrew Word Order. The Interface of Information Structure and Formal Features", *ZAH* 15/16 (2004), 68-107; H. Weinrich, *Tempus: Besprochene und erzählte Welt* (Stuttgart: Kohlhammer, 1977), 28-32; W. Schneider, *Grammatik des Biblischen Hebräisch*, 5th ed. (Munich: Claudius Verlag, 1982). W. Schneider adopted the linguistics of Weinrich. E. Talstra, "Clause Types and Textual Structure An experiment in narrative syntax", 169; E. Talstra, "Text Linguistics: Biblical Hebrew", 2, 5-8. Talstra got inspired by Schneider and Weinrich and discovered a syntactic-hierarchical structure of a text, in which he observed a syntactic pattern, that is, the placement of a verb from and phrases in a clause, and defined the function of the word order, which this paper calls EDSFs. According to searching, the EDSFs occur with five types in the four Pentateuch books, excluding Gen, demarcating a larger textual unit at a higher textual level. The identical EDSF demarcates Lev into two major divisions, 1:1-24:23 and 25:1-27:34, the first major division of Num into two divisions, 1:1-3:13 and 3:14-8:26. The EDSF [**BDSF + double locative + time phrases**] in Num 1:1 starts Num. The EDSF [**BDSF + locative + time phrases**] in Num 9:1 demarcates Num into two major divisions, 1:1-8:26 and 9:1-36:13. The EDSFs [**BDSF + double locative phrase**] in Num 20:23, 33:50, and 35:1 demarcate the second major division of Num into four divisions,

an opening of a paragraph. BDSF (basic divine speech formula in which YHWH spoke to Moses) is a typical form indicating a new start. Each locative or time phrase also shows a fresh start, and their combination suggests a solid start.⁶⁾ EDSF occurs 13 times with 5 types, among which the EDSF [**BDSF + a locative phrase**] in Exodus 4:19 and 12:1 splits Exodus into three major divisions 1:1-4:18, 4:19-11:10, and 12:1-40:38.⁷⁾ This paper uses the analysis of main players who occur in each division and confirms the validity of the demarcations.

3. Analysis of Main Players in the three major divisions in Exodus

Syntactic clues and grammatical clues first validate the textual demarcations. The analysis of the main players second support their validity. To progress the analysis, this section explains the different meanings of main players from that of participants or agents and introduces the terminologies of shared main players, unique main players.

3.1. Observations on Main Players in each division

3.1.1. Difference between participants, agents, and Main Players

9:1-20:22, 20:23-33:49, 33:50-34:29, and 35:1-36:13. The EDSFs [**BDSF + time phrase**] in Lev 16:1, Deu 32:48 demarcate the first major division of Leviticus into two divisions, 1:1-15:33 and 16:1-24:34, Deu into two major divisions, 1:1-32:47 and 32:48-34:12. Gyusang Jin, *Investigating the Text-hierarchical Structures and Composition of Numbers* (Piscataway: Gorgias Press, 2023).

6) Gyusang Jin, *Investigating the Text-hierarchical Structures and Composition of Numbers*, 62-65.

7) About the query to discover EDSFs in the Hebrew Bible, see Gyusang Jin, "Pattern1 (locative)", <https://shebanq.ancient-data.org/hebrew/text?iid=2862&page=1&mr=r&qw=q> (2023. 09. 05.). Gen 1:1 xQtX ("In the beginning, Elohim created the skies and the land.") starts the Pentateuch and Gen. The five *tōledōt* formulae in Gen 2:4, 5:1, 6:9, 11:10, and 37:2 are parallel, open a major division and progress an embedded narrative line. I embed the nominal clause in Exo 1:1 ("These are the names of sons of Israel.") under Gen 37:2 NmCl, which progresses the story of the genealogy of Jacob. Exo 1:1 opens Exo, and it's the first major division 1:1-4:18. Gyusang Jin, "YHWH basic speaking formula in Genesis, Exodus, Leviticus", <https://shebanq.ancient-data.org/hebrew/text?iid=4030&page=1&mr=r&qw=q> (2023. 09. 05.). In Gen, BDSF occurs 20 times under a *tōledōt* formula, continues its preceding clause within a paragraph at a lower textual level, and composes a part of a paragraph. In comparison, five *tōledōt* formulae compose the outline of Gen at a larger textual unit at a higher textual level. Gyusang Jin, *Investigating the Text-hierarchical Structures and Composition of Numbers*, 60.

The main players include participants at an intransitive verb and those at a transitive verb. In contrast, agents include participants who occur only at a transitive verb.⁸⁾ Participants include all the entities, whether they are human beings, animals, abstract concepts, time, place, etc. All the entities that occur at all the grammatical locations, such as an explicit subject, an inflection of a verb, the suffix of a noun or a preposition, personal pronoun, and demonstrative pronoun.⁹⁾ Therefore, participants are the most comprehensive criterion that includes all the entities that occur in a text, main players are the second comprehensive criterion, and agents are the third inclusive criterion.¹⁰⁾

3.1.2. Shared Main Players and Unique Main Players

Shared main players occur in both adjacent divisions and indicate connectivity between them. Unique main players occur only in a division relative to its adjacent division and indicate relative separability.

3.2. Analysis of Main Players to validate the demarcations in the three major divisions

3.2.1. Comparison in terms of type, frequency, and Jaccard Distance

Two adjacent divisions can be compared: type, frequency, and Jaccard distance. For example, if YHWH and Moses occur in two adjacent divisions, the number of shared types is 2. If YHWH occurs 5 times, Moses occurs 3 times in Division A, YHWH occurs 13 times, and Moses occurs 7 times in Division B, the total frequency of shared main players in Division A is 8, that in Division B is 20.

If pharaoh occurs 1 time, foremen occur 2 times only in Division A, tabernacle occurs 4 times, and priests occur 6 times, golden calves occur 10 times only in Division B, the number of unique types in Division A is 2, that in

8) Gyusang Jin, "Analysis of Participants' Agent Role in the Two Major Divisions of Leviticus", *JBTR* 52 (2023), 30-49.

9) E. Talstra, "Approaching the Mountain of Exodus 19: Thou Shalt Explore Syntax First", *HIPHIL Novum* 3 (2016), 2-24.

10) The method has been tested on the Book of Numbers. It has shown to be helpful and accurate in the doctorate thesis, "Investigating the Text-hierarchical Structures and Composition of Numbers", which recently has been published as a preface in a series of *Perspectives on Linguistic and Ancient Languages* by Gorgias Press and released worldwide. About the upcoming publication of it, see, <https://www.gorgiaspress.com/perspectives-on-linguistics-and-ancient-languages>.

Division B is 3. The frequency of the unique main players in Division A is 3, and that in Division B is 20.

3.2.2. Assumption

If two adjacent divisions show strong separability and weak connectivity to each other in terms of type or frequency, the outcome will support the validity of the demarcations. I compare the number of shared types or their frequency with the number of unique types or their frequency within a division. If two adjacent divisions commonly show strong separability and weak connectivity in terms of type or frequency, the outcome will support the demarcation. However, there could be unclear cases whether they support the demarcation or not. First, a division could show strong separability and weak connectivity, while its adjacent division could show weak separability and strong connectivity in terms of type or frequency. Second, two divisions could show strong separability and weak connectivity regarding type. In comparison, two divisions could show weak separability and strong connectivity in frequency and vice versa. Then the two outcomes contradict each other. In these cases, judgment on the validity of the demarcation needs to be clarified. It requires Jaccard distance for clarification, which synthetically considers the main players’ types and frequencies and extracts an accurate judgment.

3.2.3. Jaccard Distance

3.2.3.1. Process to extract the Jaccard Distance between two divisions

Figure 1. One example of extracting Jaccard distance

	A	B	C	D	E	F	G
1	participant identification	Division1	Division2	MIN (Division1, Division2)	Division1_relative frequency	Division2_relative frequency	MIN(E,F)
2	YHWH	59	57	57	0.11	0.37	0.11
3	Joseph	324	1	1	0.60	0.01	0.01
4	Jacob	155	0	0	0.29	0.00	0.00
5	Moses	0	98	0	0.00	0.63	0.00
6	Total	538	156				0.12
7							
8	Jaccard distnace	2+2/(G6-2)		0.94			

The table above shows how to extract the Jaccard Distance between two adjacent divisions. Column A lists four main players, among which YHWH and Joseph are shared main players, while Jacob is a unique main player who occurs only in Division A, and Moses is a unique main player who occurs only in

Division B.¹¹⁾ Columns B and C list the frequency of a main player in each Division. Column D lists the minimum between the frequency of a main player in Division A and that in Division B. For example, the minimum between B2 (59) and C2 (57) is D2 (57). Columns E and F list the percentage of a main player in each Division. For example, the relative frequency of YHWH in Division A is resulted by dividing the frequency of YHWH by the total frequency of main players in Division A. To be specific, $E2 (0.11) = B2 (59) / B6 (538)$, $F2 (0.37) = C2 (57) / C6 (156)$. The relative frequency of YHWH in Division B is resulted by dividing the frequency of YHWH by the total frequency of main players in Division B. To be specific, $F2 (0.37) = C2 (57) / C6 (156)$. Column G lists the minimum between the percentage of a main player in Division A and Division B. For example, the minimum between E2 (0.11) and F2 (0.37) is G2 (0.11). G6 is the sum of all the minimums in column G. To be specific, $G6 (0.12) = G2 (0.11) + G3 (0.01) + G4 (0.00) + G5 (0.00)$. G6 (0.12) is applied in the mathematical formula to extract the Jaccard Distance between Division A and B as in B8, and the outcome is C8 (0.94).

