Patterns of English Consonant Clusters in E. M. Forster's "The Road From Colonus"

Abd Ali Nayif Hasan*

Department of English, College of Basic Education, University of Babylon, Iraq

Corresponding Author: Abd Ali Nayif Hasan, E-mail: abdalinayhf@ yahoo.com

ARTICLE INFO

ABSTRACT

A consonant cluster (henceforth CC) is a combination of two or more consonants without a vowel between them. There can be initial, medial and final CCs. Additionally, there are initial CCs with medial or final ones, and medial CCs with final ones. To the best knowledge of the researcher, patterns of English consonant clusters in Forster's 'The Road from Colonus'' has not been handled previously.The present study aims at analyzing CCs in such a short story and finding out patterns of such clusters. Those consonant sequences are statistically investigated in order to show their most prominent patterns and their frequency. Accordingly, it can be hypothesised that medial patterns of CCs are more prominent and commonly used than initial and final ones whereas the frequency of final patterns of CCs is higher than that of initial and medial ones. The results of analyzing CCs in the short story under investigation indicate that there are (31) patterns of two and three – initial CCs whose frequency is (335), (79) patterns of two, three and four – final CCs which are repeated (552) times and (122) patterns of two and three– medial CCs whose frequency is (355). Such results lead to the conclusions that medial patterns of CCs are more than initial and final ones but the frequency of the patterns of final CCs exceeds that of initial and medial ones.

Key words: Consonant Clusters, Sequence, Initial, Medial, Final, Pattens.

INTRODUCTION

A consonant sequence is mentioned to mean a run of consonants uninterrupted by a vowel or a pause. In this case, CCs in English are classified into initial, medial and final according to their positions within words. Initial CCs, known as onsets, comprise two or three consonants. They are referred to as two – segment initial clusters such as: from /frəm/, dry /drai/, stay /stei/, and three – segment initial clusters such as: street /stri: t/, square /skweə /and spread /spred/. Medial CCs occur in the middle of words between two vowels in a single word which means that the consonants belong to different neighboring syllables. According to (internet 1), this type of CCs is known as inter – syllabic. It can include two, three and four segments. Examples of two – segment medial clusters are'' salted ''/so: ltid/ and ''mended'' /mendid/. Three – segment medial CCs are the ones in ''tempted'' / temptid /and ''glimpses'' /glimpsis/. Four – segment CCs are found in ''exclaim'' /ekskleim/ and ''promptly'' /promptli/. Final CCs, known as codas, occur at the end of words in positions preceded by vowels. They contain two, three and four consonants. Examples of such clusters are ''end'' /end/ and ''ask'' /a: sk/ (two – final CCs). ''next'' /nekst/ and ''text'' / tekst/ (three – final CCs). ''twelfths'' /twelfƟs/ and ''tempts'' /tempts/ (four – final CCs).

The Research Problem

A combination of consonants without being interrupted by vowels doesn't occur randomly. It requires phonotactic rules according to which initial, medial and final CCs are organized. The problem arises when dealing with the arrangement of such consonants to form words. Such an arrangement involves an emphasis on studying the charecteristics of consonants by which it can be recognized why, for instance, the CC /pb/ cannot occur initially. The impossibility of such an initial CC is related to the fact that both /p/ and /b/ are bilabial, i.e. they are pronounced at the same place of articulation.

The Aims of Research

The study under investigation sheds light on CCs in E. M. Forster's "The Road From Colonus". It aims at identifying the most prominent patterns of CCs and their frequency in this short story. Additionally, this study focuses on sonority sequencing principles, constraints on CCs, CCs reduction, types of allophonic variation and other information related to CCs.

INITIAL CONSONANT CLUSTERS

Initial CCs refer to a sequence of two or three consonants that occur at the beginning of English words in the same

syllable. In a single syllable, onset and coda are optional whereas the nucleus represented by a vowel is mandatory in which case no syllable is formed without a vowel except the syllabic consonants that constitute syllables without vowels. According to Carr (1993: 196), a syllable can be either open or closed. The former means that it ends with a vowel whereas the latter indicates that the syllable ends with one or more consonants. Collins and Mees (2008: 74) classify consonants into five groups as illustrated below:

1. Stops are produced with a completely blocking of the air stream.
2. Fricatives are produced when the air passes through a narrow passage where it causes audible friction.
3. Lateral is produced with a centrally blocking of the air stream, but the air escapes laterally.
4. Nasals are produced when the soft palate is lowered and the air is allowed to pass through the nasal cavity.
5. Approximants are produced when the articulators approach each other.

Two – Initial Consonant Clusters

Two – initial CCs in English are of two types; the first of which comprises /s/ followed by a small set of consonants as in: "stay" /stei/," swear" /sweə/, "smile" /smail/ and others. The /s-/ in such clusters is referred to as pre – initial. The second consonants /t/, /w/ and /m/ are known as initial consonants (Roach, 2000: 71). The second type of this cluster consists of one of a set of consonants followed by one of /l/, /r/, /w/ and /j/ as in: "play" /plei/, "tribe" /traib/, "queen" /kwi:/ and "few" /fju:/. In these clusters, the first consonant is called initial and the second the post – initial (ibid: 73).

In this respect, Gramley and Patzold (1992: 100) indicate that the phonotactics of English allows consonant sequences in which the approximants /j/, /r/, /w/ and the lateral /l/ can occur after almost all the stops and some of the fricatives at the beginning of a word as in: /pr-/ "price" /prais/, /br-/ "break" /breik/, /fr-/ "from" /frəm/, /tr-/ "try" /trai/, /dr-/ "drink" /driŋk/, /Ɵr-/ "threw" /Ɵru:/, /ʃr-/ "shrink" /ʃriŋk/, /gr-/ "grow" /grəu/, /kr-/ "cream" /kri: m/. only /s/ can occur initially preceding /p/, /t/, /k/, /m/, /n/ and /f/ as in: "speak" /spi: k/, "star" /sta:/, "score" /sko:/, "small" /smo: l/, "snow" /snəu/, sphere /sfiə/.

