

**THE APPLICATION OF “LANGMAN’S MEDICAL EMBRYOLOGY” AND ITS
PERSIAN TRANSLATION BY GH.HASANZADEH PH.D & ETAL**

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ABSTRACT: *This corpus_ based study was an attempt to translation quality assessment of House’s model (1997). This research aimed at detailed investigation of TQA on a medical text as a scientific text. The Persian translation of the book “Medical Langmans Embryology” has been assessed based on House translation quality assessment (TQA) model. The researcher randomly selected some samples of source text and target text and analyzed them. Firstly, the ST was read thoroughly and then the TT was compared with the translation to find two kinds of errors, namely “overtly erroneous errors and covertly erroneous errors.” overtly erroneous errors were categorized into five categories: untranslated, slight change in meaning, omission, addition, grammatical errors. The results of this study revealed that this scientific text was translated covertly because according to House, scientific texts should be translated covertly. Therefore this translation can be considered as a covert kind of translation rather than overt one. Translators, professors, instructors and students in the field of translation studies and medical can take advantage of this model to assess its translation.*

KEYWORDS: translation quality assessment, covert and overt translation, House model

INTRODUCTION

According to Bell (1991:5-6), “Translation is the expression in another language (target language) of what has been expressed in another, source language, preserving semantic and stylistic equivalences. Translation is the replacement of a text in one language by a representation of an equivalent text in a second language. Medical terms are originated from Greek and Latin that reflects the history of medicine. Physicians communicated with their community in their native language. Medical translation is based on cognitive knowledge which is mainly concerned with information, special care is needed when two or more fields overlap. The terms can have different meanings, making it more difficult for the translator to understand the meaning of the text (Hannelore, 2005).

In fact, people have an interest in translation studies always evaluating sources (their usefulness and authenticity), authors and their translators (their aesthetic, their influences), evaluating source texts and target texts. TQA is a type of evaluation (making judgment), but what is evaluation? Michael Scriven (2007, cited in Williams 2009: 4) defines it as follows: ““evaluation” is taken to mean the determination of merit, worth or significance”. This definition itself presents a problem: How value or worth is to be defined, be it moral, aesthetic or utilitarian?By extension, "evaluation" involves asking a question that has challenged thinkers from the earliest time: is a particular thing good? (Williams, 2009).

House's model is based on pragmatic theories of language use, and the notion of "equivalence": translation is constituted by a "double _binding" relationship both to its source and to the communicative conditions of the receiving lingua- culture (language that includes not only elements such as grammar and vocabulary, but also past knowledge, local and cultural information, habits and behaviours), and it is the concept of equivalence which captures this relationship (House, 1997). The concept of equivalence is the conceptual basis of translation, and the central problem of translation-practice is that of finding TL (target language) equivalents (Catford, 1965). In this research, an attempt will be made to implement/apply the Housian TQA Model to identify two kinds of errors in the translated work; **a)** overtly erroneous errors and **b)** covertly erroneous errors.

The purpose of the present study is to apply House's model of TQA on two different Persian translation of Langman's Medical Embryology by Sadler. It should be mentioned that this book is chosen because its translation is used as a source of teaching and learning among Iranian universities.

METHODOLOGY

The present study set out to investigate the application of TQA model of House on Persian translation of "Langman's Medical Embryology". This chapter will define and justify any single procedural step that was taken throughout different stages of the present study. The purpose of this study is to provide the answer to the following question upon which the whole book was based on: according to Julian House Model of translation quality assessment, to what extent could the translator of "Lang mans Medical Embryology" apply covert and overt translation? As the study of the whole text is beyond the scope of this study because Langmans's Medical Embryology has four hundred pages. So the researcher chose one page from every ten pages and examined one paragraph of that page randomly which is the representative of the whole text. The researcher read the original text and then the ST was compared with its translations in order to find two kinds of errors proposed by House, namely overtly erroneous errors and covertly erroneous errors. The House's model is commonly applied in translation quality assessments using some steps.

To carry out this research, the following procedures were taken. The first step was to produce ST register profile. This study examined lexico-grammatical features; field, tenor, genre, and then covertly and overtly erroneous errors. House believes that a researcher should find mismatches along the close inspection which may lead to an error. The third step in this type of translation quality assessment was description of ST genre which is realized by the register. The fourth was finding the function of a text which consists of two components: ideational and interpersonal. The fifth stage was carrying out House's model of translation quality assessment for the two TTs In order to make the results of the study reliable 3 raters were asked to assess the two mentioned translations using House's TQA model.