3.2.3.2. Interpretation of the Jaccard distance between two divisions

Suppose the Jaccard distance is close to 0, indicating extreme similarity or connectivity between two divisions, while the Jaccard distance, close to 1, shows very strong dissimilarity or separability. If the Jaccard distance is 0, which indicates two divisions are identical, while the Jaccard distance of 1 means two divisions are perfectly different. The Jaccard distance C8 (0.94) indicates extreme separability and weak connectivity between Division A and B.

3.3. Comparing two divisions

The left two columns in the upper level include the number of shared types commonly occurring in two divisions and that of unique types that occur only in a division relative to its adjacent division. The right two columns in the upper level include the percentage of the shared types and that of unique types.

11) In fact, Division A (Gen 37:2-50:26) has 2 shared types and 252 unique types. The sum of their frequencies is 1529, while Division B (Exo 1:1-4:18) has 2 shared types and 50 unique types, and the sum of their frequencies is 334. The table above listed only four types and their frequencies, and their sum to exemplify how to extract a Jaccard Distance.

The left two columns in the lower level include the frequency of shared main players commonly occurring in two divisions and that of unique main players occurring only in a division relative to its adjacent division. The right two columns in the upper level include the percentage of the shared main players and that of unique main players.

3.3.1. Genesis 37:2-50:26 and Exodus 1:1-4:18

3.3.1.1. Comparison in terms of type and frequency

Figure 2. The number of types of agent roles and their frequency and percentage

who.type	Gen 37:2_50:26	Ex.1.1._4.18	Gen 37:2_50:26	Ex.1.1._4.18
shared	2	2	0.01	0.04
unique	252	50	0.99	0.96
total	254	52		
who.frequency	Gen 37:2_50:26	Ex.1.1._4.18	Gen 37:2_50:26	Ex.1.1._4.18
shared	383	58	0.25	0.17
unique	1146	276	0.75	0.83
total	1529	334		

The table above compares Genesis 37:2-50:26 with Exodus 1:1-4:18. The two divisions show strong separability and weak connectivity regarding types and frequency.

3.3.1.2. Jaccard Distance

Figure 3. Jaccard distance between two divisions

Jaccard	Gen 37:2_50:26	Ex.1.1._4.18
Gen 37:2_50:26	0.00	0.98

The Jaccard distance between the two divisions is 0.98, indicating strong separability and weak connectivity and confirming the judgment.

3.3.2. Exodus 1:1-4:18 and 4:19-11:10

3.3.2.1. Comparison in terms of type and frequency

Figure 4. The number of types of main players and their frequency and percentage

who.type	Ex.1.1. 4.18	Ex.4.19_11.10	Ex.1.1. 4.18	Ex.4.19_11.10
shared	9	9	0.17	0.10
unique	43	84	0.83	0.90
total	52	93		

who.frequency	Ex.1.1. 4.18	Ex.4.19_11.10	Ex.1.1. 4.18	Ex.4.19_11.10
shared	200	477	0.60	0.71
unique	134	199	0.40	0.29
total	334	676		

The table above compares Exodus 1:1-4:18 with Exodus 4:19-11:10. The two divisions show strong separability and weak connectivity regarding type. However, the two divisions seem to indicate weak separability and robust connectivity in terms of frequency. Therefore, the two outcomes seem to contradict each other. To make a precise judgment, the Jaccard distance between the two divisions will be given.

3.3.2.2. Jaccard Distance

Figure 5. Jaccard distance between two divisions

Jaccard	Ex.1.1. 4.18	Ex.4.19_11.10
Ex.1.1. 4.18	0.00	0.73

The Jaccard distance between the two divisions is 0.73, indicating strong separability and weak connectivity and confirming the demarcation's validity.

3.3.3. Exodus 4:19-11:10 and 12:1-40:38

3.3.3.1. Comparison in terms of type and frequency

Figure 6. The number of types of main players and their frequency and percentage

who.type	Ex.4.19_11.10	Ex.12.1_40.38	Ex.4.19_11.10	Ex.12.1_40.38
shared	11	11	0.12	0.03
unique	82	396	0.88	0.97
total	93	407		

who.frequency	Ex.4.19_11.10	Ex.12.1_40.38	Ex.4.19_11.10	Ex.12.1_40.38
shared	500	1403	0.74	0.59
unique	176	993	0.26	0.41
total	676	2396		

The table above compares Exodus 4:19-11:10 with Exodus 12:1-40:38. The two divisions show strong separability and weak connectivity regarding type. However, the two divisions seem to indicate weak separability and strong connectivity in terms of frequency. Therefore, the two outcomes seem to contradict each other. To precisely judge, I bring the Jaccard distance between the two divisions.

3.3.3.2. Jaccard Distance

Figure 7. Jaccard distance between two divisions

Jaccard	Ex.4.19_11.10	Ex.12.1_40.38
Ex.4.19_11.10	0.00	0.74

The Jaccard distance between the two divisions is 0.74, indicating strong separability and weak connectivity and confirming the demarcation’s validity.

3.3.4. Exodus 12:1-40:38 and Leviticus 1:1-24:23

3.3.4.1. Comparison in terms of type and frequency

Figure 8. The number of types of main players and their frequency and percentage

who.type	Ex.12.1_40.38	Lv1.1_24.23	Ex.12.1_40.38	Lv1.1_24.23
shared	13	13	0.03	0.04
unique	394	345	0.97	0.96
total	407	358		

who.frequency	Ex.12.1_40.38	Lv1.1_24.23	Ex.12.1_40.38	Lv1.1_24.23
shared	1415	928	0.59	0.50
unique	981	919	0.41	0.50
total	2396	1847		

The table above compares Exodus 12:1-40:38 with Leviticus 1:1-24:23. The

two divisions show strong separability and weak connectivity regarding type. However, the two divisions seem to indicate weak separability and strong connectivity in terms of frequency. Therefore, the two outcomes seem to contradict each other. To precisely judge, I bring the Jaccard distance between the two divisions.

3.3.4.2. Jaccard Distance

Figure 9. Jaccard distance between two divisions

Jaccard	Ex.12.1_40.38	Lv1.1_24.23
Ex.12.1_40.38	0.00	0.80

The Jaccard distance between the two divisions is 0.80, indicating strong separability and weak connectivity and confirming the demarcation’s validity.

In conclusion, comparing the two divisions in terms of type or frequency approximated the separability and connectivity between the two divisions. The Jaccard distance gave a mathematical confirmation of the separability and connectivity between the two divisions and confirmed the validity of the demarcations.

3.4. Description of the analysis of Main Players in the three major divisions

The description of how the percentage of shared main players increases or decreases from a preceding division to its following division will help a reader to understand the separability between the two divisions and to see what is happening in a division, how the relationship between main players, the role of a main player changes, how main players affect an event, and the thematic development between divisions.

3.4.1. Whole picture

3.4.1.1. Change in the combination of main players in a division

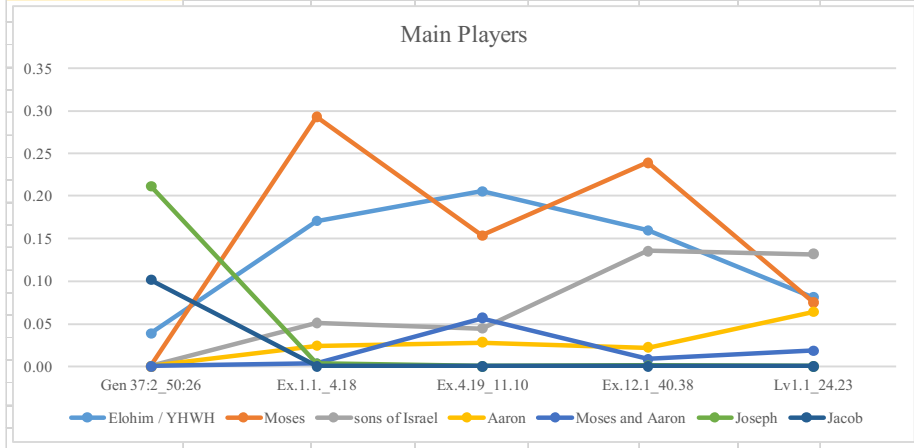
The table below displays the whole picture in which the combination of main players with high percentages in each division changes and indicates separability. In Genesis 37:2-50:26, the main players are Joseph and Jacob. In

Exodus 1:1-4:18, the main players are Moses and YHWH. In Exodus 4:19-11:10, the main players are YHWH and Moses. In Exodus 12:1-40:38, the main players are Moses, YHWH, and the sons of Israel. In Leviticus 1:1-24:23, the main players are the sons of Israel, YHWH, Moses, and Aaron.

