A Flaw in McIver and Carroll's Experiments to Determine Written Sources in the Gospels

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Robert McIver and Marie Carroll published an article in *JBL* in 2002 in which they discussed experiments with Australian undergraduate students that might help with determining the existence of written sources in the Gospels. They suggested that sixteen words in exact conjoined sequence provided a clear indicator of the presence of copying. However, McIver and Carroll transferred the results of their experiments in English to the Greek Synoptics without making any adjustments for the differences in language. A noninflected language like contemporary English takes more words to say something than an inflected language like Koine Greek. The problem can be illustrated by taking McIver and Carroll's list of Synoptic parallels that feature sixteen-word sequential agreements and higher, and comparing these parallels with English translations. In practically every case, the English sequential agreements are substantially higher. The presence of this important flaw in the conceptualizing of the experiments places a major question mark over McIver and Carroll's case.

In an article published in 2002, Robert K. McIver and Marie Carroll discuss a series of experiments with Australian undergraduate students to determine what would count as evidence for the copying of written sources. They attempt to explain the implications of their results for the study of the Synoptic Problem.[1] In the relatively short period since the publication of their work, it has often been cited

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[1] Robert K. McIver and Marie Carroll, "Experiments to Develop Criteria for Determining the Existence of Written Sources, and Their Potential Implications for the Synoptic Problem," *JBL* 121 (2002): 667–87; and "Distinguishing Characteristics of Orally Transmitted Material When Compared to Material Transmitted by Literary Means," *Applied Cognitive Psychology* 18 (2004): 1251–69. For an excellent discussion of the first of these articles, drawing attention to some key difficulties in the application of the results, see John Poirier, "Memory, Written Sources and the Synoptic Problem: A Response to Robert K. McIver and Marie Carroll," *JBL* 123 (2004): 315–22.

favorably in discussions of the transmission of early Christian tradition,[2] and its main contention, that the presence of sixteen or more words in conjoined sequence[3] indicates the presence of written sources, is now accepted by some scholars as having been established.[4] Some are already engaged in the work of applying the criterion to related areas.[5]

There is a flaw in the way that McIver and Carroll apply the results of their experimental data to the texts of the Synoptic Gospels. The mistake is simple but important: their experimental data are in English whereas the Synoptic Gospels are in Greek.[6] Thus, although they regard the "strong cultural differences between the students taking part in these experiments and the anonymous writers who produced the Synoptic Gospels" as "self-evident,"[7] they do not take into account the key differences in language between contemporary English and Koine Greek. Having established their sixteen-word criterion for determining the presence of

[2] Most recently in Dale C. Allison, *Constructing Jesus: Memory, Imagination, and History* (Grand Rapids: Baker Academic, 2010), 9 n. 48, 30 n. 124. See also Birger A. Pearson, "A Q Community in Galilee?" *NTS* 50 (2004): 476–94, esp. 483.

[3] The figure is given as eighteen words in "Distinguishing Characteristics," 1259, 1264–65, but without reference to or correction of the sixteen-word figure in "Experiments to Develop." The figures are given on the basis of the same diagrams in both articles ("Experiments to Develop," 679, 680; and "Distinguishing Characteristics," 1259), although in one article the relevant experiment is labeled "Experiment 5" ("Experiments to Develop," 668–73) and in the other it is labeled "Experiment 1" ("Distinguishing Characteristics," 1254–60). The descriptions of the experiments have a lot in common, but discrepancies include the number of students involved—either forty-three ("Experiments to Develop," 668) or forty-two ("Distinguishing Characteristics," 1254)—and the expression "this is vital," present three times in "the instructions" given to students in one article ("Experiments to Develop," 669) but absent in the other ("Distinguishing Characteristics," 1254–55).

[4] April D. DeConick ("Human Memory and the Sayings of Jesus: Contemporary Experimental Exercises in the Transmission of Jesus Traditions," in *Jesus, the Voice and the Text: Beyond the Oral and Written Gospel* [ed. Tom Thatcher; Waco: Baylor University Press, 2008], 135–80) attempts to build on McIver and Carroll's work by doing further experiments with undergraduate students and applying the results to the development of the early Christian tradition, in the process concluding that "exact reproduction of sequences of sixteen or more words in length is suggestive of copying from a written source, confirming what McIver and Carroll found in an earlier study" (p. 145; cf. 178).