Analysis of the Source Text: Langman's Medical Embryology

According to House (1997), the register categories of field, tenor, mode are explained and sub differentiated in the following manner:

Field: refers to the nature of the social action that is taking place. Field can be divided into two parts: the first one is subject matter and the second one is social actions. For any of above mentioned categories and in order to analyze them, House uses a tripartite means:

Syntactic means: According to House (1997), there are some features in this part such as: passive voice or active voice, types of pronouns, different types of sentences and so on.

Lexical means: lexical items consist of interjections, simile, metaphor, personification

Textual means: Theme dynamics, clausal linkage through adversative and causal in the text.

RESULTS

This subsection aims at presenting the results of the application/implementation of the above-mentioned steps chronologically.

Source Text Profile:

Field:

Subject Matter	Social Action
Medical	Specific

Figure1. Source Text Profile

Based on House's model (1997), field is analyzed through tripartite means as follows:

Syntactic means in the source text:

Taylor (2005) notes: "Medical language is often written in passive voice, but it sometimes takes more words if a statement was to be expressed in active voice. Another aspect is that medical text is composed of long sentences".

The book is specialized for the medical students and any other related fields, therefore, it contains a lot of technical words with specific structures which contains simple present tense, passive voice, long , compound sentences, different types of pronouns, clausals, which are the most important characteristics of the technical texts. Some examples are listed as follows:

1. **Ample use of passive voice in the original text can be shown:**

Cells may be analyzed

Cells from the mesenchymal core are isolated

The time for genetic characterization of the fetus is reduced

2. **Ample use of clausal in the text**

Accuracy of results is problematic because of the high frequency of chromosomal errors in the normal placenta.

Because of the large number of cells obtained, only 2 to 3 days in culture are necessary to permit that genetic analysis Cells may be analyzed immediately.

3. **Long sentences can be seen in the medical text:**

Agents that cause birth defects include viruses, such as rubella and cytomegalovirus; radiation; drugs, such as thalidomide, aminopterin, anticonvulsants, antipsychotics, and antianxiety compounds; social drugs, such as cigarettes, and alcohol; hormones, such as DES; and maternal diabetes.

4. Different types of pronouns (Demonstrative, Third person, Possessive pronoun, Reflexive pronoun, Indefinite pronoun, Reciprocal pronoun, Quantifying pronoun,) can be seen in this medical text:

For example:

1. *the cranial limit of expressions of HOXB8 is at the cranial border of the forelimb, and misexpression of **this** gene alters the position of **these** limbs.*
2. ***It** is at **this** border that the AER is established.*
3. *The lesser omentum and falciform ligament form from the ventral mesogastrium, which **itself** is derived from mesoderm of the septum transversum.*
4. *When growth of the expanding portions continues on either side of the narrow portion, the two walls approach **each other** and eventually merge, forming septum.*
5. ***These** structural abnormalities, such as microtia, pigmented spots, and short palpebral fissures, are not **themselves** detrimental to health but, in some cases, are associated with major defect*

Lexical means in the source text:

Ample use of metaphors:

The metaphorical expressions are found in a number of medical texts (Van and Tongeren, 1997). There are surprisingly metaphors in medical academic discourse from a strictly linguistic point of view. Metaphors in medical texts consist of architectural (abdominal walls), geomorphical (urinary stream), phytomorphical (coronary tree), anatomical (sperm head), zoomorphical (coronary sinus), physiological metaphors (cell migration) (Herrman, 2013).

In Langman's medical embryology, ample use of figurative language like metaphors were faced:

1. *Cluster cells*
2. *Sperm head*
3. *Basket cells*
4. *Optic cup*
5. *Abdominal cavity*
6. *Vessel walls*

1. Textual Means:

In this book, ample use of theme dynamics (abbreviation, bold words, acronym, foot note), adversatives and causals can be seen.

For example:

- a- *The anterior and posterior veins join before entering the sinus horn and form the short **common cardinal veins**.*
- b- ***Because** the two zygots have totally different genetic constitutions, the twins have no more resemblance than any other brothers or sisters.*
- c- *Cell migration and specification are controlled by **FGF8***

Tenor:

According to House (1997), tenor refers to participants relationship, author's provenance and stance, social role relationship, and social attitude.