Figure 10. The change in the percentage of the shared main players in the four divisions¹²⁾

participant identification	Gen 37:2_50:26	Ex.1.1._4.18	Ex.4.19_11.10	Ex.12.1_40.38	Lv1.1_24.23	ID number	Main Player
Elohim / YHWH	59	57	139	383	149	1	Main Player
Moses	0	98	104	574	139	2	Main Player
sons of Israel	0	17	30	325	244	3	Main Player
Aaron	0	8	19	52	117	4	Main Player
Moses and Aaron	0	1	38	19	34	8	Main Player
Joseph	324	1	0	2	0	62	Main Player
Jacob	155	0	0	0	0	8239	Main Player

participant identification	Gen 37:2_50:26	Ex.1.1._4.18	Ex.4.19_11.10	Ex.12.1_40.38	Lv1.1_24.23	ID number	Main Player
Elohim / YHWH	0.04	0.17	0.21	0.16	0.08	1	Main Player
Moses	0.00	0.29	0.15	0.24	0.08	2	Main Player
sons of Israel	0.00	0.05	0.04	0.14	0.13	3	Main Player
Aaron	0.00	0.02	0.03	0.02	0.06	4	Main Player
Moses and Aaron	0.00	0.00	0.06	0.01	0.02	8	Main Player
Joseph	0.21	0.00	0.00	0.00	0.00	62	Main Player
Jacob	0.10	0.00	0.00	0.00	0.00	8239	Main Player



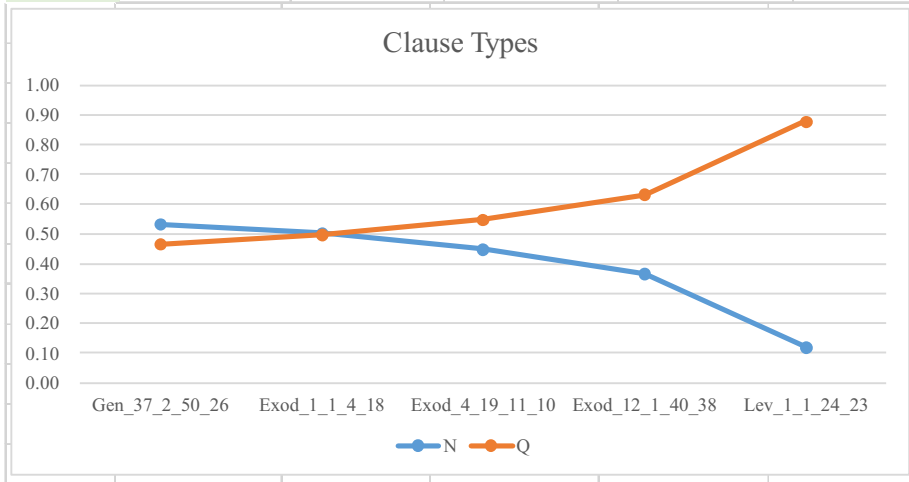
3.4.1.2. Change in the domains in a division

12) ID number matches each agent role of a participant. Even if a participant occurs in various grammatical locations, explicit subjects, suffixes, the inflection of a predicate, demonstrative pronouns, and different morphological spellings, an identical ID number is assigned to the same participant.

Figure 11. The frequency and percentage of the domains in the four divisions

domain	Gen_37_2_50_26	Exod_1_1_4_18	Exod_4_19_11_10	Exod_12_1_40_38	Lev_1_1_24_23
N	1006	193	359	1084	288
Q	878	191	439	1868	2091
Total	1884	384	798	2952	2379

domain	Gen_37_2_50_26	Exod_1_1_4_18	Exod_4_19_11_10	Exod_12_1_40_38	Lev_1_1_24_23
N	0.53	0.50	0.45	0.37	0.12
Q	0.47	0.50	0.55	0.63	0.88



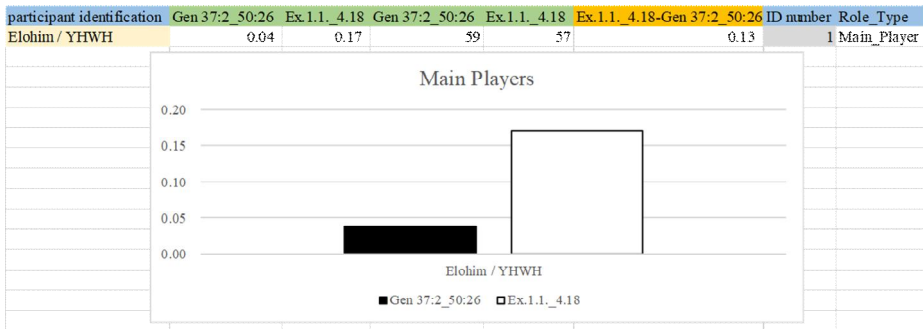
The table above shows the change in the percentage of domains in each division. In Genesis 37:2-50:26, the rate of a narrative domain is higher than that of a direct speech domain. In Exodus 1:1-4:18, both domains' percentages are almost similar. In Exodus 4:19-11:10, the ratio of a direct speech domain exceeds that of a narrative domain. In Exodus 12:1-40:38, the percentage of a direct speech domain is higher, almost double that of a narrative domain. In Leviticus 1:1-24:23, the rate of a direct speech domain is excessively increased than that of a narrative domain. In a direct speech domain in Genesis 37:2-50:26, Israel, Joseph, and his brothers communicate mainly. In Exodus 4:19-11:10, YHWH communicates mainly with Moses, Aaron, and the pharaoh, while in 12:1-40:38, Israel communicates with Moses, who speaks mainly with YHWH, while in Leviticus 1:1-24:23, YHWH communicates primarily with Moses, Israel, and Aaron. Those changes indicate the separability between

divisions.

3.4.2. Comparing Main Players in Genesis 37:2-50 with those in Exodus 1:1-4:18

3.4.2.1. Shared Main Players

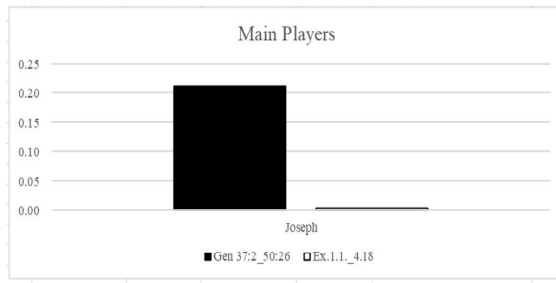
Figure 12. The shared main players whose percentage increases



The table above shows the shared main player, YHWH, whose percentage increases in the latter division. In the former division, YHWH occurs less than other main players, Jacob, Jacob’s brothers, Judah, and the pharaoh, while in the latter division, YHWH occurs more frequently than other main players, Israel, the daughter of the pharaoh, the new king of Egypt, the elders of Israel, and the daughter of Levi. In the former division, YHWH kills Onan, goes along with Joseph, reveals the meaning of a dream to Joseph and the pharaoh, allows Jacob to meet Joseph, and blesses the sons of Jacob. In the latter division, YHWH protects midwives, hears and sees the groaning of Israel, and persuades Moses to perform Exodus of Israel in Egypt. Even if the shared main player, YHWH, indicates connectivity between two divisions, the change in the percentage of YHWH and the change of main players with whom YHWH work indicate strong separability between the two divisions.

Figure 13. The shared main players whose percentage decreases

participant identification	Gen 37:2_50:26	Ex.1.1._4:18	Gen 37:2_50:26	Ex.1.1._4:18	Ex.1.1._4:18-Gen 37:2_50:26	ID number	Role_Type
Joseph	0.21	0.00	324	1	-0.21	62	Main_Player



The table above shows the shared main player, Joseph, whose percentage decreases in the latter division. Joseph governs the former division, while he occurs just reminding a reader he was in Egypt. The decrease sharpens the separability between the two divisions.

3.4.2.2. Unique Main Players

Figure 14. The unique main players that occur only in the former division

Main Player	ID number	Gen 37:2_50:26	Ex.1.1._4.18	Gen 37:2_50:26	Ex.1.1._4.18
Jacob	8239	155	0	0.10	0.00
10 sons (of Israel, Jacob)	17396	88	0	0.06	0.00
Judah	41	77	0	0.05	0.00
pharaoh (chiefs of)	17654	70	0	0.05	0.00
brothers (of Joseph)	16448	69	0	0.05	0.00
11 brothers (of Joseph, including Simeon, Benjamin)	16581	57	0	0.04	0.00
9 brothers (of Joseph except one who will bring Benjamin)	20238	57	0	0.04	0.00
Tamar (bride of Er)	16998	27	0	0.02	0.00
wife (of Potiphar)	16327	23	0	0.02	0.00
Reuben (of Leah)	34	22	0	0.01	0.00

The table above shows 10 of 252 unique main players who occur in the former division but do not occur in the latter division. They include Jacob, Jacob's sons, the pharaoh, Tamar, Potiphar's wife, and describe the struggle between Jacob and his sons and between Joseph's brothers, and sharpen the separability of the former division relative to the latter division.

