Introduction
The repetition of a word becomes more distracting (i.e., redundant) in proportion to increased number. The word may be considered as individual (e.g., the’s in a title) or as a constituent of a larger syntactic unit (a phrase or clause).

Experimental sections
Part 1 – Materials and Method section: Method
Example: Redundant “to”
Buccal and lingual full thickness flaps were reflected to gain access to the osteotomy site.

Revision
Buccal and lingual full thickness flaps were reflected to access the osteotomy site.

Notes
In to gain access, access is a nominalisation of the verb to access, thereby necessitating the usage of the perfunctory verbal to gain. In the Revision, the infinitive phrase to gain access is nominalised into to access, enabling the prepositional phrase to the osteotomy site to be syntactically reduced to the noun phrase osteotomy site.

Part 2 – Materials and Method section: Materials
Example: redundant “there were”
In group I there were 17 men and 23 women, whereas in group II there were 19 men and 21 women.

Revision
The gender distribution was similar between group I (17 men, 23 women) and II (19 men, 21 women).

Notes
The constituents of an adverb clause of comparison repeat those in an independent clause. However, in most comparisons, it is possible to place the entities being compared at the end of the sentence with all other information preceding these compared entities—a transposition that provides thematic focus and end-of-sentence emphasis. In the Revision, the number of men and women is subsumed under group number to show a hierarchy between primary and secondary (e.g., detail) information—such explicit hierarchical levels facilitate comprehension.

Contextual sections
Part 1 – Title of a journal article
Example: redundant “the”
The Molecular Basis of The Marginal Growth Zone in The Developing Liver: The Function of The Notch Pathway

Revision
Molecular Basis of Marginal Growth Zone in Developing Liver: Function of Notch Pathway

Notes
Descriptive titles, which convey the nature of the research rather the message (i.e., the principal results), primarily consist of nouns and prepositional phrases (not verbs or verbalis). As result, such noun-rich titles seem to require the usage of articles, definite and indefinite. However, in practice such titles are usually free of definite articles—an article-minimised format considered a telegraphic style.

In the Example, if any of the constituents merit a definite article for emphasis it is Notch Pathway, because it is the focus of the research. In contrast, the addition of a definite article before a less thematic constituent (e.g., function) would elicit usage of the before notch pathway and the other nouns. Thus, the addition of one the could have a ‘snow ball’ effect.

Part 2 – Introduction section: Research problem pertinent background
Example: redundant “a”
More than two million hospitalisations and nearly half a million deaths are attributed to this infection annually.

Revision 1
More than two million hospitalisations and nearly a half million deaths are attributed to this infection annually.

Revision 2
More than two million hospitalisations and nearly half a million deaths are attributed to this infection annually.

Notes
The indefinite article a can be redundant. Removal of either of the a’s results in two revision options. Removal of both a’s would result in an ungrammatical syntax. Expressions such as half a million usually replace half of a million, whereby the a substitutes for of a.

Part 3 – Introduction section: Research problem pertinent background
Example: redundant “to”
The non-elastic property of woven fabrics is applied to garments to achieve realistic visual effects.

Revision
To achieve realistic visual effects, the non-elastic property of woven fabrics is applied to garments.

Notes
Repetition of to occurs when an adverbial to-containing prepositional phrase is contiguous to an adverbial infinitive phrase. In the Revision, the adverbial infinitive phrase is transposed to the sentence-start position, thereby distancing the to’s from each other and minimising the redundant repetition.
Part 4 – Introduction section: Research problem pertinent background

Example: redundant “them”
Mature Mde’s interact with T-cells and activate them.

Revision
Mature Mde’s interact with and activate T-cells.

Notes
The Example consists of two transitive verbs (interact with, activate) each with a direct object (the noun T-cells and the pronoun them). The first verb is phrasal. Because the noun and pronoun are equivalent to T-cells, syntactic melding is possible by the coordinated verbs sharing the same direct object T-cells.

Part 5 – Introduction section: Research objective

Example: Redundant “and”
We exploited cone cell-specific expression of eGFP to compare the expression of >14,000 genes, consisting of signal transduction, cell cycle, transcription, growth factor, and cell surface constituents (proteins, receptors).

Revision
We exploited cone-cell-specific expression of eGFP to compare the expression of >14,000 genes, consisting of signal transduction, cell cycle, transcription, growth factor, and cell surface constituents (proteins, receptors).

Notes
The Example consists of two transitive verbs (interact with, activate) each with a direct object (the noun T-cells and the pronoun them). The first verb is phrasal. Because the noun and pronoun are equivalent to T-cells, syntactic melding is possible by the coordinated verbs sharing the same direct object T-cells.

Part 6 – Introduction section: Experimental approach

Example: Redundant object
To determine whether the function of Frizzled-1 is to induce mitosis or maintain it, Frizzled-1 will be characterised by recombination experiments on skin explant cultures.

Revision
To determine whether the function of Frizzled-1 is to induce or maintain mitosis, Frizzled-1 will be characterised by recombination experiments on skin explant cultures.

Notes
A progressive syntactic reduction of the coordinated pairs provides insight that the coordinated pairs are infinitive phrases.

Summary
The rhetorical severity of repetition is a dissonance distraction. It is interesting that of the eight examples, six are distributed in the contextual sections; all of the examples of redundancy occur intra-sentence.

Several syntactic techniques are involved in eliminating redundant words, ranging from deletion of articles in a title to end-of-sentence comparison transformation in a complex sentence consisting of an independent and adverb clause. Perhaps the most interesting is the melding of contiguous infinitive phrases (or an infinitive and preposition phrase) to avoid the monotony of the infinitive marker to and the preposition to.

Michael Lewis Schneir, PhD
Professor, Biomedical Sciences
Ostrow School of Dentistry of University of Southern California, Los Angeles, CA
schneir@usc.edu