Translator's provenance and stance	Social role relationship		Social attitude
University instructor and translator	Symmetrical	Asymmetrical	formal
	-----	Asymmetrical	

Figure 2. Source Text profile

Author's provenance and stance, social role relationship, social attitude

The writer Thomas,W.Sadler is from the United state of America. He is a physician and embryologist as well as a university professor in Philadelphia. His book is aimed for being taught in medical universities. Accompanied with technical words, it is written in an objective- formal way without any emotional interference (Sadler,2012).

Social role relationship:

Analyzing the role relationship between addresser and the addressees which may be either symmetrical (marked by the existence of solidarity or quality) or asymmetrical (marked by the presence of some kind of authority) (House, 1997).

Analyzing relationship between addresser and addressees which can be asymmetrical and unmarked because it is according to author-reader and professor-student.

Social attitude:

Social attitude of the addresser towards his addressees as reflected on the level of style is a formal in medical text. This type of language is used in scientific medical places (House,1997).

For example:

homeobox genes are known for their homeodomain, a DNA-binding motif, the homeobox

Syntactic Means: The writing is formal in medical text. Author's provenance and stance refers to the relationship between the addresser and the addressees in terms of social power and social distance as well as personal view points (House, 1997).

For example:

Molecular biology has opened the doors to new ways to study embryology and to enhance our understanding of normal and abnormal development.

The use of passive sentences in explaining the process.

For example:

The dorsovental axis is also regulated by BMPs in the ventral ectoderm, which induce expression of the transcription factor EN1.

Lexical Means: The writer uses technical words in this book. Some examples are as the following:

Maturation of Oocytes begins before birth once PGCs have arrived in the gonad of a genetic female, they differentiate into oogonia.

For example:

Mesenchyme for formation of the head region is derived from paraxial and lateral plate mesoderm, neural crest, and thickened regions of ectoderm known as ectodermal placodes can be performed.

Using technical words, this kind of sentence is offering medical students or interns how to deal with a problem.

Textual Means: Theme-dynamics is obtained through the bold words and footnotes. For example: *These hormones, **Follicle-stimulating hormone (FSH)** and **Luteinizing hormone**, stimulate and control cyclic changes in the ovary.*

There are causal and explanatory sentences;

For example:

because the two zygotes have totally different genetic constitutions, the twins have no more resemblance than any other brothers or sisters.

Mode:

Medium		Participation	
Simple	Complex	Simple	Complex
Simple	-----	Simple	-----

Figure3. Source Text

MODE:

The medium: “the medium is simple and written. A text may be either a “simple” monologue or dialogue, or a more “complex” mixture”(House, 1997:40). Medium refers to both the channels of spoken or written. It is divided into two parts:

1. Simple: written to be read like medical texts that a writer writes a text for readers.
2. Complex: written to be spoken as if not written like a lecture. According to House’s model(1997), for any above mentioned categories and in order to analyzing them, House uses a tripartite means as follows:

Lexical means (categories that are used to specify the characteristic features of lexical, syntactic and textual detects): Medical text has especial addressees. It is written for medical students as the readers.

Syntactic means: the dominant voice is passive and the tense is simple present which is used in a formal written style in which every component of any sentence is in its own right place.

Textual means: the use of casual and explanatory sentences, subordinators, punctuations, and cohesive devices.

Participation:

Participation can also be simple, a monologue with no addressee which is built into the text. In other words, this book is formal in writing style and is for medical students.

This book is divided into two parts. The first part provides an overview of early developments from gametogenesis and the second part of the text provides a description of the fundamental processes of embryogenesis for each organ system.

Textual Means:

According to House (1997), an emic text is one which is determined by text-immanent criteria, and etic text is one which is determined through text-transcending means. Thus, medical texts, and specifically text under study is emic because the writer of this book is inspired from the facts of the world.

Genre:

Langman’s Medical Embryology is a medical text, using technical and clinical words. To accomplish its goal of providing a basic understanding of embryology and its clinical relevance, this book retains its unique approach of combining clinical images and economy of the text. This book also explains abnormal embryological events and pedagogic features. As far as the source text genre is concerned it can be said that the source text genre is medical.