Figure 15. The unique main players that occur only in the latter division

Main Player	ID number	Gen 37:2_50:26	Ex.1.1._4.18	Gen 37:2_50:26	Ex.1.1._4.18
Moses	2	0	98	0.00	0.29
sons of Israel	3	0	17	0.00	0.05
daughter (of pharaoh)	12332	0	15	0.00	0.04
new king	14	0	14	0.00	0.04
the elders of Israel	874	0	12	0.00	0.04

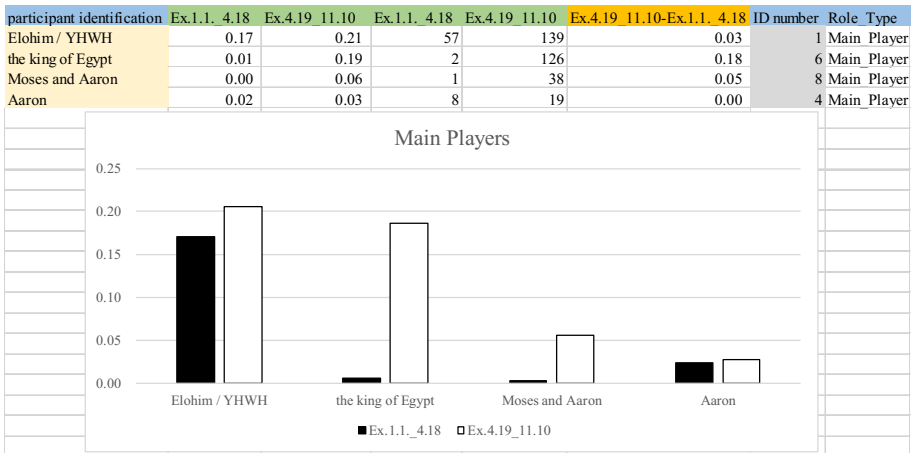
Main Player	ID number	Gen 37:2 50:26	Ex.1.1. 4.18	Gen 37:2 50:26	Ex.1.1. 4.18
daughter (of Levi)	12337	0	10	0.00	0.03
daughters (7)	12317	0	9	0.00	0.03
Aaron	4	0	8	0.00	0.02
sister (of the son, Moses)	4913	0	8	0.00	0.02
new king and his people	12797	0	7	0.00	0.02

The table above shows 10 of the 50 unique main players who occur in the latter division but do not occur in the former division. They include Moses, the sons of Israel, the daughter of the pharaoh, the new king, the elders of Israel, the daughter of Levi, Aaron, Moses’ sister, and so on, and describe the protection of YHWH to Moses and the plan of YHWH to use Moses to bring Israel out of Egypt and sharpen the separability of the latter division relative to the former division.

3.4.3. Comparing Main Players in Exodus 1:1-4:18 with those in 4:19-11:10

3.4.3.1. Shared Main Players

Figure 16. The shared main players whose percentage increases

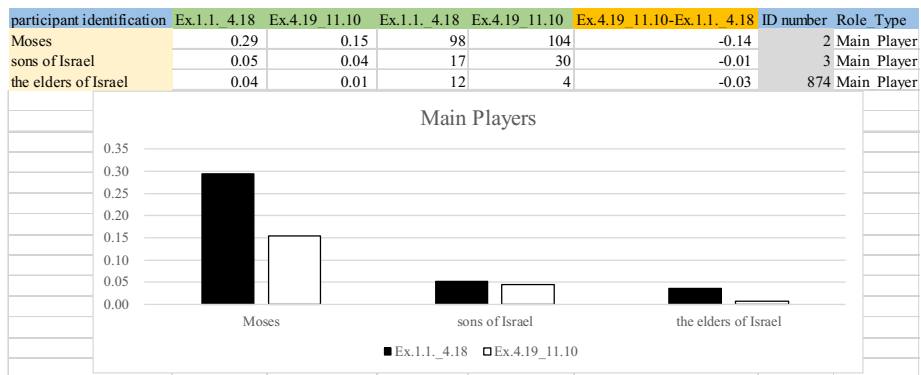


The table above shows 4 of the 6 shared main players whose percentage increases in the latter division and indicates strong separability. They are YHWH, the king of Egypt, and Moses and Aaron. YHWH in the former division protects Moses and persuades him to perform Exodus of Israel. In contrast, YHWH in the latter division becomes busier, commanding Moses and Aaron to visit the pharaoh and perform 10 plagues to attack the pharaoh. The king of

Egypt in the former division occurs when YHWH prophesizes he will refuse first but will finally send Israel in a direct speech domain.

In contrast, the king of Egypt frequently occurs in a narrative domain as a performer and a direct speech domain as a speaker to Moses, Aaron, and his servants. He resists the commandment of YHWH and suffers from the 10 plagues that YHWH gives. Aaron occurs in the speaking of YHWH to persuade Moses in the former division, while he extends his hand to bring frogs and gnats to Egypt instead of Moses in a narrative domain.

Figure 17. The shared main players whose percentage decreases



The table above shows 3 of the 6 shared main players whose percentage decreases in the latter division and indicates strong separability. They are Moses, the sons of Israel, and the elders of Israel. In the former division, Moses is active in killing an Egyptian who persecuted a Hebrew man for resisting YHWH's calling to bring Israel out of Egypt, while he performs the commandment of YHWH to go against the pharaoh without resistance in the latter division. The sons of Israel and the elders of Israel in the former division hear the calling of YHWH through Moses and express their faith before YHWH, while they suffer from the arduous labors that the pharaoh commanded and grumble before Moses in the latter division. They get less focus on the central struggle between YHWH and the pharaoh.

3.4.3.2. Unique Main Players

Figure 18. The unique main players that occur only in the former division

Main Player	ID number	Ex.1.1. 4.18	Ex.4.19 11.1	Ex.1.1. 4.18	Ex.4.19 11.10
daughter (of pharaoh)	12332	15	0	0.04	0.00
new king	14	14	0	0.04	0.00
daughter (of Levi)	12337	10	0	0.03	0.00
daughters (7)	12317	9	0	0.03	0.00
sister (of the son, Moses)	4913	8	0	0.02	0.00
new king and his people	12797	7	0	0.02	0.00
midwives (of Hebrew)	7636	6	0	0.02	0.00
Shiphrah and Puah	12785	6	0	0.02	0.00
Moses and people of sons of Israel	7	5	0	0.01	0.00
mother (of the boy, daughter of Levi)	7480	5	0	0.01	0.00
Moses and the elders of Israel	12818	5	0	0.01	0.00

The table above shows 10 of the 82 unique main players who occur only in the former division relative to the latter. They are the daughter of the pharaoh, the new king, the daughter of Levi, the sister of Moses, midwives, and so on. They describe mainly the birth of Moses and the protection of the YHWH of Moses. They sharpen the separability.

Figure 19. The unique main players that occur only in the latter division

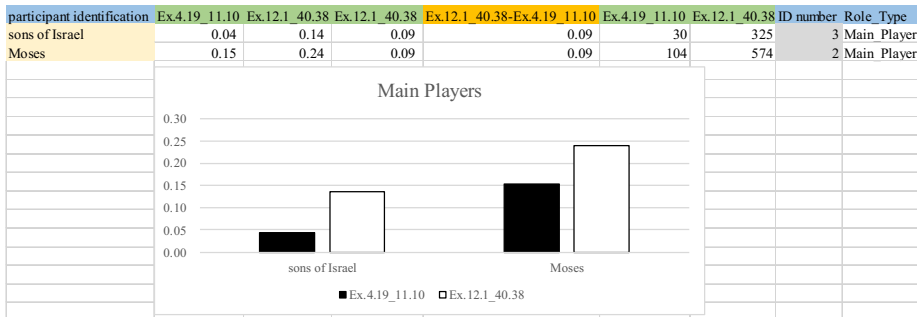
Main Player	ID number	Ex.1.1. 4.18	Ex.4.19 11.1	Ex.1.1. 4.18	Ex.4.19 11.10
Moses and Aaron and Israel	12810	0	24	0.00	0.04
locust	8092	0	13	0.00	0.02
hail (plague)	8974	0	13	0.00	0.02
magicians (of Egypt)	8054	0	10	0.00	0.01
foremen (of sons of Israel)	9610	0	10	0.00	0.01
foremen (of sons of Israel) and Israel	12868	0	10	0.00	0.01
frogs	9518	0	8	0.00	0.01
slavemasters and foremen	12783	0	7	0.00	0.01
staff (of Aaron)	4542	0	4	0.00	0.01
darkness	12356	0	3	0.00	0.00
swarm (of flies)	4329	0	3	0.00	0.00

The table above shows 10 of the 396 unique main players who occur only in the latter division relative to the former. They are Moses and Aaron and Israel, locusts, hail, magicians, foremen, frogs, the stick of Aaron, darkness, swarms, and so on. They describe the 10 plagues YHWH used to attack the pharaoh and Egyptians. They also sharpen the separability.

3.4.4. Comparing Main Players in Exodus 4:19-11:10 with those in 12:1-40:38

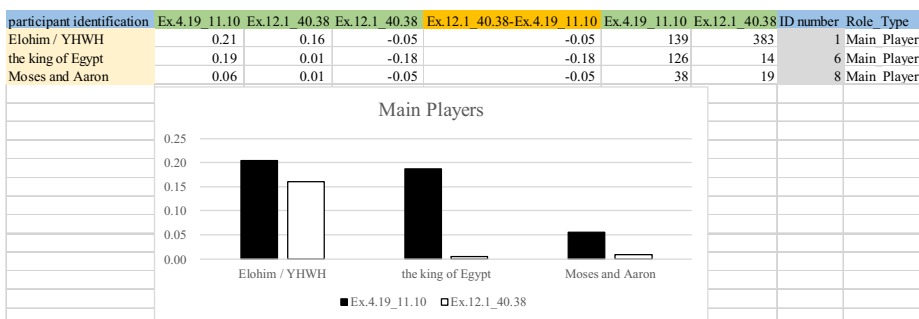
3.4.4.1. Shared Main Players

Figure 20. The shared main players whose percentage increases



The table above shows 2 of the 5 shared main players whose percentage increases in the latter division. They are Moses, the sons of Israel. The sons of Israel in the former division suffer from the hard labor that the pharaoh commanded, while they in the latter division execute the Passover, march and encamp in the desert of Sinai, get commandments of YHWH in a direct speech domain, and become busier. Moses in the former division performs the commandment of YHWH to attack the pharaoh, while he becomes more active in the latter division to lead the marching of Israel, to persuade grumbling Israel, fight against Amalek in a narrative domain, and gets the commandments of YHWH to make a tabernacle and its furnishings in a direct speech domain. The increased percentage of shared main players indicates separability between the two divisions.