Carr (1993: 196) points out that the first consonant in two – initial CCs must be an oral stop and the second a liquid /l/ or /r/ as in: "pray" /prei/, "bring" /briŋ/, "please" /pli: z/, "bleat" /bli: t/, "tram" /træm/," dram" /dræm/, "cram" /kræm/, "close" /kləuz/, "grow" /grəu/ and "glove" /glʌv/.

According to Kuiper and Allan (1996: 64), only the following patterns of two – initial CCs can occur in English:

1. /p/ + /l, r, j/. 2. /b/ + /l, r, j/. 3. /t/ + /r, j, w/. 4. /k/ + /l, r, w, j/. 5. /m/ + /j/. 6. /l/ + /j/. 7. /f/ + /l, r, j/. 8. /Ɵ/ + /r, j, w/. 9. /ʃ/ + /r/. 10. /d/ + /r, j, w/. 11. /g/ + /l, r, w, j/. 12. /n/ + /j/. 13. /v/ + /j/. 14. /s/ + /l, j, w, p, t, k, m, n, f/. 15. /h/ + /j/.

Such patterns show that both oral and nasal stop consonants are followed by approximants. In this case, only /k/ and /g/ may be followed by four approximants. In addition, some fricatives are followed by some approximants. It

should be noted that the fricative consonant /s/ is different from other fricatives in that it is followed by the voiceless stops, nasals such as /m/ and /n/, a voiceless fricative /f/ and approximants.

Three – Initial Consonant Clusters

A clear relationship between the three initial successive consonants can be recognized. Such clusters comprise a small number of patterns beginning with /s/. In this case, Roach (2000: 73) indicates that the /s/ is referred to as a pre – initial consonant; the second consonants including the voiceless stops such as /p/, /t/ and /k/ are called initial consonants, and the third consonants comprising /l, r, w, j/ are called post – initial. Crystal (2003: 243) shows the following patterns of three – initial CCs:

1. /s/ + /p/ + /l/ : splash /splæʃ/. 2. /s/ + /p/ + /r/ : spread / spred/.
2. /s/ + /p/ + /j/ : spourious /spjuəriəs/. 4. /s/ + /t/ + /r/ : street /stri: t/.
3. /s/ + /t/ + /j/ : stupid /stju: pid/. 6. /s/ + /k/ + /l/ : sclerosis /sklərəusis/.
4. /s/ + /k/ + /r/ : screw /skru:/. 8. /s/ + /k/ + /j/ : skewer / skjuə/.
5. /s/ + /k/ + /w/ : square /skweə/.

A single pattern such as /smj-/ as in "smew" /smju:/, meaning a name of a bird, can be added to the nine patterns stated above (ibid).

FINAL CONSONANT CLUSTERS

In English, the final CC of a syllable in monosyllabic words comprises two, three or four consonants.

Two – Final Consonant Clusters

According to Roach (2000: 73), there are two types of two – final CCs; the first of which is described as (pre – final + final). The pre – final consonants comprise a small set including /m, n, ŋ, l, s/ as in: "bump" /bʌmp/, "bent" /bent/, "bank" /bæŋk/, "belt" /belt/ and "ask" /a: sk/. The second type is (final + post – final). The post – final consonants form a set such as /s, z, t, d, Ɵ/ as in: "bets" /bets/, "beds" /bedz/, "backed" /bækt/, "bagged" /bægd/ and "eighth" /eitƟ/. Those post – final consonants are considered as separate morphemes because they are suffixes added at the end of words such as "s" plural, "s" of third person singular, "ed" suffix added to regular verbs to form past simple or past participle and the suffix "th" pronounced /Ɵ/ results from changing the adjective into a noun as in: "deep" /di: p/, "depth" /depƟ/. It should be noted that the suffixes "s" and "ed" are pronounced /s/, /z/, /iz/ and /t/, /d/, /id/ respectively depending on the preceding consonants.

Sapir (2004: 42) affirms that each language has its own features of CCs in that the combination /ts/, for instance, is found in both English and German but in English it occurs only in coda position as in: "hats" /hæts/ whereas in German it occurs freely. Some languages have a great CC; in others, CCs are limited and sometimes no two consonants can

come together. "Frequently, a sound occurs only in a special position or under special phonetic circumstances".

O'connor (1980: 67 – 76) states certain patterns of two – final CCs as illustrated in the following points:

1. Stop + stop: kept /kept/, act /ækt/, dragged /drægd/.
2. Stop+ nasal: garden /ga: dn/, written /ritn/, hidden /hidn/.

   It appears that in such examples, the nasal consonant /n/ is syllabic in that it constitutes a syllable itself, i.e. each word comprises two syllables because there is origi- nally an elided /ə/ preceding /n/. both /tn/ and /dn/ can be followed by /s, z, t, d/ to form a three - final CC as in: importance /impo: tns/, gardens/ ga: dnz/, wouldn't /wudnt/ and shortened /ʃo: tnd/.

3. / t/ or /d/ + /l/ : middle /midl/ and little /litl/.

   In these examples, /l/ is syllabic similar to /n/ explained in (2) above. The lateral /l/ can be followed by /z/ or /d/ to form a cluster of three consonants at the end of the word as in: models /modlz/ and titled /taitld/.

4. /l/ + consonant: help /help/, else /els/, film /film/, fault /folt/, welsh /welʃ/, milk /milk/, self /self/.
5. Nasal + consonant: sense /sens/, punch /pʌnʧ/, revenge /rivenʤ/, want /wont/, jump /ʤʌmp/, thank /Ɵæŋk/, tri- umph /traiəmf/.