[5] James R. Edwards (*The Hebrew Gospel and the Development of the Synoptic Tradition* [Grand Rapids: Eerdmans, 2009], 250–51) accepts the conclusion of the article and attempts to apply McIver and Carroll's statistics to support Matthean posteriority. The fullest application is in James T. Sparks, *The Chronicler's Genealogies: Towards an Understanding of 1 Chronicles 1–9* (AcBib 28; Atlanta: Society of Biblical Literature, 2008), ch. 4, esp. 291–98. Sparks applies McIver and Carroll's sixteen-word criterion in attempting to establish the Chronicler's use of Genesis.

[6] The same error is made by DeConick, "Human Memory." The results of the experiments in contemporary English are transferred directly to the Synoptic Gospels in Koine Greek, without any discussion of the differences between the two languages.

[7] McIver and Carroll, "Experiments to Develop," 677.

copying from a written source in English,[8] they transfer the criterion without analysis or comment to the Greek Gospels.

This issue is important because it takes many more words to say something in contemporary English than it takes to say something similar in Koine Greek. Therefore, sixteen words in English correlates to fewer words in Greek, and so the sixteen-word criterion is much too high for Greek.[9] The point does not need to remain a purely abstract one. It can be illustrated by looking at English translations of passages that satisfy McIver and Carroll's criterion of sixteen or more words in conjoined sequence. Their example of the highest number of words in sequential agreement is Matt 10:21–22//Mark 13:12–13.[10] They count thirty-one Greek words in exact sequence:

Matthew 10:21–22	Mark 13:12–13
[21]Παραδώσει δὲ ἀδελφὸς ἀδελφὸν εἰς θάνατον καὶ πατὴρ τέκνον, καὶ ἐπαναστήσονται τέκνα ἐπὶ γονεῖς καὶ θανατώσουσιν αὐτούς. [22]καὶ ἔσεσθε μισούμενοι ὑπὸ πάντων διὰ τὸ ὄνομά μου· ὁ δὲ ὑπομείνας εἰς τέλος οὗτος σωθήσεται.	[12]καὶ παραδώσει ἀδελφὸς ἀδελφὸν εἰς θάνατον καὶ πατὴρ τέκνον, καὶ ἐπαναστήσονται τέκνα ἐπὶ γονεῖς καὶ θανατώσουσιν αὐτούς. [13]καὶ ἔσεσθε μισούμενοι ὑπὸ πάντων διὰ τὸ ὄνομά μου. ὁ δὲ ὑπομείνας εἰς τέλος οὗτος σωθήσεται.

This sequential agreement of thirty-one words takes forty-five words to render in English translation.

Matthew 10:21–22 (NRSV)	Mark 13:12–13 (NRSV)
[21]Brother will betray brother to death, and a father his child, and children will rise against parents and have them put to death; [22]and you will be hated by all because of my name. But the one who endures to the end will be saved.	[12]Brother will betray brother to death, and a father his child, and children will rise against parents and have them put to death; [13]and you will be hated by all because of my name. But the one who endures to the end will be saved.

[8]See p. 794 n. 3 above. I will talk about it as the "sixteen-word" criterion here since I am responding to the *JBL* version of the research, but it is worth remembering each time that the figure rises to eighteen in the *Applied Cognitive Psychology* version of the research.

[9] The same issue is true in the case of Hebrew and English, which affects James T. Sparks's application of McIver and Carroll in *The Chronicler's Genealogies*. For example, Sparks's second parallel featuring sixteen or more words in conjoined sequence is Gen 10:15–18a//1 Chr 1:13b–16 (p. 298) which features twenty-one consecutive words in Hebrew. There is a conjoined sequence of thirty words in the NRSV, thirty-three if one extends further back into 1 Chr 1:12 and parallel.

[10]McIver and Carroll, "Experiments to Develop," 681.

The difference between the two languages is largely self-evident. It includes issues such as the lack of an indefinite article in Greek and the lack of possessive pronouns in certain phrases, so in the above example, πατὴρ τέκνον is translated in the NRSV as "a father his child," doubling the number of words. Similarly, verbs are expressed in Greek without the necessity of a personal pronoun or auxiliary words, so in the above example, ἔσεσθε μισούμενοι is expressed in English as "you will be hated," again doubling the number of words. The point is a basic one in elementary Greek and does not require extended illustration, but it is fundamental to the difficulty of transferring results from experiments in one language to another language without any critical reflection.

The difficulty is in large part that McIver and Carroll are comparing results from experiments using a noninflected language with an inflected language. This is an issue because their experiments focus especially on conjoined sequences of words. A noninflected language like English is far more likely to retain word order across two parallels because word order is often intrinsic to the meaning. In Greek, by contrast, word order is less important in the determination of meaning. This has the effect of diminishing the likely extent of parallel conjoined sequences in Greek.

The point can be illustrated in a parallel such as Matt 9:5–6//Mark 2:9–11//Luke 5:23–24, which features a twenty-one-word triple agreement in English translation, the kind of agreement that comfortably satisfies McIver and Carroll's threshold for evidence of copying. This synopsis shows the passage in the NRSV, with the triple sequential agreement of twenty-one words underlined:

Matthew 9:5–6 (NRSV)	Mark 2:9–11 (NRSV)	Luke 5:23–4 (NRSV)
"For which is easier, to say,	"Which is easier, to say to the paralytic,	"Which is easier, to say,
'Your sins are forgiven,' or to say, 'Stand up	'Your sins are forgiven,' or to say, 'Stand up and take your mat	'Your sins are forgiven you,' or to say, 'Stand up
and walk'? [6] But so that you may know that the Son of Man has authority on earth to forgive sins"— he then said to the paralytic— "Stand up, take your bed and go to your home."	and walk'? [10] But so that you may know that the Son of Man has authority on earth to forgive sins"— he said to the paralytic— [11] "I say to you, stand up, take your mat and go to your home."	and walk'? [24] But so that you may know that the Son of Man has authority on earth to forgive sins"— he said to the one who was paralyzed—"I say to you, stand up and take your bed and go to your home."

This twenty-one-word sequential triple agreement in English, which lengthens to twenty-six words in Matthew and Luke (adding "Or to say 'Stand up …'"), is substantially higher than McIver and Carroll's sixteen-word criterion, but in the Greek texts of the Gospels, the actual sequential triple agreement is only six words.

Matthew 9:5–7	Mark 2:9–11	Luke 5:23–24
τί γάρ ἐστιν εὐκοπώτερον, εἰπεῖν, Ἀφίενταί σου αἱ ἁμαρτίαι, ἢ εἰπεῖν· Ἔγειρε <u>καὶ περιπάτει;</u> ⁶ <u>ἵνα δὲ εἰδῆτε ὅτι ἐξουσίαν ἔχει ὁ υἱὸς τοῦ ἀνθρώπου ἐπὶ τῆς γῆς ἀφιέναι ἁμαρτίας,</u> τότε λέγει τῷ παραλυτικῷ, Ἐγερθεὶς ἆρόν σου τὴν κλίνην καὶ ὕπαγε εἰς τὸν οἶκόν σου.	τί ἐστιν εὐκοπώτερον, εἰπεῖν τῷ παραλυτικῷ, Ἀφέωνταί σου αἱ ἁμαρτίαι, ἢ εἰπεῖν· Ἔγειρε καὶ ἆρον τὸν κράβαττόν σου <u>καὶ περιπάτει;</u> ¹⁰ <u>ἵνα δὲ εἰδῆτε ὅτι ἐξουσίαν ἔχει ὁ υἱὸς τοῦ ἀνθρώπου ἀφιέναι ἁμαρτίας</u> ἐπὶ τῆς γῆς, λέγει τῷ παραλυτικῷ ¹¹ Σοὶ λέγω, ἔγειρε ἆρον τὸν κράβαττόν σου καὶ ὕπαγε εἰς τὸν οἶκόν σου.	τί ἐστιν εὐκοπώτερον, εἰπεῖν, Ἀφέωνταί σοι αἱ ἁμαρτίαι σου, ἢ εἰπεῖν· Ἔγειρε <u>καὶ περιπάτει;</u> ²⁴ <u>ἵνα δὲ εἰδῆτε ὅτι ὁ υἱὸς τοῦ ἀνθρώπου ἐξουσίαν ἔχει ἐπὶ τῆς γῆς ἀφιέναι ἁμαρτίας,</u> εἶπεν τῷ παραλελυμένῳ, Σοὶ λέγω, ἔγειρε καὶ ἄρας τὸ κλινίδιόν σου πορεύου εἰς τὸν οἶκόν σου.

What this illustrates is that the chances for conjoined sequence in parallel passages is greater in contemporary English than it is in first-century Koine. Where the NRSV has twenty-one words in conjoined sequence across all three Synoptics (rising to twenty-six in Matthew and Luke), the Greek has only six (καὶ περιπάτει; ἵνα δὲ εἰδῆτε ὅτι…, rising to twelve in Matthew//Mark, καὶ περιπάτει; ἵνα δὲ εἰδῆτε ὅτι ἐξουσίαν ἔχει ὁ υἱὸς τοῦ ἀνθρώπου).

The same kind of thing can be clearly illustrated elsewhere. Matthew 26:13// Mark 14:9, for example, features a conjoined sequence of nineteen words in the NRSV. This is the kind of sequential agreement that is well above McIver and Carroll's sixteen word threshold:

Matthew 26:13 (NRSV)	Mark 14:9 (NRSV)
<u>Truly I tell you, wherever</u> this <u>good news is proclaimed in the whole world, what she has done will be told in remembrance of her.</u>	<u>Truly I tell you, wherever</u> the <u>good news is proclaimed in the whole world, what she has done will be told in remembrance of her.</u>

The contrast with the Greek texts of Matthew and Luke again illustrates the point:

Matthew 26:13	Mark 14:9
<u>ἀμὴν,</u> λέγω ὑμῖν, ὅπου ἐὰν κηρυχθῇ <u>τὸ εὐαγγέλιον</u> τοῦτο ἐν <u>ὅλῳ τῷ κόσμῳ,</u> <u>λαληθήσεται</u> καὶ ὁ ἐποίησεν αὕτη <u>εἰς μνημόσυνον αὐτῆς.</u>	<u>ἀμὴν</u> δὲ, λέγω ὑμῖν, ὅπου ἐὰν κηρυχθῇ <u>τὸ εὐαγγέλιον</u> εἰς <u>ὅλον τὸν κόσμον,</u> καὶ ὁ ἐποίησεν αὕτη <u>λαληθήσεται</u> <u>εἰς μνημόσυνον αὐτῆς.</u>

The differing position of λαληθήσεται in Matthew and Mark generates a shorter conjoined sequence of words in Greek than one sees in English translation, only four words in comparison with the nineteen in the English of the NRSV. In English, the subject "what she has done" goes before the verb ("will be told"), whereas in Koine, the subject (καὶ ὃ ἐποίησεν αὕτη) can go either before the verb (λαληθήσεται), as in Matthew, or after it, as in Mark. Similarly, the difference in prepositions between Matthew (ἐν) and Mark (εἰς) means that identical words are in different cases (ὅλῳ τῷ κόσμῳ in Matthew; ὅλον τὸν κόσμον in Mark), which again reduces the number of words in exact sequence in Koine and increases it in English. Parallels like this, with only seven words in exact sequence in Greek, come nowhere near satisfying McIver and Carroll's criterion for determining the existence of written sources.

In other words, English is more likely to feature lengthy conjoined sequences of words, given that it is a noninflected language with fewer options in relation to the ordering of words. This should have been factored into McIver and Carroll's attempt to transfer their contemporary English experimental results to ancient texts written in Greek.

It is possible to get an indication of how far the differences in language affected McIver and Carroll's conclusions. They compiled a list of twenty-three passages[11] that feature exact sequential agreements of sixteen words or more.[12] For each of these, one can compare the sequential agreements in English translation as an indicator of the extent to which the length of sequential agreements differs in the two languages. Moreover, the advantage of comparing the Greek texts here with English translations is that this compares like with like, so that subject matter, at least, is the same. In order to avoid experimenter bias, I will use the NRSV rather than my own translations for the purposes of comparison. In this chart, the first column gives the location of McIver and Carroll's parallels in the order in which they present them;[13] the second column gives the number of Greek words in exact sequence (corrected where necessary);[14] the third column is my count of the number of English words in the same parallel in exact sequence in the NRSV:

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[11] McIver and Carroll list only one sequential parallel in each of their twenty-three passages although some of those passages contain more than one. See Poirier, "Memory, Written Sources," 319.

[12] They further pare these down to "nine parallel passages … where copying has almost certainly occurred" ("Experiments to Develop," 680) by taking out examples of aphorisms and poetry.

[13] Note, however, that McIver and Carroll only give the location of the entire pericope in which the parallel is found. For precise locations (even the word number), see Poirier, "Memory, Written Sources," 320.

[14] Here Poirier's more detailed and accurate table is very helpful, "Memory, Written Sources," 320.

Parallel	No. of Greek words in exact sequence	No. of English words in exact sequence (NRSV)
Matt 10:21–22//Mark 13:12–13	31	45
Mark 10:14–15//Luke 18:16–17	29	37
Matt 11:25–27//Luke 10:21–22	27[15]	51
Matt 24:50–51//Luke 12:46	26[16]	25[17]
Mark 1:24–25//Luke 4:34–35	26	38
Matt 6:24//Luke 16:13	26	32
Matt 3:9–10//Luke 3:8–9	24	55[18]
Matt 7:7–8//Luke 11:9–10	24	52
Matt 8:20//Luke 9:58	24	33[19]
Matt 12:41//Luke 11:32	24	32
Matt 16:24–25//Mark 8:34–35	23	39
Mark 12:38–39//Luke 20:46	14[20]	42
Matt 24:18–20//Mark 13:16–18	23	31
Matt 26:24//Mark 14:21	23	37
Matt 11:7–8//Luke 7:24–25	19[21]	42
Matt 8:9–10//Luke 7:8–9	25[22]	36
Matt 15:8–9//Mark 7:6–7	20	25
Matt 22:44//Mark 12.36	19	20

[15] McIver and Carroll's figure is 28. It is corrected by Poirier to 27.

[16] McIver and Carroll's figure is 28. It is corrected by Poirier to 25, but this does not include the article τῶν that appears with the synonyms ὑποκριτῶν (Matthew) and ἀπίστων (Luke).

[17] The NRSV translates the identical sentences differently across the Matthean and Lukan parallels. Thus, καὶ διχοτομήσει αὐτόν, identical in Matthew and Luke, is translated with "and" in Luke but without it in Matthew. Cf. the RSV, which has thirty-three words in sequential agreement here ("the master of that servant will come on a day when he does not expect him and at an hour he does not know, and will punish him, and put him with the …").

[18] The NRSV here translates Matthew and Luke identically, although the Greek differs. Matthew's ἤδη δὲ ἡ ἀξίνη is translated the same way as Luke's ἤδη δὲ καὶ ἡ ἀξίνη. Luke's additional καί disrupts the sequential agreement.

[19] The NRSV extends backwards into Matt 8:19//Luke 9:57, "I will follow you wherever you go".

[20] McIver and Carroll's figure is 23; Poirier corrects this to 14. McIver and Carroll here treat οἱ κατεσθίοντες (Mark) and οἱ κατεσθίουσιν (Luke 20:47) as identical, though their policy elsewhere is to count only complete identity in their exact sequences. Their list would have been far longer if they had treated other cases like this as exact parallels.

[21] McIver and Carroll's figure is 22; Poirier corrects this to 19.

[22] McIver and Carroll's figure is 21; Poirier corrects this to 25.

Parallel	No. of Greek words in exact sequence	No. of English words in exact sequence (NRSV)
Matt 8:2–3//Luke 5:12–13	18[23]	7[24]
Matt 20:28//Mark 10:45	17	21
Matt 15:32//Mark 8:2–3	16	21
Matt 16:25//Luke 9:24	16	24
Matt 24:33–34//Mark 13:29–30	16	44[25]

In practically every case,[26] the English translations feature substantially more words in exact sequential agreement, sometimes dramatically more. On occasion after occasion, English shows a greater tendency, in translations of the same material, to lengthier conjoined sequences of words. Given these substantive differences between the two languages, it is clear that the sixteen word threshold for Greek, chosen by McIver and Carroll on the basis of experiments in English, is much too low.

Attention to this important point about the difference between English and Greek would have resulted in a vastly greater number of passages that show evidence of copying in the Synoptic Gospels. McIver and Carroll have derived a criterion from work with one language and have applied it to texts in another language, in spite of the fact that it takes many more words to say a similar thing in English than it does in Greek. Their experiments are therefore problematic with respect to their goal of determining the existence of written sources in the Synoptic Gospels, and their sixteen-word criterion should be abandoned.

[23] McIver and Carroll's figure is 17; Poirier corrects this to 18.

[24] The NRSV here translates identical Greek differently, thus breaking up the sequential agreement. Contrast the RSV, which has twenty-six words in verbatim agreement in English.

[25] The agreement in the NRSV spans Matt 24:33–36//Mark 13:29–32, from "you know" to "that day."

[26] The exception is Matt 8:2–3//Luke 5:12–13, where the NRSV translates the same Greek differently in each case, thus disturbing the sequential agreement. See n. 24 above.