Figure 21. The shared main players whose percentage decreases



The table above shows 3 of the 6 shared main players whose percentage decreases in the latter division. They are YHWH, the king of Egypt, and Moses

and Aaron. Their percentage decreases as the battle between YHWH and the pharaoh ends in the former division. They fade away in the latter division and indicate a remarkable change between the two divisions.

3.4.4.2. Unique Main Players

Figure 22. The unique main players that occur only in the former division

Main Player	ID number	Ex.4.19	11.10	Ex.12.1	40.38	Ex.4.19	11.10	Ex.12.1	40.38
locust	8092		13		0		0.02		0.00
hail (plague)	8974		13		0		0.02		0.00
magicians (of Egypt)	8054		10		0		0.01		0.00
foremen (of sons of Israel)	9610		10		0		0.01		0.00
foremen (of sons of Israel) and Israel	12868		10		0		0.01		0.00
frogs	9518		8		0		0.01		0.00
slavemasters and foremen	12783		7		0		0.01		0.00
Zipporah	107		5		0		0.01		0.00
staff (of Aaron)	4542		4		0		0.01		0.00
swarm (of flies)	4329		3		0		0.00		0.00

The table above shows 10 of the 394 unique main players who occur only in the former division but do not occur in the latter division. They are locusts, hail, magicians, foremen, frogs, slavemasters, Zipporah, the stick of Aaron, swarms of flies, and so on. They describe the attacks of YHWH against the pharaoh and Egyptians and sharpen separability.

Figure 23. The unique main players that occur only in the latter division

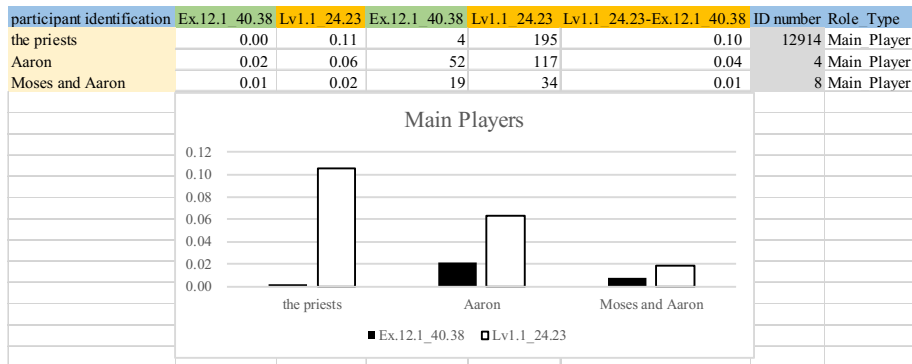
Main Player	ID number	Ex.4.19	11.10	Ex.12.1	40.38	Ex.4.19	11.10	Ex.12.1	40.38
Moses and people of sons of Israel	7		0		144		0.00		0.06
Bezalel	13		0		62		0.00		0.03
whole the wise people	16		0		49		0.00		0.02
Aaron and his sons	11		0		39		0.00		0.02
Bezalel, Oholiab and whole men with wise heart	20		0		36		0.00		0.02
Jethro	8215		0		15		0.00		0.01
whole chiefs of the gathering	884		0		11		0.00		0.00
servant (of Hebrew)	5459		0		10		0.00		0.00
master (of handmaid of a man of Israel as)	7793		0		8		0.00		0.00
messenger (of Elohim)	7696		0		7		0.00		0.00

The table above shows 10 of the 345 unique main players who occur only in the latter division but do not occur in the former division. They are Moses and the sons of Israel, Bezalel, the wise people, Aaron and his sons, Jethro, entire chiefs of the gathering, and so on. They describe the commandment of YHWH for them to make the tabernacle and its furnishings and obey the commandments of YHWH. They indicate strong separability.

3.4.5. Comparing Main Players in Exodus 12:1-40:38 with those in Leviticus 1:1-24:23

3.4.5.1. Shared Main Players

Figure 24. The shared main players whose percentage increases

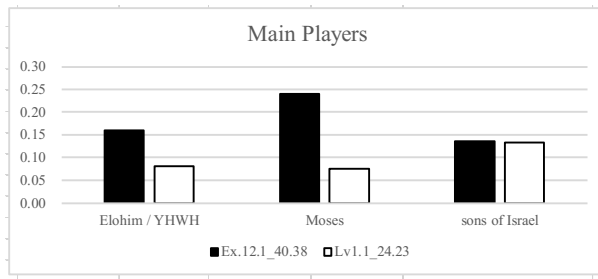


The table above shows 3 of the 6 shared main players whose percentage increases in the latter division. They are the priests, Aaron, and the combination of Moses and Aaron. The priests occur in the former division describing the clothes that they will wear, while they occur in the latter division when YHWH commands their duties. Aaron in the former division occurs in the event of golden calves, while he occurs in the latter when he performs the anointment for the priests and Israel. The combination of Moses and Aaron occurs in the former division when YHWH commands them to perform the Passover and when Israel complains to them in the desert of Sinai.

In contrast, they occur in the latter division when they get the commandments not to eat unclean animals and how to treat a man who has a discharge. The shared main players commonly occur in a direct speech domain in the two divisions, while they in the latter division receive many commandments. The increase in their percentage indicates separability.

Figure 25. The shared main players whose percentage decreases

participant identification	Ex.12.1 40.38	Lvl.1 24.23	Ex.12.1 40.38	Lvl.1 24.23	Lvl.1 24.23-Ex.12.1 40.38	ID number	Role Type
Elohim/ YHWH	0.16	0.08	383	149	-0.08	1	Main Player
Moses	0.24	0.08	574	139	-0.16	2	Main Player
sons of Israel	0.14	0.13	325	244	0.00	3	Main Player



The table above shows 3 of the 7 shared main players whose percentage decreases in the latter division. They are YHWH, Moses, and the sons of Israel. YHWH was busy in the former division giving commandments and instructing the sons of Israel, while YHWH spoke in the first person to addressees in a direct speech domain in the latter division. Moses is busy in the former division executing the commandment of YHWH and persuading grumbling Israel. He gets the commandments of YHWH to make the Tabernacle and its furnishings, while Moses occurs mainly as an audience in a narrative domain and addressee in a direct speech domain in the latter division. The sons of Israel in the former division are busy performing the Passover, marching and encamping in the desert of Sinai in a narrative domain, grumbling before Moses, and receiving the commandments of YHWH to make the Tabernacle and its furnishings in a direct speech domain. In contrast, they accept the commandments in a direct speech domain to offer their offerings before YHWH, not to follow the sexual customs of the Canaanites, and receive the commandments to keep to enter the land of Canaan. In conclusion, the shared main players in the former division occur in both domains, while they in the latter occur less, mainly in a direct speech domain.

3.4.5.2. Unique Main Players

Figure 26. The unique main players that occur only in the former division

Main Player	ID number	Ex. 12.1_40.38	Lv1.1_24.23	Ex. 12.1_40.38	Lv1.1_24.23
Moses and people of sons of Israel	7	144	0	0.06	0.00
Bezalel	13	62	0	0.03	0.00
whole the wise people	16	49	0	0.02	0.00
Bezalel, Oholiab and whole men with wise heart	20	36	0	0.02	0.00
people (of new king)	9	19	0	0.01	0.00
Jethro	8215	15	0	0.01	0.00

Main Player	ID number	Ex.12.1_40.38	Lv1.1_24.23	Ex.12.1_40.38	Lv1.1_24.23
the king of Egypt	6	14	0	0.01	0.00
the elders of Israel	874	12	0	0.01	0.00
whole chiefs of the gathering	884	11	0	0.00	0.00
servant (of Hebrew)	5459	10	0	0.00	0.00

The table above shows 10 of the 394 unique main players who occur only in the former division but do not occur in the latter division. They are Moses, Israel, Bezalel, the wise people, and so on, are relevant to making the Tabernacle and its furnishings, and indicate separability.

Figure 27. The unique main players that occur only in the latter division

Main Player	ID number	Ex.12.1_40.38	Lv1.1_24.23	Ex.12.1_40.38	Lv1.1_24.23
priest (sons of Aaron, high)	4033	0	89	0.00	0.05
person (who swears an oath)	6324	0	26	0.00	0.01
person (of sacrifice of peace offering)	6362	0	21	0.00	0.01
person (sins deceiving a fellow citizen)	6352	0	20	0.00	0.01
sons of Aaron (the priest)	5	0	17	0.00	0.01
woman (with menstruation)	665	0	17	0.00	0.01
whoever (owns the house of land of property of land of Canaan)	1446	0	17	0.00	0.01
man and sojourner of Israel	12839	0	17	0.00	0.01
one person (ordinary, one, sin, unintentional)	6694	0	15	0.00	0.01
someone (presents an offering to YHWH)	4756	0	14	0.00	0.01

The table above shows 10 of the 345 unique main players who occur only in the latter division but do not occur in the former division. They are a high priest, a person, the sons of Aaron, and so on, are relevant to the duties of priests, play a role as an exemplification in a commandment, and indicate separability.

4. Discussion with scholars' demarcations

In this section, I discuss the difference, advantages, and shortcomings between scholars' demarcations with syntactic demarcations.