Three – Final Consonant Clusters

According to Baker and Hengeveld (2012: 326), a coda position, in English, may consist of three consonants as in "pants" /pænts/. This Three – final CC cannot occur in onset position, i.e. no English word begins with /nts/. In this re- spect, Roach (2000: 75 – 6) indicates that there are two types of three – final CCs; the first of which is identified as (pre – final + final + post – final) as in: "helped" /helpt/, "banks" /bæŋks/, "bonds" /bondz/, "twelfth' /twelfƟ/. The second type is characterized as (final + post – final1 + post – final 2). This pattern shows that there is no pre – final consonant. Here post – final 2 is a suffix comprising /s, z, t, d, Ɵ/ as in: "fifths" /fifƟs/ and "lapsed" /læpst/.

Four – Final Consonant Clusters

Four – final CCs consist of (pre – final + final + post – final 1 + post – final 2) as in: "twelfths" /twelfƟs/," prompts" /prompts/. There is another type of this cluster which can be characterized as (final + post – final 1 + post – final 2 + post – final 3). This pattern shows that there is no pre – final consonant as in: "sixths" /siksƟs/ and "texts" /teksts/ (ibid).

CONSONANT CLUSTERS AND DIGRAPHS

A CC is a sequence of consonants without a vowel between them whereas a digraph is a group of two consonant letters to stand for a single consonant sound. For instance, the word "ship" /ʃip/ begins with two consonant letters "s" and "h" that represent the single sound /ʃ/. On the other hand, the sin- gle consonant letter "x" stands for two consonant sounds /ks/ as in "six" /siks/, /gz/ as in "exist" /igzist/, /kʃ/ as in "sexual" /sekʃuə/, or /gʒ/ as in "luxury" /lʌgʒəri /(internet 2).

It should be noted that the consonant letter "x" may produce sounds in two different syllables. Also, there is a combination of digraph as clusters as in: "length" /lenƟ/ with two digraphs "ng" and "th" representing a cluster of two consonant sounds /ŋƟ/. In the same respect, the word "lights" /laits/ ends with four consonant letters "ghts" which represent only two consonant sounds /t/ and /s/ which means that the two letters "gh" are silent. Additionally, the word "sightscreen" /saitskri: n/ has six consonant letters "ghtscr" combined together in its medial position to represent a clus- ter of four consonants /tskr/ (ibid).

SONORITY SEQUENCING PRINCIPLE

According to Fasold and Connor – Linton (2006: 30), sonority is defined as "relative openers of the vocal tract, which cor- responds directly to the relative loudness of a sound". Low vowels are considered as "the most sonorous sounds" where their production involves opening the mouth and that they flow out without an obstruction in the air stream. Voiceless stops are referred to as "the least sonorous sounds" because their production requires a complete closure of the mouth where the air stops there for a period of time and then it bursts out followed by explosion. Other sounds are between these two extremes. In this sense, Gussenhoven and Jacobs (2012: 165) affirm that "the sonority of a syllable increases from the beginning of a syllable onwards, and decreases from the beginning of the peak onwards. Intuitively, sonority is re- lated to the overall acoustic energy of segments". Sonority scale is stated as follows: "Obstruents – Nasals – Liquids ([l, r], etc.) – Glides ([w, j], etc.) – vowels". Accordingly, it can be noted that any initial CCs that reverse the direction of increasing sonority such as [mk-] or [wl-] is less common that one that does not, like [pn-] or [ml-]. Conversely, any rhyme that increases the sonority from left to right like [-lj] is disfavored.

In this case, Carr (1993: 198) states that studying the na- ture of the syllable thoroughly requires sonority hierarchy. It is indicated that the segments comprising a syllable tend to increase in sonority as proceeding from the edge of the syl- lable towards the center. Thus, in the word "priest" /pri: st/, the /r/ is more sonorous than /p/ and the vowel /i:/ is more sonorous than /r/. When proceeding from the center of the syllable to the final CC, the /s/ is less sonorous than the vow- el /i:/ and that /t/ is less sonorous than /s/.

Similarly, Gierut (1999) points out that a sonority se- quencing principle is regarded as a universal hierarchy that decides the permissible sequences of consonants within syl- lables. In this sense, Glements (1990) claims that this prin- ciple requires that complex onsets should rise in sonority, and complex codas involve fall in sonority with the center of the syllable being the sonority peak. This principle is fol- lowed by most English onset clusters in which case the so- nority distance of the first segment in the CC is lower than the second segment in such a CC as in: "small" /smo: l/, "snail" /sneil/ and "slow" /sləu/. However, this principle is violated by clusters beginning with the fricative /s/ plus a voiceless plosive as in: "spell" /spel/, "stone" /stəun/ and "scale" /skeil/.

In the same sense, Collins and Mees (2008: 78) assert that "sonorants are more likely to feature towards the center of the syllables". This characteristic is very important for the ordering of consonant sequences. In this case, /kl-/, for instance, in "clay" /klei/ is a possible initial CC whereas /lk/ is impossible. On the other hand, the consonant sequence /kl/ cannot occur in final CCs whereas /lk/ as in "bulk" /bulk/ is permitted in this position. Gierut (1999) supports this principle by indicating that increasing the sonority distance between the elements in a CC makes the sequence more natural. For instance, the two – initial CC /dr-/ or /tr-/ which moves from lowest to highest sonority is more natural than another cluster such as /sl-/ or /fr-/ that moves from middle to highest sonority. The same thing can be stated about final CCs. For example, the sequence /-rd/ or /-lk/, which has the greatest sonority distance, is more natural than /-rm/ or /-ns/, which has a low sonority distance.

