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JAPANESE TRANSLATIONS OF SPATIO-TEMPORAL PREFIXES IN MEDICAL ENGLISH

1. INTRODUCTION

Technical terms or scientific terms are linguistic expressions referring to some particular notion and conception and some specialized activity in a particular field. Their users are supposed to share their definition as a common background, and the same technical expression should refer to the same thing or event among users. This faithfulness to the definition should be maintained even across languages. Translations of technical languages provide us with valuable data on how languages differ in form to convey the same information, and are worth linguistic investigation.

When some technical expression in Language A is translated into Language B, the translated version in Language B should refer to the same particular notion or activity. Suppose that the two languages are typologically unrelated and that their grammars, such as word orders, richness of inflections, and so on, are rather different. If so, what happens in the translation of technical expressions from Language A to Language B? Is the word order kept unchanged? Is the technical word in Language A just borrowed into Language B? Is the word order determined according to the grammar of Language B? Is a new expression produced in Language B? The topic of the translation of technical terms is thus related

to the linguistic issues on structural similarities and differences between languages, language changes and borrowings.

In this paper, bearing these questions in mind, we are concerned with the translation patterns of technical terms employed in medical sciences between two typologically-unrelated languages, English and Japanese. Specifically, we address the question of how prefix-like elements in medical terminologies in English are translated into Japanese, since prefixes are generally assumed to be limited in Japanese. The comparison between English and Japanese in medical terms is based on Nagano's (2013) morphosyntactic analysis of spatio-temporal prefixes, and leads us to propose the wordness requirement that technical names should satisfy.

The organization of this paper is as follows. In section 2, we introduce medical expressions involving prefixes in English and their Japanese translations, and point out that there are two patterns of translation. In section 3, we are concerned with the question of why the two patterns are found, and suggest that it is solved by Nagano's (2013) analysis of spatio-temporal prefixes, which is based on Baker's category theory and multi-layered PP structures developed in cartographic research, like Svenonius (2010). In section 4, we observe that the two translation patterns are used in a different manner, and consider how they are different. Section 5 concludes the discussion.

2. PREFIXATION IN MEDICAL TERMS IN ENGLISH AND ITS JAPANESE COUNTERPARTS

2.1. TWO TYPES OF PREFIXES

Prefixes are widely used to derive medical terminologies in English. Most of them are etymologically traced back to Greek or Latin. They are divided into two types in terms of their function. The first type is a prefix functioning as a modifier. Some examples belonging to this type are given in the following list, cited from *Mosby's Medical, Nursing, & Allied Health Dictionary, Fifth Edition* (1998):

(1) Prefix	Meaning	Examples
a. anti-	against, opposing	Antisepsis (= against infection)
b. contra-	opposed, against	Contralateral (= opposite side)

c. dys-	difficult, bad, painful	Dyskinesia (= difficult motion)
d. micr(o)-	small	Micracoustic (= faint sounds)
e. hemi-	half	Hemiplegia (= epilepsy on one side of the body)
f. mult(i)-	many	Multiarticular (= many joints)
g. poly-	many, much, excessive	Polycystic (= with many cysts)
h. pachy-	thick	Pachyderma (= abnormally thick skin)
i. pseud(o)-	false	Pseudarthrosis (= false joints)
j. semi-	half	Semiconscious (= partly aware)

Most of the prefixes given above can be paraphrased to adjectives, numerals or quantifiers, and modify their head. For instance, *micro-* in (1d) means 'small' and modifies its head *acoustic*, producing *microacoustic* 'small sounds'. Likewise, *multi-* in (1f) means 'many' and modifies its head *articular*, producing *multiarticular* 'many joints'.