4.1. Exodus 4:19

4.1.1. Exodus 4:19 as a beginning of a divisions

George W. Coats demarcates Exodus into two major divisions, "Exodus and Moses Traditions" (1:1-13:16), "Wilderness Traditions" (13:17-Deu 34:1).¹³⁾ He

13) G. W. Coats, *Exodus 1-18*, Forms of the Old Testament Literature (Grand Rapids: Wm. B. Eerdmans, 1998), 3-11.

splits the first major division into nine divisions, among which the first five divisions are “Exposition” (1:1-14), “Moses stories” (1:15-2:22), “Moses vocation account” (2:23-4:23), “Circumcision etiology” (4:24-26), and “Execution of vocation commission” (4:27-6:1). He splits again the third division into three sub-divisions, “Transition” (2:23-25), “Narration of the Moses-Aaron vocation tradition” (3:1-4:18), and “Transition” (4:19-23). He sees the enumeration of the sub-divisions develops the vocation of Moses and the execution, and 4:19 begins the third sub-division which indicates the transition from the vocation of Moses to his execution at a lower textual level, while I see 1:1-4:18 introduces Moses, describes YHWH called Moses, persuaded him to use as an Exodus instrument, 4:19 initiates the execution of Exodus plan at a higher textual level, and helps a reader to see Genesis 1:1-4:18 narrates the antecedent information and prepares the stage before the execution of Exodus, highlights the execution of Exodus in Egypt in 4:19-11:10.

Scott M. Langston demarcates Exodus into 17 divisions, among which the first seven divisions are “The Israelites’ suffering” (1:1-14), “Attempts to kill Israel’s Male infants” (1:15-22), “Moses’ birth” (2:1-10), “Moses’ early life” (2:11-25), “Moses encounters YHWH” (3:1-6), “Moses and YHWH negotiate” (3:1-4:17), and “YHWH attempts to kill Moses” (4:19-31).¹⁴⁾ He considers 4:19 opens the seventh division, which continues the interplay between YHWH and Moses, while I see 4:19 distinguishes 4:19-11:10 from 1:1-4:18. The EDSF in 4:19 indicates a strong new start. YHWH’s commandment for Moses to return to Egypt indicates the transition from the story in Midian to that in Egypt. The description of the death of all the men who sought the life of Moses also shows the closing of the preceding stage before beginning a new phase. I interpret the trial of YHWH to kill Moses as the discipline to strengthen the hierarchy between YHWH and Moses to use him as an Exodus instrument, while YHWH was generous to hear the resistance and complaint of Moses in 3:1-4:18. The contrast also justifies 4:19 initiates a new solid division.

4.1.2. Exodus 4:19 as a part of a divisions

Umberto Cassuto demarcates Exodus into three major divisions, “The

14) S. M. Langston, *Exodus: Through the Centuries*, Blackwell Bible Commentaries (Oxford: Blackwell Pub., 2006), 14-77.

Bondage and Liberation” (1:1-17:16), “The Torah and its Precepts” (18:1-24:18), and “The Tabernacle and its service” (25:1-4:38).¹⁵ I generally agree with his three major demarcations. He splits the first major division into nine divisions, among which the first four divisions are “The bondage” (1:1-22), “The birth of the savior and his upbringing” (2:1-22), “Moses’ mission” (2:23-4:31), and “The first attempt and its failure” (5:1-6:1). He sees 2:23-4:31 as one division. However, “Moses’ mission” is too narrow to cover all the contents, “Israel’s groaning”, “YHWH’s calling to Moses, Moses’ resistance”, “YHWH’s persuasion to Moses”, and “YHWH’s commandment to Moses to go to Egypt and meet Aaron”.

Robert Alan Cole demarcates Exodus into four major divisions, “Israel in Egypt” (1:1-11:10), “Exodus to Sinai” (12:1-18:27), “Covenant and Law” (19:1-31:18), and “Rebellion and Renewal” (32:1-40:38).¹⁶ I generally agree with his thematic demarcations. He splits the first major division into three divisions, “Israel before Moses” (1:1-22), “Early life of Moses” (2:1-25), and “Meeting with God” (3:1-4:31).¹⁷ This paper sees YHWH meets Moses throughout 3:1-11:10, “Meeting with God” is too broad to define the function of 3:1-4:31. This paper considers that 4:1-18 describes Moses went back to Jethro and indicates the end of his life in Midian, while Moses’ going back to Egypt according to YHWH’s commandment suggests the start of his mission in Egypt.

Thomas Joseph White demarcates Exodus into five divisions, “Deliverance from Egypt” (1:1-12:51), “Wilderness” (13:1-18:27), “Covenant” (19:1-24:18),

15) U. Cassuto, *A Commentary on the Book of Exodus* (Jerusalem: Magnes Press; Hebrew University, 2008), 7-485.

16) R. A. Cole, *Exodus: An Introduction and Commentary*, Tyndale Old Testament Commentaries Vol. 2 (Wheaton: Tyndale Press, 1973), 66-112; W. H. C. Propp, *Exodus 19-40*, The Anchor Yale Bible Commentaries (New Haven: Yale University Press, 2006), 119-354. He splits Exo into 7 divisions, “Israel in Egypt” (1:1-11:10), “Liberations from Egypt” (12:1-15:21), “Sojourn in the Wilderness” (15:22-18:27), “The First Covenant” (19:1-24:18), “The Tabernacle Directions” (25:1-31:18), “The Covenant Broken and Restored” (32:1-34:35), and “Building the Tabernacle” (35:1-40:38). He splits the first division into ten sub-divisions, among which the first seven sub-divisions are “As ever they oppressed him so he multiplied” (1:1-14), “If he is a son, kill him” (1:15-21), “For I drew him from the waters” (1:22-2:10), “Who set you as a man, ruler, and judge?” (2:11-15a), “A sojourner was I in a foreign land” (2:15b-23a), “And Deity remembered his covenant” (2:23b-25), and “YHWH the Hebrews’ deity happened upon us” (3:1-4:31). He also sees 3:1-4:31 as one textual unit. However, his definition does not seem proper to cover 3:1-4:31.

17) R. A. Cole, *Exodus: An Introduction and Commentary*, 66-91.

“Cultic rituals” (25:1-31:18), and “Fall and Eschatological Restoration” (32:1-40:38).¹⁸⁾ He splits the first division into 19 sub-divisions, among which the first four sub-divisions are “Pharaoh, Genocide, and Universal Moral Weakness” (1:1-22), “Vocation to Prophecy” (2:1-25), “The Divine Name” (3:1-25), “Introduction to Exodus 4–11, Mirabilia Dei as Purification of Human Superstition” (4:1-31).¹⁹⁾ It is agreeable with the definitions in the first two sub-divisions, while those in the second two are too specific to cover all the events in the sub-divisions.

Mark S. Smith demarcates Exodus into three major divisions, “The priestly arrangement of Exodus” (1:1-14:31), “The poetics of Exodus 15 and its position” (15:1-21), and “The priestly arrangement of Exodus” (15:22-40:38).²⁰⁾ He sees Exodus enumerates the priestly arrangement, and explains the function of the poems in 15:1-21 as fulcrum point in the book for the priestly redaction of the book of Exodus.²¹⁾ He explains 15:1-12 generally refer to the events in the first half of the book, while 15:13-18 anticipate the events in the second half of the book. I agree with his elaboration, while I propose the demarcation based on the EDSF. He splits the first major division into three divisions, “Moses’ Movement From Egypt to Midian” (1:1-2:25), “Moses’ First Call and Confrontation” (3:1-6:1), and “Moses’ Second Call and Yahweh’s Confrontation with Pharaoh” (6:2-14:31).²²⁾ However, Exodus 4:19–61 emphasizes the mighty leadership of YHWH under which Moses surrenders and the wisdom of YHWH to prophesy what is to occur in the battle against the pharaoh. Therefore, “Moses’ First Call and Confrontation” is hard to cover 3:1-6:1.

Carol Meyers demarcates Exodus into three major divisions, “Israel in Egypt” (1:1-15:21), “Sinai and covenant” (15:22-24:18), and “Sanctuary and new covenant” (25:1-40:38).²³⁾ She splits the first major division into six divisions,

18) T. J. White, *Exodus*, Brazos Theological Commentary on the Bible (Grand Rapids: Brazos Press, 2016), 25-107.

19) T. J. White, *Exodus*, 50-79.

20) M. S. Smith, *The Pilgrimage Pattern in Exodus*, The Library of Hebrew Bible/ Old Testament Studies 239 (Sheffield, United Kingdom: Sheffield Academic Press, 1997), 192-204.

21) M. S. Smith, *The Pilgrimage Pattern in Exodus*, 204-206.

22) M. S. Smith, *The Pilgrimage Pattern in Exodus*, 192-204.

23) C. Meyers, *Exodus*, New Cambridge Bible Commentary (New York: Cambridge University Press, 2005), 32-123; G. I. Davies, *A Critical and Exegetical Commentary on Exodus 1-18: Vol. 1*, International Critical Commentary (London: T&T Clark, 2020), 65-66. He demarcates Exo into three major divisions, “The Exodus Story” (1:1-15:21), “The Wilderness Journey”

“The Oppression” (1:1-22), “The Emergence of Moses” (2:1-25), and “Moses’ Call and Mission” (3:1-7:7).²⁴ Her thematic definitions and demarcations are agreeable, while syntactic demarcations are proposed in this paper.