CONSTRAINTS ON CONSONANT CLUSTERS

Each language has certain constraints on the possible consonant sequences. English, for instance, doesn't allow initial CCs including /pn-/, /ps- /or /vw-/ (Collins and Mees, 2008: 74). In English, a number of constraints on syllable structures can be stated as follows:

1. /ŋ/, /h/, /j/ and /w/ don't occur in initial CCs.
2. Voiced fricatives such as /v/, /ð/, /z/ and /ʒ/ do not occur as the second element in initial CCs.
3. In three – initial CCs, the first element should be /s/.
4. In initial CCs, /t/, /d/ and /Ɵ/ do not combine with /l/.
5. In onsets, nasals do not combine with stops.
6. The combination of nasals with stops in final CCs is homorganic, i.e. the two consonants are pronounced in the same place of articulation. for example, /mp/ and /ŋk/ but not /mk/ and /np/. This rule does not apply to inflected forms such as "banged" /bæŋd/ and "rammed" /ræmd/ where they end with the suffix "ed" pronounced /d/ (ibid: 75).

Kuiper and Allan (1996: 63 – 5) assert that some CCs seem difficult to articulate. Thus, combinations such as /spw/, /stl/ and /stw/ are not permitted as initial CCs. Such clusters are different from sequences such as /pdz/, /bfn/ or /gtb/ which are ruled out according to the phonotactic constraints on (ccc) clusters. Additionally, the sequences /gb/, /vŋ/ and /mdʒ/ are not permitted in final CCs.

In this sense, Akmajian et al (1997: 92 – 3) affirm that combinations such as /bt/, /nk/, gb/, /pt/, /pb/, and /pk/ cannot occur initially though they are permitted internally. However, consonant sequences including /br/, /dr/, /gr/, /bl/, /gl/, /pr/, /tr/, /kr/, /pl/ and /kl/ can be found in onset positions. Native speakers have the ability to identify the well – formed CCs. The difference between allowed and disallowed consonant sequences is that the former consist of a stop followed by a liquid whereas the latter consist of two stops.

In this respect, Gramley and Patzold (1992: 100) assure that sequences such as "mbit" */mbit/ or "dnime" */dnaim/ are not found initially. However, a nasal and stop can combine in medial position when they occur in

different neighboring syllables as in "bombard" /bomba: d/ and "iambic" /aiæmbik/. The letters "ng" are pronounced without the stop /g/ when "ing" is added to verbs as in: "reading" /ri: diŋ/. However, the stop consonant /g/ is pronounced when adding comparative and superlative suffixes to adjectives as in: "stronger" /stroŋgə/, younger /jʌŋgə/ and longest /loŋgəst/. On the other hand, such /g/ is not pronounced when "er" is added to verbs to form nouns as in: "singer" /siŋə/. In medial and final positions, a combination of nasal plus voiceless stops such as /p, t, k/ or the voiced stop /d/ is permitted as in: "remember" /rimember/ where the CC /-mb-/ occurs medially and "sound" /saund/ where the CC /-nd/ occurs finally, whereas a sequence comprising a nasal plus voiced stops such as /b/ and /g/ can appear only medially as in: "amber" /æmb∂/ in which the the CC /-mb-/ occurs in a medial position.

CONSONANT CLUSTER REDUCTION

In final CCs, the final /t/ or /d/ is elided when followed by a word beginning with a consonant as the following examples illustrate:

Best friend /best frend/ ⟶ /bes frend/
Cold weather /k∂uld weð∂/ ⟶ /k∂ul weð∂/
She seemed funny /ʃi: si: md fʌni/ ⟶ /ʃi: si: m fʌni/
She passed a test /ʃi: pa: st ∂ test/ ⟶ /ʃi: pa: s ∂ test/
(Radford et al, 2009: 54 & Jule, 1996: 58).

However, Jenkins (2000: 143) affirms that such an elision is not permitted when /t/ is followed by a word beginning with a vowel as in: strict ordr /strikt o: d∂/.

In certain words, stop consonants /t/ and /d/ in final CCs seem difficult to pronounce. Thus, they are elided as elaborated in the examples below:

scripts /skripts/ ⟶ /skrips/, prompts /prompts/ ⟶ /promps

facts /fækts/ ⟶ /fæks/, hands /hændz/ ⟶ /hænz/, finds /faindz/ ⟶ /fainz /(ibid: 142).

In medial positions, the voiceless stop consonant /t/ in words such as "listen" /lisn/ and "castle" /ka: sl/ is obligatorily elided because it is not a feature of spoken words. Similarly, /t/ in "postpone" /p∂sp∂un/ and "christmas" /krism∂s/ is not pronounced though such words are carefully spoken (Jenkins, 2000: 142).

TYPES OF ALLOPHONIC VARIATION

Devoicing

As a matter of fact, nasal consonants such as /m/ and /n/ are voiced but they become voiceless or partially voiced when preceded by /s/ in two – initial CCs as in: "smoke" [sm∂uk] and "snow" [sn∂u]. In this sense, the lateral, voiced consonant /l/ becomes devoiced when preceded by voiceless plosives /p/ and /k/ in two – initial CCs where the syllable is stressed as in: "plain" [plein] and "claim" [kleim]. The same thing can be said about the approximants /w/ and /j/ where they become devoiced when preceded by the voiceless plosive /k/ as in: "queen" [kwi: n] and "qute" [kju: t]

(Collins & Mees, 2008: 94). It is worth noting that devoicing is represented by a diacritic such as [0] written under the devoiced consonant.

