

The use of noun phrases in biomedical research papers written by Chinese scholars

Jin Xu

School of Foreign Studies, Southern Medical University, Guangzhou 510515, China

Correspondence to: Jin Xu. School of Foreign Studies, Southern Medical University, Guangzhou 510515, China. Email: jafferni@163.com.

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Grammatically, the simplest kinds of clause in English usually consist of nouns and verbs, for example:

Helen saw Bill.
(noun) (verb) (noun)

However, both in spoken and written languages, the positions before and after the verb are rarely occupied by just a single noun. More usually, they are filled by groups of two or more words. These groups of words are called noun phrases (NP), for example:

My friend saw Bill who comes from Leeds.
(NP) (NP)

NPs consist of a head noun plus one or two of the optional elements. These optional elements fit into four predetermined slots in the NP:

NP = ()
 1 2 3 4

1= determiner and/or enumerator (e.g., the, a, first, his)

2= pre-head modifier (e.g., red, washed, painting, steel)

3= head noun

4= post-head modifier (e.g., in Leeds, which I showed you)

Because of the optional nature of the slots 1, 2 and 4, NPs have a highly variable length, ranging from just single words to passages of text (1).

Specifically in biomedical research papers, NPs are commonly long containing large quantities of information, which are also the common reason for long and complex sentences, a prominent linguistic feature of research papers in English. Some exemplar sentences are as the following:

Example 1

NP (The age-matched LETO rats that are developed

from the same colony of OLETF rats but do not show DM and pancreatic fibrosis) were used as a normal control (2).

The subject of this sentence is a long NP, with the head noun of *rats* and slots 1, 2 and 4. The slot 4, as the post-head modifier, consists of two clauses, which is the main reason for the length and complexity of the sentence.

Example 2

These rats were maintained in NP (a temperature- and humidity- controlled room with a 12:12 h light-dark cycle) (2).

After the preposition *in*, there is an NP with the head noun of *room*. The slots 1, 2 and 4 define the number and conditions of the room. The comparatively complex NP enlarges the quantity of information contained in just one simple sentence.

Such long and complex NPs are common in biomedical research papers, whose use constitutes challenge to Chinese scholars due to the differences in habitual way of thinking and language expressing between Chinese and English. Linguistically, it is known as the negative transfer of the mother tongue (3). In this paper, I categorize the inappropriate use of NP in biomedical research papers written by Chinese scholars into four types as the following.

Absence of determiner, especially third personal possessive pronouns such as *its*, *their*

Example 3: *the occurrence of hypertension has NP (its causes) and consequences.*

Example 4: *in autumns and winters, many people perform moxibustion at home to preserve NP (their health).*

By contrast of the above two examples between Chinese and English, it can be found that Chinese do not use such determiners as *its* and *their* as the references and the cohesive

ties of the discourse (4). Therefore, such determiners are commonly absent in English research papers written by Chinese scholars.

Inappropriate use of pre-head modifier

Example 5: *the risk factors of hypertension include NP1 (insufficient physical activities), NP2 (excessive intake of the sodium salt), ...*

Example 6: *the symptoms of hypoglycemia are various, including NP1 (rapid heartbeat), NP2 (blurry vision), ...*

Example 7: *NP (More than half Chinese women at the child bearing age) are frequently exposed to second hand smoking.*

In Examples 5 and 6, there are totally four marked NPs. In Chinese, they have the structure of “Noun + Adjective”. However, they are expressed in English in such a reverse order of “Adjective + Noun”. Due to the negative transfer of their mother tongue and limited adjectives within their command of English, Chinese scholars tend to use the pre-head modifiers inappropriately, such as “lack physical activities”, “less physical activities”, “over taking the sodium salt”, “heartbeat that is accelerated”, “dim vision”, ...

And in Example 7, the subject is a comparatively long NP with the head noun of *women*. In Chinese, the head noun is the last word in the NP with many pre-modifiers. However, in English, some pre-modifiers in Chinese (like *Chinese* and *more than half*) are kept as the pre-modifiers and some function as the post-modifier (such as *at the child bearing age*). Due to the negative transfer of their mother tongue, Chinese scholars tend to confuse the pre-head modifiers and the post-head modifiers in such cases and their inappropriate uses include “child bearing age women in China” or “Chinese child bearing age women”.

Difficulty choosing the head noun

Example 8: *the experts recommended people receive qualified physical assessment for NP (appropriateness of moxibustion) and seek professional guidance for proper position of moxibustion.*

In Example 8, the marked NP in English has no corresponding NP in Chinese. In such cases, the choice of the head noun for an NP presents great challenge to Chinese scholars. Instead of the noun *appropriateness*, Chinese scholars tend to use a clause to express in English, such as “whether moxibustion is appropriate”. As shown in linguistic studies, the packaging of a clause into NP is customary in English research papers (5).

Unnecessary clause as the post-head modifier

Example 9: *type II diabetes is commonly related to NP (overweight induced hyperglycemia).*

Example 10: *a recent survey demonstrated that NP (more than 80% university graduates majoring in clinical medicine or nursing) are working in hospitals.*

From the structural analysis of NPs, we know that the verbs in either form of -ing or -ed can be used in both pre-head modifier and post-head modifier. However, Chinese scholars tend to put verbs in clauses and therefore overuse clauses as the post-head modifier. The above two marked NPs in the Examples 9 and 10 are commonly found to be inappropriately expressed as “hyperglycemia that can be induced by overweight” and “more than 80% university graduates who majored in clinical medicine or nursing”.

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