Glen S. Martin demarcates Exodus into 13 divisions, among which the first two divisions are “Preparing for the Journey” (1:1-2:25), “The call of God” (3:1-4:31).²⁵ This paper sees 4:19 begins a new stage in which YHWH

(15:22-18:27), and “The Sinai Narrative (First Part)” (19:1-40:38). G. I. Davies, *A Critical and Exegetical Commentary on Exodus 1-18: Vol. 2*, International Critical Commentary (London: T&T Clark, 2020), 1-265. He splits the first major division into five divisions, “Israel in Egypt and the early life of Moses” (1:1-2:22), “Moses’ commissioning and approach to pharaoh” (2:23-7:13), “Moses and Aaron before pharaoh (The first nine plagues)” (7:14-10:29), “Passover and departure” (11:1-13:22), and “The deliverance at the sea” (14:1-15:21). His thematic definitions are generally agreeable. T. E. Fretheim, *Exodus*, Interpretation: A Bible Commentary for Teaching and Preaching (Louisville: Westminster John Knox Press, 2010), 100-118. He demarcates Exo into six major divisions, “Sojourn in Egypt, Plagues, and the Exodus” (1:1-15:21), “Wilderness Wanderings (I)” (15:22-18:27), “Stay at Sinai; giving of law; covenant” (19:1-24:18), “Tabernacle (I) and Priesthood” (25:1-31:18), “Apostasy, forgiveness, and covenant renewal” (32:1-34:35), and “Tabernacle (II)” (35:1-40:38). He splits the first major division into 1:1-7, 8-14, 1:15-2:10, 11-22, 23-25, 3:1-7:7, 7:8-11:10, 12:1-27, 13:17-22, and 15:1-21. He defined 3:1-7:7 as an “initial confrontation with Pharaoh that fails”, which does not seem proper because the communication between YHWH and Moses is overwhelming there rather than the confrontation with the pharaoh. P. Enns, *Exodus*, the NIV application commentary (Grand Rapids: Zondervan Publishing House, 2000), 42. He demarcates Exo into 3 major divisions, “Departure From Egypt” (1:1-15:21), “Mount Sinai: Law” (16:1-24:18), and “Mount Sinai: Tabernacle” (25:1-40:38). He splits the first major division into three divisions, “Prelude” (1:1-7:7), Plagues (7:8-10:29), and “Departure” (11:1-15:21), and splits the first division into six sub-divisions, “Pharaoh’s Solution to a Growing” (1:1-22), “A Savior is Born” (2:1-10), “Moses Finds a New Home” (2:11-25), “Moses Meets His Maker” (3:1-4:17), “Moses Returns to Egypt” (4:18-31), and “Prelude to Disaster” (5:1-7:7). He sees 4:18-31 as one textual unit while I argue 4:19 opens a new textual unit.

24) C. Meyers, *Exodus*, 32-123.

25) G. S. Martin, *Exodus, Leviticus, Numbers*, Holamn Old Testament Commentary (Brentwood: Broadman & Holman, 2002), 26-513; B. S. Childs, *The Book of Exodus: A Critical, Theological Commentary* (Louisville: Westminster John Knox Press, 2004), 1-107. Brevard S. Childs demarcates Exo into 24 divisions, among which the first five divisions are “Introduction” (1:1-7), “Israel’s Persecution and the Birth of Moses” (1:8-2:10), “Moses Slays an Egyptian and Flees to Midian” (2:11-25), “The Call of Moses” (3:1-4:17), and “The Return to Egypt” (4:18-6:1). J. H. Walton, *Exodus*, Zondervan Illustrated Bible Backgrounds Commentary (Grand Rapids: Zondervan Academic, 2016), 47-78. John H. Walton demarcates Exo into 28 divisions, among which the first eight divisions are “The Israelites in Egypt” (1:1-14), “Pharaoh’s Plan” (1:15-22), “The Birth and Rescue of Moses” (2:1-10), “Moses’ Crime and Flight to Midian” (2:11-25), “Encounter with God” (3:1-10), “Moses’ Objections” (3:11-22), “Signs and Reassurance for Moses” (4:1-17), and “Return to Egypt” (4:8-31). N. M.

commands Moses to return to Egypt, 4:18 ends the calling of YHWH, while Martin sees 4:19-31 belongs to “The call of God” (3:1-31).

4.1.3. Exodus 4:19 as the end of a divisions

Cornelis Houtman enumerates the first five divisions as “pharaoh’s resistance to the fulfillment of the promises to the patriarchs” (1:1-22), “The birth of Israel’s deliverer” (2:1-10), “The deliverer rejected by his people” (2:11-22), “The call of the deliverer” (2:23-4:19), and “The return of the deliverer to Egypt” (4:20-31).²⁶ He sees 4:19 ends a textual unit, while I see it starts a new major division.

4.2. Exodus 12:1

4.2.1. Exodus 12:1 as a beginning of a divisions

Nahum M. Sarna demarcates Exodus into 19 divisions, among which the divisions from the sixth one to the eighth one are “The Plagues” (7:14-11:10), “The Last Act” (12:1-51), and “Commemorative Rituals” (13:1-16).²⁷ He sees 12:1-51 end the story of the plagues, while this paper sees 12:1 begins the execution of Exodus.

J. H. Walton defines the divisions of Exodus from the ninth one to the fifteenth one as “Confrontation with Pharaoh” (5:1-21), “More Revelation from God” (6:1-27), “First Demonstration of Power” (6:28-7:13), “The Ten Plagues” (7:14-11:10), “Instructions for the Passover” (12:1-30), “Departure from Egypt” (12:31-51), and “Consecration of the Firstborn” (13:1-16).²⁸ I see 12:1 starts

Sarna, *The JPS Torah Commentary: Exodus* (Philadelphia: Jewish Publication Society, 1991), 3-30. He demarcates Exo into 19 divisions, among which the first four divisions are “Reversal of Fortune” (1:1-22), “The Birth and Youth of Moses” (2:1-25), “The Commissioning of Moses” (3:1-4:17), and “The Challenge of Leadership: Initial Failure” (4:18-6:1).

26) C. Houtman, *Exodus. Vol. 1*, Historical Commentary on the Old Testament (Leuven: Peeters Publishers, 1993), 220-540.

27) N. M. Sarna, *The JPS Torah Commentary: Exodus*, 38-68.

28) J. H. Walton, *Exodus*, 79-147; N. M. Sarna, *Exodus*, 30-75. He defines the divisions of Exo from the fifth one to the ninth one as “Divine Reaffirmation” (6:2-7:13), “The Plagues” (7:14-11:10), “The Last Act” (12:1-51), “Commemorative Rituals” (13:1-16), and “The Exodus” (13:17-14:31). W. H. C. Propp, *Exodus 1-18*, 355-572. He sees 12:1-15:21 as the second division, “Part II. Liberation from Egypt, Exodus”. J. T. Lienhard, ed., *Exodus, Leviticus, Numbers, Deuteronomy*, Ancient Christian Commentary on Scripture (Illinois:

the third major division at a higher textual level, while he considers it opens a division in the same narrative line with its preceding division.

George W. Coats splits the first major division into nine divisions, among which the second three divisions are “Execution of vocation commission accounts” (7:7-12:36), “Concluding summary” (12:37-42), and “Cultic ordinances” (12:43-13:16). He splits again the first division into two sub-divisions, “sign cycle” (7:7-11:10), “Passover ordinance” (12:1-51).²⁹ He considers 12:1 to begin the second sub-division at a lower textual level, while this paper sees it as the start of the third major division of Exodus.

InterVarsity Press, 2001), 79-90. He defines the twenty-sixth division in Exo as “The Passover Ritual Prescribed” (12:1-20). R. A. Cole, *Exodus: An Introduction and Commentary*, 66-148. He defines the first two divisions in Exo as “Israel in Egypt” (1:1-11:10) and “Exodus to Sinai” (12:1-18:27). G. S. Martin, *Exodus, Leviticus, Numbers*, 48-94. He defines the fourth to the fifth divisions in Exodus as “Getting Pharaoh’s attention” (8:1-11:10) and “The Passover” (12:1-13:22). B. S. Childs, *The Book of Exodus: A Critical, Theological Commentary*, 108-214. He defines the divisions from the sixth division to the ninth division in Exo as “The Renewed Call of Moses” (6:2-7:7), “The Plagues of Egypt” (7:8-11:10), and “Passover and Exodus” (12:1-13:16). The scholars above consider 12:1 as a beginning of a division in the same narrative line with its preceding division. In contrast, This paper considers it starts the third major division at a higher textual level.

29) G. W. Coats, *Exodus 1-18*, 17-18; U. Cassuto, *A Commentary on the Book of Exodus*, 7-485. He splits the first major division into nine divisions, among which the second three divisions are “The exodus from Egypt” (12:1-13:16), “The division of the Sea of Reeds” (13:17-15:21), and “The travails of the journey” (15:22-17:16). T. J. White, *Exodus*, 25-107. T. J. White splits the first major division (1:1-12:51) into 19 divisions, among which the eighteenth one and the nineteenth one is “Tenth Plague: Death of the Firstborn, Excursus: The Death of the Firstborn and the Transcendent Justice of God” (11:1-10), “The Passover Lamb” (12:1-51). U. Cassuto, *A Commentary on the Book of Exodus*, 7-182. He considers 1:1-17:16 as the first major division, “The Bondage and Liberation,” which is split into 9 divisions, “The bondage” (1:1-22), “The birth of the savior and his upbringing” (2:1-22), “Moses’ mission” (2:23-4:31), “The first attempt and its failure” (5:1-6:1), “Prelude to successful action” (6:2-7:7), “The plagues” (7:8-9:10), “The exodus from Egypt” (12:1-13:16), “The division of the Sea of Reeds” (13:17-15:21), and “The travails of the journey” (15:22-17:16). T. E. Fretheim, *Exodus*, 101-114. He splits the first major division (1:1-15:21) into eight divisions, “God’s creational and historical promises” (1:1-7), “oppressive pharaonic regime” (1:8-14), “the wisdom and courage of five lowly women” (1:15-2:10), “women’s first actions against oppressors” (2:11-22), “An intensification of God’s activity” (2:23-25), “An initial confrontation with pharaoh that fails” (3:1-7:7), “plagues” (7:8-11:10), and “Passover” (12:1-27). The scholars above see that 12:1 continues its preceding division at the lower narrative line. It is agreeable that he sees 12:1 begins a new division, while this paper sees 12:1 as the start of the third major division at a higher textual level.