Palatalisation

Plosive consonants are palatalised when followed by a palatal consonant /j/ initially or medially as in: "cure" [kju∂], "pure" [pju∂], "beauty" [bju: ti], "tune" [tju: n] and "angular" [æŋgjul∂]. Similarly, fricatives are palatalised when followed by the palatal consonant /j/ as in: "fuse" [fju: z], "view" [vju:], "assume" [æsju: m] and "presume" [prezju: m]. It is important to note that palatalisation is represented by [j] written above the palatalised consonant. The other point is that the sequences /tj/ and /dj/ are reduced to /ʧ/ and /ʤ/ respectively as in: "picture" /piktj∂/ ⟶ /pikʧ∂/ and "solder" /s∂uldj∂/ ⟶ /s∂ulʤ∂/ (ibid).

Labialisation

Labialisation is a phonetic process whereby the consonant that precedes the bilabial consonant /w/ becomes labialised initially or medially as in: "switch" [swiʧ] and "language" [læŋgwiʤ]. Labialisation is represented by [w] written above the labialised consonant (ibid).

Advanced (retracted)

The alveolar consonants /t/ and /d/ are advanced or retracted to the following dental consonants /Ɵ/ and /ð/ as in: "eighth" [eitƟ] and "hid them" [hid ð∂m]. The same thing can be said about the alveolar consonants /n/ and /l/ as in: "anthem" [ænƟ∂m] and "healthy" [helƟi]. it can be noted that the bilabial consonant /m/ and the alveolar one /n/ are realised as labio – dental nasal / ɱ / when followed by the labio – dental consonants /f/ and /v/ as in: "emphasis" [iɱfæsiz] and "infant" [iɱfænt] (ibid).

SOUNDS AND SENSES

Crystal (2003: 251) states the senses conveyed by some – two initial CCs beginning with /s/ as elaborated in the following points:

1. "/sl-/ conveys downward movement, direction or position" as in: "slack" /slæk/, "slash" /slæʃ/, "slave" /sleiv/, "slice" /slais/, "slight" /slait/, "slim" /slim/, "slope" /sl∂up/, "slow" /sl∂u/, "sleep" /sli: p/, "sleeve" /sli: v/.
2. "/sn-/ conveys unpleasantness" as in: "snaffle" /snæfl/, "snag" /snæg/, "snail" /sneil/, "snake" /sneik/, "snatch" /snæʧ/, "sneer" /sni∂/, "sneeze" /sni: z/, "snore" /sno:/.
3. "/sw-/ conveys smooth, or wide – reaching movement" as in: "swaddle" /swædl/, "swagger" /swæg∂/, "swallow" /swæl∂u/, "swarm" /swo: m/, "sway" /swei/, "sweep" /swi: p/, "swell" /swel/, "swift" /swift/, "swill" /swil/, "swing" /swiŋ/, "swipe" /swaip/, "swish" /swiʃ/, "swim" /swim/, "swine" /swain/.

ANALYSING CONSONANT CLUSTERS IN E. M. FORSTER'S "THE ROAD FROM COLONUS"

This section tackles the frequency of CCs patterns and their percentages found in the short story under analysis as investigated in the following tables

RESULTS

The results of analysing CCs in E. M. Forster's "The road from colonus" tabulated above can be explained as follows:

Two – Initial Consonant Clusters

There are (26) patterns of two – initial CCs mentioned in the short story under analysis. The frequency of such patterns is (237). The pattern /gr-/ is said to be the most prominent one since it is repeated (40) times and its percentage is (16. 87) as shown in Table 1.

Table 1. Frequency of two–initial consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/gr-/	40	16.87	/kr-/	4	1.68
/st-/	34	14.34	/gl-/	4	1.68
/tr-/	26	10.97	/sw-/	4	1.68
/pl-/	18	7.59	/bj-/	4	1.68
/sp-/	13	5.48	/sl-/	4	1.68
/dr-/	11	4.64	/pr-/	3	1.26
/mj-/	11	4.64	/sm-/	3	1.26
/fr-/	10	4.21	/kl-/	3	1.26
/fl-/	9	3.79	/ʃr-/	3	1.26
/Ɵr-/	8	3.37	/hj-/	2	0.84
/br-/	7	2.95	/sk-/	2	0.84
/bl-/	6	2.53	/kj-/	2	0.84
/kw-/	5	2.10	/fj-/	1	0.42
Total	237	100			

Three – Initial Consonant Clusters

Table 2 shows that there are (2) patterns of three – initial CCs whose frequency is (10). These are /spr-/ which occurs seven times and its percentage is (70) and /str-/ that occurs three times and whose percentage is (30).

Two – Final Consonant Clusters

Table 3 comprises (52) patterns of two – final CCs whose frequency is (358). The most prominent of which is the pattern /-nd/ whose frequency and percentage are (41) and (11.42) respectively.

Three – Final Consonant Clusters

There are (17) patterns of three – final CCs whose frequency is (31) as illustrated in Table 4 where /-kst/ is in common use since its frequency and percentage are (6) and (19. 35) respectively.

Four – Final Consonant Clusters

Table 5 shows that there are (3) patterns of four – final CCs. Each pattern occurs once and its percentage is (33.33).

Two – Medial Consonant Clusters

There are (58) patterns of two – medial CCs whose frequency is (165) in the short story under analysis. The most prominent pattern of this type is /-nl-/ since it is repeated (14) times and its percentage is (8.48) as shown in Table 6.