In contrast to modificational prefixes, spatio-temporal prefixes like *pre-* and *post-* are similar to prepositions which function as heads. (2) is a list of spatio-temporal prefixes used in medical terms, again cited from *Mosby's Medical, Nursing, & Allied Health Dictionary, Fifth Edition* (1998):

(2) Spatio-temporal prefixes

Prefix	Meaning	Examples of adjectives
a. pre-	before, in front of	Prenatal (= before birth)
b. post-	after, behind	Postoperative (= after surgery) Postocular (= behind the eye)
c. infra-	below, beneath	Infraorbital (= beneath the eyes) Infracostal (= below a rib)
d. sub-	under, beneath	Subcutaneous (= under the skin)
e. extra-, extro-	outside of, beyond, outward	Extraoral (= outside of the mouth)
f. end(o)-, ent(o)-	within, inner	Endaural (= within the ear)
g. intra-	within	Intracardiac (= within the heart)
h. mes(o)-	middle	Mesonasal (= middle of the nose)
i. inter-	between	Intercostal (= between ribs)
j. para-	beside, beyond, after	Paracardiac (= beside the heart)

k. peri-	around	Peribulber (= around the eye bulb)
l. super-, supra-	above, superior, excess	Suprarenal (= above the kidneys)
m. ep(i)-	upon, on, over	Epicostal (= upon a rib)
n. trans-	across, through	Transaortic (= through the aorta)

Prenatal in (2a) and *postoperative* in (2b), for example, can be paraphrased into *before birth* and *after surgery*, respectively. *Pre-* corresponds to the preposition *before*, and *post-* to the preposition *after*. Further examples of medical terms with *pre-* or *post-* are given in (3):

- (3) a. precostal, preauricular, preaortic, precapillary, prerectal, preretinal,
b. postoral, postauricular, postbrachial, postcapillary, postnasal, postpalatine

Interestingly, these prefixes are ambiguous between a spatial interpretation and a time interpretation in some cases. For example, as indicated by the definitions in the medical dictionary, *presynaptic* means either 'situated near or before a synapse', or 'before a synapse is crossed', and *postsynaptic* means either 'situated after synapse' or 'occurring after a synapse has been crossed':

- (4) a. presynaptic
1. situated near or before a synapse.
2. before a synapse is crossed
b. postsynaptic
1. situated after a synapse.
2. occurring after a synapse has been crossed

(*Mosby's Medical, Nursing, & Allied Health Dictionary, Fifth Edition* (1998))

As is well known, English shows right-headedness in word formation, though phrases have left-headed structures. From this point of view, it can be said that spatio-temporal prefixes behave exceptionally, occurring leftward as heads in words.

What should be noted here is that prefixes of the prepositional type, that is, spatio-temporal prefixes, are difficult to translate into Japanese. They are paraphrased to, or correspond to, prepositions in English. However, Japanese has no prepositions. This raises the question of how English medical terms with spatio-temporal prefixes are translated into Japanese.

2.2. JAPANESE TRANSLATIONS OF SPATIO-TEMPORAL PREFIXES

Focusing on the spatial usage of the prefix *post-* as an example, let us see how it is translated into Japanese in a representative English-Japanese dictionary for medical terms. The Japanese translations of the English medical terms, *postsynaptic*, *postbranchial*, *postoral*, *postauricular* and *postnasal*, for instance, are as follows:

- (5) a. **postsynaptic** → *sinapusu koobu (no)*
 synapsis posterior (NO)
 'situated after a synapse'
- b. **postbrachial** → *zyoowan koobu (no)*
 upper arm posterior (NO)
- c. **postoral** → *kuti koohoo (no)*
 mouth posterior (NO)
- d. **postauricular** → *zikai koohoo (no)*
 ear auricle posterior (NO)
- e. **postnasal** → *hana no koohoo (no)*
 nose Gen posterior (NO)

(*English-Japanese Dictionary of Medical Science*)

First consider (5a) and (5b). In these cases, *post-* is translated as *koobu*. Literally, *koo-* means 'posterior' and *-bu* means 'part', and *koobu* is thus a kind of compound of free form, literally meaning 'a posterior part'. In addition, *koobu* comes rightward, while its English counterpart *post-* behaves like a prefix. Turning to (5c-e), instead of *koobu*, the expression *koohoo* is adopted as a translation of *post-*. *Hoo* in *koohoo* is a lexeme whose original meaning is 'orientation'. *Koohoo* is also a compound resulting from the Merge of the morpheme *koo-* 'posterior' and *hoo* 'orientation', and has almost the same meaning that *koobu* does. *Koohoo* comes to the right position again. Note that the final particle *no*, which is in brackets, is a functional category guaranteeing a prenominal use. Like *postsynaptic*, its Japanese counterpart, *sinapusu koobu no*, functions as a prenominal modifier.

Japanese is a head-final language, and thus the Japanese translations in (5) all conform to the headedness property of Japanese. However, *post-* is often translated in such a way that its Japanese counterpart occurs leftward like a prefix, keeping the original head/complement order unchanged. Consider, for example, (6):

- (10) **post-X:** → (i) X-[free morpheme]
e.g. *X-koobu*
X-koofoo
(ii) [bound morpheme]-X
e.g. *koo-X*

Let us call the translation pattern in (10i) the *X-Koofoo* pattern, and that in (10ii) the *Koo-X* pattern. Assuming that the two-way translation is a fundamental property of spatio-temporal prefixes in medical English, we attempt to explain why the two forms are found in Japanese translations, paying attention to the prefix *post-*. Specifically, we address the following questions:

- (11) a. How are the two translation patterns in (10) derived?
b. What is the difference between them?

We show that Nagano's (2013) analysis of spatio-temporal prefixes provides us with a possible explanation of why there are two translation patterns illustrated in (10). In the next section, based on Nagano's analysis, we answer the question (11a).

3. NAGANO'S (2013) COMPLEX PP ANALYSIS AND ITS APPLICATION TO JAPANESE

In the preceding section, we observed that medical terms with spatio-temporal prefixes can be paraphrased into expressions of PP structures in English. As shown in (2b), the expression *postoperative* can be paraphrased into an expression such as *after surgery*, for example. In this section, we first introduce Nagano's (2013) analysis of the relationship between spatio-temporal prefixes and PP structures, and then attempt to answer the question (11a).

3.1. NAGANO'S ANALYSIS

As Nagano (2013) observes, the correspondence between spatio-temporal prefixes and PPs are not limited to medical language. This is generally the case, as illustrated as follows:

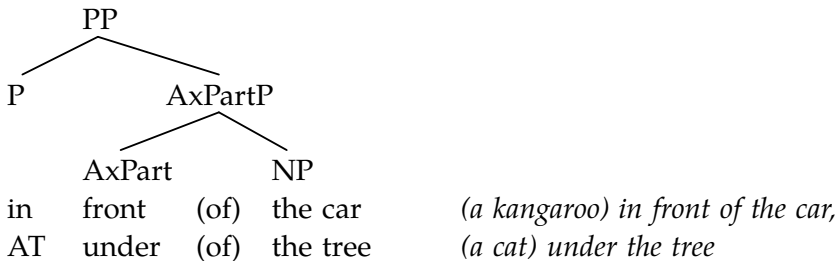
- | | |
|---|--|
| (12) a. <i>preadverbial</i> expression | a'. expression <i>in front of an adverb</i> |
| b. <i>pre-Chaucerian</i> literature | b'. literature <i>before Chaucer</i> |
| c. <i>postnominal</i> adjective | c'. adjective <i>after a noun</i> |
| d. <i>intra-organismal</i> and
<i>interorganismal</i> struggle | d'. <i>within and between struggle</i>
<i>organisms</i> |
| e. <i>sub-Saharan</i> Africa | e'. Africa <i>below the Sahara</i> |
| f. <i>suprasegmental</i> phonemes | f'. phonemes <i>above segments</i> |
| g. a <i>trans-global</i> expedition | g'. expedition <i>across the globe</i> |

(Nagano 2013: 123)

The adjective with a spatio-temporal prefix in (12a), *preadverbial*, for example, can be paraphrased into the PP *in front of an adverb* as shown in (12a'). The other pairs in (12) also show a similar correspondence between prefixed adjectives and PPs. The adjective *postnominal* is equivalent to the PP *after a noun* (12b/b'), the expression *intra-organismal and interorganismal* can be paraphrased as *within and between organisms* (12d/d'), *trans-global* means *across the globe* (12g/g'), and so forth. In addition, the adjectival pattern and the PP pattern have the same function. They are both nominal modifiers.

The surface form of the PP *in front of* suggests that spatial PPs corresponding to spatio-temporal prefixes have complex structures. Nagano adopts decomposition analysis of spatial PPs developed in Beard (1995), Svenonius (2010), Cinque and Rizzi (2006), among others, and assumes the following structure for the PPs headed by *in front of* and *under*, for instance:

(13) Decomposition of spatial PPs



AxPart is a category related to the meaning of axial or positional properties of something which can be described by an expression such as *top*, *front*, *back*, *bottom*, *side*, and so. It is also called the *relational noun* (RN).

Spatial Ps like *under*, *after*, *behind*, *above*, *across*, and so forth are complex in nature in the sense that they are conflated forms consisting of a simple preposition, corresponding to *in* or *at*, and an AxPart, like *front*. Based on this idea, Nagano makes the following proposal.

(14) Spatio-temporal prefixes like *pre-* are bound realizations of AxParts or RNs.

The following definitions in a medical dictionary support this view:

- (15) a. **preauricular** = situated *in front of* the auricle of the ear
 b. **postoral** = situated *behind* or *in the back part of* the mouth
 (*Duncan's Dictionary for Nurses, Second Edition (1989)*)

As shown in (15a), *pre-* is paraphrased with the RN *front*. The prefix *post-*, on the other hand, is defined with the expression *back part* in (15b). Spatio-temporal prefixes are derived from a morphosyntactic structure such as (13).

Considering that spatio-temporal PPs function as nominal modifiers like adjectives, Nagano also adopts the following assumption in Baker (2003):

(16) P is an NP-to-AP transpositional functional category.

(16) states that P is a functional category which changes the category N to the category A. In other words, P is a category-shifter. This is the case for P in the structure (13). The simple P thus gives AxPartP, equivalent to the phrase projected from an RN, an adjectival function, behaving as a category-shifter. This is why the PPs *in front of the car* and *under the tree* can be nominal modifiers. The category-shifter P is involved in *in front* and *under*.

Extending this idea to the adjective involving spatio-temporal prefixes like *preadverbial* or *sub-Saharan*, Nagano further proposes that an adjectivizer such as *-al* or *-an* is a bound realization of P. The adjective *preadverbial* is derived from the structure (13) through head movement:

(17) [[AxPart+N]_i]_j]: preadverbial (expression)

The prefix *pre-*, which is a realization of AxPart or RN, and the adjectivizer *-al*, which is a realization of the category-shifter P, are realized independently.

We can summarize Nagano's complex PP analysis as follows:

- (18) Word forms of complex prepositions like *under*, *behind*, *before* result from conflation of the category-shifter P and axial parts, or relational nouns, like *front*.
- (19) Spatio-temporal prefixes are bound realizations of relational nouns, and adjectival suffixes like *-al* are realizations of the category-shifter P.

In Nagano's analysis, the morphosyntactic structure in (13) can be realized in two ways. AxPart or RN is realized as a free form like *front* or as a bound prefix form like *pre-*.

3.2. JAPANESE TRANSLATIONS OF MEDICAL TERMS IN ENGLISH

Remember that spatio-temporal prefixes in English medical terms can be translated into Japanese in two ways. Consider again (10), repeated here:

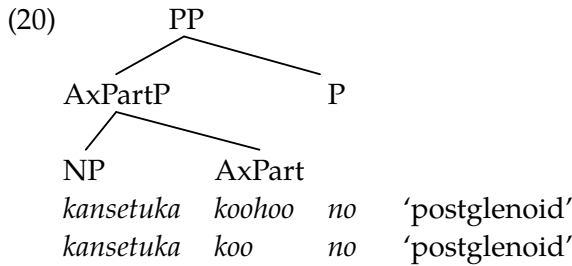
- (10) **post-**: → (i) free compounds
 e.g. *koo-bu* (lit.) posterior-part,
 koo-hoo (lit.) posterior-orientation
 (ii) bound prefix-like morphemes
 e.g. *koo-* (lit.) posterior

The translation of the prefix *post-* can be a free form like *koobu* or *koohoo*, or a bound form, *koo-*. According to Nagano, AxPart is realized as a free morpheme like *front*, or as a bound morpheme like *pre-*. Our idea is that *koobu* or *koohoo* is a free realization of AxPart, and *koo-* is a bound realization of AxPart.

Consider (8), for example, repeated below:

- (8) **post**glenoid
 a. kansetuka **koohoo** (no)
 glenoid posterior (NO)
 b. **koo**-kansetuka (no)
 posterior glenoid (NO)

The medical term *postglenoid* can be translated as *kansetuka koohoo* (*no*) or *koo-kansetuka* (*no*). Both *koohoo* and *koo-* are realizational forms for AxPart. The Japanese translations (8a) and (8b) share the morphosyntactic structure in (20)¹:



Japanese is a head-final language. So assume that PP and AxPartP have right-headed structures. In Japanese, there are two realizational forms for the structure (20). One involves a free form for AxPart (*koohoo*) and the other a bound form (*koo-*). In the case of bound realization, AxPart is morphophonologically left-headed. Still, it is right-headed morphosyntactically.

In this way, applying Nagano’s analysis to Japanese, we can answer the question (11a), concluding that the two Japanese translation patterns are realizational variants in the same way that spatial PPs and adjectives with spatio-temporal prefixes are. From Nagano’s perspective, it is quite natural that medical terms with spatio-temporal prefixes have two types of Japanese counterpart.

4. LICENSING A TECHNICAL TERM

Let us turn to the question (11b), which asks how the *X-koohoo* pattern and the *koo-X* pattern are different. In section 3, it is shown that the *X-Koohoo* pattern and the *Koo-X* pattern are derived from the same morphosyntactic structure in (20). In spite of shared morphosyntactic structures, however, they sound different in nuance to native speakers of Japanese. Expressions in the *Koo-X* pattern sound more like technical terms than those in the *X-Koohoo* pattern.

¹ We assume that the particle *no* is a category-shifter P. See details about this matter in Nagano and Shimada (2013).

Consider (8), for example:

- (8) **postglenoid**
 a. kansetuka **koohoo** (no)
 glenoid posterior (NO)
 b. **koo**-kansetuka (no)
 posterior glenoid (NO)

(8a) and (8b), which involve *koohoo* and *koo-* as AxParts, respectively, are equally Japanese counterparts of *postglenoid*. Interestingly, (8b) sounds more like a technical expression than (8a). Where does this difference between the two patterns come from?

In addition to the subtle semantic difference just mentioned, the two patterns also have phonological differences. We would like to explore the possibility that the semantic difference and the phonological one are interrelated. First let us observe how the *X-koohoo* pattern and the *koo-X* pattern are different in phonology.

Consider the pronunciation of the following expression of the *X-koohoo* pattern:

- (21) *sinapusu* **koobu** (no) (=5a)
 synapsis posterior (NO)
 'situated after a synapse'

The expression *sinapusu koobu* is a compound consisting of the word *sinapusu* and the word *koobu*, and is never a phrase. This is evidenced by the fact that such a modifier *koko-no* 'single' cannot modify the word *sinapusu* in *sinapusu koobu*, showing the lexical atomicity of the expression *sinapusu koobu*:

- (22) **koko-no* *sinapusu* **koobu** (no)
 Single-Gen synapsis posterior (NO)
 'situated after a single synapse'

In contrast, in the phrasal counterpart of (21), with the genitive marker *no* attached to *sinapusu*, *koko-no* can modify *sinapusu*, as in (24):

- (23) *sinapusu-no* **koobu** (no)
 Synapsis-Gen posterior (NO)
 'a posterior part of a synapse'

- (27) a. *koo-koogai* (= (6b))
 posterior palate
 b. *KOO:KOOGAI (‘:’ stands for a pause.) (phrasal intonation)
 c. KOO-KOOgai (word intonation)

In (27b), each of the morphemes *koo-* and *koogai* is pronounced as an independent word, which is not allowed. In (27c), on the other hand, *koo-koogai* is pronounced as one word. Judging from these facts about pronunciation, it can be said that the *koo-X* pattern is not a phrasal word but a morphological word. The sequence of *koo-X* is counted as a word as a whole. In sum, the expression of the *koo-X* pattern is a morphological or genuine word, while the expression of the *X-koohoo* pattern is a phrasal word.

