ANAGRAMMING THE BIBLE

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A book containing apposite letter-unit anagrams of every verse in three complete books of the King James Bible ("The Anagrammed Bible: Proverbs, Ecclesiastes, Song of Solomon" by Richard Brodie and Mike Keith) was recently published [1]. In this article I present some logological observations and discoveries resulting from the completion of this project.

The Bible-Verse Anagram

Short anagrams of ten or twenty letters are common, and longer ones such as the famous multiple anagrams of WASHINGTON CROSSING THE DELAWARE are also frequently constructed. The average Bible verse has 103.6 letters, which makes the construction of an anagrammatic paraphrase somewhat more challenging. On the one hand, a larger starting text provides more elbow room for choosing words for the anagram, but on the other hand it takes more work to construct a long anagram than it does to make a short one.

A computer can be employed to relieve some of the mundane aspects of the job, such as keeping track of unused letters and making sure the final anagram is, in fact, a perfect transposal of the original. While still leaving the actual creative literary task to the human writer, there are other chores the computer can usefully perform:

- For each of the 26 letters of the alphabet, the number still unused can be compared with the average frequency of that letter in English, and then classified as being in excess, or in deficit, or about right. As we construct the anagram, this can be used to guide the choice of words so that excess letters are used up early and deficit letters avoided, to prevent us from ending up with (say) QXCGY at the end.
- Another very important measure is vowel percentage. English text averages around 40% vowels, so if our pool of unused letters reaches a point of having (say) less than 30% or more than 50% vowels, we had better take corrective action soon, or we'll find ourselves in a situation with too few or too many vowels to continue. Again, the computer can automatically keep track of this for us and warn us when we're getting in trouble.
- Finally, when we get close to the end (10 or 15 letters left) we can use the computer to exhaustively find *all* sets of words that can be formed from the pile of unused letters. Again, the human writer is responsible for choosing from among the results the one that has the most literary merit. In some cases, none of them may be satisfactory, in which case we might back up (i.e., return a word or two to the unused pile) and try again.

Using these techniques [2.3] and a sufficient amount of manual toil, it is usually possible not only to come up with a well-mixed rewording of a Bible verse having a parallel meaning, but also to work in some other literary devices to spice up the text (puns, modern dialect, poetical structures, and so on).

This one is a fairly straighforward paraphrase:

Prov 24:4
And by knowledge shall the chambers be filled with all precious and pleasant riches.

Anagram
Check paintings well-placed by the blessed ruler in halls and bedrooms. Ah, what a life!

while the next one alludes to a modern catch-phrase ("the good old days"):

Ecc 7:10
Say not thou, What is the cause that the former days were better than these? for thou dost not enquire wisely concerning this.

Anagram
Wish not, in unrest, for the quaint cheer of ancestry: no beauty was there. Chew on this tasty truth: *these* are the good old times.

This one uses two puns to drive its point home, while at the same time adhering not only to the meaning but the structure of the original ("Don't do A, for B will happen"):

Ecc 10:20
Curse not the king, no not in thy thought; and curse not the rich in thy bedchamber: for a bird of the air shall carry the voice, and that which hath wings shall tell the matter.

Anagram
Shut thy mouth when it's "raven" about the royal cleric; and talk not there at night of "robin" the chic throng: for the same highland birds shall etch thy character in the wind.

and the next one satirizes the industry associated with Madison Avenue:

Prov 30:14
There is a generation, whose teeth are as swords, and their jaw teeth as knives, to devour the poor from off the earth, and the needy from among men.

Anagram
The age overrateth just money in hand. The era's motto: Advertise and market goods Harness need! Promote with offers of "New!" (ha!), "Free!" (ha!), "Here, own it!"

A number of verses in Ecclesiastes are considerably longer than 100 letters, which raises the possibility of imposing additional constraints on the anagram text. This 198-letter verse,

Ecc 8:14
There is a vanity which is done upon the earth; that there be just men, unto whom it happeneth according to the work of the wicked; again, there be wicked men, to whom it happeneth according to the work of the righteous: I said that this also is vanity.

can be anagrammed into six lines of iambic pentameter that capture some of the flavor of the Bible verse and also echo famous lines from *Julius Caesar.*

Anagram
O Jew or heathen, trust me with thine ears,
To catch a fact which I, which I then hooked:
The path I take--dire muck--is not kept neat;
Perhaps thou to a gaping void now go.
   In death man's rot, or cogent deeds, may live,
   But oft they wither there within his bones.