Three – Medial Consonant Clusters

There are (18) patterns of three – medial CCs whose frequency is (40). The most common and prominent pattern of

Table 2. Frequency of three–initial consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/spr-/	7	70
/str-/	3	30
Total	10	100

Table 3. Frequency of two – final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-nd/	41	11.42	/-ʃt/	5	1.39
/-nt/	35	9.77	/-dz/	5	1.39
/-st/	26	7.26	/-lz/	5	1.39
/-ld/	26	7.26	/-lt/	5	1.39
/-tl/	15	4.18	/-dʒd/	5	1.39
/- vd//	14	3.91	/-ntʃ/	4	1.11
/-nz/	13	3.63	/-tʃt/	4	1.11
/-ts/	11	3.o7	/-lp/	4	1.11
/-vn/	9	2.51	/-ndʒ/	4	1.11
/-ns/	9	2.51	/-zn /	3	0.83
/-ŋk/	9	2.51	/-ʃn /	3	0.83
/-ps/	8	2.23	/-vl/	3	0.83
/-bl/	8	2.23	/-zd/	3	0.83
/-md/	8	2.23	/-zm/	3	0.83
/-pl/	8	2.23	/-nɵ/	3	0.83
/-dn/	7	1.95	/-lf/	3	0.83
/-mz/	6	1.67	/-ks/	3	0.83
/-pt/	6	1.67	/-vz/	2	0.55
/-ft/	6	1.67	/-mp/	2	0.55
/-dl/	6	1.67	/-ŋz/	2	0.55
/-kt/	5	1.39	/-pn/	1	0.27
/-ms/	1	0.27	/-lk/	1	0.27
/-gz/	1	0.27	/-mf/	1	0.27
/-fl/	1	0.27	/-sk/	1	0.27
/-kn/	1	0.27	/-sl/	1	0.27
/-sn/	1	0.27	/-rl/	1	0.27
Total	358	100			

Table 4. Frequency of three–final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-kst/	6	19.35	/-dst/	1	3.22
/-nst/	4	12.90	/-pʃn/	1	3.22
/-skt/	2	6.45	/-tlʃ/	1	3.22
/-mpl/	2	6.45	/-ŋkl/	1	3.22
/-ŋgz/	2	6.45	/-nts/	1	3.22
/-ndz/	2	6.45	/-znt/	1	3.22
/-ʃnz/	2	6.45	/-prl/	1	3.22
/-nʃn /	2	6.45	/-ndʒd/	1	3.22
/-lpt/	1	3.22			
Total	31	100			

Table 5. Frequency of four–final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-sʃnz/	1	33.33	/-ŋkfl/	1	33.33
/-ntfl/	1	33.33			
Total	3	100			

Table 6. Frequency of two – medial consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-nl-/	14	8.48			
/-nt-/	11	6.66	/-kʃ-/	1	0.60
/-st-/	11	6.66	/-mf-/	1	0.60
/-nd-/	10	6.06	/-bv-/	1	0.60
/-ns-/	8	4.84	/-stʃ-/	1	0.60
/-ld/	7	4.24	/-lϴ-/	1	0.60
/-mb-/	7	4.24	/-lh-/	1	0.60
/-ŋg-/	5	3.03	/-nh-/	1	0.60
/-bl-/	5	3.03	/-ts-/	1	0.60
/-ft-/	5	3.03	/-ml-/	1	0.60
/-lk-/	4	2.42	/-ndʒ-/	1	0.60
/-lt-/	4	2.42	/-zd-/	1	0.60
/-lw-/	4	2.42	/-nʃ-/	1	0.60
/-mϴ-/	4	2.42	/-dn-/	1	0.60
/-mp-/	4	2.24	/-dl-/	1	0.60
/-pl-/	4	2.24	/-lv-/	1	0.60
/-ks-/	3	1.81	/-nf-/	1	0.60
/-tl-/	3	1.81	/-kr-/	1	0.60
/-sk-/	3	1.81	/-dr-/	1	0.60
/-tr-/	3	1.81	/-sl-/	1	0.60
/-kt-/	2	1.21	/-lm-/	1	0.60
/-gl-/	2	1.21	/-tr-/	1	0.60
/-nw-/	2	1.21	/-kl-/	1	0.60
/-tj-/	2	1.21	/-pr-/	1	0.60
/-ktʃ-/	2	1.21	/-ps-/	1	0.60
/-kj-/	2	1.21	/-fr-/	1	0.60
/-sj-/	2	1.21	/-zl-/	1	0.60
/-sp-/	2	1.21	/-bs-/	1	0.60
/-nm-/	1	0.60	/-dw-/	1	0.60
/-dv-/	1	0.60	/-ls-/	1	0.60
Total	165	100			

this type is /-ldr-/ which is repeated (9) times and its percentage is (22.5) as illustrated in Table 7.

in common use because it occurs seven times and its percentage is (11.29) as in Table 8.

Two – Initial with Final Consonant Clusters

This means that there are two – initial CC in addition to a final one in the same word. There are (43) patterns of this type. The frequency of such patterns is (62). Pattern /st-pt/ is

Two – Initial with Medial Consonant Clusters

Table 9 indicates that there are (12) patterns of two – initial CC with a medial one in the same word. Each one of such patterns occurs once and its percentage is (8.33).

Table 7. Frequency of three – medial consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-ldr-/	9	22.5	/-kst-/	1	2.5
/-ktl-/	6	15	/-mpr-/	1	2.5
/-ntr-/	4	10	/-npr-/	1	2.5
/-ŋgl-/	3	7.5	/-ŋgd-/	1	2.5
/-ndl-/	3	7.5	/-ksp-/	1	2.5
/-mpl-/	2	5	/-skj-/	1	2.5
/-ntl-/	2	5	/-ŋkl-/	1	2.5
/-nds-/	1	2.5	/-tʃr-/	1	2.5
/-str-/	1	2.5	/-npl-/	1	2.5
Total	40	100			