4.2.2. Exodus 12:1 as a part of a division

Peter Enns defines the first major division as “Departure From Egypt” (1:1-15:21), which is split into three divisions, “Prelude to Disaster” (1:1-7:7), “Plagues 1-9: Prelude to Israel’s Release and Egypt’s Destruction” (7:8-10:29), and “Departure” (11:1-15:21). He splits the third division into sub-divisions, “The Plagues on the Firstborn and the Passover: Israel is Released” (11:1-13:16), “Crossing the Sea” (13:17-14:31), and “The Song at the Sea” (15:21-21).³⁰⁾ He tried forcibly to tie separate events, plagues, and Passover, releasing Israel as one textual unit. I think seeing 12:1 begins the impending Exodus, as seeing 4:19 begins the imminent battle between YHWH and the pharaoh, is reasonable.

G. I. Davies splits the first major division (1:1-15:21) into four divisions, “Israel in Egypt and the Early Life of Moses” (1:1-2:22), “Moses’ Commissioning and Approach to pharaoh” (2:23-7:13), “Moses and Aaron before pharaoh (The First Nine Plagues)” (7:14-10:29), and “Passover and Departure” (11:1-13:22).³¹⁾ He defined the function of the first three divisions using the criterion of participants and used the criterion of theme for the fourth and fifth divisions. Using one criterion consistently would have been better. Splitting 11:1-10 from 12:1-13:22 is better because 11:1-10 does not describe the Passover.

Mark S. Smith splits the first major division, 1:1-14:31, into three divisions, “Moses’ Movement From Egypt to Midian” (1:1-2:25), “First Call and Confrontation with Pharaoh” (3:1-6:1), and “Moses’ Second Call and Yahweh’s Confrontation with Pharaoh” (6:2-14:31).³²⁾ He needed to use one criterion instead of two criteria, place, and plot, which break the consistency that helps a reader understand how each division develops a narrative line. He focused on

30) P. Enns, *Exodus*, 43; C. Meyers, *Exodus*, 32-123. C. Meyers splits the first major division (1:1-15:21) into six divisions in terms of theme, “The Oppression” (1:1-22), “The Emergence of Moses” (2:1-25), “Moses’ Call and Mission” (3:1-7:7), “Signs-and-Wonders (Nine Calamities)” (7:8-10:29), “Plagues, Rituals, and Departure” (11:1-13:16), and “The Deliverance” (13:17-15:21). Here again I recommend to split 11:1-10 from 12:1-13:16.

31) G. I. Davies, *A Critical and Exegetical Commentary on Exodus 1-18: Vol. 1*, 117-658; G. I. Davies, *A Critical and Exegetical Commentary on Exodus 1-18: Vol. 2*, 1-215; S. M. Langston, *Exodus: Through the Centuries*, 105-125. S. M. Langston demarcates Exo into 17 divisions, among which the tenth division is “The Passover” (11:1-13:16).

32) M. S. Smith, *The Pilgrimage Pattern in Exodus*, 192-204.

distinguishing the first call of YHWH and the second call of YHWH. Instead, this paper considers 1:1-4:18 describes the stage where YHWH prepares the Exodus plan with Moses, 4:19-11:10 as the battle between YHWH and pharaoh, and 12:1-40:38 as the marching in the desert of Sinai and giving the commandments at Mount Sinai.

As seen so far, many scholars have demarcated the textual units based on thematic differences or the difference of a plot or a place. This paper agreed with some of their demarcations and disagreed with some that seem unreasonable and contradict the linguistic clues I displayed. Some saw 4:19 and 12:1 as a beginning of a division that continues at the same textual level as its preceding textual unit or a beginning of an embedded division. In response to them, this paper argued that 4:19 and 12:1 open a textual unit at a higher textual level relative to their adjacent preceding divisions. This paper argues that the EDSFs in 4:19 and 12:1 indicate a stronger start than the other demarcation markers in Exodus. Others saw 4:19 and 12:1 as a part of a division. They could have given more weight to the structuring force in 4:19 and 12:1, while this paper sees they start a major division in Exodus. Scholars' demarcations provided plentiful interpretations of the thematic developments between divisions in Exodus. However, the outcomes were subjective rather than text-centered. At the same time, This paper proposed the demarcations by the EDSFs. It argued that the textual structure and demarcations help a reader to have a sound understanding of the discourse functions between divisions and thematic developments.

5. Conclusion

This section summarizes the works of the present study and its contributions. Section 1 introduced the working flow in this paper. Section 2 briefly introduced the text-hierarchical structure of Exodus and its three major divisions. Section 3 progressed the analysis of the main players in the three major divisions in Exodus. This paper explained the strong separability and weak connectivity mainly between the three divisions in Exodus and between Exodus 1:1-4:18 with Genesis 37:2-50:26 and between Exodus 12:1-40:38 with Leviticus 1:1-24:23 showing the frequency of unique main players is more potent than that of shared

main players between two divisions, using Jaccard distance between them. Section 4 compared scholars' demarcations with the syntactic demarcations and proposed the advantage of the demarcations by the EDSF.

This section proposes a few contributions to this paper.

First, it introduces the text-hierarchical structure of Exodus.

Second, the syntactic patterns EDSFs help to discover the text-hierarchical structure of Exodus and justify its validity.

Third, this paper showed that the validity of the demarcations based on syntactic analysis is supported by the analysis of the main players in the three divisions in Exodus.

Fourth, the analysis of main players distinguished the participants who occur at a verb from those who occur at a substantive or the suffix of a preposition or personal pronouns and clarified who are the main players who work really in a division and affect the other participants and the events that occur in a division.

Fifth, the main players' analysis displayed the main players' data based on accurate annotation, computational queries, and Jaccard distance. It helped a reader to understand the discourse function between divisions based on the solid data foundation. It avoided the intuitive argument on the main players in a division or the interpretation of the discourse functions between divisions.

Sixth, Exodus 1:1-4:18 describes the stages where YHWH prepares the Exodus plan based on the agony of Israel in Egypt and brings Moses as an ambassador to execute it, while 4:19-11:10 describes the battle between YHWH and pharaoh and 12:1-4:38 describes Israel's Exodus and marching in the desert of Sinai and YHWH's revelations at Mount Sinai.

Seventh, seeing demarcations in the syntactic-hierarchical structure helps a reader to reckon the functions and discourse functions each demarcation initiates.

Conclusively, this paper argues the demarcations by the EDSFs in Exodus into three major divisions, 1:1-4:18, 4:19-11:10, and 12:1-40:38, and proposes a valid texture structure.

<Keywords>

syntactic-hierarchical structure, the analysis of participants, main players, discourse analysis, text-linguistics, the book of Exodus.

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<Abstract>

A Text-Hierarchical Structure of Exodus and the Analysis of Main Players

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This paper progresses the research on Exodus, introducing the text-hierarchical structure of Exodus and how it can be discovered. The research gives priority to syntax, its second priority to participants and their roles, and its third priority to rhetorical criteria such as theme, place, and plot. Based on the demarcations in the structure, this paper explains the discourse functions between divisions. This study used the ETCBC linguistic inventory in which ETCBC encoded all the linguistic annotations and parameters of the Hebrew Bible at all linguistic levels. The text-hierarchical structures of the Pentateuch and Exodus were discovered using the ETBC database. Using the text-linguistics of Eep Talstra, this paper judged recursively the relationship between clauses in Exodus, whether it indicates a subordinate relationship or coordinate relationship, and extracted the whole structure of Exodus. There are two scholars who influenced Talstra's text-linguistics. Weinrich defined syntax as a way of communication. Wolfgang Schneider adopted the linguistics of Weinrich. Schneider argued that syntax describes the linguistic forms that perform the communicative process. Talstra agreed with Schneider's view that a word order has its own function, and described the function of a word order by observing the placement of a verb form and phrases in a clause. This paper calls the word order a syntactic pattern or an Elaborate Divine Speech Formula [**divine speech formula + locative or time phrase**]. The EDSFs [**Basic Divine Speech formula + locative phrase**] in Exo 4:19, 12:1 demarcate Exodus into three major divisions of 1:1-4:18, 4:19-11:10, and 12:1-40:38. This paper focuses on the demarcations in Exodus, which differ by scholars according to the literary criteria such as theme, place, and plot they use. For example, Umberto Cassuto considers 1:1-17:16 as the first major division of Exodus while another group of scholars like Mark S. Smith, Carol Meyers, G. I. Davies considers 1:1-15:21, and George W. Coats 1:1-13:16 as the first major division. This paper does not focus on

syntactic demarcations in competition with thematic demarcations. Instead, it proposes them as an alternative way to look at the text of Exodus in the Pentateuch from a new perspective and as the development of discourse functions between the divisions. This paper argues that seeing demarcation markers in the syntactic-hierarchical structure helps readers reckon their function and the discourse function of a division that each demarcation marker initiates.