Might it be possible to aptly anagram every Bible verse? Clearly, the ones most likely to give trouble are the short ones. Amazingly, the shortest verse in the Bible (John 11:35, "Jesus wept") has a reasonably apt anagram ("Jew's upset"), though it involves changing from the past tense to the present. The second shortest non-genealogical verse in the Bible (I Thess 5:17. "Rejoice evermore") is doable (perhaps "Jeer; overcome ire"), and so is the next one (Ex 20:13, "Thou shalt not kill" = "Think all-out sloth"). Although we haven't tried all the short ones, it seems likely that something acceptable could be made from every verse in the Bible *except* for the genealogical ones.

But what is one to do with verses from the genealogies, like Neh 10:17 ("Ater, Hizkijah, Azzur")? Although anagrams of this verse do exist ("Huzza! I raze jar kit"), they can by no means be called apposite, and indeed it's not even clear what one would like to have from one of these genealogical verses. We could just turn Neh 10:17 into a list with three different made-up names, but this hardly seems satisfying.

To handle the passages of genealogy a simple expedient could be used, which is to anagram a section larger than a verse and allow the result to be something other than a list of names. To test the usefulness of this approach we took Neh 10:1-27, which contains the aforementioned Neh 10:17 and is preceded and succeeded by non-genealogial text that talks about a covenant entered into by the people. In keeping with this theme, here is Neh 10:1-27 anagrammed into further discussion of the covenant:

Neh 10:1-27	Anagram
Now those that sealed were:	So we promised to:
Nehemiah, the Tirshatha, the son	Hail Him, an amazing God;
of Hachaliah, and Zidkijah,	Minimize Baal-like habits
Seraiah, Azariah, Jeremiah,	(ah, fake anathema-pariah!);
Pashur, Amariah, Malchijah,	Humanize bad, inhumane Arabian habitats;
Hattush, Shebaniah, Malluch,	Inhibit bizarre humans abuzz with
Harim, Meremoth, Obadiah,	haphazard iambics (ah, banal poetic haze!);
Daniel, Ginnethon, Baruch,	Jazz up our kibbutzim via--aha!--
Meshullam, Abijah, Mijamin,	His jubilant Sabbath;
Maaziah, Bilgai, Shemaiah: these	Banish a Rajah's hazard
were the priests.	(ah, harem of jabbering Jezebels!);
And the Levites: both Jeshua the	Heed Him as he unleashes hailstorm
son af Azaniah,	or hard-rain phenomena;
Binnui of the sons of Henadad,	Jail or hand (aha--banish!) he who has
Kadmiel;	a hint of human hubris;

And their brethren, Shebaniah,
Hodijah, Kelita, Pelaiah, Hanan,
Micha, Rehob, Hashabiah,
Zaccur, Sherebiah, Shebaniah,
Hodijah, Bani, Beninu.
The chief of the people; Parosh
Pahathmoab, Elam, Zatthu, Bani,
Bunni, Azgad, Bebai
Adonijah, Bigvai, Adin
Ater, Hizkijah, Azzur,
Hodijah, Hashum, Bezai,
Hariph, Anathoth, Nebai,
Magpiash, Meshullam, Hezir,
Meshezabeel, Zadok, Jaddua,
Pelatiah, Hanan, Anaiah,
Hoshea, Hananiah, Hashub,
Hallohesh, Pileha, Shobek,
Rehum, Hashabnah, Maaseiah,
And Ahijah, Hanan, Anan,
Malluch, Harim, Baanah.

Judaize a Mahatma
  (even heal a Bahai Maharaja);
Behold each deed of His jubilant hand,
  both ahead and behind;
Think not on Allah; join the Homo Judeo race;
Hate atheism; breach shame;
  hail his euphonic aura;
Ah, the human half!
Ah, His lathe!
Ah, the heathen jihad!
Ah, His halo!
Ah, the human heap!
Ah, His rich anthem!
Ah, hejira-like death!
Ah, chapel of hosannas!
Ah, inhale His health!
Ah, hear His oath; see His panache!
Ah, enshrine Him again!
Ah, take His phial and be healed!
Amen.

Even as a unit this is a very difficult text, as it has fully twice the normal number of H's and A's (hence the frequent use of "ah" in the anagram), a serious deficit of T's, and far too many J's and Z's. This explains the somewhat surreal nature of at least part of the anagram.

How Difficult Is a Particular Text?

As we anagrammed our way through these Bible books, we found questions of this kind occurring frequently. For example, before embarking on the task of anagramming a book or chapter it might be nice to know if there are any particularly difficult verses in the book, so that these can be tackled first. Thus it is desirable to have a formula with which a computer could be programmed to estimate the difficulty of anagramming a particular verse (or group of verses, or some other unit of text).