Statement of function:

According to “longman Dictionary of Language and Applied linguistics” (2002)

language is often described as having the following major functions:

1. A descriptive function (or ideational function, in Halliday’s framework), organizing a speaker’s or writer’s experience of the world and conveying information.
2. A social function (interpersonal function in Halliday’s term), used to establish, maintain and signal relationships between people.
3. An expressive function, through which speakers’ signal information about their opinions, prejudices, past experiences, and so forth can be stated; and
4. A textual function, creating written and spoken texts.

Based on House’s model (1997, 77), as with source text function, it can be said that the source text function is interpersonal.

This assessment model (House, 1997) is based on Hallidayan Systemic-Functional Theory (SFT), but it also draws eclectically on Prague School ideas, speech act theory, pragmatics, discourse analysis and corpus-based distinctions between the spoken and written language. It provides the means for the analysis and comparison of an original text and its translation on three different levels: Language/Text, Register (Field, Mode and Tenor) and Genre.

Source text	
Genre	Function
Medical	Interpersonal

Figure 4. Source text genre and function

The function of this text is interpersonal which might be explained as follows:

The author's intention is to give an effective information text (giving extra information about embryology and medicine) about his personal knowledge and understanding. He wants to share

and communize his personal experiences and his point of view of the medical world. This book conveys effective information and new discoveries in the medical field, that is why this book is as a scientific source among students and teachers.

Comparison of Original and Translation and Statement of Quality:

Langman’s Medical Embryology is translated from English into Persian by Gh.Hasanzadeh Ph.D & etal. How the text is compared with its translation is manifested below:

Translation 1 Profile:

Field:

Subject Matter	Social action
Medical	Specific

Figure5. Translation Profile

Tenor:

Translator’s provenance and stance	Social role relationship		Social attitude
University instructor and translator	Symmetrical	Asymmetrical	formal
	-----	Asymmetrical	

Figure6. Translation Profile

Mode

Medium		Participation	
Simple	Complex	Simple	Complex
Simple	-----	Simple	-----

Figure 7. Translation Profile

Regarding the target text genre, it can be stated that target text genre is, also, medical About the target text function, it can be stated that target text function is interpersonal.

Translation	
Genre	Function
Medical	Interpersonal

Figure 8. Translation genre and function

Micro Level:

Overtly Erroneous Errors:

In the following part, the overtly erroneous errors detected in the text, according to House are identified. Overtly erroneous errors are categorized into the following items:

1) Change of denotative meaning through the following items:

a) Not Translated; b) additions; c) substitutions; d) wrong selections.

2) Breaches of the target language system which include:

a) Cases of ungrammaticality; b) clear breaches of the language system; c) cases of dubious acceptability, d) breaches of the norm of usage.

Mismatches in both translation:

There are some examples in this part. The data from both translation will be presented after the examples.

Examples:

1) Not translated:

Under normal conditions, only one of these follicles reaches full maturity, and only one oocyte is discharged; the others degenerate and become atretic.

در شرایط طبیعی فولیکولها به بلوغ کامل می رسد و فقط یک اروسیت از تخمدان آزاد خواهد شد. فولیکولها دژنره شد تحلیل می روند.

The translator did not translate **degenerate** from English into the Persian language, while there is an equivalence in Persian language.

2) Addition:

3) Parts of those ribs that attach to that migrate across the lateral semiotic frontier

بخشهای غضروفی دنده ها که به استرنوم متصل می شوند از سلول های اسکروتوم که در راستای مرز سومتیک جانبی مهاجرت می کنند تشکیل می گردند

The translator added a medical word in their translation. It differs from source text language because the writer did not write this word

3) Omission:

In mammals, there are three hedgehog genes, Desert, Indian, and sonic hedgehog.

سه ژن از پروتئینها به نامهای

Desert, Indian, Sonic hedgehog,

وجود

In this sentence, mammals was omitted. There is an equivalence in Persian language for this word.

4) Slight change of meaning

There is one example in the following:

This system consists of the anterior cardinal veins, which drain the cephalic part of the embryo,

.....

این دستگاه شامل وریدهای کاردینال قدامی برای درناژ بخش سری رویان، و وریدهای کاردینال خلفی برای درناژ مابقی بدن رویان است.

In the previous example, there is clausal linkage but it has not been translated and the translator did not meet the punctuation in its translation. Which should be translated into كه in this example.