Table 8. Frequency of two–initial with final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/st-pt/	7	11.29	/sk-tʃr/	1	1.61
/tr-ŋk/	3	4.83	/pr-vl/	1	1.61
/pr-st/	3	4.83	/pr-nt/	1	1.61
/pl-nz/	3	4.83	/dr-mz/	1	1.61
/fr-nd/	3	4.83	/st-ŋz/	1	1.61
/mj-lz/	3	4.83	/st-ps/	1	1.61
/kl-mps/	2	3.22	/dr-dz/	1	1.61
/pl-st/	2	3.22	/sp-lt/	1	1.61
/pr-ns/	2	3.22	/sl-pt/	1	1.61
/kl-ðd/	1	1.61	/sp-kn/	1	1.61
/kl-zd/	1	1.61	/br-ðd/	1	1.61
ʃr-bz/	1	1.61	/sm-lz/	1	1.61
/br-nt/	1	1.61	/st-bl/	1	1.61
/br-nd/	1	1.61	/sk-ts/	1	1.61
/tr-vl/	1	1.61	/gr-mz/	1	1.61
/ gr-ks/	1	1.61	/gr-nd/	1	1.61
/st-nz/	1	1.61	/fr-nt/	1	1.61
/br-tl/	1	1.61	/tr-ks/	1	1.61
/sp-nt/	1	1.61	/st-mp/	1	1.61
/pr-vd/	1	1.61	/tr-ʃt/	1	61
/tr-bl/	1	1.61	/st-nd/	1	1.61
/pr-nd/	1	1.61			
Total	62	100			

Two – Medial with Final Consonant Clusters

Table 10 shows that there are (40) patterns of two – medial CC in addition to a final one in the same word whose frequency is (68). Pattern /-ms-lf/ is most commonly used since it occurs (9) times and its percentage is (13.23).

Two Groups of Medial with Final Consonant Clusters

Table 11 shows that there are (7) patterns of two CC in addition to a final one in the same word**.** The frequency of such patterns is (8). Pattern /-nd-st-nd/ is in common use since it occurs twice and its percentage is (25).

Table 9. Frequency of two – initial with medial consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	frequency of patterns of CCs	Percentage of CCs
/sp-sm-/	1	8.33	/tr-bj-/	1	8.33
/tr-nsf-/	1	8.33	/tr-nd-/	1	8.33
/pl-nt-/	1	8.33	/tj-zd-/	1	8.33
/pr-pr-tn-/	1	8.33	/gr-nds-/	1	8.33
/tj-zd-/	1	8.33	/sk-sl-/	1	8.33
/br-Ɵl-/	1	8.33	/nj-sp-/	1	8.33
Total	12	100			

Table 10. Frequency of two – medial with final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-ms-lf/	9	13.23	/-nt-ʃn/	1	1.47
/-sf-dl/	5	7.35	/-nd-fl/	1	1.47
/-nt-bl/	4	5.88	/-sp-sl/	1	1.47
/-nt-st/	4	5.88	/-nv-ʃn/	1	1.47
/-lm-st/	3	4.41	/-nd-vd/	1	1.47
/-mp-bl/	3	4.41	/-nm-ts/	1	1.47
/-gj-nts/	2	2.94	/-nf-nt/	1	1.47
/-ls-dz/	2	2.94	/-nv-kʃn/	1	1.47
/-mp-nz/	2	2.94	/-nh-nts/	1	1.47
/-ks-nt/	2	2.94	/-lt-ʃn/	1	1.47
/-zm-nt/	2	2.94	/-st-ʃt/	1	1.47
/-ŋg-nd/	2	2.94	/-sj-md/	1	1.47
/-nd-ns/	1	1.47	/-nd-nd/	1	1.47
/-ns-ʃn/	1	1.47	/-nm-bl/	1	1.47
/-sm-nt/	1	1.47	/-nt-vl/	1	1.47
/-ns-ns/	1	1.47	/-kj-nts/	1	1.47
/-mp-ns/	1	1.47	/-gn-bl/	1	1.47
/-ŋg-st/	1	1.47	/-lj-bl/	1	1.47
/-lk-mz/	1	1.47	/-nk-ts/	1	1.47
/-sk-fl/	1	1.47	/-nd-bl/	1	1.47
Total	68	100			

Table 11. Frequency of two groups of medial with final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-nd-st-nd/	2	25	/-nk-nv-nt/	1	12.5
/-sk-nt-nt/	1	12.5	/-ŋg-dʒm-nts/	1	12.5
/-ks-tm-nt/	1	12.5	/-ntr-bj-ʃn/	1	12.5
/-nd-nd-nt/	1	12.5			
Total	8	100			

Three – Medial with Final Consonant Clusters

There are (6) patterns of three – medial CC with a final one in the same word. The frequency of such patterns is (7) as shown in Table 12 where /-ŋgl-nd/ is prominent since it occurs twice and its percentage is (28.57).

Three – Initial with Final Consonant Clusters

Table 13 shows that there are (6) patterns of three- initial CC with a final one in the same word. Thefrequency of such patterns is (12). The two patterns /str-ŋϴ/ and /str-gl/ are considered in common use since they occur three times each and whose percentage is (25).

Two Groups of Medial Consonant Clusters

Table 14 indicates that there are (23) patterns of two CCs that occur in the medial position of words. The frequency

of such patterns is (24). Pattern /-sk-nt-/ is the most prominent because it is repeated twice and its percentage is (8.33).

Miscellaneous consonant clusters

There are certain miscellaneous patterns of CCs as explained below:

a. **Four – mdial consonant clusters**
   A pattern of four - medial CC such as /-kspl-/ occurs twice in the short story under analysis.
b. **Four – medial with final consonant cluster**
   There are two patterns of four – medial CC with a final one such as: /-kskl-ʃnz/ and /-kskl-md/.
c. **Three groups of two – medial consonant cluster**
   There is one pattern of this type such as: /-bs-lj-tl-/ which occurs twice in this short story.

Table 12. Frequency of three – medial with final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-ŋgl-nd/	2	28.57	/-ntm-nt/	1	14.28
/-ksp-ns/	1	14.28	/-ksp-ʃn/	1	14.28
/-ŋkl-nd/	1	14.28	/-ksk-md/	1	14.28
Total	7	100			

Table 13. Three – initial with final consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/str-ŋϴ/	3	25	/str-mz/	2	16.66
/str-gl/	3	25	/str-nd/	1	8.33
/str-ndʒ/	2	16.66	/skr-md/	1	8.33
Total	12	100			

Table 14. Frequency of two groups of medial consonant clusters

Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs	Patterns of CCs	Frequency of patterns of CCs	Percentage of CCs
/-sk-nt-/	2	8.33	/-nt-nj-/	1	4.16
/-gn-ntl-/	1	4.16	/-kst-ml-/	1	4.16
/-ns-lf-/	1	4.16	/-ns-lt-/	1	4.16
/-ntr-kt-/	1	4.16	/-bs-lj-/	1	4.16
/-nt-mj-/	1	4.16	/-nd-tl-/	1	4.16
/-gr-vl-/	1	4.16	/-mpl-ntl-/	1	4.16
/-zl-sl-/	1	4.16	/-lj-sn-/	1	4.16
/-mp-nʃ-/	1	4.16	/-mf-bl-/	1	4.16
/-tr-kt-/	1	4.16	/-lj-tl-/	1	4.16
/-ns-st-/	1	4.16	/-nz-tr-/	1	4.16
/-gz-st-/	1	4.16	/-nd-st-/	1	4.16
/-mp-tn-/	1	4.16			
Total	24	100			

CONCLUSIONS

The results of analysing CCs in E. M. Forster's ''The road from colonus'' lead to the following conclusions:

1. Initial and final CCs are always related to single syllables
2. Most medial CCs are related to different neighboring syllables in the same word.
3. /s/ has the widest distribution in initial CCs.
4. No English word begins with more than three consonants.
5. No English word ends with more than four consonants.
6. All CCs are governed by phonotactic rules, i. e. the consonants are not randomly combined.
7. All three – initial CCs should begin with /s/ followed by one of voiceless stop consonants such as /p/, /t/ and /k/ and the third element is one of approximants including /l/, /r/, /w/ and /j/.
8. In final CCs, the post – final consonant is always a suffix.
9. Most of English words have initial CCs with medial or final ones, or medial CCs with final ones. In addition, some words have two or three CCs in the medial position.
10. In the short story under analysis, sometimes the same patterns of CCs, for instance, in initial positions of some words are found in initial with medial or initial with final positions of other words.This means that the same initial CCs are repeated twice or three times. Accordingly, such patterns are counted only once,i. e. the repeated patterns are not counted in order to find out their number. The same thing can be said about medial and final patterns of CCs. When the frequency of such patterns is intended to be investigated, all of them should be counted even if the same pattern occurs in initial positions of some words and in initial with medial or final positions of other words.Thus, there are (31) patterns of two and three – initial CCs whose frequency is (335). As far as final CCs are concerned, there are (79) patterns of two, three and four – final CCs whose frequency is (552). With regard to medial CCs, there are (122) patterns of two and three – medial CCs whose frequency is (355). Such statistical information indicates that medial patterns of CCs are more than initial and final ones. On the other hand, the frequency of final patterns of CCs is more than that of initial and medial ones.

ACKNOWLEDGMENTS

REFERENCES

Akmajian, A., Demers, RA., Farmer, AK., and Harnish, RM. (1997). *Linguistics*: *An Introduction to Language and Comunication*. 4th ed. Cambridge: The Mit Press.

Baker, Anne E. and Hengeveld, K. (2012). *Linguistics*. Oxford: John Wiley & sons, Ltd., Publication.

Carr, Ph. (1993). *Phonology*. London: The Macmillan Press LTD.

Collins, B., and Mees, I. (2008). *Practical Phonetics and Phonology: Resource book for Students*. 2nd ed. London and New York: Routledge.

Crystal, D. (2003). *The Cambridge Encyclopedia of the English Language*. 2nd.ed. Cambridge: Cambridge University Press.

Dolley, C. (ed.). (1972). *The Second Penguin Book of English Short Stories*. England: Penguin Books Ltd, Harmondsworth.

Fasold, R., and Connor–Linton, J. (2006). *An Introduction to Language and Linguistics*. Cambridge: Cambridge University Press.

Gierut, J. A. (1999). Syllable Onsets. Clusters and Adjuncts in acquisition. *Journal of Speech, Language and Hearing Research*, *42*(3), 708 – 726.

Glements, G. N. (1990). The Role of Sonority Cycle in Core Syllabification. *Papers in Laboratory Phonology*, 1, 283 – 333.

Gramley, S. and Patzold, K. (1992). *A Survey of Modern English*. London and New York: Routledge.

Gussenhoven, C., and Jacobs, H. (2012). *Understanding Phonology*. London: Hodder Education.

Jenkins, J. (2000). *The Phonology of English as an International Language*. Oxford: Oxford University Press.

Jule, G. (1996). *The Study of Language*. 2nd ed. Cambridge: Cambridge University Press.

Kuiper, Koenraad and Allan, W.Scott. (1996). *An Introduction to English Language: Sound, Word and Sentence*. London: Macmillan Press Ltd.

O'connor, J. D. (1980). *Better English Pronunciation*. 2nd ed. Cambridge: Cambridge University Press.

Radford, A., Atkinson, M., Britain, D., Clashen, H., and Spencer, A. (2009). *Linguistics: An Introduction*. 2nd ed. Cambridge: Cambridge University Press.

Roach, P. (2000). *English Phonetics and Phonology: A Practical Course*. 3rd ed. Cambridge: Cambridge University Press.

Sapir, E. (2004). *Languae: An Introduction to the Study of Speech*. New York: Dover Publications. INC.