One reaonable way to estimate anagram difficulty is to note that the closer a pile of letters is to the average letter distribution for English, the easier it will be to turn it into English prose. For a given piece of text, define $f(i)$ as the frequency of occurrence of the ith letter of the alphabet, with the $f(i)$ normalized so that their sum is one. Similarly, let $a(i)$ be the average letter frequencies for English text, again normalized to sum to one. We then define the difficulty of anagramming as the sum of the absolute differences $w(i) | f(i) - a(i)|$, taken over the 26 letters of the alphabet. The reason for using a weighted sum rather than an unweighted one is the empirical observation that not all deviations from the norm are equal; for example, an extra Z is harder to deal with than an extra E. For our weighting function, we arranged the letters of the alphabet in order from most common (E) to least common (Z), and then assigned them a linear range of weights from 1 to K. Empirically the value K=4 seems to work well; with this choice, E is given a weight of 1.0, T a weight of 1.12, A a weight of 1.24, and so on up to a weight of 4 for Z. (The formula isn't *too* sensitive to the choice of K. We tried K=3 and K=5 as

well, but didn't see much difference, at least in terms of identifying the most difficult verses.)

Applying this formula to the Book of Proverbs identifies the following three verses as the most difficult (the worst one listed first):

difficulty 1.510	Prov 6:13	He winketh with his eyes, he speaketh with his feet, he teacheth with his fingers;
difficulty 1.504	Prov 14:5	A faithful witness will not lie: but a false witness will utter lies.
difficulty 1.444	Prov 31:2	What, my son? and what, the son of my womb? and what, the son of my vows?

and indeed, all three of these proved quite challenging to anagram. Exactly one-fifth of Prov 6:13's 65 letters are H's, which is more than three times the normal amount for modern English! (In case you're wondering, our anagram is "Wise, this sick tweaker, the thief? He feigneth, he hypeth, he whitewasheth his sin.") In all three cases, word repetition is the primary cause of the skewed letter distribution.

The hardest verse in the Song of Solomon is the very first one ("The Song of Songs, which is Solomon's"), because of its shortness and a plethora of O's and S's. Interestingly, no verses in Ecclesiastes show up near the top of the difficulty heap, indicating that on the whole it is the easiest of the three books to anagram. One of its interesting verses is Ecc 9:4, whose set of 110 letters is devoid of the common vowel O.

David, Meet Walt

We close with one more example, from the book of Psalms. The first verse of Ps 19:1-6 is thematically related to a well-known poem by Walt Whitman, thus motivating an attempt to fashion an anagram that echoes both the Psalm and Whitman's poem.

This example (in which the whole set of six verses is anagrammed together) also illustrates a useful trick we frequently employ, which is to construct the anagram not in top-to-bottom order but rather from both ends toward the middle. From a literary point of view it's important to have a strong beginning and ending, so by writing those first we can ensure they use just the right words and the most pleasing syntax. As we work toward the middle, things may get a little more strained but this is usually acceptable. In this anagram (which, like Whitman's poem, consists of one long sentence) the two lines "Had to wander out... / Joining the sure chaos..." were the last ones written.

This poem also illustrates another facet of Bible anagramming, which is: how to deal with the common -eth verb ending in King James English? In most of our anagrams, including this one, we chose to use modern language (without -eth verbs). so this means that an overabundance of T's and H's have to be dealt with. This explains the use of several unusual words in our anagram, and one entire line (the fifth one) whose purpose was mainly to soak up a lot of H's.

Psalm 19:1-6
The heavens declare the glory of God;
  And the firmament sheweth his handywork.
Day unto day uttereth speech,
  And night unto night sheweth knowledge.
There is no speech nor language,
  Where their voice is not heard.
Their line is gone out through all the earth,
  And their words to the end of the world.
In them hath he set a tabernacle for the sun,
  Which is as a bridegroom coming out of his chamber,
  And rejoiceth as a strong man to run a race.
His going forth is from the end of the heaven,
  And his circuit unto the ends of it:
  And there is nothing hid from the heat thereof.

Anagram
When I had listened to the erudite astronomer,
When his high thoughts were arranged and charted before me,
When I was shown the length and breadth and height of it,
The Earth, the horned Moon, the chariot of fire,
The hundredth flight of the shuttle through heavyish air,
How soon, mysteriously, I became sad and sick,
Had to wander out, ousted, charging through the forest,
Joining the sure chaos here in a foreign heath,
Having forgotten the vocation of the learned man,
And in the mystic clearing, once more looked up
In perfect silence at the sermon in the stars.

References

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