5) grammatical mismatches:

According to FISCHBACH (2003), Medical text is written in passive voice but it should be translated into the active voice. According to Najafi (2012), Passive voice is not common in Persian language. It is better to write active voice in Persian translations. Two examples will be shown the case:

Examples:

Whereas all of the oogonia in one cluster are probably derived from a single cell, the flat epithelial cells, known as follicular cells, originate from surface epithelium covering the ovary.

با وجودی که تمامی سلولهای اووگونی یک دسته ی خوشه ای شکل، احتمالاً از یک سلول منفرد مشتق شده اند ولی سلولهای پهن اپیتلیالی که سلولهای فولیکولر خوانده می شوند، از اپیتلیوم سطحی پوشاننده تخمدان بوجود می آیند.

Moreover, there are two passive voice tenses in this example. It is better to translated into كه in this example.

The following table and figure show the number of errors in translation:

Overtly erroneous errors	Number
Untranslated	22
Slight of meaning	9
Addition	1
Omission	2
Ungrammatical	1

Table1: The number of overtly erroneous errors

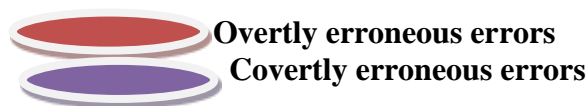


Figure 9. Overtly Erroneous Errors in translati

CONCLUSIONS

The main concept of translation quality assessment is associated with the relationship between original and translation. In this study, the researcher tried to assess translation quality of the book “Langman’s Medical Embryology”. The assessment of this translated text was done based on House’s model (1997). Thus, to accomplish this aim, this book was selected which is written to be read by medical students.

At first, the register (Field, Tenor, Mode) and the genre of the source text were analyzed and then the translation was studied to find mismatches. According to House’s model (1997), the covert kind of translation is needed for translation of scientific works. Since this book is a scientific work; it must be translated covertly due to the facts that scientific works are categorized under the covert translation of House’s translation quality assessment. Thus, in this study, the judgment for assessing the quality of translation was based on the criteria described for covert translation.

According to what above_ mentioned and the collected data and interpretation in the previous chapter of this type of assessment, the following outcomes could be concluded:

Covertly Erroneous Errors have not been identified in the translation of this athletic text. The source text and the translation were equal in covert translation and both of them had a number of overt errors.

Overt errors were categorized into five categories: Un translated, Omission, Addition, Slight change of meaning and Ungrammatical. Omissions and ungrammatical were major errors while additions and slight changes in meaning were minor errors. In addition to the main assessment, three graduate students of translation have been chosen to assess translation quality. Then they gave their own understanding and opinions. Finally, they exactly found the mismatches whereas the researcher found a mismatch.

A great number of errors found in this Persian translation of medical work underline the significance of translation quality assessment for athletic works in Iran. It can be said that Persian translations of many medical works need to be assessed and revised.

REFERENCES

- Bell, R.T. (1991). *Translation and Translating: Theory and Practice* London: Longman
- Catford, J.C. (1965). *A linguistic Theory of Translation*, London: Oxford University Press
- FISCHBACH, H. (1961). Problems of Medical Translation. *Medical Library Association*.
- House, J. (1997). *Translation Quality Assessment: A Model Revisited*. Tübingen: Gunter Narr
- Hannelore, L.J. (2005). Teaching Medical Translation. *School of Translation Interpreting university of Geneva*. 82
- Herrman, B.J. (2013). Metaphor in academic discourse Linguistic forms, conceptual Structures communicative functions and cognitive representations *Medical Library Association*
- Jafari, O. (2013). A Comparative Study of Translation Teaching Iran and Spain. *In Translation Directory*. 1- 3
- Sadler, T.W. (2012). *Langman’s Medical Embryology*. New York: London

- Richards, J. C., & Schmidt, R. (2002). *Longman dictionary of Language Teaching & Applied Linguistics (3rd ed.)*. Essex: Pearson Education Limited.
- Taylor, B. Robert (2005). *The Clinician's Guide to Medical Writing*. New York: Springer
- Williams ,M.(2009).Translation Quality Assessment. *University of Ottawa.2(1),1*.
- Geraldine. W& Rijn. V.(1997). *Metaphors in Medical Texts*. Amesterdam: Atlanta
- Richards, J. C., & Schmidt, R. (2002). *Longman dictionary of Language Teachin & Applied Linguistics (3rd ed.)*. Essex: Pearson Education Limited.