Other examples showing a similar contrast are given below:

- (28) **postglomerular**
 a. *sikyuutai koohoo* (*no*) (phrasal word)
 glomerulus posterior (NO)
 b. *koo-sikyuutai* (*no*) (morphological word)
 posterior glomerulus (NO)
- (29) **paraoral**
 a. *kookuu shuui* (*no*) (phrasal word)
 mouth around (NO)
 b. *boo-kookuu* (*no*) (morphological word)
 around mouth (NO)

In (28), the *X-koohoo* pattern, *sikyuutai koohoo* (*no*), has a phrasal intonation, while the *koo-X* pattern, *koo-sikyuutai*, has a word intonation. Japanese translations of English spatio-temporal prefixes other than *post-* show the same thing. For example, the prefix *para-* can be translated as the free form *shuui* or the bound form *boo-*, as illustrated in (29). In this case again, the *X-koohoo* pattern, *kookuu shuui* in (29a), has a phrasal intonation, while the *koo-X* pattern, *boo-kookuu* in (29b), has a word intonation.

It should be noted that the phonological distinction just mentioned is not a matter of phonology in essence. It is just a surface manifestation of the fundamental difference in wordness property between the *X-koohoo* pattern and the *koo-X* pattern. The phrasal intonation of the *X-koohoo* pattern indicates that this form is not a complete word and has some relation to syntax. In contrast, the *koo-X* pattern is a genuine word.

We would like to suggest here that the distinction in wordness between the *X-koo* pattern and the *koo-X* pattern is the source of the subtle semantic difference between them. Generally speaking, phrases are generated in syntax, and the semantic information of phrases is interpreted when they are built in syntax through the process of Merge. In minimalist theory, for example, when the unit of a phrase is completed as a result of Merge, the structure is interpreted and spelled out. It is not until after the application of the syntactic process that the interpretation of phrases is determined. In contrast, words are listed in lexicons and are stable in meaning. Their interpretation is determined in advance. Remember that the *koo-X* pattern, which is a genuine word, sounds more like a technical expression. The technical expression is a word which is assigned a specialized meaning. Its meaning is defined, invariable, and shared among users. Comparing the *koo-X* pattern and the *X-koo* pattern, the former is superior in the wordness property. For this reason, the *koo-X* pattern is a more suitable form for technical terms than the *X-koo* pattern, which is not a genuine word.

5. CONCLUDING REMARKS

In this paper, we have been concerned with the following questions:

- (30) a. How are the *X-koo* pattern and the *koo-X* pattern derived in the Japanese translation of English medical terminologies with spatio-temporal prefixes?
- b. What is the difference between the *X-koo* translation and the *koo-X* translation?

We argued that both patterns are derived from the same morphosyntactic structure, and their formal difference is attributed to how the AxPart is realized. A free form like *koo* and a bound form like *koo-* are two options for a phonological realization, which is a source of the variation of translation patterns. We also suggested that the *koo-X* pattern guarantees the technical-word status. It is a genuine word, while the *X-koo* pattern is a phrasal word.

Before finishing the paper, we take a brief look at spatio-temporal prefixes other than *post-*. First consider the morpheme *kee-*, the Japanese counterpart of the prefix *trans-*:

- (31) **trans-** → **kee-**
transsynaptic → *kee-sinapusu (no)* / **sinapusu-keebu*
 across synapse (NO)

It seems that *trans-* lacks the X-*koo*hoo pattern as a Japanese translation. However, according to a dictionary, *trans-* is paraphrased with a verb phrase:

- (32) *sinkee sinapusu-o yokogit-te okoru*
 neuronal synapsis-Acc crossing occurring
 'occurring through synaptic connection'
 (cited from *An English-Japanese Dictionary of Medical Science*,
 published by Kenkyusha Co., Ltd. in Tokyo.)

In (32), the verb phrase *sinapusu-o yokogit-te* '(lit.) synapsis crossing' is used as a translated expression of *trans-*. A phrasal word could not be used as a phrasal pattern for the Japanese translation of *trans-* for some unknown reason. We have to resort to genuine phrases like VPs to translate *trans-* into phrasal expressions. So the X-*koo*hoo pattern would not be found as a translation of *kee-*.

Next consider (33) to (35):

- (33) **infra-** → **-ka**
- a. **infracostal** → *rokkotsu-ka (no)*
 rib beneath (NO)
 - b. **infracardiac** → *sinzoo-ka (no)*
 heart beneath (NO)
 - c. **infraglottic** → *seemon-ka (no)*
 glottis beneath
- (34) **inter-** → **-kan**
- a. **intercostal** → *rok-kan (no)*
 rib between (NO)
 - b. **interdental** → *si-kan (no)*
 teeth between (NO)
 - c. **intercapillary** → *moosaikekkan-kan (no)*
 capillary between (NO)
- (35) **intra-** → **-nai**
- a. **intraoral** → *koo-nai (no)*
 mouth within (no)

- b. **intranasal** → *bikuu-nai* (*no*)
 nose within (NO)
- c. **intracellular** → *saiboo-nai* (*no*)
 cell within (NO)

The prefixes *infra-*, *inter-* and *intra-* are translated as *-ka*, *-kan* and *-nai*, respectively. These Japanese translations are all bound forms and thus genuine words, but not phrasal words, result. Moreover, these Japanese bound morphemes come rightward, conforming to the right-headedness of Japanese words. It is not clear at present why the morphemes *-ka*, *-kan* and *-nai* are different from the morpheme *koo-* in headedness. The issue of minor variations among spatio-temporal morphemes in Japanese is left open for future research.

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JAPANESE TRANSLATIONS OF SPATIO-TEMPORAL PREFIXES IN MEDICAL ENGLISH

Summary

There is a difficulty in translating Medical English into typologically unrelated languages like Japanese. For example, the Japanese counterparts of

spatio-temporal prefixes, like *post-*, *trans-* and so forth, functioning as semantic heads, appear leftward or rightward in words

- (1) a. **postsynaptic** → sinapusu **koobu** lit. synapsis post
 b. **postcapillary** → **koo**-moosaikan lit. post capillary

Based on Nagano's (2013) idea that spatio-temporal prefixes in English are bound realizations of axial parts in the sense of Svenonius (2010), it is argued that Japanese translations like *koobu* and *koo-* are also axial parts. It also follows that Japanese has two options for the translation of spatio-temporal prefixes. Moreover, their subtle semantic difference is attributed to the difference in the wordness property between them. The translation of (1b) type sounds more like a technical term because it is a genuine word.

Key words: Medical English, translation, spatio-temporal prefixes, adpositions

TŁUMACZENIE NA JAPOŃSKI PREFIKSÓW PRZESTRZENNO-CZASOWYCH Z MEDYCZNEGO ANGIELSKIEGO

Streszczenie

Istnieją trudności przy tłumaczeniu medycznej angielszczyzny na języki niespokrewnione typologicznie, takie jak japoński. Na przykład japońskie odpowiedniki prefiksów przestrzenno-czasowych, takich jak 'post-', 'trans-', itd., funkcjonujących jako semantyczne człony główne, występują z lewej bądź z prawej strony wyrazów

- (1) a. postsynaptic → sinapusu koobu dosł. 'synapsa post'
 b. postcapillary → koo-moosaikan dosł. 'post naczynie włosowate'

W oparciu o propozycję Nagano (2013), która twierdzi, że prefiksy przestrzenno-czasowe w języku angielskim są realizacjami związanymi osiowych części mowy ('bound realizations of axial parts') w ujęciu Svenoniusa (2010), postuluje się, że japońskie ekwiwalenty przekładowe, takie jak *koobu* oraz *koo-*, również należy zaklasyfikować jako osiowe części mowy. Stąd też wniosek, że język japoński daje wybór pomiędzy dwoma wariantami przekładu prefiksów przestrzenno-czasowych. Co więcej, przyczyny subtelnej różnicy w ich znaczeniu upatruje się w różnicy ich „słowności” ('wordness property'). Przekład typu (1b) bardziej przypomina termin specjalistyczny, gdyż jest to pełnoprawne słowo.

Słowa kluczowe: medyczna angielszczyzna, tłumaczenie, prefiksy przestrzenno-czasowych, przyimki