Lists of Mismatches in Translation 1:

Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
1. Under normal conditions, only one of these follicles reaches full maturity, and only one oocyte is discharged ; the others degenerate and become atretic.	در شرایط طبیعی فولیکولها به بلوغ کامل می رسد و فقط یک اروسیت از تخمدان آزاد خواهد شد . فولیکولها دژنره شد ، تحلیل می روند		Degenerate دژنره شدن			Only one of these follicles فولیکولها	Is discharged خواهد شد
2. Once the cells have invaginated , some displace the hypoblast , creating the embryonic endoderm , and others come to lie between the epiblast and newly created endoderm to from mesoderm	بعضی از این سلولها با انواژینه شدن ، جایگزین لایه هیپوبلاست شده ، آندودرم رویانی را تشکیل می دهند سایر سلولها با قرار گرفتن بین اپی بلاست و آندودرم تازه تشکیل شده مزودرم را به وجود می آورند		Invaginate شدن			Once the cells بعضی از این سلولها	
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
4.These genes, which contain the Antennapedia and Bithorax classes of homeotic gene ,are organized on a single chromosome as a functional unit	این ژنها که حاوی رده بیتراکس و آنتنآپدیا از ژنهای هوموتیک هستند ، به صورت یک واحد عملی بر روی یک کروموزوم منفرد سازمان یافته اند .		Homeotic gene ژنهای هوموتیک			Gene ژنها	

5. The former are located to the pericardial swelling at the level of the fourth cervical to the first thoracic somites, which explains their innervations by the brachial plexus	جوانه ای اندام فوقانی در پشت برجستگی پریکاری در حد چهارمین سومیت گردنی تا اولین سومیت سینای قرار دارد که بیانگر عصب گیری این اندام ها از شبکه ی بازویی است		Pericardial پریکاری			The former جوانه اندام فوقانی	
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
6. With further growth, the terminal portions of the buds flatten, and a circular constriction separates them from the proximal , more cylindrical segment . soon, four radial grooves separating five slightly thicker areas appear on the distal portion of the buds , fore shadowing formation of the digits.	با رشد بیشتر و بخش های انتهایی جوانه ها پهن تر می شوند و به وسیله ی یک تنگی حلقوی از قطعه ی پروگزیمال که بیشتر حالت استوانه ای دارد جدا می شوند . به زودی 4 نودان شعاعی ضخیم تر را از هم جدا که پنج ناحیه می کنند ، در بخش دسیتال جوانه ها ظاهر می شوند و محل تشکیل انگشتان را مشخص می کنند		Proximal پروگزیمال Distal دسیتال	Separates them کلمه آنها حذف شده که معنی جمله را به هم ریخته است		Seprates جدا می شوند باید جدا می کند ترجمه می شد	
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
7. Although the pleural cavities are seprate from the pericardial cavity , they remain in open communication with the abdominal cavity by way of the pericardio peritoneal canals , During further development , the opening	علیرغم آن که حفرات پلورا از حفره ی پریکاره جدا هستند ولی ارتباط بارشان با حفره ی شکمی (صفاق) از طریق مجاری پریکاری - صفاقی برقرار است . در طی مراحل بعدی تکامل سوراخ بین حفرات پلورا صفاق به وسیله چین های هلالی شکلی به نام چین های پلور و پریتونال بسته خواهد شد که به داخل انتهای دمی مجاری پریکاری و پریتونال برجسته می شوند . رفته رفته چین ها به طرف داخلی و		Pleural پلورا Pericardial پریکاره Pleural پلورا Peritoneal پلوروپریتونال			are seprate جدا هستند	
between the prospective pleural and peritoneal							

cavities is closed by crescent – shaped fods , the pleuroperitoneal folds . Gradually, the fods extend medially and ventrally, so that by the seventh week, they fuse with the mesentery of the esophagus and with the septum transversum.	شکمی کشیده می شوند به طوری که تا هفته هفتم به مزانتر مری و نیز به تیغه ی عرضی جوش میخورند		pleuroperitoneal پلور و پریتونئال Mesentery مزانتر				
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
8. In the past, with the exception of ultra sonography, these prenatal diagnostic tests were not used on a routine basis.	در گذشته ، به جز سونوگرافی ، از این روشهای تشخیصی پره ناتال به صورت روتین استفاده نمی شد.		Prenatal پره ناتال				
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
9. The fetus is operated on directly, has been used for repairing congenital diaphragmatic hernias, removing cystic (adenomatoid) lesions in the lung , and repairing spina bifida defects .	جنین مستقیماً مورد جراحی قرار می گیرد ترمیم فتق مادرزادی دیافراگم ، برداشتن ضایعات کیستیک (adenomatoid) ریه ، و ترمیم نقص اسپینا بیفید		spina bifida اسپینا بیفید				

Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
10. In some bones , such as the flat bones of the skull , mesenchyme in the dermis differentials directly into bone , a process known as intra membranous ossification .	در بعضی استخوانها مثل استخوانهای پهن جمجمه مزانشیم موجود در درم مستقیماً به استخوان تمایز می یابد ، فرایندی که به آن استخوانی شدن داخل غشایی اطلاق می شود		Dermis درم			Differentials تمایز می یابد	
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
11. First, give rise to hyaline cartilage models, with in turn become ossified by en do chondral ossification.	در ابتدا تبدیل به مدل های غضروف هیالین می شوند که بعداً از طریق فرایند استخوانی شدن داخل غضروفی استخوانی می شوند		Hyalin هیالین				

12. Parts of those ribs that attach to that migrate across the lateral semiotic frontier	بخش های غضروفی دنده ها که به استرنوم متصل می شوند از سلول های اسکروتوم که در راستای مرز سومنیک جانبی مهاجرت می کنند تشکیل می گردند		Sternum استرنوم		غضروفی		
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
13.The major septa of the heart are formed between the 27th and 37th days of development, when the embryo grows in length from 5 mm to approximately 16 to 17 mm.	سپترم های اصلی قلب بین روزهای 27 تا 37 تشکیل می شوند. در این هنگام اندازه ی رویان از 5 به 16 تا 17 میلی متر تقریباً می رسد.		Septa سپتوم				
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
14..Formation of such tissue masses depends on synthesis and deposition of extra cellular matrices and cell proliferation .	تشکیل این توده ی بافتی به سنتز رسوب ماتریکس خارج سلولی و تکثیر سلولی بستگی دارد		Matrices ماتریکس				

15..Embryo logically and anatomically , however, they are intimately interwoven.	از نظر رویان شناسی و آناتومی رابطه ی تنگاتنگی با یکدیگر دارند		anatomically , آناتومی				
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight Meaning of	grammatical Mismatch
16.For example, the cranial limit of expression of HOXB8 is at the cranial border of the fore limb, and misexpression of this gene alters the position of these limbs.	به طور مثال، محدوده سری بیان ژن HOXB8 در مرز سری اندام فوقانی است و بیان اشتباه این ژن، موقعیت این اندام را تغییر خواهد داد					Misexpression بیان اشتباه ژن	

17.The posterior cardinal veins, which drain the rest of the embryo.	وردیدهای کاردینال خلفی برای در ناژ مابقی بدن رویان است		Drain درناژ	Which که Coma is omited			
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				
			Un translated	Omission	Addition	Slight of Meaning	grammatical Mismatch
18.With the exception of some smooth muscle tissue (see later)	به استثنای بعضی از عضلات صاف (به پایین رجوع کنید)					See later به پایین رجوع کنید	
Source Text	Translation1	Covertly Erroneous Errors	Overtly Erroneous Errors				

			Un translated	Omission	Addition	Slight Meaning of	grammatical Mismatch
19.The central nervous system appears the beginning of the third week as a slipper shaped plate of thickened ectoderm , the neural plate , in the mid – dorsal region in front of the primitive node .	در شروع هفته سوم رشد ، دستگاه عصبی مرکزی به صورت یک ضخیم شدگی اکتودرمی ، شبیه به کفش سرپایی ، ایجاد می شود که صفحه عصبی نام دارد . این صفحه در ناحیه پشتی ، میانی، و گره اولیه قرار دارد					Slipper shaped شبیه به کفش سرپایی	
			22	2	1	9	1

Table1: The Numbers of Covertly Erroneous Errors and Overtly Erroneous Errors in the translation 1: