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論文

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Foreword

It is my great pleasure to publish the fourth volume of *the Japanese Journal of Systemic Functional Linguistics*, the contents of which I am sure many of you readers will enjoy. Although the previous issues are published occasionally, hence *JASFL Occasional Papers*, this issue is the first one to be published bi-annually from now on.

Accordingly, I hope that more and more contributors will increase for the future issues and this certainly establish its firm position as one of the leading journals of the study for SFL, especially in Japanese SFL studies.

This issue includes varieties of current topics of SFL ranging from lexico-grammatical, typological, computational, and discourse analyses to a case study of early language development in SFL. I am sure that the readers will enjoy the contents of this issue. Especially, on this memorable occasion, Professor Minoru Yasui, an emeritus professor of Tohoku University and a leading scholar of English linguistics, has kindly contributed his paper on grammatical metaphor. It offers rich insights and deep inspirations, thus enhancing the value of this issue. On behalf of JASFL, I would like to express my sincere thanks to Professor Yasui for his contribution.

I hope that this Journal will be a useful guide for Japanese SFL students as well as a good theoretical stimulus for SFL scholars. Also, I hope that this issue can be regarded as a good foundation for the development of Japanese SFL study.

President of JASFL
Masa-aki Tatsuki, Ph.D.

Articles

文法的メタファー事始め

The Grammatical Metaphor As I See It

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Abstract

Minoru Yasui

The paper is an attempt to trace and revaluate the concept of grammatical metaphor as expounded by M. A. K. Halliday. Throughout the paper, the writer tries to explicate the concept of grammatical metaphor 'contrastively', i.e., through the comparison of English and Japanese.

As is expected, there are cases in which the same grammatical metaphors are found in both languages. Take, for example, the case of *flow* and *fire* as a noun. These nouns represent physical phenomena as a thing, in spite of the fact that they are, in reality, processes that change through time. Both in English and in Japanese, the nominal use of these words realizes the grammatical metaphor.

Examples of this kind might induce us to allege that the grammatical metaphor is universal, equally shared by every language. But it is not. When it comes to the level of sentence, many of the grammatical metaphors in English have no counterpart in Japanese.

The explanation for this difference seems to come from the fact that English is a fixed word-order language, whereas Japanese is a semi-fixed word-order language. This means that once we step into the vast field of contrastive study of grammatical metaphor, almost everything remains unexplored, waiting for close examination and further investigation.

　文法的メタファー（Grammatical Metaphor）という用語は、1980年代、M.A.K. ハリデーによって導入されたものである。この用語によって指し示される地平は、限りなく広大であり、我々の興味をそそるものである。

　私見によれば、どのような分野であれ、ほぼ同じ意味を表す二つ（以上）の表現が利用可能である場合、それは、文法的メタファーの問題として扱い直すことができる。したがって、変形関係にあるとされる二つの構文はもちろん、（変形関係にはないが）語用論的に関係のある二つの構文でも対象とすることができる。極言すれば、パラフレーズの関係にあるとされる構文は、すべて対象となる。少し間口を広げるなら、いわゆる

文体論のすべてが含まれ、翻訳論を含む日英対照研究まで視野に入ってくる。

　果たせるかな、このところ二十年ほどの間に、関係する論文の数は、爆発的に増えている。例えば、インターネットで、Grammatical Metaphor: An Annotated Bibliography の項を開くと、その読み上げを聞くだけで、たっぷり三、四十分はかかる。とても読み切れるものではない。他方、Simon-Vanderbergen *et al.*（eds）（2003）Grammatical Metaphor: Views from System Functional Linguistics.（以下、GM（2003）と略記する）という便利な論文集も出版されるに至っている。が、どこまで広がってゆくのか見当もつかない。けれども、ただ広がってゆきさえすればよいというものではないであろう。問題は、それが、どれだけ有益な一般化をもたらすかということにかかってくるであろう。

1．文法的メタファーというもの

　まず、文法的メタファーというのは、上から下を見たときに生じてくる概念である。「上から下を見る」というのは、「意味の面から、語形、あるいは文構造を見る」ということである。通常の解釈文法が「形あり。意味を求む」ということを目指しているとするなら、文法的メタファー論は、「意味あり。形を求む」という側面に光を当てようとしているものである（Taverniers 2003, p.6）。

　まず、意味がある。その意味とは何であり、どのようなものであるのか、ということは問わない。「何かいいたいこと」があれば、それで足りる。それを、いわば、最も直線的に、すなわち、最も無標な形で表現したときに得られる形が、「整合形」（congruent form）の名で呼ばれるものである。整合形からずれている形式は、ずれ幅の大小に関わりなく、文法的メタファーの名で呼ばれる。

　すでに、ある程度察することができるように、文法的メタファーという概念は、あまり明確なものではない。一つの整合形に対し複数個の文法的メタファーが対応しているということもある。その場合、文法的メタファー間の異同は、整合形からの距離、すなわち、逸脱の大小によって測られる。また、明らかに文法的メタファーと考えられる形は存在するが、対応する整合形は見当たらないという場合もありうる。

　さらに、ほぼ同じ意味内容を表す二つの形が存在する場合、どちらが整合形で、どちらが文法的メタファーであるかを決定することが常に可能であるとも限らない。また、そういうところをいくらこねくり回しても、あまり有益な結果が得られるとも思われない。術語上の迷路に踏み込むのが落ちである。

　整合形の方を基準点として考えるなら、文法的メタファーというのは、整合形から外れている形であることになる。つまり、文法的メタファーというのは、非整合形であることになる。この点を強調すると、文法的メタファーというのは、マイナスイメージを伴う非標準的逸脱であることになる。そういう否定的なイメージを避けるために考えだされたのが、文法的メタファーという用語なのである。

　伝統的な修辞学におけるメタファーには、「意味の相似性に基づく、新しい意味の創出という側面があるが、文法的メタファーにおける「意味の相似性というつなぎの部分」は、かなり漠然としたものである。一般のメタファーにおいて、「つなぎを成す相似性」の持つ中心的役割を思えば、文法的メタファーが担うべき意味の相似性というのは、「か

げが薄い」ものであると言わなければならない。むしろ、なんらかの言い換え関係が成立するなら、そこには、文法的メタファーがある、というくらいに考えてよいのではないかと思われる。ただし、文法的メタファーは、整合形に対し、ただ同じ意味を表すものであるという関係にあるものではなく、新しい秩序、新しい現実認識の手段を提供しているものであることに留意しなくてはならない。

　やや角度を変え、整理し直すと、次のようになる。伝統的なメタファーは単語中心であるのに対し、文法的メタファーは、文の構造が中心である。伝統的なメタファーは、単語の語形を固定し、そこから上の方、つまり、意味の方を見る。その単語と結びついている意味を手がかりとし、意味の相似性に基づいた別の新しい意味を創出する。例えば、fruit　という語形を固定し、それと結びついている「くだもの」という意味を手がかりとし、意味の相似性に基づいて、「成果」という新しい意味を創出するがごときである。

　これに反し、文法的メタファーは、意味の方を固定し、それを最も直線的に表している文構造を求め、それを他のどのような文構造［の一部］に、いわば、縮約できるかということを追求しようとするものである。それは、新しい宇宙の秩序、新しい宇宙の認識様態を求めようとする試みである。

　伝統的なメタファーにおける「つなぎを成す意味の相似性」など、文法的メタファーの場合、求むべくもない。「メタファー」を「ものの言いよう」という意味ぐらいに解すれば、「文法的メタファー」という用語も、成立の余地なしとしない。が、なにより、文法的メタファー論は、そんな小うるさい議論を吹き飛ばし、すでに、天空のかなたを飛んでいる。

2．品詞転換と文法的メタファー

　文法的メタファーの全体像を規定するキーワードというようなものは、どうやら存在しないように思われる。けれども、品詞の転換（conversion）の名で呼ばれている現象を、従来よりも広義に解し、例えば、自動詞の他動詞化、他動詞の自動詞化、あるいは、さまざまな名詞化（nominalization）などをも含めるとすると、品詞転換という現象は、にわかに輝きを増し、文法的メタファーという領域において中心的な役割を担う重要な因子の一つとなってくるように思われる。ただ、その際、常に忘れてならないのは、場面的、意味的側面に対する配慮である。

　文法的メタファーという観点からすると、品詞転換の前とあととで、形が同じであるか、同じでないかということは問題にならない。問題なのは、品詞が異なるという点である。とくに、動詞を名詞化すること、形容詞を名詞化することに重点が置かれる。ここが、伝統文法の品詞の転換と大きく異なる点である。

　例えば、heat は、hot の文法的メタファーであるとされる。同様に、pressure は、press の文法的メタファーであるとされる。言語獲得という角度から見ると、整合形の方が、文法的メタファーよりも難易度は低いとされる。文法的メタファーというのは、常に、整合形になんらかの「ひねり」を加えたものであるからである。ちなみに、文法的メタファーを解いて、整合形にもどすことを「ほどく（こと）」（unpacking）と呼んでいる。

　以上のことは、外国語の学習、とくに、その教材作成に際しても、考慮されてしかるべきことであると思われる。もう少し広く考えてゆくと、同じことが、人間の個体発生においても系統発生においても認められるということが分かってくる。すなわち、個人の発達過程において、文法的メタファーの種々相が顕著になるのは、中学以降であるのに対し、英語の散文の歴史において、文法的メタファー、とくに、さまざまな種類の名詞化構文が多用されるに至るのも近代科学の成立後であり、科学者の名前で言えば、ニュートン（1642-1727）以降であるとしてよいという調査結果も報告されている（Banks 2003）。

　科学論文に限らず、論文調の散文において、文法的メタファーが多用されているという指摘は興味深い。少なくとも、従来の文体論においては問題とされなかった側面ではないか。複雑な思考内容を表現しようとする際には、一文あたりの語数、とくに、名詞の語数、ひいては、名詞化表現の数を増やす必要に迫られるということがあると思われる。また、狭いスペースに大量の情報を盛り込もうとすると、名詞化形、名詞化構文が多用されるということは、研究論文のレジメなどに、その好見本を見ることができるであろう。

　論理の飛躍を承知で言うなら、名詞化構文の練習や訓練を組み込んでいない英語教育は、種々の科学論文の執筆や金融経済、外交上の交渉などにおいては、ものの役に立たないということになるであろう。

　このことは、さらに、わが国における早期英語教育論にも少なからぬ関わりを持ってくるように思われる。

　まず、後述のように、文法的メタファーが多用されるに至るのは、英・米・日を問わず、思春期のころであると考えられる。つまり、that　節や準動詞による名詞化構文、すなわち、文法的メタファーは、英語であると日本語であるとを問わず、小学校では学習不可能であるということになる。

　従来の早期英語教育論において、その到達目標が明示的に示されることはなかったと思われるが、文法的メタファーが多用されている英語を小学校で学習することが不可能であることは、すでに明らかであろう。

　逆に言うと、小学校における早期英語教育に費やされる年限が2年であろうと3年であろうと、その達成水準は、中学一年生のそれを越えることはないということである。小学校低学年から英語の学習を始めれば、その英語力はどんどん果てしなく伸びてゆくと考えるのは、妄想であることになる。英語の学習における急な登り坂は、中学2年の時にくるといことも忘れてはならない。

　品詞転換に話を戻すと、上でもちょっと触れるところがあったように、どちらが整合形でどちらが文法的メタファーであるかは、常に明白であるわけではない。例えば、次の、（1）を見るとしよう。

(1)　a. heat : hot　= hatred :　x
　　　b. pressure（n.）; press　= pressure（vb.）: x

これらの場合、（1a）は、hatred が文法的メタファーであるとすると、それに対する整合

形が見つからないことを示している。hateful という語は、筋違いであると思われる。(1b) の場合、pressure （n.)が press の文法的メタファーであるとするのはよいとしても、pressure（vb.）は、何の文法的メタファーと言えばよいのであろうか。それ自体、文法的メタファーであるとされた pressure （n.)には、さらに、動詞用法もある。そうすると、この pressure （vb.）は、pressure （n.)の文法的メタファー、つまり、文法的メタファーの文法的メタファーであるということになる。

　整合形においてなら動詞によって表されるべき対象を、文法的メタファーにおいては名詞によって表すということは、いったい何を意味するものであろうか。この場合、品詞の違いは意味の違いを表しているものであろうか。

　例えば、動詞の「流れる」（flow）と名詞の「流れ」（flow）とを比べてみることにしよう。こういう場合、意味の違いを求めていっても、あまり有意義な結果は得られないと思われる。「流れる」があれば「流れ」があり、「流れ」があれば「流れる」もなければならないという関係が存在するからである。では、違いはどこにあるのか。

　結論的に言うと、動詞としての用法と名詞としての用法との違いに還元できるものと思われる。それは、過程(process)として捉えられるべき対象を「もの」(thing)として捉え直すということを意味する。

　名詞として捉え直されると、文中の、名詞が用いられる位置には、どこにでも用いられる、名詞がとりうる形容詞的語句、あるいは、形容詞的修飾節は、すべてこれらをとることができる。これは、大きな利便性である。

　こういう形容詞的修飾語句の中には、動詞に対する副詞的修飾語句ではまかないきれないものも含まれている。例えば、a great deal of pressure, inexorable pressure, time pressure, relentless pressure, pressure for money, under pressure which is bad for his health など。

　同族目的語構文（He slept a sound sleep.）や、動詞中心の構文を名詞中心の構文に変えている場合（例えば、have a swim ちょっと）ひと泳ぎする）、have a walk（ちょっとひと歩きする））などにも見られる。

　既出の「流れ」（flow n.）の場合には、動いているものを動きを止めた姿で捉えるという面のあることを記したが、「火」（fire　n.）などという語になると、「動いているもの」としての捉え方は、始めからないことに気づく。つまり、文法的メタファーのみがあって、整合形はないことになる。しかも、不定冠詞をとったり(make a fire)、複数形にすることもできる。要するに、可算名詞の扱いを受けることも可能である。同じく「火」を表す語でも、「ほのお(炎)」(flame) の方は、やや動きのある状態を感じさせる。が、flame という語自体、a (blue) flame のように、不定冠詞をとり、in flames のように、複数形になることもできる。逆に、もしも、fire や flame に可算名詞用法がなかったとしたらどうであろうか。少なくとも、英語という言語を使用する人々は、大きな利便性を失うことになるのではないか。

　このような利便性は、ハリデー流に言えば、近代科学成立の源泉を成しているものである。近代科学は、宇宙の「森羅万象」を、すべて「もの」と見るということから発しているというのである。

　「ものとして見る」というのは、行為であれ、性状であれ、関係であれ、すべて、これらをいわば静止画像として捉え、「もの化」するのである。そうすると、宇宙を細分

化して、その断片を取り出し、再結合し、それを理論化する操作可能な方法が得られることになるのである。

　別の例で言うと、length という語は、long という性状を内側に包み込み、それを「もの」として働きうる「名詞という外皮」で装っているものである。同様に、motion は、move（動く）を静止させ、「もの」として捉え直した文法的メタファーであることになる。

　このように見てくると、伝統文法で品詞転換の名で呼ばれていた現象は、思いもかけぬ方向から強烈な光を当てられたことになる。これは、広大無辺な文法的メタファーという世界における最小の、しかしながら、最も基本的な礎石の一つを成すものであるからである。

　なお、上で用いた「品詞転換」の代わりに、ハリデーは、「カテゴリーの転位」（transcategorization）という用語を用いているところがある。用語としては、この方がより適切である。

3．整合形の欠如

　文法的メタファーと考えられる形は存在するが、対応する整合形は存在しないという例は、基準の取り方にもよるが、いくらでもあると言えるのではないかと思われる。例えば、次の（2）である。

(2) a. Have you any brothers?
　　b. The house has a balcony.
　　c. have much time / have a chat / have a bath /have a good time / have a headache
　　d. I have a lot of work to do this afternoon.

どうしてこれらが文法的メタファーであって、整合形ではないのかという説明は、はしょることにする。She has blue eyes. に対応する日本語は、「彼女は青い目を持っている」ではなく、「青い目をしている」であろう。したがって、She has blue eyes. は、本来、文法的メタファーであり、Her eyes are blue. が整合形であることになる。が、She has blue eyes. の形は、すでに、定着しているので、こういうのを「馴化された」（domesticated）形（つまり、一種の整合形）と呼ぶこともある。ただ、こういう文法的メタファーの形しか存在していない表現に対する感受性は、我々日本人の方が鋭いかもしれない。外国語としての英語の表現に、一種の違和感を持っていることが多いからである。

　ついでに、次の（3）を見ておくことにしよう。

(3) a. It's raining.
　　b. It's getting dark.
　　c. It takes five minutes to go to the station on foot.

これらの場合、英米人には整合形であると判定されるかもしれない。そうなると、何が整合形であり何が文法的メタファーであるかという問題は、特定の言語を用いる人々の

宇宙観や世界認識と深く関わってくることにもなるであろう。ある言語においては整合形とされるものが、他の言語においては文法的メタファーとされる場合も、当然、出てくると思われる。また、同じ場面的状況に対し、Aの言語における整合形とBの言語における整合形がずれているという場合も、当然考えられる。

　こういう場合、翻訳するとなれば、どの形を選ぶかということを追求してゆくと、新しいタイプの翻訳論が生まれてくるかもしれない。さらに言うなら、新しいタイプのサピア・ウォーフの仮説に関する論が展開されてゆくことになるかもしれない。ただし、文法的メタファー論は、まだ始まったばかりであり、これが、二つの言語にまたがる対照研究に至り着くまでには、もう少し時間がかかるであろう。

4．文法的メタファーの目指すもの

　文法的メタファー論の目標はどこにあるのか、文法的メタファーが到達すべき究極の、そして、ただ一つの目標というものはあるのかというと、それはないと言うべきであろう。生成文法理論が人間の言語能力を解明するという一大目標を目指しているのとは大きく異なる。が、それを承知でしいて言うなら、文法的メタファー論が解明しようとしているのは、意味の種々相と、それを表現する言語形式とをつなぐ網目の解析というようなことであろう。もっと言うなら、文法的メタファー論が追求しているのは、人類の知識体系の再整理、人間の現実世界に対する、一段とグレードアップされた記号体系による再整理であると言ってよいであろう。

　これは、かなりぼんやりとした特徴づけである。が、あたかもそれを裏書きするかのように、文法的メタファー関係の論考は、極めて多岐に渡り、その周辺部は見極めがたい。あまり拡散して色が薄くなると、とりとめがなくなった一般意味論（General Semantics）と選ぶところがなくなるのではないかという危惧さえいだかせる。が、このことは、もちろん、文法的メタファー論に見るべきところがないということを意味するものではない。以下、文法的メタファーという観点を導入することによって見えてくるかと思われる点を、少し拾ってみることにしよう。

5．整合形の姿

　整合形は、一般に、どのような姿をしていると言えばよいであろうか。言いたいことを最も直線的な形で、なんの飾りもひねりも加えずに述べようとしたときに得られる表現形式である旨をすでに述べた。が、これは、さまざまの注釈を必要とする。例えば、「なんの飾りもなく」などという言い方は、すぐ引っかかる。が、ここでは、余計なものはすべて削り取っておくというぐらいのことでおさめておくことにする。

　もっと重要なのは、整合形が、場面的状況の中のどの要素とどの要素とを備えていなければならないかという問題であろう。当然のことながら、場面的状況の中のすべての要素を備えていることはそもそも不可能であるし、その必要もない。この場合も、当面の問題にとって必要とされる限りの要素を備えていればよいというくらいのところに落ち着くであろう。

　発話の中で、整合形と文法的メタファーとが占めている比率はどれぐらいのものであるかということも、興味ある問題であるが、これを、理論的に決めることはできない。むしろ、次のように問うほうが有意義であろう。一つは、「すべての発話が整合形でできていたらどうなるか」という問いである。これに対する答えは、「つまらなくなる」というものである。もう一つの問いは、「すべての発話が文法的メタファーでできているとしたらどうなるか」というものである。これに対する答えは、「了解不能となる」であろう。

　したがって、実際の発話は、整合形と文法的メタファーの間のどこかに位取りをするということになる。文法的メタファーというのは、整合形にある種のひねりを加えたものである旨を上で述べたが、このひねりというのは、二つの角度から考えることができるように思われる。一つは、その構成要素に増減がない場合、もう一つは、その構成要素に増減のある場合である。

　一方、ひねりをいっさい加えていない構造、すなわち、整合形の姿についてもちょっと触れておくべきであろう。結論的に言えば、それは、「主語+述語」の形をし、いわゆる変形操作を受けていないようなものということになるであろう。その際、動詞が、自動詞であると他動詞であるとを問わず、それらが完全・不完全のいずれであるかを問わない。

　となると、整合形は、すべていわゆる「5文型」の枠内に収まるということになる。この事実は、注目に値する。

　この5文型というのは、わが国においてこそ有名であれ、欧米においては、少数の例外（例えば、C. T. Onions（1905）*An Advanced English Syntax*）を除き、ほとんど顧みられなかったものである。イェスペルセンによって代表される学問的伝統文法においても、言及されることはなかった。が、ひとたび文法的メタファーという観点が導入されると、5文型という概念は、にわかに新しい脚光を浴びることになる。

　わが国において、いわば特別の扱いを与えられていた5文型という概念は、文法的メタファーの出現によって、学問的な基盤を得るに至ったと言ってもよいであろう。5文型が、英語教育の初期段階において習得すべき目標と定められているのも、整合形の習得年代とうまく符合する。文部（科学）省が、5文型を扱っていない教科書は、検定教科書として認めないという立場をとってきたのも、一理あったことになる。

　ただ、整合形がすべて5文型の枠内に収まるといっても、それは、5文型の枠組みでできている文がすべて整合形であることを意味するものではない。逆は真ではないのである。

　このことは、後述（§6）(ib)、(iib) の Prolonged exposure will result in rapid deterioration of the item. / The driver's overrapid down-hill-driving of the bus resulted in brake failure. などの例を見るだけでも明かであろう。これらの文は、文型から言えば5文型でまかなえるものであるが、名詞化形を含む文法的メタファーであるからである。

　整合形は5文型でまかなえるという考え方をもう一歩進めると、整合形が多用される傾向があるとしてよい日本語も、ほぼ5文型に対応する日本文でまかなえるということを意味することになる。

　整合形が流動的で、一時的な現象をそのまま、すなわち、あるがままに、あるいは、

五官に映るがままに表そうとするものである。

　もしも、俳句があるがままの写生文を意図するものであるとするなら整合形を多用する傾向のある日本語は、俳句の世界にはうってつけのものであることになる。「五官に映ずるままを」という点で、両者は、射程を同じくする二つの同心円のように、うまく重なるからである。また、俳句の成立には、その背後に、ある種の情緒の存在が前提とされるが、これも整合形と矛盾するものではない。

　同じ筆法でゆけば、おしゃべり用の言語も整合形の世界のものであることになる。幼児の世界、例えば、童話の世界が整合形の世界であることは言うを待たない。文法的メタファーの洗礼を受けたあとの大人が、ふたたび純粋に整合形的な世界に戻ることができるのは、幼児に童話を語ってやるときであるということにもなる。

　俗に言井戸端会議における使用言語が、おそらくは、普遍的に整合形の言語であるということも、当然予想されるところである。とくに、「まくしたてる」という井戸端会議言語のスピード感は、文法的メタファーの欠如と深い関わりがあると思われる。

　名詞化形を、いわば同時多発的に、複数個含んでいるような文法的メタファーの文は、それを作り出すにも、発音するにも、また、了解するのにも、「よどみなく」というわけにはゆかないからである。

　ハリデーは、文法的メタファーを「アティック体」（Attic）、整合形を「ドーリック体」（Doric）とも呼んでいるが、このギリシアに由来する「高雅体」対「土俗語体」という対比も、上述のような事情をよく表していると思われる。もちろん、以上は、大体の傾向という角度からの考察であって、メタファーを含む俳句の存在を全面的に否定しようとしているものでないことは言うまでもない。

　大体の傾向ということで言えば、日本語は、「ゆらゆらと水中に揺れ動く友禅流し」的であり、英語は、「きっちりと入れ子型に組み合わされている箱根の寄せ木細工」的であると特徴づけることができる（安井稔「日本語の語感と英語の語感『英語学の門をくぐって』開拓社、1997、所収）が、これも、文法的メタファーということを軸に考えると、ある程度の理由付けが得られるかと思われる。けれども、整合形対文法的メタファーという対立軸で捉え直された「友禅流し的言語使用」と「寄せ木細工的言語使用」との間には、次のような関係が新たに成り立つことになる。すなわち、流動的な友禅流しの姿で捉えられた現実世界は、寄せ木細工の部品としてカテゴリー化され、この新しいカテゴリーどうしは、取っ替え引っ替え、左右が逆になったり、天地がひっくり返ったりして、自在の再結合が行われることになる。結果として、新しいジグソーパズルのような絵模様、つまり、新しい世界像が得られることになる、というわけである。

６．構成要素の一部が欠けている文法的メタファー

　整合形といえども、場面的状況の中のすべての要素を保持しているわけではない。これは、上述したとおりである。が、条件をやや緩めて、「すべての要素」を「問題とされる限りのすべての要素」としたらどうであろうか。「問題とされる」ということの中身がすぐ問題となる。けれども、それはしばらくおくとしよう。それでも、抽象的に論じているだけではらちがあかないので、具体的な例について少し見てゆくことにしよう。

次の（4）は、GM（2003）からの例を少し変えたものである。

(4) Every statistical comparison shows that the North is poorer than the South.

もし、この文を次のように訳したとしたら、どうであろうか。

(5)　すべての統計的比較は、北部の方が南部より貧しいことを示している。

　もしも、これが入学試験における英文解釈問題に対する解答として示されたとしたら、減点するのは難しいであろう。が、英語学演習のような場面で（5）の解釈を示されたら、どうであろうか。明らかに不可であろう。英文の理解が不十分であるという印象を与えるからである。どうすればよいのか。
　文法的メタファーであるとされる（4）を「ほどいて」、整合形に戻す訓練をすればよいのである。その際、基準となる枠組みは、一般にある行為が行われる場合、「行為者 ― 行為 ― 目標 ― （時・場所・手段などを表す）副詞的修飾語句」が与えられているはずであるというものである。Every statistical comparison という名詞化形について言うと、「比較をするのはだれですか」、「何と何とを比較するのですか」、「統計は何に関するものですか」、さらに、「統計をする人と比較をする人は同一人ですか」などの問いに答えられなければならない。
　同一の文の中に複数個の文法的メタファーが同時に含まれている場合には、一つ一つの文法的メタファーをすべて「ほどいて」ゆく必要がある。それらがすべて解体され、いわば「平ら」になったとき、はじめてその文の英文解釈は完了するのである。
　こういう、いわば建物を解体し、平らにするという作業が日常的に行われているのは、英文学演習とか英語学演習のような作業においてである。こういう作業が教室において口頭で行われる限り、とくに問題はない。が、それをそのまま印刷するとなると、話は別である。
　「話すがままに書く」という文章作法が通用するのは、小学校高学年くらいまでのことである。それを大人になってからもそのまま続けていたとしたら、どうなるであろうか。文章がフラットでしまりがなく、全般に「薄められている」という感じを与えることになるであろう。これは、言語の個体発生的過程において、文法的メタファーの使用は、中学生以降においてはじめて可能となるとう事実と見事に一致する。つまり、子供っぽい文章というのは、文法的メタファーが欠けている文章ということになる。
　ところが、そういうやや子供っぽい文章の使用を余儀なくされているジャンルもある。人生相談欄の回答者や「クエスチョンボックス」の担当者の場合がそうである。子供にも分かるような平易なことばで納得のゆく回答を、大人である読者に届けるという困難な仕事を負わされているからである。
　他方、英語学プロパーの分野においても、従来、さまざまに異なる派生や変形操作によって、ばらばらに扱われてきた構文を、やや統一的に見る観点が文法的メタファー論によって与えられることになるかもしれない。例えば、次の（7）を見ることにしよう。

(7)　a. The door opened.

　　b. The door was opened.

　　c. Pam photographs well.

　　（パムは写真写りがよい。）

これらの場合、(7a) は能格動詞の自動詞構文、(7b) は受動形、(7c) は中間構文として、従来、別々に扱われてきた。が、これら三つの構文には、共通点が一つある。「行為者 - 行為 - 目標」のうち、行為者が欠けているという点である。いずれの構文においても、行為者が「問題とされていない」ということである。が、そうなると逆に、「問題とされなさ加減」に手がかりがあることになる。

　三つの構文の中で、不在の行為者が意識されている度合いの最も高いのは、(7b) であると言ってよいであろう。それは、もしも必要があるなら、例えば、by John とか、by somebody などを補って、行為者を表現することができる構造になっていることからも察せられるであろう。(7a)、(7c) の構造は、これを許さない。

　けれども、(7a) と (7c) とを比べると、行為者の存在が含意されている度合いは、(8c) の場合の方が大きい。(7a) には、by itself を付加することができるが、(7c) では、そういうことができない。さらに、述部に示されている行為の具現に対し、(7c) の主語は、かなりの責任を持っているが、(8a) の主語の場合、そういうことはない。

　当然のことながら、従来の生成文法ではほとんど問題とならなかったような文も、文法的メタファー論という網目には、いち早くかかってくるという場合もある。例えば、次の (8) である。

(8)　a. The fifth day saw them at the summit.

　　b. The bus will take you to　the airport.

　　c. The tent can sleep four people.

これらの場合、「主語は主語として訳せ」という訳読法では、容認可能な日本語に訳すことはできない。ややこなれた訳文ということになれば、次の (9) に示すような形のものとなるであろう。

(9)　a. 5日目になると、彼らは頂上に立っていた。

　　b. このバスに乗れば、空港に行かれますよ。

　　c. このテントは、4人の人が眠れます。

　ここでもう一つ、ハリデーによって有名になった例を見ておくことにしよう。次の (10) である (Halliday 1994, p.355; Hita 2003, pp.103-109)。

(10)　　alcohol impairment

これを和訳せよと言われたら、どうなるであろうか。英和辞典の中から拾ってくること

のできる impairment の訳語としては、「損傷」くらいしかないので、これを用いて、「アルコール損傷」としたらどうであろうか。不可であろう。

　結論だけ述べると、（10）はあいまいで、次の（11）に示す二通りの解釈が可能である。

(11) a. Alcohol impairs.
　　 b. Alcohol is impaired.

この場合、（11a）に対応する（10）の訳語は「アルコール障害」、（11b）に対応する（10）の訳語は「アルコールの劣化」などとなるであろう。

　これらの訳語自体、日本語における文法的メタファーの例であり、英語における整合形（11）と並行的な、日本語における整合形をやや説明的に示すなら、次の（12）のようになるであろう。

(12) a. アルコールは注意力を散漫にさせ、交通事故の多発を招き、作業能率を低下さ
　　　　せるなどのことを引き起こす。
　　 b. アルコールの質が劣化すること。

　同じくハリデーの引いている例に、animal protection がある。これは、少なくとも五つの整合形に対応するとされている (Collected Papers, p.13)。すなわち、(i) 人々が動物を保護する、(ii) 人々がいかに動物から自分の身を守るか、(iii) いかに動物が人々を守るか、(iv) 動物が自らを守る、(v) 動物を使って人間が自らを守る、である。これらの例は、名詞化形の解釈に豊かな文脈と背景的知識と常識が必要とされることを示している。それが欠けていると、「おいてきぼり」にされることになる。なお、例示されている文脈では、(iv) が正解である。

　念のため、animal protection という文法的メタファーを「ほどいた」ときに得られる整合形として、ハリデーが与えているサンプルを次に示す。

(i)'　　　 How animals are protected or should be protected by humans.
(ii)'　　　How we protect or should protect ourselves from animals.
(iii)'　　 How animals protect other things such as humans or the environment.
(iv)'　　 How animals protect themselves.
(v)'　　　How people use animals to protect themselves.

　ここで、要素の欠けていない文法的メタファーについても一言述べておくべきであろう。まず、ハリデーから二つの用例を借用し、次の（13）、（14）に示すことにする。

(13) a. If the item is exposed for long, it will rapidly deteriorate.
　　 b. Prolonged exposure will result in rapid deterioration of the item.
　　 （長く日にさらすと、その生地はどんどん傷みがくる。）

(14) a. The driver drove the bus too rapidly down the hill, so the brakes failed.

　　 b. The driver's over-rapid down hill driving of the bus resulted in brake failure.

これらの場合、（13b）と（14b）は文法的メタファーであり、（13a）と（14a）は整合形である。

　ハリデーは、ある衣料品の広告に付されていた（13b）の文に接し、どうして（13a）の形を用いないのであろうかといぶかった。限られたスペースに収めるには（13b）の方が好適であるという理由は通用しない。（13a）の方が短いくらいであるからである。ハリデーが至り着いた説明はこうである。（13a）は、単に事実を述べているにすぎない。が、（13b）の方は、実験を重ねたのちに得られた事実の報告であるという印象を与える。つまり、（13b）の方がより権威があり、より科学的であるという印象を与えるからであろうというものである。

　文法的メタファーは、科学論文に用いられる文体のものであるという特徴がここにも見られる。ついでながら、（13b）に、もし日本語を添えるとなれば、カッコ内に示したようなものとなるであろう。注意すべきは、日本語の訳文が、ほとんど（13a）に対応するものであるという点である。すなわち、日本語は、英語に比べ、整合形をより多く用いなければならないような言語構造をしているということである。

　同じことが、（14）の場合にも当てはまらないことはないが、事情は少し異なる。最も注意すべき点は、「ドライバーが下り坂を限度を超えたスピードでバスを走らせた」という「こと」を、「もの」に変えているという点であると思われる。「行為者がある行為をしたということ」は、一瞬のうちに過ぎ去り、一瞬のうちに終わる。が、これを「もの」に変えると、今度は、新しくほかのものとの関係を述べてゆくことが可能となる。ここに、科学の世界が始まる。（14b）におけるような、いわゆる動名詞化には、いくつもの変形操作が関わっているが、文法的メタファーというのは、そういうところに焦点を置いて見るのではなく、一つの文の中身、すなわち、「こと」を「もの」化して、別の文の一部に繰り込み、一段落高次のレベルにおけるものとものとの関係を追求してゆくことを可能にしている構文であると見るのである。

7. 英・日翻訳の長さについて

　一般に、英文を日本語に翻訳すると、訳文の方が長くなると言われている。これは、どうしてであろうか。手元に正確な統計資料があるわけではないが、これだけは言えるであろうと思われることがいくつかある。

　まず、英語における整合形と文法的メタファーとを比べると、通例、文法的メタファーの形の方が短いと言えるであろう。文法的メタファーが整合形の一部を欠いている場合、あるいは、名詞化形が用いられている場合、とくにそうである。これは前節（§6）で挙げた、（4）every statistical comparison や（11）alcohol impairment などの例からでも察せられるであろう。

　他方、日本語においても、整合形と文法的メタファーはともに存在するが、文法的メ

タファーの整合形に対する比率は、英語におけるよりも、ずっと低いと思われる。どのような統計資料をもってしても、これは動かしがたい事実であるということが判明するであろう。

このことには、準動詞形が大きく関わっている。準動詞の名で呼ばれる動名詞、分詞、不定詞は、いずれも文法的メタファーである。ところが、準動詞というのは、英語にはあっても、日本語にはない。少なくとも、その分だけ、文法的メタファーは、日本語の方が英語より少ないということになる。

日本語における文法的メタファーの比率が低いということは、英・日の翻訳に際し、不都合を生ずる。英語の文法的メタファーを、そのまま対応する日本語の文法的メタファーに移そうとしても、対応物が見つからないという事態が頻出するからである。

では、どうするか。道は一つしかない。日本語における整合形を用いることである。また、そこへ至り着くためには、英語の文法的メタファーを、いったん「ほどいて」整合形に戻し、それを日本語の整合形に移すという手続きを踏まなければならない。訳文は長くならざるをえないという道理である。

ただし、以上のことは、日本語の訳文の方が英語の原文より、常に必ず長くなるということを意味するものではない。原文の文法的メタファーを日本語における文法的メタファーで置き換えるという道が常にふさがれているというわけではないからである。

既出の例で言うなら、every statistical comparison を「すべての統計的比較」とし、alcohol impairment を「アルコール障害」とするがごときである。が、これでは、意図されている意味が了解されにくい。これも、すでに述べたとおりである。

けれども、こういう「意味の通りにくさ」を承知の上で、あるいは、そういう代償を払ってでも、日本語式文法的メタファー表現を用いなければならないというジャンルがある。学術論文とか科学論文などの名で呼ばれている世界である。ここで日本語式文法的メタファーと言っているのは、多くの場合、漢語表現によっている。これなしに済まそうと思えば、論文は冗長となる。というより、論文は書けなくなると思われる。

漢語による文法的メタファー表現が多用されると、それを理解するために必要となってくる知的な負担量も増えることになる。

その理解を助けるためには、固い漢語的表現を「ほどき」、いわば、かみ砕いてやる必要がある。このかみ砕き作業が欠落すると、いわゆる「落ちこぼれ」を生ずることになる。落ちこぼれ現象のすべてをこれに帰するわけにはゆかないであろうが、落ちこぼれ現象というものが、教科の難易度に比例していることは疑いがなく、その困難度が、想像以上に、固いメタファー的表現の介在にあることは、否定できないであろう。そうなると、落ちこぼれを防ぐための対策は、かなりの程度まで国語教育の問題であることになるであろう。

8．問題点と展望

文法的メタファーの世界は、気宇壮大である。創世記などにおける天地開闢（びゃく）から、現代科学の最先端に至るまで、人間存在の全分野をその視野に入れている。ちなみに、象徴的な言い方が許されるなら、創世記の世界は、整合形の世界となっているは

ずである。

　どうしてそうなるのかと言うと、現在における人間の世界、すなわち、人類がこれまでに築き上げてきた文明の水準は、「言語の介在」なしには考えられないものであり、しかも、そういう言語の機能の中核を担っているのが、文法的メタファーであると考えられているからである。

　つまり、人間にとって、知識の蓄積が可能であったり、知恵を鋭く研ぎすますことが可能であったりするのは、すべて文法的メタファーがあるからであるということになる。それは、また、どうしてであるかというと、文法的メタファーがあるからこそ、人間は宇宙を分割し、再整理し、理論化し、ひいては、自分の経験内容まで組み替え直し、再整理することができるようになるからであると考えられる。

　従来の言語学が、「言語の不備」、「言語による伝達の心もとなさ」、「現実世界の姿を見誤らせる言語」などという、いわば、言語のマイナス的側面、つまり、「言語に関する欠陥」に焦点が当てられている言説が多く見られたが、ハリデーの文法的メタファー論は、これとはまったく対照的に、「偉大なるかなわれらが言語！」というものである。こういう観点から人間の歴史、科学の歴史などを具体的に検証してゆく作業は、不可能ではないにしても、気の遠くなるような課題である。

　文法的メタファー論には、天空を駆けるがごとき壮大な企画とともに、地を這うような、いわば、裏方的研究の余地も十分にある。本稿もその一例であるとしてよい。

　文法的メタファー論の輪郭には、明確でない点も少なくない。すでに、触れるところがあったように、その明確な定義とか、必要十分条件などは与えられていない。与えられた形式が、整合形であるか、文法的メタファーであるかという判定も常に可能であるわけではない。

　さらに、その判定自体がひっくり返ることもありうる。例えば、始めは紛れなく文法的メタファーであるとされた形式が、慣用として固定化し、むしろ、整合形と見なした方がよいと思われる場合も少なくないと考えられる。そのよい例の一つが、依頼表現の一つに見られる。始めは、Pass me the salt. が整合形、Could you pass me the salt? は文法的メタファーであったとしてよいが、Could you ...? の形が慣用表現として定着した段階では、むしろ、これを整合形とすべきであろうと考えられる。ハリデー自身も、本来的には文法的メタファーであった heat も、heat resistance、heat resistant bacteria　（熱に対して耐性を持っているバクテリア）のような用法を持つようになると、文法的メタファーとしては「死んでいる」(dead)と言う。死んだメタファーは、整合形であることになり、「ほどく」ことはできない。

　既出（8）の例で見たように。英・日における文法的メタファーの、いわば食い違い現象の解明には、我々自身の研究が待たれるところである。例えば、(8a) The fifth day saw them at the summit.という文法的メタファーは、They saw them at the summit on the fifth day.という整合形に対するものであるとされる。文法的メタファーの方は、通例は人間主語を要求する感覚動詞の主語として、時を表す名詞句が選ばれているため、この文は、一種の緊張状態を伴うものとなっているとされる。この説明は正しい。が、十分ではない。文法的メタファーとされる文の主語としてすえられる語句には、どのような意味内容のものがあり、それらはなぜ許されるのかということ、さらには、それらが日本語で許さ

れないのはなぜか、などという問題が解明されなければならないからである。

9．名詞化形の解釈について

　文法的メタファーというのは、上から下を見たときのものである旨を述べた。その解釈にとって重要な鍵を握っているのは、対応する整合形である。その整合形は、文法的メタファーを出発点として、唯一的に入手することが可能であろうか。もし可能であるなら、文法的メタファーは、他の情報に頼ることなく、解釈することが可能であることになる。もし可能でないなら、なんらかの他の方策を考えなければならないことになる。結論だけ先に述べておくとすると、文法的メタファーを手がかりとして、唯一的に整合形に至り着く道筋は、常に得られるとは限らないということになるであろう。

　この間の事情には、アメリカ構造主義言語学において活発な議論の対象となっていた「下から上へ」という方法論の妥当性に関する問題とよく似ているところがあるように思われる。当時のアメリカ構造主義言語学は、「レベルの分離」という大原則に立ち、下位レベルの分析に、上位レベルの情報を持ち込むことを厳禁したのは、その一例である。

　どうしてそのような（今から見れば不毛であった）原則がまかり通っていたかというと、話し手と聞き手との間で交わされるのは、音声という空気の振動だけであるという事実に着目したからであった。この場合、不当に見逃されていたのは、話し手と聞き手の頭の中に蓄えられていた言語知識であったといってよいであろう。見逃されていたというのが言い過ぎであるのなら、話し手と聞き手の頭の中に蓄えられていた言語知識を、分析のどの段階で、どのように利用すべきであるかという方法論が、皆目見当のつかない状態にあったからであると言えばよいであろう。

　この苦境からの脱出を可能にしてくれたのが、生成文法であった。生成文法の方法論は、象徴的に言えば、「上から下へ」であった。これによって、当時の方法論が抱えていた疑問の多くは、自動的に消滅した。今、ここで、問題にしようとしている文法的メタファーの場合はどうであるかと言うと、これは、主として、統語構造と統語構造との関係であるから、いわば、「横から横へ」という関係になるであろう。ただ、整合形と、それに対応する文法的メタファーという関係はある。そこに、「あと」「先」の関係が生ずる。問題は、「あと」（文法的メタファー）から「先」（整合形）に至る道を唯一的にたどることは可能であるかということになる。（「先」から「あと」へとたどる道は、問題にならない。整合形は、始めから意味内容を直接的に与えられていると言ってよいからである。）

　具体的な例について少しみてゆくことにしよう。既出の The driver's over-rapid downhill driving of the bus という文法的メタファーから、The driver drove the bus too rapidly down the hill. という整合形に至りつくのは、比較的容易である。同様に、prolonged exposure から、If you expose the item for long を導きだすのもそれほど困難ではないであろう。

　では、Mary's invitation のような場合はどうであろうか。文脈がなければ、唯一的に対応する整合形を求めることはできないが、文脈がなくても、Mary invited someone か Mary was invited by someone かのいずれかという二者択一的な形であるなら、その整合形を求

めることは可能である。the burning of the house / the burning of the wood のような場合においも、ほぼ同じことがいえる。the burning of the house なら、The house burned. にも、The house was burned. にも、戻りうるからである。alcohol impairment も同類であると考えてよい。これらの場合、名詞化形は自動詞に対応するものであるか、他動詞に対応するものであるか、ということを追求してゆけばよいからである。

やや複雑な例として、Halliday（2004, p.196）が挙げている例を検討してみることにしよう。科学論文において用いられうる名詞化形として取り上げられている glass crack growth rate という形である。文脈なしにこの形だけを示されたら、英米人でも理解は困難である、とハリデーはいう。では、我々の英文解釈法ならどうするであろうか。

まず、N4 ＋ N3 ＋ N2 ＋ N1 という四個の N から成る名詞句が与えられたら、それは中心語である N1（rate）の下位類を示すものであると考える。つまり、なんらかの「率」である。growth rate（N2 ＋ N1）をみると、それが「なんらかの成長・拡大などに関する率」であると見当をつける。crack growth rate（N3 ＋ N2 ＋ N1）となると、「ひび割れの拡大率」であり、glass crack growth rate（N4 ＋ N3 ＋ N2 ＋ N1）となると、「ガラスのひび割れ拡大率」ではないかと推定する。

これだけの準備運動をしておいてから、Haliday（ibid）の挙げている五つの文を以下に示しておくことにする。（括弧内は筆者による補足）

(i)   Glass cracks more quickly, the harder you press it.〔N4 ＋ N3〕

(ii)   Cracks in glass grow faster, the more pressure is put on.〔N4 N3 ＋ N2〕

(iii) Glass crack growth is faster if greater stress is applied.〔N4 N3 N2 ＋ N1〕

(iv) The rate of glass crack growth depends on the magnitude of the applied stress.
       〔N4 ＋ N3 ＋ N2 ＋ N1〕

(v)   Glass crack growth rate is associated with applied stress magnitude.

この場合、もしもだしぬけに (v) の形を示されたら、固い論文に慣れている人でもとまどうであろう。それは、意図された意味が意図されたようには伝わりにくいということを意味する。これは、論文の執筆者自身にとっても好ましいことではない。では、どうするか。

よい方法が一つある。それは、あらかじめ伏線あるいは補助線のたぐいを張りめぐらせておくことである。そういうステップを踏んでゆけば、(v) は難なく理解される。(i) から (iv) に示されている文がまさにそういうステップである。

例えば、(i) の Glass cracks. . . という整合形が与えられていれば、glass crack という文法的メタファーである名詞化形はすぐ得られる。

こういう操作を積み重ねてゆくのである。しかしながら、そのような配慮は、熟練度の高い書き手の場合にのみ期待できることである。そういう期待が常にかなえられるとは限らない。

既出の animal protection を例に取ってみることにしよう。この文法的メタファーによって意図されている意味が、「環境や人間を動物によって保護すること」であるとしてみよう。補助線が用意されていない限り、この解釈に至りつくことはほとんど不可能であろう。どうするか。残されている道はただ一つ。知っている人に教えてもらう、とい

うことだけである。

　たまたま、animal という語と protection という語を知っているので、両者が結合している animal　protection の意味もなんとなく分かるような気がするが、それは一種の錯覚である。serendipity という語の意味が分からないというとき、いくら考えても、考えるだけでその意味を知ることはできない。結局、手掛かりが何も与えられていない場合、文法的メタファーに対応する整合形は、その意味が分かった場合においてのみ、入手可能となるということである。

　日本語の場合も同様である。「確信犯」という文法的メタファーを与えられた場合、その意味をすでに承知しているのでない限り、その整合形が「悪いことをしていると確信している場合」を指しているのか、「悪いことはしていないと確信している場合」を指しているのか、決定することはできないであろう。実際は、「宗教的・道徳的・政治的信念に基づき、自らの行為が正しいと信じて行なわれる犯罪」を指す。

　「セカチュー」とか「コピペ」などの場合も同様である。「セカチュー」が「世界の中心で愛を叫ぶ」の名詞化形であり、「コピペ」、すなわち「コピー＆ペースト」、つまりインターネットなどで入手できる資料をコピーして、のり（ペースト）づけ（そのままレポートとして提出）すること」の名詞化形であることは分からない。注意すべきは、現在氾濫中の四字熟語の中に、このような文法的メタファーが含まれ、しかもそれらが、従来の日本語には十分に備わっていなかったといってよい。名詞化形の新しい段を提供するに至っているということである。すぐ上で挙げた二つの例は、実質的には、英語の動名詞の持つ名詞化力に匹敵するものであると考えることもできるであろう。若者ことばをいちがいに排斥することは、国語政策上、一考を要することになるかもしれない。

10.　結語

　文法的メタファーというのは、言語という記号体系に対するまったく新しい切り口を示しているものである。どういう点で新しいかというと、それはまず、言語があったればこそ、文明の技術水準は現在の高みにまで達し得ているのである、としている点にある。それは、また、どうしたわけであるかと問うなら、それは、文法的メタファーが介在していたからであるということになる。

　そういう、人類が積み重ねてきた知識の獲得に、文法的メタファーは何をしてきたかと問うなら、「新しいものの見方を提供してきた」ということになるであろう。

　最も素朴で、そして、直線的な表現形式である整合形に、ある種のひねりを加え、それをテコとして、一段高次の、抽象度のより高い段階における記号操作を可能にしているのが、文法的メタファーであるとしてよい。従来の言語学、とくに、アメリカ構造主義言語学や生成文法は、外界、つまり、言語の外側の世界に興味を持つことを自らに禁じてきたきらいがある。やや例外的かと思われる語用論でさえ、話し手と聞き手とを取り巻く輪の外側に出ることはない。文法的メタファーの世界が、いかに破天荒なものであるか、容易に察せられるであろう。

　例外的に、あるいは、異端的に、外界に対する興味を示しているものに、サピア・ウォーフの仮説がある。その限りで、サピア・ウォーフの仮説と文法的メタファーとの間

には、一種の親近性が認められ、サピア・ウォーフの仮説に透明な条理性が与えられることも可能ではないかと思わせる。事実、ハリデー自身にも、サピア・ウォーフの仮説に対する言及が見られる（Halliday 2004, pp. 209, 224）。ホーピ語（Hopi）では、抽象概念を表すのに動詞を用いるというウォーフの説に、ハリデーが興味を示しているのは、示唆的である。

　以上、本稿において主として述べたのは、ハリデーのいう概念構造部門（Ideational Component)における文法的メタファーであったが、ハリデーの体系文法には、さらに、対人関係部門(Interpersonal Component)もある。この部門における文法的メタファーはどうなっているであろうか。実際は、さまざまの研究が推し進められている。

　対人関係部門における文法的メタファーの例としては、既出の Could you pass me the salt? をそのまま用いることができる。この場合、純然たる命令形の Pass me the salt. が整合形であることになる。モーダルの例も、一つ拾っておくことにしよう。副詞によってモダリティーが示されている場合、その文は、モダリティーに関し、整合形であるが、そのモダリティーが I think のような主節で表されるようになると、文法的メタファーであるとされる。したがって、It's probably going to rain.は整合形、I think it's going to rain, isn't it? は文法的メタファーとされる（付加疑問が従節に加えられている点に注意）が、こういう考え方には、多くの異論の余地があるように思われる。

　対人関係部門における文法的メタファーについて、多くを述べようとしなかったのには、理由がある。一言でいうなら、驚きがなかったからである。この部門において、文法的メタファーの名で呼ばれている現象は、これまで語用論の分野で行われてきた研究と大きく変わるところはないように思われる。しかも、この部門において、法的メタファーとされている形式は、むしろ、整合形と見なすべきではないかと思われる場合が少なくないのである。

　本稿において述べてきたことに、大小様々の異論を差しはさむことは、かなり容易であると思われる。すでにある程度触れてきたことがらでもあるが、異論の多くは、定義の問題に還元できるように思われる。例えば、どこまでが整合形で、どこからが文法的メタファーであるのか、メタファーが死ぬのはどの段階においてであるのか、等々。これらは、いずれももっともな疑問である。けれども、文法的メタファー論に、定義の問題を持ち出して立ち向かおうとするのは、どちらかと言えば、筋違いである。

　文法的メタファー論に対する正しい反応は、「驚く」ということであろう。その新しい切り口に、目を見張り、心をときめかせることであろう。文法的メタファー論に注文をつけるとすれば、それは、文法的メタファー論の将来に関してであろう。人類が、現実世界の認識整理に関し、より高次の、より有効な手段として、何が考えられるのかを模索することであろう。例えば、現在与えられている整合形と文法的メタファー論とを、一段高次の段階で統合し、流動的な世界を「もの」化することなく、そのまま、「数取り棒」（counter)として用いうるような言語体系を案出してみるがごときである。この場合、日本語に出番が回ってくるのではないかという期待が、幻想でないことを祈る。視覚的に言えば、源氏物語絵巻などに見られるような、近くも遠くも同時に見ることができる仕組みである。

　イェスペルセンによれば、英語は男性的な言語であるとされる。これは、英語に名詞化

形が多用されるということと無関係ではあるまい。これに対し、日本語の方は、流動性
に富み、動詞中心の言語であるとされる。両者を止揚することができるなら、未知の世
界を切り開く強力な道具が得られることになるかもしれないというわけである。

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A Systemic Approach to
the Typology of Copulative Construction

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Abstract

This paper is a trial of the typology of copulative construction. Here the exemplified languages are classified into three categories. The first group consists of those languages with copulative verbs, and they entail Subject - Verb inversion in the interrogative clauses. The second group also possess explicit copulative verbs, but there is no inversion of interrogative clauses as in the first group. The third category has no copulative verbs, and some other categories such as auxiliary verbs help represent the meaning of clauses.

1. Introduction

This paper is to pursue a Systemic approach toward the typology of copulative construction. Here the *copulative construction* can be paraphrased mathematically 'A = B': A is a subject, '=' being a copula and B is a complement. In order to refer to those languages without copulative verbs, another termination 'equative construction' will be adopted in the discussion below. One of the motives to pursue this topic is that the copulative construction is considered as one of the essential semantic prototype in the sense that the equative description (A = B) in natural languages is universal. The syntactic behavior of the copulative construction is different from other types of clauses, on the other hand. To take an example in English.

(1)   copulative construction: This is a book.   interrogative: Is this a book?
       other verbs: She works hard.   interrogative: Does she work hard?

In the copulative clauses, interrogative is formed with the inversion of the order Subject ^ Verb, while in other clauses with non-copulative verbs, some operator, *does* in this case, is necessary. In the copulative construction, the word order is altered when it is turned into an interrogative, while in the clauses of other predicate, an operator (either of *do, does, did*) is added.

Below is some aspects adopted in the following discussion:

(2) I. Typological categorization of copulative construction
      A. Languages of the western European type with copulative verbs
      A'. Those language which differ in some respect from those above
      B. Those languages without copulative verbs
   II. Systemic account on copulative construction
      X. transitivity: Identified, Process, Identifier
      Y. Theme + Rheme structure
      Z. Subject + Finite / Mood + Residue structure[*1]

The first categorization in I is based on the Lexicogrammatical criterion of the existence of copulative verb. The first group consists of those languages with copulative verbs, and they entail Subject - Verb inversion in the interrogative clauses as observed in English in (1). The second group is a sub-categorization of the first one in that, for instance, there are no Subject - Verb inversion. The last group is essentially different from the first two groups in that those languages that belong to this group have no copula verbs in a narrow sense. Instead of the western European copular verbs, there are auxiliary verbs such as '*da*' in Japanese.

By contrasting those construction in various types of languages, we can make a typological study. When we pursue such typology in some depth, we may find universality and diversity of copulative construction among languages. To be more concrete with (2), we can make a matrix table, which will be shown in the concluding section.

Of the three logical frameworks II X, Y and Z above in (2), only transitivity is related to meaning, and the other two Theme + Rheme and Subject + Finite are firstly determined by the word order. It is predictable that the semantic structure of transitivity is similar among the languages even though there are various word orders, but that Theme + Rheme and Subject + Finite show difference according to the word order. It is significant that Chinese and some of the western European languages share similarity both in the word order (subject ^ verb ^ object) and Lexicogrammar of the copulative verbs. Japanese is heterogeneous in both respects, which would be circumstantial evidence. In the following sections, comparison of Chinese, Japanese and the western European languages will be made.

2. Data

As the classification of the languages attested in the discussion below, the first criterion will be the existence of copula verbs. The second one is the word order in interrogation (and negation in some cases) within those languages with copula verbs. By the first criterion, those languages of a (including a') and b in (2) are distinguished. By the second one, a and a' are distinct. Tentatively, we will refer to those of the A languages as *the western European type*, though there are many exceptions in this family.

Below are the data from English, German and French. Those clauses in (3) are

declarative, those in (4) are negation, and (5) interrogation:

(3) English: The earth is a planet.   German: Die Erde ist ein Planet.
    French: La terre est une planète.
(4) English: The earth is not an star.   German: Die Erde ist nicht ein Stern.
    French: La terre n'est pas une étoile.
(5) English: Is the earth an star?   German: Ist die Erde ein Stern?
    French: Est la terre une étoile?

In the negation, English *not*, German *nicht* and French *ne pas* can be classified as adverb, all of which are homogenous in that they follow copula verbs. Only the French *ne pas* is heterogeneous in that these two words constitute a kind of collocation preceding and following a finite form of the copula *être*[2]: *ne suis pas* (1st singular), *n'es pas* (2nd singular), *n'est pas* (3rd singular), *ne sommes pas* (1st plural), *n'êtes pas* (2nd plural), *ne sont pas* (3rd plural). In the interrogative clauses in (5), there are Subject – Verb inversion, which is peculiar with the western European copula verbs.

When we turn our viewpoint into negative interrogation, we will have the clauses as follows:

(6) English: Isn't the earth a star?   German: Ist die Erde keine Stern?
    French: N'est la terre pas une étoile?

Again, the construction in these three languages is homogenous, but the word order is more divergent than the mere negation in (4); English *not* is combined with *is* to form one word, so is the French *ne* preceding the copula *est*, with *pas* left in the original position. In German, negative meaning is carried by the indefinite article *keine* instead of adverb *nicht*. Its equivalent in English would be *no* as in *There is no book on the table*. To summarize the negative interrogation clauses in these three languages, it is common with three languages that the basic order in the negative question clauses is Process ^ Identified ^ Identifier. It is doubtful, however, the position of the negative element in each languages is different from one language to another when minutely analyzed: the clitic *n't* of *isn't* in English, German *keine* as an article, and the French discontinuous *ne ... pas*.

Though the Chinese languages are phylogenetically heterogeneous from the western European, we can find a copulative verb in Chinese: e.g. *shì* in Mandarin. As for declarative and negative, Mandarin Chinese has a copula verb which behaves exactly similarly to the western European counterpart, as shown below:[3]

(7) Declarative – Positive   Dìqiú shì   xíngxīng.   地球是行星。
                             earth   COP planet

(8) Negation: Dìqiú bú-shì héngxīng.   地球不是恒星。
                                not-

The Mandarin negation is similar to the western European languages in that the negative particle is next to the copula. The position is, however, before the copulative verb *shì*, unlike the European languages in which the negative particle is after the verb.

The Mandarin interrogation is different from the western European counterparts. There are two ways of interrogative in Chinese:

(9) a. Dìqiú shì héngxīng ma?   地球是恒星嗎？
                       Q-marker
     b. Dìqiú shì-bu-shì xíngxīng?   地球是不是行星？

The second type of interrogation (9)b is peculiar to Mandarin Chinese in that it is a kind of repetition of the verb with the negation *bu*. In either type, the copula *shì* is fixed in the position following the subject — in this case *dìqiú* —, never fronted like English or German.

Notice that this formation V-*bu*-V is not limited to the copula verb *shì* but any other verbs: Below is an instance with *qù* (to go):

(10) a. Nǐ qù ma? 你去嗎？   b.   Nǐ qù-bu-qù?   你去不去？
         you go

Another point which we must pay attention with regard to interrogation in Chinese is that these two types of construction cannot be simultaneously adopted. That means an interrogative clause such as follows is ungrammatical in a sense that it can be dubbed as 'double interrogation':

(11) *Nǐ qù-bu-qù ma?

The negative interrogation in Mandarin is as follows:

(12)   Dìqiú bú-shì héngxīng ma?   地球不是恒星嗎？

Unlike (9)b, the V-*bu*-V predication is impossible for the negative interrogation, because of the intention to make explicit the negative polarity in interrogative clauses; in other words, predicate such as *bú-shì-shì* is impossible. Then it is the only possibility to adopt the interrogation particle *ma* to make negative question. This kind of final particles are exactly parallel to the Japanese counterpart *ka*, whose examples will be shown below in this section. In addition, the Chinese and Japanese clause-final particles have something common with the English tag question.[4]

Though those Chinese instances investigated so far have been similar to the the western European counterparts, below are those of contrastive character. According to Shang *et al.*

(1992: 1306), the copula *shì* can be omitted in those clauses in which the object refers to quantity (a), calendar (b, c), or one's hometown (d):

(13) a.   age: Wǒ (shì) èrshí.   'I am twenty years old.'
                  I   am   twenty   我 （是）二十。
      b.   calendar: Jīntiān (shì) shíyuè yī hào.   'It is October the first today.'
                       today   is October one day   今天 （是）十月一号。
      c.   calendar: Míngtiān (shì) xīnxqī èr.   'It will be Tuesday tomorrow.'
                       tomorrow is week two   明天 （是）星期二。
      d.   hometown: Tā (shì) Shānxī rén.   'He is from Shanxi.'
                       he is Shanxi person   他 （是）山西人。

These clauses omitting *shì* can be considered parallel to the Russian copulative clauses.[5] It will be because in these instances (13) the attribute of the subject is close to the complement that the copula verbs can be omitted. This is in contrast with the western European type copulative langauges in which copula verbs are never omitted in any type of clauses.

Shang *et al.* (*op. cit.* p. 1306) claims that in the negative counterparts of (13), *shì* cannot be omitted.

Another interesting point showing the difference from the western European copulative languages is examined by an instance below (*op. cit.*):

(14)   Shuí?   — Shì wǒ.   'Who (is it)?' — 'It is me.'   誰？—是我。
         who   be I

It seems strange from the viewpoint of the word orders in the western European languages that the answer is begun by the copulative verb *shì*. In fact, we can supplement a pronoun such as *zhe* (this) or *na* (that). This particular instance will be significant in the course of the Theme + Rheme analysis, which will be done in section 4.

Still another instance is found in Shang *et al.* (*op. cit.*, p. 1306):

(15)   N shì xīn lái de ma? 'Are you a newcomer?'   你是新来的嗎？
            newly come

This should be grammatical without *shì*: 'Ni xin lai de ma?' in which '*lai*' (to come) is the only verb in the clause. The addition of *shì* in (15) is for the sake of emphasis. When we proceed one step further, this can be regarded as a kind of pseudo-cleft clause: its English equivalent would be 'Is it that you are a newcomer?'

To conclude the examination with the Chinese copulative verb *shì*, partial similarity with the western European counterpart is ascertained, whereas there is partial difference such as the one in interrogation. From the typological perspective, this is why Chinese must be classified as

another group of the languages with a copulative verb from those of the western European languages.

Thus, it has been exemplified so far that the western European and Chinese languages behave similarly in regard to copula construction. Japanese is, however, essentially different from these languages with copula verbs. Now we will examine the copula construction clauses in Japanese. Below are the examples of the Japanese copula construction:

(16) a. Tikyuu wa   wakusei da.　　　　　　地球は惑星だ。
         earth   TOPIC planet AUX (assertion)
     b. Tikyuu wa wakusei de-aru.　　　　　　　地球は惑星である。
                  AUX*⁶-existence

Interesting here is that the auxiliary *da* (a) and *de-aru* (b) are not necessary in informal style utterances. Ideationally, construction 'Subject ^ particle ^ Compliment' such as 'Tikyuu wa wakusei.' in Japanese is grammatical. The version without the particle *wa*, however, is ungrammatical: *tikyuu, wakusei*. We will discuss this construction without auxiliary later in this section. The politer predication of *da* is *desu*; there is no syntactic difference between these two predications.

Next to be examined are negation (17), interrogation (18) and negative interrogation (19). Each of them has a plain form and a polite form:

(17) a. Tikyuu wa kousei de (wa) nai.*⁷　　　地球は恒星で（は）ない。
                  star   AUX TOP NEG
     b. Tikyuu wa kousei de wa ari-mase-n.　　地球は恒星ではありません。
                       exist-POLITE-NEG
(18) a. Tikyuu wa kousei (de-aru) ka?*⁸　　　地球は恒星（である）か。
                             Q
     b. * Tikyuu wa kousei da ka?　　　　　　*地球は恒星だか。
     c. Tikyuu wa kousei desu-ka?　　　　　　地球は恒星ですか。
                       POLITE
(19) a. Tikyuu wa kousei de wa nai ka?　　　　地球は恒星ではないか。
     b. Tikyuu wa kousei de wa ari-mase-n ka?　地球は恒星ではありませんか。

Here we must consider a stylistic difference together with the alternation of *da* and *desu*. With *da*, utterances are informal, while with *desu*, they are formal and polite. Roughly speaking, *da* sounds colloquial and *desu* literal, but the choice between these styles depends on the situation. In the sense that you must take various conditions such as the number, superiority, seniority of the listener(s) into account, it is highly interpersonal. It is also textual in that whole discourse must be consistent with the choice of the style; if you begin a discourse with an informal style, you must keep the style up to the end.

As a plain question, the version without *de-aru* is unmarked with (18)a. Though it is informal and impolite in some cases, *Tikyuu-wa kousei ka?* is stylistically natural. It is not certain at the moment why (18)b with both *da* and *ka* is ungrammatical, whereas (18)a with *de-aru ka* is grammatical. The investigation into the asymmetry of this grammatical contrast will be given to another chance.

Each of the negative interrogation in (19) is formed by the attachment of the interrogative particle '*ka*' to the negative clauses. The tone for the plain version (a) MUST be rising as an interrogation, since if it is uttered in tone 1, the statement is not a question but reproving someone who is junior to the speaker in age and/or social position. Even uttered with tone 2, however, the plain form (a) sounds a little strange as if the speaker assuredly believed that the earth was a star. The polite form (b) is not strange at all.

The most extreme construction in regard to the dispensability of predicate element in Japanese is the one with the noun terminating the clauses, what is called 'taigen-dome'" or *the termination (of a clause) with nouns*. Take an example with "Tikyuu wa wakusei." The unmarked interpretation of this clause, usually with the falling tone, is the positive 'The earth is a planet.' If it is realized with the rising tone at the clause-terminal position, it should be understood as an interrogation 'Is the earth a planet?' This type of highly omitted predication is common in the Japanese informal style. Only the distinction of tone is valid in Polarity of positive and negative. In the most simplified version (*kore hon*), even the particle *wa* can be deleted, as shown just below.

This Japanese question particle *ka* can be regarded as a direct equivalence of the Chinese counterpart *ma*. Both the Japanese *ka* and the Chinese *ma* occupy the clause-final positions in the interrogatives. Notice, however, that in Japanese interrogation without any case particle and the question particle *ka* is possible when the clause is realized with tone 2 or steep rise, as shown below:

(20)   // 2 kore / hon //   //2 kore wa / hon //   'Is this a book?'
             this   book
         ? // 2 kore // hon desu //

The polite version // 2 kore / hon / desu // as a question sound unnatural because such polite style should entail the final particle *ka*. With the informal version // 2 kore / hon //, the omission of the particle *ka* doesn't influence the grammaticality. In the cases that the instructive pronoun such as *kore* is replaced by a normal noun, the whole clause is ungrammatical: *'Tikyuu, wakusei.' Not only *kore* (this) but also *are* (that) and *sore* (it) do not always need the case particles. To summarize, equative construction in Japanese can consist of only two terms under certain circumstances, without any particles or predicates.

Another point in regard to the parallel resemblance between the Chinese and the Japanese interrogation clauses is that the *shi-bu-shi* type is impossible in Japanese. One that is close to this construction would be something like the following:

(21)   Kore-wa hon desu ka, soretomo tigai-masu ka?   Literally: 'Is this a book, or isn't it'
                                  or   differ-POLITE

Strictly speaking, the literal translation of '*tigai-masu ka*' would be slightly different from the Chinese counterpart '*bu-shi.*' As a near literal translation, the repetition of interrogative Mood is too persistent.

3. Transitivity

With the Systemic frameworks of transitivity, Theme + Rheme, Mood + Residue, copula construction can be analyzed as heterogeneous from others such as 'John threw the ball,' in which *John* is Actor (Subject), Theme and Residue. That is to say, in this kind of action verb clauses, grammatical subjects occupy the clause-initial position and followed by verbs, and they are typically doer of the action denoted by verbs. Though it is accidental rather than logically indispensable that these three are all realized as *John* in this particular example. This kind of concentration is in a sense unmarked in English (Halliday (1967a/2005)).

First, let us examine the transitivity structure in the languages with copula verbs.

(22)

English	The earth	is	a planet.
German	Die Erde	ist	ein Planet.
French	La terre	est	une planète.
Chinese	Dìqiú	shi	xíngxīng.
	Identified	**Process**	**Identifier**

With those and other languages with copulative verbs, the transitivity structure will be analyzed similarly: Identified ^ Process ^ Identifier. As for the negative clauses such as English 'The earth isn't a star.' this structure remains similar, only with the alternation of the Polarity from positive to negative.

Next are the interrogative clauses of the three European languages (23) and Chinese (24):

(23)

English	Is	the earth	an star?
German	Ist	die Erde	ein Stern?
French	Est	la terre	une étoile?
	Process	**Identified**	**Identifier**

(24)   Chinese   a.

Dìqiú	shì	xíngxīng	ma?
Dìqiú	shì-bu-shì	xíngxīng?	
Identified	**Process**	**Identifier**	

(b. appears at start of second row)

This time, the order differs in the two groups (23) and (24); in the former of the western European languages, the order of Identified and Process is reversed from that in (22), but that in Chinese remains unchanged. I assume that the partial reason of this difference that the Chinese language doesn't adopt the change of word order to make interrogative clauses is the influence of the lexical pitch to clause intonation system. That is to say, lexical pitch is inherently given to each word in Chinese, clause intonation suffers from it. In the interrogative clauses of the western European languages as in (23), it is unmarked with the steep rise in the clause-terminal. The Chinese counterpart (24), on the other hand, must be terminated with the highest pitch in the second syllable of 'xíngxīng' and cannot carry the rising tone.

Between the two variations of question in Chinese (24), the more peculiar is the one with the final particle 'ma.' This particle is separated from the main verb *shi*, hence the assignment of the semantic role is questionable. Another type with the predicate 'shi-bu-shi' does not induce the problem that the predicate is divided into a discontinuous sequence. Taking a similar discontinuous predicate such as 'Did she play tennis yesterday?' in English, there seems to be no trouble with the separation of the finite operators and verbs."[10]

Thus, the analyses of the clauses with copula verbs seem straightforward with the transitivity structure. Then, how about the languages without copula verbs, like Japanese? Below is my analysis for a Japanese plain style declarative:

(25)

Tikyuu wa	wakusei	da / desu.
Identified	**Identifier**	

The TOPIC particle *wa* is regarded as an attachment to the subject noun *tikyuu* (the earth). This NP 'tikyuu-wa' can be regarded as an equivalent to the Subject in the western European type languages. The most appropriate semantic interpretation with this clause would be something like 'The earth belong to the group of planets.' It is doubtless that the predicate *da* belong to the category of Finite because it realizes the tense.

The most remarkable difference from the analyses of those languages with copulative verb in (22) is that the Japanese version is without Process. Though the auxiliary 'da' is a predicate, it is improbable to analyze it as Process. This is because Japanese clause without predicate is grammatical: *Tikyuu wa wakusei*. Hence, it is a stylistic preference whether one chooses *da*, *desu*, or without any predication (zero-predication).

The analysis of the interrogation is as follows:

(26)

		Tikyuu wa	wakusei	(de-aru) ka?
	a.	Tikyuu wa	wakusei	(de-aru) ka?
	b.	Tikyuu wa	wakusei	desu ka?
		Identified	**Identifier**	

'Is the earth an planet?'

Notice that the order of the transitivity terms in (26) remains the same as the declarative counterpart in (25). The polite version (b) is only with the addition of the interrogative

particle *ka* to its declarative counterpart. In the surface structure of the plain style (a), the interrogative particle '*ka*' takes place of the assertion particle '*da*.' This should be regarded as the omission of the predicate '*de-aru ka*' such as (18)a in the previous section. To summarize, the Japanese equative construction like (25), (26) consists of the Transitivity terms Identified and Identifier, and without Process.

Though the order in Japanese *Identified ^ Identifier* is different from the Chinese counterpart *Identified ^ Process ^ Identifier*, there is a similarity between these two languages that the orders themselves don't change when the declarative clauses are turned into interrogatives. In that regard, the Chinese copulative verb behaves differently from those of the western European counterparts.

Below is a table to illustrate the contrast of the Transitivity among five languages. In abbreviation, *Identified* and *Identifier* are indicated as *Id, Ir*, respectively:

(27)

	English, German, French	Chinese	Japanese
declarative	Identified ^ Process ^ Identifier		Id ^ Ir
interrogative	Process ^ Identified ^ Identifier	Id ^ Process ^ Ir	

It is consistent both in declarative and in interrogative clauses that these western European languages look exactly similar as far the order in the transitivity structure. Japanese is peculiar in that the order Identified ^ Identifier is kept both in declarative and interrogative clauses. Chinese looks alike the European-type languages with the declarative clauses, but it is not with the interrogative clauses.

It is established, as far as the transitivity is concerned with these five languages, that three groups should be distinguished: the western European type languages, Chinese and Japanese.

4. Theme + Rheme Structure

In this section, the Theme + Rheme structure will be examined.

Since the word orders among the western European languages are similar to each other — subject ^ verb ^ object / complement —, the English Theme + Rheme structure can be applied to French and German to certain extent. As we must concentrate on the copulative construction in this paper, we will exclude the minute details of the clauses with non-copulative verbs.

Halliday (2004: 64) defines the Them and the Rheme as follows:

(28)   The Theme is the element which serves as the point of departure of the message; it
     is that which locates and orients the clause without its context. The remainder of the
     message, the part in which the Theme is developed, is called in Prague school
     terminology the Rheme.

Following this definition of Theme and Rheme, the analyses of the example clauses in (3) and (7) seem rather straightforward:

(29)

	Theme	Rheme
English	The earth	is a planet.
German	Die Erde	ist ein Planet.
French	La terre	est une planète.
Chinese	Dìqiú	shì xíngxïng.

The word order subject ^ verb ^ complement is common in these four languages, so is the order Theme ^ Rheme. To apply the definition (28) to these clauses, we will interpret the Theme in (29) as 'we will talk about the earth.' Then the Rheme tells some detail about the Theme.

As examined so far, it would be plausible to assume that there is no copulative verb in Japanese. The Theme + Rheme structure of (16) will be as follows:

(30)

Tikyuu-wa	wakusei da / de-aru
Theme	Rheme

As for the Theme-Rheme distinction, the topic particle in Japanese *wa* should be considered to be inseparable with the preceding noun or pronoun. In contrast with the fact that the nominative particle *ga* never carries the thematic function, *wa* is always the Theme-carrier. This is in line with the analysis in Fukuda (2006: 132): *Taroo wa gakusei desu.*; *Taro wa* is labeled as Theme, and *gakusei desu* as Rheme.

To summarize the examination on the Theme-Rheme structure of the declarative clauses in this section, the analyses in four languages coincide. As for the negative counterpart clauses in (29) and (30), the structure remain similar, hence we will omit the result of the analyses.

Next to be investigated are the interrogatives. As is predictable from the parameters in the word order, we must analyze the interrogative clauses in three groups: the languages with copulative verbs of the western European type, that of Chinese type and those without copulative verbs. Following are those of the first group:

(31)

	Theme	Rheme
English:	Is the earth	a star?
German	Ist die Erde	ein Stern?
French:	Est la terre	une étoile?

Halliday (2004: 78. Table 3 (2)) mentions about this type of yes / no interrogative that '[the: KK] first word (finite operator) of verbal group plus nominal group functioning as Subject' is typical ('unmarked') Theme. If we adapt the same way of analysis to German and French, it will be like the table in (31). The Theme element in three languages in (31) is the inverted

copulative verbs followed by the Subject noun group, indicating that the clauses are interrogatives of yes / no type. To paraphrase the Theme-Rheme structure semantically would go as 'I will ask something about the Subject; I would like it to be answered with either yes or no.'

The Chinese copulative interrogation is different from that of the three languages: Below is my tentative analysis:

(32)	Dìqiú	shì xíngxīng ma?
	Dìqiú	shì-bu-shì xíngxīng?
	Theme	**Rheme**

This result shows that the Theme + Rheme structure in the Chinese yes / no interrogatives is the same as that of the declarative counterpart. It follows, then, a hypothesis that it is because of a parameter of the word order; it is impossible in Chinese to reverse the order of the copula and the subject to make an interrogation from the declarative.

Apart from the direct contrast with the Western languages, we must add one examination in regard to the peculiarity with the Theme + Rheme structure in the Chinese copula *shi*. Take an example with a WH-interrogation in (14). Below is my analysis:

(33)	Shuí?	Shì	wǒ.		Who (is it)?	It	is me
		Rheme	**Theme**			**Theme**	**Rheme**

When contrasting the copula *shi* and the pronoun *wo* in Chinese, it would be more plausible to label the verb as the Rheme and the pronoun as the Theme. In the English equivalent, however, the formal subject *it* remains the Theme following the definition in Halliday (2004).

Japanese is the last to be examined. Again, below is my own tentative illustration of the Theme-Rheme structure both in the plain form without '*desu*' and in the polite one with it:

(34)	Tikyuu wa	kousei (desu) ka?
	Theme	**Rheme**

As the Lexicogrammatical structure — namely word order in forming question — is common in Chinese and Japanese, the Theme-Rheme structures (32) and (34) in these two languages look similar. They are similar to the declarative counterparts in (29) and in (30) respectively.

Fukuda (2006: 141) analyzes a copulative clause '*Kare wa gakusei desu ka?*' (Is he a student?) as *Kare wa:* Theme and *gakusei desu ka:* Rheme, which coincides with that of mine (34). Though the copulative verbs *is* in English, *ist* in German, *est* in French are labeled as part of the Theme in (31), the Japanese interrogative particle '*ka*' cannot be. We can think of several reasons for this contrast. The irst one is the necessity to label '*kare-wa*' as the Theme. Then, a discontinuous sequence '*kare-wa ... ka?*' cannot be a single Theme. The second reason is the

clause-terminal position that 'ka' occupies. As Fukuda (*ibid.*, 142) concludes, 'It is impossible to interpret this clause-final particle 'ka' as a Theme.'

As for the the Theme + Rheme structure of the interrogative clauses in Chinese and Japanese, some coincidence has been found through a brief comparison. It seems that, then, there must be some modification of the definition of the Theme for Chinese and Japanese, since the structure differs greatly from those obtained in three languages of the western European copula verbs in (31). Below is a suggestion for Japanese in Fukuda (2006: 149, (3)):

(35) The Theme (in Japanese) is frequently realised in the initial position of a clause, and establishes a perspective of what is being talked about in the clause, by communicatively (not necessarily cognitively) conveying 'Given' or 'as (if) Given' information. It is usually marked by the particle 'wa'. The Rheme is the remaining, non-thematic domain of the clause, in which the Theme is developed.

Except the topic particle 'wa,' this modification seems to be applicable to Chinese. To be more concrete with the declarative – interrogative contrast, the Theme remains exactly the same in either Mood (declarative in (29) and (30); interrogative in (32) and (34)). That is to say, both the declarative and the interrogative clauses are to tell about the earth, showing no difference.

In proportion with this 'stability' of the Theme in Chinese and Japanese, the Rheme relatively becomes more dynamic than those counterparts with the western European copula verbs. In the languages with the western European copula verbs, the difference of the declarative and the interrogative clauses is realized within the Theme: to take only the English clauses for example, the Theme in the declarative is 'The earth' while it is 'Is the earth' in the interrogative. To paraphrase, the Theme in the declarative is 'this clause is to tell about our planet' whereas in the interrogative 'the following clause is to require some information on our planet.' This contrast is neutralized in Chinese and Japanese; both in the declarative and in the interrogative, the Theme is 'the following message is about our planet.' The contrast between the declarative and the interrogative is given in the Rheme.

To illustrate the results in this section is the following table, with regard to the Theme + Rheme structure of the declarative and the interrogative clauses in five languages:

(36)

	English, Germany, French	Chinese	Japanese
dec.	Subject: Theme + the rest: Rheme		Topic[11]: Theme + the rest: Rheme
inter.	Copula ^ Subject: Theme + the rest: Rheme		Topic: Theme + the rest: Rheme

In summary, Chinese shows somewhat an intermediate character between the western European group and Japanese. That is to say, in the declarative clauses, Chinese is similar to the former group, but in the interrogative it is like Japanese.

5. Mood + Residue Structure

In this section, the Mood + Residue structure will be examined with the copulative construction.

It is concise with the formal definition of the Mood + Residue, or the Subject + Finite structure as far as the western European languages are concerned. A clause can be first divided into the Mood and the Residue; the Mood consists of the Subject and the Finite. Before analyzing the structure, we will have a brief look at the definition of these terms.

Apart from the clear definition from the Lexicogrammatical perspective, the semantic definition seems to be vague. Below is the one for the Mood from Halliday (2004: 113):

(37)　The Mood is the element that realizes the selection of mood in the clause. It has sometimes been called the 'Modal' element; but the difficulty with this is that the term 'modal' is ambiguous, since it corresponds both to mood and to modality.

Thus, to use the term 'mood' in the definition of the Mood seems to be tautology. To follow the definition of the Mood should be that of the Residue. Then, Halliday (2004: 114) defines the Residue as follows:

(38)　The remainder of the clause we shall call the **Residue**. It has sometimes been labelled 'Proposition', but this term is also not very appropriate; partly because, as has been mentioned, the concept of proposition applies only to the exchange of information, not to the exchange of goods-and-services, and partly because, even in the exchange of information, if anything it is the Mood element that embodies the proposition rather than the remainder of the clause. (emphasis original)

Compared with the semantic definition of the transitivity, the Theme, the Rheme, the necessity to define the Mood and the Residue structure seems rare.

In the subsection titled as *Meaning of Subject and Finite*, the definition of both terms is given (Halliday 2004). Below are those of Finite ((39), *op cit.*, 115)) and Subject ((40), *op cit.*, 117):

(39)　The Finite element, as its name implies, has the function of making the proposition finite. That is to say, it circumscribes it; it brings the proposition down to earth, so that it is something that can be argued about. A good way to make something **arguable** is to give it a point of reference in the here and now; and this is what the Finite does. It relates the proposition to its context in the speech event. (emphasis original)

(40)　The Subject supplies the rest of what it takes to form a proposition: namely, something by reference to which the proposition can be affirmed or denied. ... the Subject ... specifies the entity which the assertion is claimed to have validity.

Opposite to the ordinary word order Subject ^ Finite in unmarked descriptive clauses, the definition of the Finite precedes that of the Subject. When reading the definition of the Finite (39), it seems that the finiteness of the predicate directly leads to the concreteness of the description.

Following this definition, the Mood + Residue and the Subject + Finite structure is analyzed as follows:

(41)

English	The earth	is	a planet.
German	Die Erde	ist	ein Planet.
French	La terre	est	une planète.
	Subject	**Finite**	
	Mood		**Residue**

Chinese is different from these three languages in that the copula verb *shi* does not carry the finiteness of tense. Not only this copulative verb but also the other verbs in Chinese indicate no tense finiteness by themselves.[12] From this observation, it must be concluded that the Finite element cannot be applicable to Chinese. The above Mood + Residue structure has been established to account for English, and the result for German and French is incidentally consistent with that of English. As Halliday (2004: 113 footnote 3) claims, 'It is far more common for languages to use tone (as English also does) and/or special interpersonal mood particles, as in languages in East and South-East Asia.'

Extending the definition above will lead to the following analysis on the Japanese counterpart:

(42)

Tikyuu-wa	wakusei	da / de-aru / desu
Subject	**Residue**	**Finite**
	Mood	

Since the predicate occupies the clause-final position in Japanese, the Subject and the Finite elements are discontinuous as illustrated above. It is not wrong as a theory that the Mood element is discontinuous. In tag questions in English such as 'The duke has given away that teapot, hasn't he?', for instance, the structure is Subject ^ Finite ^ Residue ^ Finite ^ Subject (see Halliday (2004: 113)).

The predicateless version, on the other hand, is analyzed as the following:

(43)

Tikyuu-wa	wakusei
Mood	**Residue**
Subject	

When compared with (42), the predicate *da, de-aru,* or *desu* is not present in (43). The structure is simple; it consists of Subject followed by Residue. If this is uttered with a rising tone, it is realized as an interrogation, which will not be discussed any longer here.

In the negative clauses, the order Subject ^ Finite ^ Residue remains the same as that of the positive counterparts. The polarity is reversed, however. We will omit the illustration for the negative clauses.

The Mood structure with the interrogative is as follows:

(44)

English German French	Is Ist Est	the earth die Erde la terre	a star? ein Stern? une étoile?
	Finite	Subject	
	Mood		Residue

Except that the order of Finite ^ Subject is the reverse of that in the declarative, the Mood ^ Residue structure is similar to (41).

Among the Japanese interrogative clauses (18), *Tikyuu was kousei ka?* is without Finite. Below is the interrogative clauses with (45) and without (46) Finite element[13]:

(45)

Tikyuu-wa	kousei	de-aru ka? /desu-ka?
Subject	Residue	Finite
Mood		

(46)

Tikyuu-wa	kousei	ka
Mood Subject	Residue	

(46) is a zero-Finite construction. The order itself is the exactly same as that of the Japanese declarative (42), which is unlike the copulative languages in (44).

To summarize this section, a cross-linguistic difference is the most extreme with the Mood + Residue structure among the Systemic framework adapted in this paper: there is no finite tense with the Chinese verbs while the Finite element is obligatory in the western European languages. Another finding is the difference due to the word order between Japanese and the western European languages. Below is a table depicting the comparison of four languages except Chinese:

(47)

	English, Germany, French	Japanese
declarative	Mood: Subject ^ Finite	Subject ^ Residue ^ Finite
interrogative	Mood: Finite ^ Subject	

The order Subject ^ Residue ^ Finite is kept both in the declarative and in the interrogative clauses in Japanese, but in English, German and French that in the declarative Subject ^ Finite is reversed in the interrogative as Finite ^ Subject. When we take Chinese into account, there are three groups besides two groups shown in this table.

6. Conclusion

In this concluding section, the cross-linguistic comparison will be summarized. Below is a table showing the result of the comparison in each section. Each column corresponds to one of the language groups in (2), and each line represents the Systemic framework and the distinction between the declarative and the interrogative clauses. Those horizontal and vertical lines connect the cells which are common with the values:

(48)

	class in (2)	A			A'	B
	language	English	German	French	Chinese	Japanese
transitivity	declarative	←			→	↕
	interrogative	←		→		
Theme + Rheme	declarative	←			→	↕
	interrogative	←		→	←	→ ↕
Mood + Residue	declarative	←		→	NA	↕
	interrogative	←		→	NA	↕

It can be pointed out that some characteristics with this table. First, three languages English, German and French are always consistent with the frameworks attested here. The second finding is that in Japanese there is no difference between the declarative and the interrogative clauses with regard to the transitivity, the Theme + Rheme and the Mood + Residue structures. Third, Chinese shows the western European type behavior in the declarative clauses of the transitivity and the Theme + Rheme structure, while it is parallel to Japanese with the interrogative Theme + Rheme structure.

It was hypothesized at the beginning of this paper that these five languages can be grouped into three from the Systemic criteria: the transitivity, the Theme + Rheme structure, and the Mood + Residue structure. This table endorses the appropriateness of the hypothesis. As far as the copulative construction is related, three western European languages English, German and French are exact in their Lexicogrammatical behavior. Japanese is at the other side of the extreme in the sense that it has no copulative verbs but an auxiliary verb 'da.' To add this kind of auxiliary verbs to the clause-final position shows the agglutinative nature of the Japanese language; to form negative, adding 'de-wa nai', and to form interrogative alternating 'ka' instead of 'da,' and so on.

One point to add as a concluding remark; the framework of Systemic Linguistics is almost exclusively based on English (Halliday 1985, 1994, 2004): Transitivity, Theme + Rheme structure, Mood + Residue. Due to the idiosyncrasy of the English word order, those frameworks are applied to other languages differently. As far as the range covered in this paper, German and French are close to English in these structures. One of the examples that are far from English is that there is no finite element with Chinese verbs. In a sense, whether the copulative verb is finite or infinite is a distinctive feature, which would be unintentional when the definition was made. Another is that there seems to no Process element in the Japanese equative construction. The future challenges will include investigating to what extent these frameworks are valid.

Notes

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*1   It would be necessary to mention the distinction between the structures of Subject + Finite and Mood + Residue. In the framework in Halliday (2004), it is defined that the Subject and the Finite constitute the Mood. Analyses of these structures will be done in section 5 below.

*2   Diachronically, *pas* was a kind of emphasis. Later it is combined with the genuine negation *ne* and grammatically indispensable.

*3   In the Chinese transcription, the pin'yin method is adopted. In this way of transcription, tone symbols are added above the nuclear vowels. As for the *qingsheng* (literally: light voice) syllables, such critics are not added. The qingsheng syllables are mainly assigned according to the positions in clauses. In the transcription in the discussion below, the tone symbols will be omitted if it is not directly related to the purpose of examination to avoid the complexity of the transcription.

*4   Common with the Chinese final particles and the English tag question is that both occupy the clause-final position. One of the differences is that the Chinese interrogative particle *ma* is syntactic in the sense that it is the principal way of forming interrogative clauses, whereas the English tag question is a stylistic variation adopted sporadically by the speaker. With the Strata categorization in SFL, the Chinese particles belong to the Stratum of Lexicogrammar whereas the English tag question is a Semantic way of predication.

Japanese particles such as *ne, yo* are exactly similar to the Chinese particles in respects of the word order and function.

*5   As for the Russian short-form adjectives, Levine (1999: 147) claims as follows:

Short-form adjectives can only be used predicatively after a linking verb, usually быть *to be*. ... In the present tense the linking verb быть is omitted before a predicate adjective.

*6   Notice that *de* is one of the declension form of the auxiliary *da*. Its infinitive form is *da* and *de* is the one when another predicate constitutes a verbal group.

*7 The topic particle *wa* is tentatively glossed. There seems to be little semantic difference between the one with *wa* and without it. Stylistically, the one with it is more natural than the one without it.

*8 Stylistically, the one with *de-aru* (*de* is one of the conjugation forms of *da*, and *aru* is a verb designating the existence of something) is archaic, formalistic and quite unnatural. An utterance without *da* or *de-aru* (*Tikyuu wa kousei ka?*) sounds too impolite. Another choice is the one without *de-aru* and *ka*, in which case the intention of interrogation must be signalled by the steep rise tone (tone 2).

*9 *Taigen* refers to the class of noun, and *dome* derives from the verb *tome* (< *tomeru* 'to terminate, to stop'), with the phonological process of sequential voicing from /t/ to /d/.

*10 Halliday (1967a/2005) does not label such discontinuous predicate in his illustration of the transitivity.

*11 Instead of the term 'Subject' in the other cells, 'Topic' is adopted mainly for the theoretical integrity in Japanese; those NPs marked with *wa* will be more appropriate to be indicated as *Topic* rather than *Subject*. This may not be plausible for Chinese, however, in regard to the absence of the Japanese Topic-marking counterpart particle of *wa*.

*12 In general, adverbs carry the hint of the time instead of verbs in Chinese. Refer to the examples (13) b and c in section 2. It may be reasonable to attribute the lack of the copula verb *shi* in these clauses to this peculiarity that Chinese verbs do not carry tense.

*13 Strictly speaking, those nouns marked by 'wa' should be labeled as the Theme. Here, however, to be consistent with the terminology of the Subject and the Finite, the label *Subject* is adopted. Same is true for the following examples.

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Text structure of written administrative Directives in the Japanese and Australian workplaces

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Abstract

This study aims to explore the written factual directives used in the Japanese and Australian workplaces. Directives are a genre which serves the purpose of getting things done. In the workplace, interaction is achieved through "administrative discourse" (Iedema (1995)) which consists of three categories: Provisions, Records, and Directives. The role of the discourse is to organise people in an institution. Among them, the Directives contain the obligatory Order, that is, a request for an action by an addressee. Written English administrative Directives were studied by Iedema (1995). This study further elaborates Iedema's study by extending analysis to the Japanese workplace. By using the Generic Structure Potential (hereafter GSP) analysis, written administrative Directives in the Japanese and Australian workplace will be investigated. The GSP is a framework which was established by Hasan (1985, 1996). The GSP is a framework to investigate text structure. Hasan (1985: 64) stated that "it is possible to express the total range of optional and obligatory elements and their order in such a way that we exhaust the possibility of text structure for every text". The GSP is located in the stratum of context of situation, and clarified by field, tenor, and mode (Matthiessen (1995)). The corpus consists of memos, letters, and emails which are compiled in three workplace contexts: business, education, and government in Japan and Australia. This study will further compare the GSP of the Japanese Directives with that of the English Directives. The comparison will illuminate the linguistic realisation of the cultures and social practices in the two workplaces.

Introduction

At the most general level, all institutions[1] have to administrate people on an everyday basis.

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1 In this paper, the word: "institution" covers governmental, privatised, and educational settings where text examples were compiled. Some researchers (Grant & Iedema, 2005; Nickerson, 2002: 377-379) use organizations instead of institutions. However, the definitions of these words in the dictionary are slightly different. While the definition of organization is "a group of people who form a business, club etc. together in order to achieve a particular aim", that of institution is "a large important organization that has a particular purpose, for example a university or bank" (*Oxford advanced learner's dictionary*, 2000). Institutions seem to indicate more formal settings than organisations. In addition, the word: organization relatively seems

In order to organise people, various forms of texts are used. Institutions operate "under conditions of advanced capitalism, [with: YM] many different sites of unequal relations" (Bernstein, 1982: 336). In other words, institutions contain power relations. According to Kress (1985: 52), the definition of power "is about relations of difference". Thus, power differences are found in the workplace. Because of power relations in workplaces, texts used in workplaces need to be elaborated. For example, text from a subordinate to a superior is not the same as that from a superior to a subordinate. As such, languages used in workplaces are grammatically highly complex. Among languages in the workplace, writing is more deliberate in every way than speaking (Kress, 1988). The structure of writing is ultimately determined by the writer's need to control the subject matter. In other words, "writing is closer to power" (Kress (1988: 97)).

Everyday practice in the workplaces can be divided into three kinds: guidance, surveillance, and compliance (Iedema (1995)). These kinds of administrative practice function to determine the institutional behaviour of employees, the process of recording past and current states of affairs, and the process of organising employees in time and space respectively. The guidance is realised by the genre of Provisions, the surveillance by the genre of Records, and the compliance by the genre of Directives in discursive forms (Iedema (1995; 57-58)). This study will investigate the Directives, which are defined as having a generic element containing any request or command which aims to get things done. Because of power differences, a request or a command is semantically realised not only in imperative forms, but also in declarative or interrogative forms in order to enact more smooth interpersonal relations.

The purpose of this paper is to map written Japanese and Australian-English factual Directives and to illuminate the similarities and differences between the cultural practices in the Japanese and Australian workplace.

Literature review

A number of discourse analyses based on the Systemic Functional (hereafter SF) model of language have been developed in the past 20 years (Cloran, Stuart-Smith, & Young (2005)). The application of discourse analysis from the perspective of the SF theory includes different fields, such as the talk of mothers and children, sales talk, and the description of magazines etc. in different ways. Research has been done for the discourse of children from different social backgrounds (Hasan (1984)), of sales talk in the fruit market (Hasan (1985)), or of news articles (White (2002)) to name but a few.

Some studies have been done on the workplace by using the SF theory. Pollach (2003) studied web pages. Harrison and Young (2004) studied an e-mail office memo from a senior manager in Health Canada, a department in the Canadian government. Iedema (1995) studied administrative discourse from a literacy perspective in order to provide educators with reference material. Moreover, Iedema (1997) mapped the administrative Directives of the Australian

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to be used in studies such as management or communication (Jablin & Putnam, 2000; Wood *et al.*, 2003 etc.).

workplace and developed a taxonomy of written administrative genres. Further Iedema's study combined the administrative discourse with a sociological view (Grant & Iedema (2005)). In addition, as business genre, Zhu (2005) studied sales letters or invitation written in English and Chinese and compare them by socio cognitive perspective. The limitation of these studies is to focus on particular texts written in other than Japanese

On the other hand, there are some studies on Japanese expressions of a request or a command (Handa (1987), Kashiwazaki (1993), Oh (2005)). Handa (1987) researched syntactic features of expressions of a request, a demand, a command or a prohibition used in Japanese novels. Kashiwazaki (1993) carried out the research on particular syntactic features *o~/~tekudasai* (please do), *~tekure* (Do something/ often used by male), and *~te* (Do something/ often used by female) retrieved from scenarios of movies and T.V. dramas from the syntactic perspective. Oh (2005) conducted the research on Japanese syntax and structure of the expressions in natural conversation, novel, and words of T.V. drama and compared Japanese with Chinese. Their research is limited to syntactic features of the expressions. Further, none of them addresses expressions used in the authentic workplace

While comparing a wide range of research on English from the SF theoretical point of view, research in Japanese is a limited. SFL has been introduced to a Japanese linguistic field by Tatsuki (1997, 2000) and Yamaguchi (2000). Recently researchers (Fukui 1998, Hori 1995, 1997, Sano 2003, Teruya, 1998, 2004, Thomson, 1996, 1997, 2001, 2005) have described various grammatical systems of Japanese from the SFL point of view.

Hori (1995) studied the subjectlessness in Japanese with the reference to an honorific system and in addition, investigated mood structure of written and spoken Japanese. Hori also stated that particles in Japanese play an important role instead of subject as in English. Teruya (1998), on the other hand, has developed a comprehensive description of Japanese grammar from a SFL perspective, describing the metafunctional grammar of Japanese (Teruya (2004)). Fukui (1998) went even further by describing the interpersonal metafunction by using mood analysis on casual spoken texts. Moreover, Sano (2003) investigated expository texts from the logico-semantic view while Thomson (1996, 1997, 2001, 2005) described Japanese clauses, grammatical metaphor of Japanese, the textual metafunction of Japanese, and mapped GSP of Japanese nursery tales and news articles respectively.

However, no study has addresses Japanese administrative discourse based on SFL. This study will further elaborate the definitions by Iedema, and establish the text structure of the Japanese factual genre of Directives.

Theoretical framework

In order to analyse the texts in the corpora, SFL is utilised. SFL addresses meanings as the fundamental focus of the grammar (Bernstein, 1999: 164), and captures languages paradigmatically. Generic structures are found in all discourse even in the most informal spontaneous conversation (Halliday (1978: 134)). According to Hasan (1985), a text can be

divided into obligatory elements and optional elements. "A text is perceived as complete if it realises all the obligatory elements" (Hasan (1996: 54)). While the obligatory elements define the genre to which a text belongs, an optional element is one that can but is not obliged to occur (Hasan (1985: 62)). The presence or the lack of the optional elements decides the actual structural shape of a given text. Hasan mapped sales talk in the fruit market, and nursery tales by using GSP. Figure 1 shows the Structure Potential of the English nursery tales.

The round brackets in the above representation enclose elements are optional. The angle brackets enclose elements whose lexico-grammatical realization may be included or interspersed with the lexico-grammatical realization of some other element(s). The raised dot · between elements refers to the fact that the order of the elements on the two sides of the dot is reversible, while the carat sign ^ indicates relative fixity. The element to the right of the carat sign cannot precede the element on the left of the sign. Since mobile elements are mobile within a certain limit, the boundaries of such a limit are indicated by enclosing the relevant elements in a square bracket. The curved arrow appended to some element(s). This symbolizes the possibility of iteration for that element (Hasan (1996: 54-55)).

As part of the research into administrative literacy, Iedema (1995: 65-74) presented stages of written Administrative Directives in the Australian workplace. Apart from GSP, Iedema defined seven stages within the genre of Directives. They are Orientation, Conciliation, Facilitation, Background, Command, Legitimisation and Expression of Thanks. Each stage will be briefly explained below in accordance with Iedema.

Orientation presents what the text aims to accomplish and what the text is about. This element prepares the foundations for the following *Command. Conciliation* is an interpersonally oriented element, which functions as a concession in relation to *Command*. The purpose of this element is to sympathise with commandees. *Facilitation* provides assistance to the addressee in order to facilitate *Command*. An example sentence of this element is that "please call me if I can provide any information on this matter". Such offers of assistance are quite common in the genre of Directives, especially offers contact numbers. *Background* takes the form of general information that is relevant to *Command*. While *Command* is a stage that enables commandees to comply with a request or a command, *Legitimisation* functions to validate *Command*. Finally, *Expression of Thanks* occurs in the last part of a text, and shows gratitude by the writer.

Methodology

The GSP analysis was applied to Japanese and English text examples which contain any request or command. In this study, 26 texts from the Japanese workplace and 36 texts from the Australian workplace were compiled respectively. The document types are memos, letters, emails, and facsimiles. The text examples were segmented into generic elements. The generic elements of structure were determined according to functions based on semantic attributes. Within each element, distinguishing lexico-grammatical features were referred to in order to classify generic elements.

Result

From the analysis, seven kinds of elements could be defined from the Japanese and Australian text examples. These are **Preface, Orientation, Legitimisation, Counsel, Direction, Facilitation** and **Sign Off**. Out of these seven elements, only Direction could be recognised as the obligatory element. That is, all text examples have the element of Direction. Elements other than Direction are optional elements. Figure 2 presents the Structural Potential of the written administrative Directives in the Japanese and Australian workplace.

Four elements out of the seven are further divided into sub-elements. These are Preface, Direction, Counsel and Sign Off. While Preface is divided into Title, Salutation, and Address, Direction is divided into Preamble, Order, and Particulars. The stage of Counsel is divided into Conciliation or Warning. Finally Sign Off is divided into Thanks Expression, Closing Expression, and Sign.

Discussion

There are some differences between Iedema's typology and this study. Although the number of the elements in both Iedema's and this study is the same, the contents of the elements are somewhat different from each other. Firstly, Preface does not exist in the Iedema's typology. Iedema's study excludes this element from his analysis. Secondly, Orientation and Background in Iedema's typology are merged into Orientation. This is because the functions of these elements are quite similar in that they are guiding a reader to a following Direction without any direct relation. Thirdly, Command in his study has been changed into Direction. The reason for the name change is to avoid the confusion which may arise. In SFL, Command indicates one of the speech functions which are located in the strata of Semantics in stratification. For this reason, the name of this element is changed. Further, the element of Direction has three sub-elements; Preamble, Order, Particulars. Preamble is a preliminary just before Order. Order, which is the obligatory element, functions to make a request or give a command. Particulars functions to give details about time or place related to Order. Fourthly, Conciliation has been changed into the sub-element of Counsel. The other sub-element of Counsel is Warning. While a preferable situation for a reader is mentioned in the element of Conciliation when a reader complies with a following element of Direction, the sub-element of Warning shows an undesirable situation which may occur when a reader does not comply with Direction.

The following paragraphs will explicate each element in detail by referring to linguistic features.

Elements of structure

The element of Preface is an optional element which consists of the sub-elements of Title, Salutation, and Address. Title functions to guide what a text is about to the person being commanded. This element is realised by a noun phrase, and located at the beginning of a text. Salutation functions as an opening statement. This element is realised by greetings such as "Good morning" or "Hi" in English, or in declarative forms which express appreciation or skipping over

the formalities in the Japanese text examples. In the Japanese text examples, the formulaic expressions often occur in Salutation. For example,

"*Itsumo osewani natteorimasu*" (I always owe you)

"*Otsukaresama desu*" (I appreciate your hard work)

In Japanese, clauses which contain Salutation element are mainly declarative clauses with humble, formal, or a combination of humble or formal forms in order to express formulaic greetings. This optional element contains expressions such as humble or formal thanks, formal gratitude for everyday support, humble requests for a receiver's favour, humble self-introduction, and humble requests for forgiveness. In addition, specific words often appear at the beginning of the letter in order to omit season's greetings, or express humble respect. For example, both specific words: *zenryaku* or *kinkei* are used in the opening of the letter. The word: *zenryaku* functions to omit the usual or typical formulaic words in a letter. On the other hand, the word: *kinkei* is utilised when a writer humbles himself/herself. Unlike *zenryaku*, *kinkei* needs further formulaic expressions of humble hope for receiver's welfare such as *kinkei* [a receiver's name] *ni*

okaremashite wa masumasu go²kenshoo nite gokatsuyaku no kototo haisatsu mooshiagemasu³

(We humbly hope that you are politely well and thriving). That is, letters which contain *kinkei* show the humility of the writer, and this type of letter is used in formal official situations, such as official letters.

Orientation, which relates to the purpose of the text, functions to express an outline of the text, or functions to explain the reason why a writer is writing a text. However, information in this element is not directly related to the following Orders. This element is realised in the declarative forms.

The element of Legitimisation functions to express legitimacy. This element gives a reader a reason why Order needs to be complied with. This element is mostly realised in the declarative forms. To legitimise Order, a writer tends to use authorities such as a law, a regulation, or a name

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2 Prefix: *go* is added in order to express courtesy. This prefix is mostly attached to *kango* (Chinese compounds) which originated from Chinese. Some exceptions occur when go is attached to *wago* such as *yukkkuri* or *mottomo* (Tsujimura, Kuwayama, Hosokawa, Kawagishi, & Kikuchi, 1991: 214). As for *wago* (native Japanese words) which originates from Japanese, *o* instead of *go* is added as a prefix for courtesy. However, some words such as *shoogatsu, jikan, tenki, kyaku* have the prefix *o* instead of *go* while they are *kango*. Although borrowed words do not have prefix, *obiiru* (beer) or *onyuu* (new) can be seen as exceptional (Tsujimura, Kuwayama, Hosokawa, Kawagishi, & Kikuchi, 1991: 49). Both go and o functions as humble, respectful, formal, and beutificational.

3 "*haisatsu mooshiagemasu*" consists of "*haisatsu*": humble form of conjecture + "*mooshiagemasu*": auxiliary verb to express humbleness.

of management. For example, "as X [a name of a management] said" or "as regulated by X [a name of a law].

The element of Direction has the three sub-elements of Preamble, Order, and Particulars. Among these three sub-elements, Order is the obligatory element, which means that Order occurs in all text examples from both Japanese and Australian workplaces. Order "contain[s] the obligatory Command, [or] the request for action, which may be realised congruently or incongruently" (Iedema, 1995: 59). This element is congruently realised by the imperative, or incongruently realised by the declarative or interrogative functioning as a command. Concerning written administrative Directives in the Japanese and Australian workplaces, incongruent forms of command realisation occurs more than congruent forms of command realisation. This result seems to show that a writer uses salient ways in order to disguise a request or a command. Preamble occurs just before Order, and functions to give a reader an apology when complying with Order. While Preamble occurs only in one English text example, the percentage of Preamble in the Japanese corpus accounts for about 20%. Particular functions to give details about time or place related to Direction in noun phrases.

On the other hand, Facilitation often occurs in the English corpus. Facilitation functions to give a writer's contact details when a reader requires more information. While the element of Facilitation can be seen in only one example that accounts for 4%, the percentage of the same element accounts for 33% in the Australian corpus. This element often contains the linguistic feature of the conditionals: *tara* ("if" in English) in a clause complex, or *baaiwa* ("in case of" in English) in a clause simplex in the Japanese text examples, on the other hand, "if" or "should you have any question" occurs in a clause complex in the English text examples.

Counsel functions to offer something to a reader. If something is undesirable for a reader, the element will be Warning. Instead, if something is preferable to a reader, the element will be Conciliation. The element of Conciliation occurs in both Japanese and Australian text examples. However, Warning could be found only in the Australian text examples. Both Conciliation and Warning contain modality such as "may" or "will". The percentage of Conciliation accounts for 8% in both corpora. However, Waning could be found only in the Australian corpus. The text examples of the Australian workplace are show in Table 1. As seen from the examples, undesirable situations may occur unless a reader complies with Order.

The element of Sign Off functions to give a conventional parting expression to a reader, which has three sub-elements of Thanks Expressions, Closing Expressions, and Sign. While Thanks Expression could be recognised only in the English corpus, Closing Expressions could be found only in the Japanese corpus. Thanks expression seems to be based on the fact that the compliance with a command is a premise. The reason why the Japanese writers do not use the element of Thanks Expressions seems to be because the compliance of a request or a command

cannot imply. Instead, the vague words: *doozo yoroshiku onegaiitashimasu* were often used (cf. Table 2). While comparing English, as Ikegami (1991a: 135-136) argued, Japanese requires the addressee's positive attitude to interpret a text. In this case, a degree to which a receiver's positive contribution to an interpretation is greater when a Japanese text is interpreted. It can be said that Japanese people tend to entrust a decision to an addressee.

While the element of Sign is quite frequently seen in the English text examples, it was seen less frequently in the Japanese text examples. Especially, the name of the writers always appeared in the English examples. Unlike the English examples, the Japanese texts ended with not only the name but also the section in which the writers belongs to, or his/her position in the institution. Some Japanese examples have neither name nor a section. This could result from the difference between Japanese tradition and Western tradition. With regard to the relationship between the individual and the group of which he is a member, "the Western type of behavioural pattern in which the individual is expected to act independently, the general tendency characteristic of the Japanese behavioural pattern has been to follow and conform to the group" (Ikegami, 1991b: 16). Thus, the lack of the individual name in the generic stage of Sign Off might show the difference between the cultural norms between Australian and Japanese.

Comparing the Japanese examples and the Australian examples, similarities and differences could be seen. In relation to the grammatical features of Order which is the obligatory element, the congruent form of commands was rarely found. This is not surprising because, as Bourdieu (1991: 77-81) pointed out, any linguistic choices are determined by the relationship between a speaker and a hearer. As a result, a direct command form would be rarely used. Instead, interrogative forms, declarative forms or elaborated forms are used. The elaborated forms mean nominalization or a passive form. This tendency of the linguistic elaboration is more prominent in English than in Japanese. For instance, in the English corpus, there are examples "a requirement", "you are asked to" or "failure to comply with the policy can result in disciplinary action" to name but a few. These could be interpreted as "we require you to do", "we ask you to do", or "comply with the policy, otherwise...". On the other hand, in the Japanese texts, nominalisation could be seen. The nominalisation are realised by adding *"koto"* to verb group, which means "to do", or *"kitsuen no kinshi"* (the prohibition of smoking) could be found.   However, expressions such as "you are asked to" could not be recognised. This might come from the fact of subjectlessness in Japanese (Hori, 1995). Hori (1995: 181) pointed out that "the information permeating every part of the honorific system is a powerful mechanism for identifying the Subject of the clause". Thus, the Japanese texts may not need to use a passive form in order to disguise an agent.

As a characteristic of the linguistic features in the Japanese examples, numerous honorific expressions which cover humble or respectful forms appeared. Signs of these respectful expressions can be found in the reference by Nakane (1970, 1972). She stated that "the basic orientation of the social order permeates every aspect of society... when speaking [a person: YM]

is always expected to be ready with differentiated, delicate degrees of honorific expressions appropriate to the rank order between himself and the person he addresses" (Nakane, 1970: 31). As reflected this characteristic of the Japanese language, among honorific, humble and formal expressions, the humble declarative was used most frequently. The frequent use of honorific expressions may come from the fact that the Japanese value human relationship. The Japanese norm depends on interpersonal relations. "The Western languages relatively focus on the *ideational* function, while Japanese relatively focuses on the *interpersonal* function" (Ikegami, 1991b: 6). Nakane (1970: 84) also argued the preference for emotion rather than logic by Japanese. Thus, the frequent use of the respectful expressions might result from the interpersonal oriented culture of Japan.

Conclusion

This paper has presented description of the GSP for the Japanese and Australian administrative Directives in each workplace. Through a textual analysis of the Japanese and Australian text examples, similarities and dissimilarities were found. Generally, the text examples in Japanese and English showed the salient linguistic features and text structure which were due to power relations in the institutions. The dissimilarities, as seen in the lack of the generic stage of Thanks Expressions in the Japanese text examples or the intricate honorific system in Japanese, can be considered as the differences between cultural norms in the Japanese and English languages. The element of Preamble could be seen much more in the Japanese corpus than in the Australian corpus. Before transitioning into Order, it seems the Japanese need to take extra step in order to avoid directness. On the other hand, the element of Thanks Expression could be seen only in the Australian corpus. In this way, depending on the languages, the linguistic realisation of Command is different. Moreover, due to the honorific system in the Japanese language, the Japanese corpus shows extra work by the writers such as the frequent use of the formal forms or the humble forms. Instead, the English corpus shows the frequent use of modal expressions in order to avoid direct commands. Thus, the written administrative Directives in both Japanese and Australian workplaces indicate the salient text structure or linguistic realisation. However, the details in both workplaces are different. The details seem to reflect both cultural norms.

[(<Placement>^) Initiating Event^] Sequent Event^ Final Event [^(Finale) · (Moral)]

Figure 1 SP of the English nursery tale (Hasan, 1996: 54)

(Preface) ^ (Orientation) ^ [(Legitimisation) · Direction · (Counsel) · (Facilitation)] ^ (Sign off)

Figure 2: SP of the Administrative Directives in the Japanese and Australian workplaces

A letter from a manager to workers	
1	Failure to comply with the policy can result in disciplinary action, which may lead to the termination of employment.
An email from an administrative officer to staff and students	
2	If this [filling out of the document] is not done, the student will not be enrolled for 2006.

Table 1: Extracts of the Warning from the Australian text examples

Doozo	*yoroshiku*	*o-negai*		*itashimasu*
Request	POL	PREF-beg		suru HUM FOR
[I humbly beg well for your compliance with the request]				
[I look forward to your cooperation.]				

(extracted from the Japanese corpus)

Table 2: An example of the Closing Expressions in the Japanese text example

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A case study of early language development:

Halliday's model (1975) of primitive functions in infants'

protolanguage

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Abstract

This study presents how infants utilise their protolanguage in the process of learning how to mean; before getting to utilise the limitless METAFUNCTIONAL human language system. According to Halliday's (1975) model of the six primitive functions of infant language, a case study of my son, Asuya was conducted and his speech samples between 16 – 16 ½ months were analysed by comparing with the case studies of Halliday's son, Nigel (1975) and Painter's son, Hal (1999) and some other studies, all of which follow Halliday's (1975) model. The analysis perhaps gives us an important implication with how and why human language has developed in the way it has by observing how infants begin to fulfil their communicational needs through the origin of language competence, that is, the primitive functions.

Introduction

About this case study

This study is an analysis of the child language development of my son, Asuya. He was born in Australia where he spent his first two months of his life. During the next 13 months he lived with me in Japan, and, as a fulltime mother, I have been amazed by his ceaseless physical and mental growth which seems to change on a day to day basis.

Language development is one of the considerable achievements that infants show in their first few years of life. As a TESOL specialisation student, I was particularly intrigued by how he developed his mother tongue. At around nine or ten months, he started vocalising a typical Japanese baby word, 'Manma,' meaning 'food,' but other than that word, I have not been able to find any other words interpretable by adult standard language at that stage even though he has been a very talkative baby who makes many utterances most of the time.

Regarding child language development study, if we focus mainly on language structure, other than his few interpretable words, it seemed that Asuya's large amount of uninterpretable utterances were not sufficient for a researchable theme. But could it be that he was just vocalising something meaningless, or was it something meaningful? As a mother and an observer of the child, it appeared to me that even at two months he was already clearly trying to express something with his limited vocalisation. So, when I

decided to return to study in Australia, what instantly came to mind as the theme for a project was a child language development study of my own son, Asuya. This was not only because language development itself would be an intriguing research theme but also because my son would be in a unique language learning situation: living with a Japanese speaking parent in the context of an English speaking country.

For this case study, I intend to analyse Asuya's speech samples between the age of 16 – 16 ½ months according to Halliday's (1975) hypothesis of primitive functions of infant language. By doing so, the analysis will perhaps show a similar pattern of language development evidenced by other studies which have followed the same hypothesis. Therefore, the result of this study could have important implications in terms of how, and from what approaches, language, that complex and mysterious ability of human beings, could be interpreted most appropriately.

Significance of child language research

Language competence perhaps plays a key role in terms of how human beings construct human societies with such complex structures. It is hard to imagine how people could have managed to develop such complex societies without communicative language competence. Language, therefore, a very complex part of communication, and unique to human beings, has possibly been influential on the history of mankind.

Perhaps because language is an indispensable part of our society in many ways, the area of linguistics has been both intensively and extensively researched and has consequently resulted in a large body of work on human language. Among these studies, Halliday's functional approach, although a unique theory among other theories in the area, shares a common feature with other socio-linguistic theories with its focus on the social aspects of language. Further examples of socio-linguistic approaches such as Travethen's (1974, cited in Painter, 1999) neonatal research and other studies on care-giver talk will be cited later in this dissertation. As those studies show, the approaches to language from a social aspect have led to studies on younger infants who have not started to construct adult-language forms in their utterances.

In order to verify his hypothesis on the primitive speech functions of protolanguage, Halliday (1975) also conducted a study of his own son. Halliday (1991) asserts with the statement, 'in studying child language development some twenty years ago I was struck by how clearly this social-semantic perspective stands out once you observe how children begin to communicate—especially if you observe it from birth and in a natural form' (p252, edited in Webster, 2004), that studies on infant language development, particularly with a focus on the social purposes and aspects of infant language, are beneficial in language research.

If we focus on the fundamental purpose of utilising language, social and communicative aspects can be hardly ignored. By paying attention to how infants begin to communicate with their care-takers or other people in their initial environment, and tracing this back to the origin of human communicative competence, an important insight of what are the core features of human language can be seen. For these reasons, research concerning child language development from a functional approach could be meaningful in providing a clearer picture of how and why human beings develop complex language systems.

Child language research in bilingual contexts can also provide important contributions to second language education methodology. Pham (1994) claims that research on child dual language acquisition is beneficial to ESL/EFL students and teachers

in creating effective learning materials and instructional methods (p.2). This applies especially in EFL contexts in countries such as Japan where English language education for adolescence and adults has failed to provide effective communicative ability and has thus created a strong demand for early childhood foreign language education. Therefore, child language research in bilingual contexts could be beneficial in finding solutions that could improve the rather unsuccessful results of EFL English language education.

In this case study, Asuya's speech during the age of 16-16½ months is analysed according to Halliday's (1975) model of six primitive functions. Asuya has had both English and Japanese language contact since birth. Firstly, he resided for the first two months of his life in Australia and then resided in Japan before returning to Australia at fifteen months of age. Since returning to Australia he has spent most days at an English speaking child care environment and the remainder of his time with his Japanese mother. It could be speculated that this particular bilingual context will perhaps influence his language development to some degree.

From the perspective above, it could be said that it is appropriate to approach this particular speech development according to Halliday's (1975) model, as well as focusing on certain features seemingly to be a result of this particular bilingual context. This could provide suggestions for: what language means for human beings; how language works for our needs; and, in addition, provide important insights for second language education.

Research questions

In order to provide a clear discussion for the above mentioned perspectives and approaches, suggestions for research questions for this case study are noted below:

1. Did Asuya's language development validate the primitive functions identified by Halliday (1975)?

2. Did the fact that Asuya had been living with a Japanese speaking parent in an English speaking environment produce any different language features?

Literature reviews

Overview on studies of child language development

In the 1960's, main stream theories on human language were syntactic structural analysis based on biological approaches, commonly represented by Chomsky's 'Universal Grammar' (Chomsky, 1976, cited in Painter, 1999, p.2). This innatist view on language systems hypothesise that all the human beings possess an innate language system from the moment of birth. Since the nativist view claims that competence of structuring the syntax of language is initially bioprogrammed in the human brain, and pays little attention to the process of how infants become able to form grammatical structures, the early period of childhood before they start forming structural languages at around age two, does not seem to have been researched intensively in child language development studies.

Although syntactical approaches were dominant in the 1960's, there was an influential emergence of a theory based on a functional view of language. Austin (1962, cited in Painter, 1999, Pham, 1994, Searle *et al.*, 1980) developed the 'speech act theory' which focused on functions of language such as: 'making statements; asking questions; giving orders; describing; explaining; and apologizing' (Searle *et al.*, 1980, introduction). According to Painter (1991), the speech theory of Austin (1962, cited in Painter, 1999, Pham, 1994, Searle, 1980) 'is interested in what people do when they utter a sentence'. Also, Searle (1980) states that 'the theory of speech acts starts with the assumption that the minimal unit of human communication is not a sentence or other expression' (introduction). It can be interpreted that 'the speech theory' has a considerably different perspective in conceptualizing how human beings conduct language activities. Painter (1999) describes a 'universalists' view rather critically as, 'ignore all aspects of language as a phenomenon of human social life' (p.2). It can be said that the speech act theory perhaps created, in linguistics, a change of focus from the form and structure of sentences observed in languages to a focus on what people do using languages; that is, the purpose of communication.

At the same time as functional aspects of language were being researched continuously through the 1970's, based on such theories as Halliday's 'systemic theory' (1976, 1978, 1985a, cited in Painter, 1991, 1999, Pham, 1994, Bodycott, 1987), other theories based on physiological approaches also emerged and flourished. Many of the psycholinguistic views of scholars such as Clara and William Stern (cited in Bodycott, 1987, p.4) or Bloom (1993, cited in Painter, 1999) have a common hypothesis that expounds theories that children acquire languages according to their cognitive development which enables them to conceptualise the world and express it in language. In a certain sense, this view is clearly different from the innatist view which hypothesises that babies are born with the blueprint of a language device: a device which claims that language acquisition is largely dependent on innate language ability. However, as Painter (1991) points out, the two streams of theory perhaps are similar in their universal point of view on language acquisition (p.6) in terms of the way they both seem to pay little attention to the influence of different contexts in which children develop languages. In other words, the nativists claim that all human beings share a universal structure of language syntax programmed in their brains, and the psychological approaches also are based on the assumption that all children follow the same process of cognitive development.

The studies on care-giver talk, which flourished post 1970's, imply a tendency of movement of language studies focusing on the influence of social interaction on language acquisition and individual differences as a result. Scholars such as Ferguson (1977, cited in Painter, 1999) and Newport (1976, cited in Painter, 1999) claim that the interaction between infants and mothers or care-givers has an important influence on the language acquisition of the child. The main issue is that efforts made by caretakers and other people to facilitate communication with infants, such as slowing down speech or using shorter and explicit sentences, create opportunities for children to learn languages. Halliday (1983) states on the issue of motherese that 'it implies that language is learned as a communicative tool for the exchange of meaning' (p.22). It can be interpreted that research on care-giver talk has a considerable impact on views of how language is learned through communication. As Painter (1991) points out, the claim of the significance of interaction with infants critically challenges the innatist view (p.8).

The claim of the communicative way of learning language by infants perhaps has led to more studies on earlier childhood language during the first few years of life. For instance, Travethen (1974, cited in Painter, 1999, Halliday, 1983) conducted research on infant communicative behaviour, claiming that human intelligence develops through interaction (Painter, 1999, p.20). Unlike Piaget's (1926, cited in Painter, 1991, 1999, Pham, 1994) view of unsocial infant speech, motherese and other views focusing on communicative functions of language try to verify infants' communication competence of carrying on conversations and their roles in developing languages. The movement of linguistic research in the 1970's, thus is featured by its effort to observe linguistic behaviour by focusing on its communicative aspects (Bodycott, 1987, p.15).

One of the most influential functional views of language that emerged in the 1970's was Halliday's systemic theory (1976, 1978, 1985a, cited in Painter, 1991, 1999, Pham, 1994, Bodycott, 1987) which suggests that children develop their language in the process of acquiring the usage of three types of language functions.

Halliday's hypothesis of primitive functions of early child language

Halliday (1975) claims functional approaches in studying child language development are necessary because the importance of the study lies in 'how the child learns a system of meanings' (p.5). It can be said that his standpoint is very different from the nativist focus on language structure in child language acquisition studies. Halliday's approach focuses on what children try to mean through language, and in order to interpret the intended meaning 'it becomes necessary to look beyond the language itself' (p.5). He also claims that the functional approach 'gives us insight into the reasons why the child takes the steps he does' and also 'why the adult language has evolved in the way it has' (p.8). According to Halliday (1975), children have already built up their semantic system of language, which contains 'a range of possible meanings' (p.8), prior to their actual acquisition of vocabularies by the first eighteen months of their lives.

'Protolanguage' is an expression introduced by Halliday (1975) referring to a child's language system which consists of signs, not lexical items and has basic functions in the developmental stages into adult language. The adult language system has three fundamental functions, known as 'Metafunctions' (Halliday, 1976, 1978, 1985a, cited in Painter, 1991). The three systems are respectively 'Experimental functions,' Interpersonal functions,' and 'Textual functions' (Halliday, 1976, 1978, 1985a, cited in Painter, 1991). The difference between protolanguage and adult language is that the former is not recognised as a three-level system of 'semantics,' 'phonology,' and 'grammar' as is the case with adult language (Halliday, 1975, p.3, 1983, p.14). Also, the absence of grammar in protolanguage is another reason why it is not recognised as adult language. (Halliday, 1983, p.14). This lack of grammar could also lead to a protolanguage limitation in expressing 'outside of the reality' (Painter, 1991); that is, an inability to refer to phenomenon other than instant contexts (p.18).

This point of view from Halliday also regards the 'protolanguage' system as a different system from adult's language. The innatist view hypothesises that there is a universal language faculty in human being brains and childrens' utterances are regarded as an imperfect version of adults' utterances; whereas, the functional approach claims that children's' language is not deviant but it is right in its own way. Halliday (1975) states that language at early childhood could 'owe nothing at all to the adult language that the child hears around him' (p.9).

According to Halliday's hypothesis (1975), protolanguage has initial six functions instead of 'Metafunctions' recognised in adult language. He recognises the primitive functions as 'instrumental, regulatory, interactional, personal, heuristic, and imaginative' (Halliday, 1975, p.19) and states that an essential feature of the initial functions 'should show some clear motivation why the child should move into the adult language as the means of extending the functional potential from inside language' (p.18).

In other words, it could be interpreted that the primitive functions could have some limitation which can drive infants into their further development of language and its functions. In linguistic structures and lexical features of language, as pointed out earlier, 'protolanguage' lacks grammar and the adult words governed by the adult language system. However, Halliday (1975) claims that 'the internal organization of the grammatical system is also functional in character' when the functional approach, which considers 'the fact that language has evolved in the service of certain particular human needs' is taken (p.16). Therefore, it can be said that the lack of grammar in child language system is caused by the feature of social contexts of early childhood: functional needs precede grammatical needs.

Halliday (1975) mentions 'critical socializing contexts' theorised by Bernstein (cited in Halliday, 1975, p.18), which are the central factors of children's social and cultural transmission, categorised in four types as 'regulative, instructional, imaginative or innovative and interpersonal'(Halliday, 1975, p.18). Halliday (1975) implies that such social contexts are critical in language development of children because of the fact that Bernstein also recognises language as a central factor of social interaction for children (cited in Halliday, 1975).

Transitional period, how child tongue develops into mother tongue

Halliday (1975) hypothesises that there is a transitional period before protolanguage develops into adult language. Painter (1991), who points out that introduction of names is a significant step to the next developmental stage (p.19), states that the use the word 'puss' by her son, Hal, is proof of his first move beyond protolanguage in her case study of Hal's development (p.21). Halliday (1983) discusses the results of case studies that followed his hypothesis including his own case study of his son, Nigel (p.15). He points out that 'with both Hal and Alison, Jane Oldenburg's daughter, as with Nigel, the mother tongue transition has begun by 1;6 (18 months), so that by this time words in the true sense have begun to appear (Halliday (1983: 15)). The main difference from the initial protolanguage stage, 'Phase 1' in Halliday's term (1975), is that the transitional period, phase 2, develops two functions each of which are expressed in different tones (Halliday, 1975, p.29, Painter, 1991, p.31).

Halliday (1991) also uses the metaphor that 'protolanguage is the form of language that we humans share with that we think of as the "higher" mammals: mainly primates and cetaceans…also…cats and dog' in describing the feature of protolanguage (p.254, edited in Webster, 2004). On the other hand, he states that the protolanguage develops into 'the distinctively human semiotic that is not, as far as we know, shared by other species' (p.4). In other words, the transition period is a phase where infants learn how to communicate in a human-like way using words and grammar, not only by using signs. Painter (1991) states that, 'the language system (of the transitional period) is in some ways like the protolanguage, and in other respects like an adult metafunctional system' (p.29). It could be said that at the transitional period, children use language developed to a degree somewhere between human-beings and other cetaceans or dogs or cats.

At the transitional period, 'a small core of vocabulary' (Painter, 1991, p.31) is used in the two types of tones and functions. Those new functions as well as the introduction of names enable infants to refer to things, people, and phenomenon beyond instant contexts.

These two newly developed functions are referred to as 'pragmatic' and 'mathetic' (Halliday, 1975, p.28). According to Halliday (1975), pragmatic function derives from instrumental and regulatory functions while mathetic function comes from personal and heuristic functions. Pragmatic function is the use of language for making dialogue with other people whereas mathetic function is for learning about the environment. As Painter (1991) points out (p.29), the reduction in the number of functions might be interpreted as a reverse movement for language development, although this is refuted by Halliday (1975). Painter (1991) expresses the phenomenon of the transition as, 'two more broadly conceived functions, which therefore may be termed macrofunctions, have been coded into the language system' (p.29) without losing the original primitive functions.

Developing into the adult language, phase 3

The last and the third phase of developmental stages of child language is termed 'phase 3' by Halliday (1975). The most significant change of this phase is the disappearance of the pragmatic and mathetic functions which emerged in phase 2. Infants do not make utterances fulfilling only one of those functions, instead, they can put the both functions in one utterance simultaneously. According to Halliday (1975), at phase 1, the functions of the language directly lead to their usage of language (p.35). At phase 2, as mentioned in the previous part, the primitive functions are coded into the two functions by the children's development of grammatical competence. This means that infants become able to put more meanings into one utterance through their acquisition of words and structures, so that they do not need the divisions of functions in their usage of language. However, 'macrofunction' at phase 2 is still limited in its meaning potential; therefore, infants still need to develop their linguistic system until they master 'a system that is multifunctional and multistratal' (Halliday, 1975, p.36) with 'a massive potential' (Halliday, 1975, p.36).

At phase 3, children have developed the 'metafunctional' language system through their acquisition of the adult grammatical system, such as 'mood, polarity' and they are now ready to explore the unlimited potential meanings of the language. At this stage, 'language can now serve him (a child at the phase 3) as an effective means of cultural transmition' (Halliday, 1975, p.36). Halliday (1975) claims that children can learn the culture of social human beings through their acquisition of how to mean and can share the meanings with others through the multifunctional language system.

What Halliday's approach implies in child language development

As briefly mentioned in the previous part, motherese studies and other socio-linguistic theories regard individual differences of contexts and interaction with others within each context as an important factor in the process of learning language whereas the nativist views on child language takes a universal point of view in understanding child language development.

It could hardly be denied that the quality of the learning environment of each child has considerable influence on her/his development judging from some study data on child psychology. For example, Okamoto, and Murai (1999) report the results of case studies on children whose language acquisition rate was considerably delayed due to their lack of interaction with care-takers (p.101-104).

According to the theories and hypotheses claimed by Halliday, protolanguage, the language system of infants, differs from the adult language system by its lack of grammar: words and structures of the type found in adult language. Protolanguage is closer to signs and signals used by species other than human beings in order to communicate. It has certain limitations such as that 'it cannot serve to maintain dialogue' (Halliday, 1983, p. 16), or 'only those in very close contact with the child would have a chance of understanding his or her vocalisations' (Painter, 1991, p.18). Those limitations perhaps are motivation and reasons for infants to develop their primitive language system further into adult language. This could imply that infants need to expand their human relationship beyond the limited relationship with their caretakers in the process of developing language. Language plays a central role in cultural and social interaction according to Bernstein (cited in Halliday, 1975) This means that young children perhaps then are required to develop their ability to maintain dialogue in social contexts given to them later in their lives.

In the case of infants who had lost their chance of having sufficient interaction with care-takers as stated above, it could be hypothesised that they had not been fully motivated to develop more complex functions of language, necessary for a more expanded human relationship. This firmly implies that focus on the quality of individual interaction between an infant and her/his care-takers is very significant in early child language development.

Compared to other studies, what is distinctive in Halliday's functional approach in child language development is possibly that it focuses on the social needs of infants as their motivation for learning language. This contrasts with the innatist view which focuses on the infant's inborn ability and the psycholinguist's view which generally tries to explain language development through the infant's ability at conceptualising reality.

Critical points of view against Halliday's functional points of view on child language

Bulter (1985, cited in Bodycott, 1987) criticises Halliday's model of primitive speech functions as not being very supportable (p.21). Dore (1977, cited in Bodycott, 1987) also challenges Halliday's model by claiming that it is 'not making a clear explanation as to why the functional system changes and why the grammar had the form it does' (p.21).

Review of case studies

As briefly mentioned earlier, Halliday's (1975) hypothesis is based on his case study on his own son, Nigel, also, the other case studies were conducted following his hypothesis of primitive speech function's model. Painter (1991) studied her son Hal's protolanguage and how he developed his language through the developmental stages, phase 1, 2, and 3, as termed by Halliday (1975). She shows some dialogue samples and explains how Hal becomes able to convey more adult-like language features, such as mood or polarity within one utterance at the stage of phase 3. She also discusses the crucial role caretakers play in facilitating infants' acquisition of language. She points out that children are guided to learn how language is used through interaction with adults and through adults' behaviour such as expanding or 'scaffolding' (Bruner, 1978, 1986, cited in Painter, 1991). She concludes that 'a great deal of language learning and learning through language will still be taking place on occasions designed not to teach at all, but simply to get on with life' (Painter, 1991, p.61). Again, what she implies is that because language plays a central role in human society, it cannot be denied that language is learnt through conversation and social interaction that occurs in the child's sphere of influence. It can be said that her study

on Hal shows proof that an infant learns, and is guided to learn language, through interaction with his caretakers, who supply the infant with models of how to use language in effective ways.

Bodycott (1987) conducted a study on his daughter Zoe's bilingual language development through her birth to 16 ½ months, until phase 2. He compares the three case studies on Zoe, Nigel and Hal and has found some similar features in the three different usages of primitive functions (p.110-112). For example, he points out that all the children use 'most profuse number of linguistic options within the interactional and personal functions' (p.110); however, they also seem to have some individual differences. He states that Zoe abandoned greeting expression between 12-13 ½ months, unlike the other two (p.112), although he concludes that 'the result of this study support this functional view of language acquisition, especially Halliday's' (1975).

All the three case studies, including Halliday's, verify the infants' usage of primitive functions in their protolinguistic stage, which could imply the significance of functional approaches to human language. It could also show how important the needs of the children are in driving them to learn language and develop their primitive skills into adult language. What influences acquisition of mother tongue most significantly is perhaps the survival needs of human beings in human society.

Other issues on child language acquisition

a. Gestures

Gestures seem to play a key role in child language development. They could be a sign of progress in language and cognitive development of children. Bodycott points out the significance of the pointing gesture, which was found in both Hal and Zoe between 10 ½ and 12 months (p.119). Many psychologists take it (pointing gesture) as axiomatic that the pointing gesture is an interesting one 'functioning to achieve joint attention to an object' (Painter, 1984, cited in Bodycott, 1987, p.62). It can be hypothesised that the pointing gesture is developed according to an infants' cognitive development which also drives the functional needs of language in paying attention to objects and perhaps people.

Other important gestures seen in infants are stretching arms and making eye contact. Bodycott (1987) points out that the regulating sign of Zoe's protolanguage disappeared at the same time she started using arm-stretching gestures in addition to developing more structured language competence (p.119).

Ozsaliskan and Goldin-Meadow (2005) claim that a child's age at the first usage of gesture-speech combination can predict her/his age at which they start using two-word utterances (p.B101). They point out that children initially cannot combine gesture and speech effectively, so it is a significant step when they start making meaningful words and gestures in combination (p. B102).

b. Bilingual context

It could be hypothesised that young children do not experience confusion or difficulty from dual language acquisition process. Bodycott (1987) states that 'it is not being suggested that Zoe at any stage was aware that she was developing two separate language' (p. 117) even though she was an initial 'receptive' bilingual and later also became 'productive bilingual'. Throughout the case study Zoe does not seem to show any confusion by being in the bilingual context. Pham (1994) also

points out, that young children, who acquire two languages simultaneously, 'do not experience difficulty discerning the separateness of such contexts' (p. 3).

Data analysis

Method of data collection

Asuya's speech samples were taken around 16 to 16 ½ months of age.

In order to collect Asuya's speech samples, I used three types of method: field notes; audio-recording; and video-recording.

a. Field notes

I tried to take notes whenever he seemed to make meaningful vocalisation, which occurred mainly in the kitchen, the bedroom, or the living room of our residence. These notes were indispensable in recording the contexts in which each speech act occurred and significant in analysing the intended speech function.

Halliday (1975) also used the note-taking method to collect the child's speech data. He describes his data collection as, 'I made notes of the child's utterances, using only the traditional equipment of the field worker...a notebook and pencil' (p.11).

Bodycott (1987) also used this method and states that 'field notes provided the most effective means of data collection' (p.121) because 'they were reliable, non intrusive, and functional, in that linguistic expressions / interpretations could be noted at any time' (p.121).

Field notes are a useful method of making detailed descriptions of speech with the added advantage of not having to worry about batteries and faulty tapes. Notes are also easily accessible compared to other methods such as audio and video–taping, although they have a disadvantage in the fact that intonation and other areas of speech cannot be checked as is the case with audio and video recordings.

b. Audio-recording

I also used audio-recording simultaneously with field notes. This was useful in analysing the sound and the intonation of the speech since it can be hard to take correct notes on the phonetics, especially when the subject makes many consecutive interesting utterances. The fact that the recording can be repeated is very helpful in order to take correct samples, although field notes, which explain the situation of the recording, are always essential. Without such notes, the contexts of each utterance can easily be forgotten.

Bodycott (1987) has also used this method and states that social contexts of features need to be added to field notes even though this method has benefits in terms of its ability to store and access linguistic data (p.122).

As Bodycott (1987) points out, there are some disadvantages with audio-taping such as the need for battery supplies and the interruption to the natural interaction with the child in situations when tapes run out or tapes malfunction. This situation is cited in Bodycott (1987) who tells of an experience with his daughter Zoe who would want to play with the audiotape whenever she noticed it (p.122). Thanks to developments in technology, I have been able to use a digital audio-recorder of only about three-centimetre in size, which allows me to record Asuya's speech most of the time without him being aware of the existence of the equipment.

c. Videotaping

The third method I have used is videotaping. This solves the problems of audio tape recording, which only reproduces voice but does not provide a description of the context. Recalling the context is helpful when the tape is replayed to analyse the samples, which also reduces the workload of the detailed field notes. However, videotaping has certain limitations. For instance, since I was not able to avoid the problem of intrusion of the video camera, as the camera was not as small as the audio recorder, Asuya always tried to play with it as soon as recording commenced. The solution to this problem was to set the camera somewhere in a covert position although this limited the area where the recording could be conducted. Bodycott (1987) also points to the same problem with using a camera in the case of Zoe where he states that 'Zoe believed the camera to be a special toy' (p.123).

Although the information I received from the videotape gave me important detailed contexts, which show significant implications such as his gestures or my attitude towards him, it could be said that videotaping could have contributed more to the data collection if there was no limitation of recording spots and occasions.

The issue of credibility and subjectivity

Since this study is based on the naturalistic observation by the child's parent, it should be noted that there can be issues with credibility and subjectivity. Baghban (1984, cited in Bodycott, 1987) points out the inherent subjectivity of parents in their children's language studies (p.29) although detailed studies of child language cannot be successfully implemented by persons other than parents (p.29).

In order to avoid being subjective and improve the credibility of the result, Bodycott suggests (1987) data collection by three different kinds of methods: field notes; audio taping; and videotaping (p.37). In addition to this, he also conducts 'member check' meetings to hear other people's opinions about the interpretation of the collected speech (p.35).

In this study, as well as utilising the three data collection methods, I have used information related to Asuya's linguistic and cognitive development taken from entries in the portfolio written by the childcare worker at the childcare centre attended by Asuya. The information is not directly relevant to the analysis of speech function, however it could provide proof of his progress in social and cultural understanding which could correlate with the acquisition of human language.

Pham (1994) points out the need of triangulation of the data in order to check the validity of study (p.8). He states that triangulation requires validating a piece of data against another source such as second observation (p.8). It is possible that observation data by the childcare workers could provide triangulation and thereby help to validate the credibility of this study.

It should be noted that the small volume of data in this study could be a constraint in order to compare the date with other longitudinal studies. Halliday (1975) states 'at least three unambiguous instances' of speech data is a criterion in judging a speech sample as language (p.35, edited in Webster, 2004). I have analysed the data following the criterion as much as possible, although some of Asuya's utterances which did not satisfy the criterion in terms of its consistency, were still judged as protolanguage usage because they clearly showed functional features.

The model of primitive speech functions

I would like to follow the 'initial hypothesis for some kind of functional or socio-linguistic approach to early language development' claimed by Halliday (1975, p.18). That is, the set of six functions which 'would serve for the interpretation of the language of a very young child' (Halliday, 1975, p.18).

Hallliday's original set of the functions is as follows:

1. Instrumental
2. Regulatory
3. Interactional
4. Personal
5. Heuristic
6. Imaginative

Painter (1991) follows the Halliday's (1975) model although she uses a slightly different categorisation about the function 1 and 2 in order to analyse her case study. According to her categorisation, there is no 'Regulatory' function, and 'Instrumental' function is divided into the two meaning options, 'require aid' and 'demand' (p.17). According to Halliday, 'Instrumental' function is the 'function that language serves in satisfying the child's material needs' and 'Regulatory' function is related to 'instrumental function' although it is different in that it functions in 'controlling the behaviour of others' (P.19).

It should be noted however that Painter's (1991) 'Instrumental' function includes the original two functions into its meaning options. In this study, the data is limited and was taken during a short length of time so I have followed Painter's (1991) categorisation in order to avoid misinterpreting the difference of the functional meaning.

From the perspective above, I have followed the Halliday (1975) and Painter (1991) models as shown below

Functions	Meaning options	
1. Instrumental	Demand	
	Require aid	
2. Interactional	Object-mediated	(Giving)
		(Display)
	Exchange	
	Greet	
	Share amusement	
3. Personal	Interest	
	Feeling	
	Activity	
4. Heuristic		
5. Imaginative		

Asuya's protolanguage at 16 to 16½ months

A total of 50 samples of recognisable speech functions were taken.

1. Instrumental

a. Characteristics of the function

'Instrumental' function is a function of 'satisfying the child's material needs' (Halliday, 1975, p.19). That is, the child uses this function when he has something he wants to get for reasons such as hunger, thirst or boredom. As briefly mentioned in the previous section, Halliday (1975) developed another category of function closely related to 'instrumental' function, which he termed 'regulatory' function. The different usage of 'instrumental' function and 'regulatory' function is that the latter is used for controlling a particular individual's behaviour rather than for obtaining material needs, whereas the former is used when the child requires someone to do something (Halliday, 1975, p.19).

In this study, I have followed Painter's (1991) categorisation by including the 'regulatory' function within the meaning potentials of the 'instrumental' function due to the reason previously mentioned.

b. Number of utterances

There are 18 utterances categorised with this function. Most utterances in this function are interpreted as the 'demand' option rather than the 'require aid' option, other than 6 utterances which are interpreted as requiring aid.

c. Expressions and contexts

c-1.　Main sound and tone for 'demand' [a::a::] →

　　　Main sound and tone for 'require aid' [əkʊnkə] →

c-2. Contexts

'demand'
(Mother took his empty water bottle from him)
Asuya (A): [əkʊn] (wanting to get the bottle back)
'require aid'
A : [bʊi:bʊi:] (Bringing a picture book to M)

2. Interactional

a. Characteristics of this function

This is a function by which the child interacts with other people such as care takers. Halliday (1975) points out 'the first names of particular individuals that the child learns are typically used with a purely interactional function' (p.19).

b. Number of utterances

There are 14 utterances categorised with this function, the majority (8) being within the meaning option of 'objected mediated' with seven of these being particularly related to the meaning of 'giving.' Of the remaining utterances, three are 'exchange', two are 'greet' and one is used as 'share amusement'.

c. Expression and contexts

c-1.　Main sound and tone for 'object mediated' [əkʊnkʊn/əkʊnnə] ↗

　　　Main sound and tone for 'exchange' [əkʊnnə/əkʊnche] ↗

　　　Main sound and tone for 'share amusement' [ətə::] →

　　　Main sound and tone for 'greet' [nə] ↗

c-2. Contexts

'Object mediated—display, giving'
A : [dededede] (giving a playing card to M)
'exchange'
A : [əkunne] (exchanging picture books with M)
'share amusement'
A : [ete::] (Asuya is mimicking his mother clapping hands)
'greet'
A : [ne] (Asuya came into the living room and found the housemate there)

3. *Personal*
   a. Characteristics of the function
      This is a function for expressing 'the child's own uniqueness', such as their feelings and interests.
   b. Number of utterances
      There are 14 utterances categorised with this function. In 'interest' and 'feeling', there are 8 and 4 utterances in each category respectively. The remaining 2 utterances are analysed as 'activity' option.
   c. Expression and contexts
      c-1.   Main sound and tone for 'feeling' [a::a::] ⟶
              Main sound and tone for 'interest' [ete::] ⟶
              Main sound and tone for 'activity' [ete::] ⟶
      c-2. Contexts
         'feeling'
         A : [a::a::] (Asuya finished having milk and looked very content)
         'interest'
         (Asuya is looking at a picture book with his mother)
         A : [etede]
         'activity'
         (Asuya and his mother are in a park. He is trying to climb up one of the slides.)
         A : [menmenme]

4. *Heuristic*
   a. Characteristics of the function
      According to Halliday (1975), this is a function for exploring the environment. This function 'later develops into the whole range of questioning forms the young child uses' so it is referred to as the 'tell me why' function (Halliday, 1975, p.20).
   b. Number of utterances
      There are 2 utterances possibly categorised with this function.
   c. Expression and contexts
      c-1. Main sound and tone [əpee] ⟶ [əkesen] ⟶
      (imitation of the words, 'leopard' and 'okasan', mother in Japanese)
      c-2. Contexts
         (Asuya and his mother are looking at a page in a picture book that has an image of leopard on it.)
         Mother : (reading the line) …Leo Leopard says…

A : [əpɵɵ] (pointing at the leopard)
(Asuya and his mother are watching a video-recording of themselves)
A : [əkɵsɵn] (finding his mother on the video camera screen)

5. *Imaginative*
   a. Characteristics of the function
      This is a function which serves in creating the child's own world. This function later develops into story making or pretending, imaginative writing, or poetry (Halliday, 1975, p.20).
   b. Number of utterances
      There are 2 utterances categorised with this function.
   c. Expression and contexts
      c-1. Main sound and tone [əchdʒibdʒi] ⟶
      c-2. Contexts
           (Asuya is eating breakfast)
           A : [əchdʒibdʒi]
           (found a handkerchief on the table and picked it up)

Similarity and coherence with other case studies
     As this speech sample data was taken during a short period, it should be noted that the volume of data may be inadequate in determining the consistency of the speech pattern compared with results from other studies; however, the following similarities in the results appear to have significant implications for the validity of the hypothesis of infant speech functions.
   1. Numbers of the meaning options
      Bodycott (1987) points to the large number of meaning options within interacional and personal functions as a similarity observed in the three case studies; namely, Painter's (1984, cited in Bodycott, 1987), Halliday's (1975), and his own study (p.110).
      In this study, there seems to be the same phenomenon as found in Asuya's speech patterns. While little variety is observed in the contexts of the instrumental function, the personal and the interactional function are used in various contexts. Through the instrumental function, the child tries to satisfy his material needs or makes requests for aid. In Asuya's case, for the demand option, which is related to his material needs, he mainly wants food or drink.
      For the personal functions, Asuya seems to have more usages with a wider meaning of choices. He sometimes expresses pleasure when eating delicious food or makes comments while doing fun activities. In addition, by vocalisation, he shows interest in things or phenomenon observed in his environment.
      Asuya also seems to express a variety of meanings in the interactional function. This function is used to interact with his care taker or other people around him. As Painter (1991) suggests with the option of 'object mediated' (p. 17), Asuya sometimes tries to interact with me through objects such as toys, which are in his vicinity. It should be noted that the meaning option clearly differs from the demand option in the instrumental function although both options are related with materials. While Asuya's purpose of giving or displaying objects in the interactional function is not for material needs, the demand option in the instrumental function always derives from his clear

target for material needs such as food. In other words, what he displays or gives me may not have much meaning since his true purpose is to draw my attention or to make me relieve his boredom rather than wanting to play with any particular toy. As shown in the previous part, his way of interaction with me or my housemate is not limited to wanting objects as he has also interacted by mimicking my clapping when sharing pleasure with me, and by waving and greeting housemates.

From the perspective above, it can be said that Asuya also has a wider meaning of possibilities in the interactional and personal functions as shown by other case studies. This similarity of the usage of functions could be evidence which perhaps validates the existence of the hypothesised functions in Asuya's speech. (Appendix 1)

In addition, speculating from the fact that all four children seemed to expand the range of meanings expressed by these two functions, 'personal' and 'interactional', it could be hypothesised that these functions perhaps play an important role to urge the children to go on to the next phase of development.

2.   Frequency of usage in each function

Halliday (1975) shows the number of expressions observed in Nigel's speech in each of his developmental phase, from 9 months to 18 months. At the phase of NL5, by Halliday's (1975) term, during 15-16 ½ months, there are a total of 52 expressions. As for the numbers in each function: 17 are in both the instrumental and regulatory functions; 15 are in the interactional function; 16 are in the personal function; heuristic is unclear; and 4 are in the imaginary function.

I took data of 50 of Asuya's speech samples during 16-16 ½ months. It should be noted that the number of speech expressions in this study is not synonymous with the ones in Halliday's (1975) study due to the time constraints of this study which made it difficult to find consistency of expressions used in a particular function. Although Asuya uses the sound [əkun] frequently, the word is used extensively in several functions as instrumental, interactional and perhaps imaginative. It is still observable that the word [əkun] is mostly found in the interactional function (7 out of 11 times). (Appendix 3) The word [əkun] is the name Asuya as called by his parents. It can be hypothesised that he has learnt the word through the interactional context with his parents so that the word is used mainly in the function, although possibly, the data is not adequate enough to provide definite evidence of this.

As Asuya's 18 utterances of instrumental function, 14 of interactional, 14 of personal, 2 of heuristic, and 2 of imaginative bear a considerable similarity with those of Halliday's son Nigel, the comparison with Halliday's (1975) data should be carefully carried out as this similarity in the distribution of the numbers of Asuya's speech with Nigel's distribution of expressions in each category cannot be ignored. (Appendix 2)

It can be speculated that having more varieties of expression in a certain function means the child frequently experiences a certain social context requiring the usage of a particular function. It can be said that the individual social contexts of each child, Nigel and Asuya, should be considerably different in many aspects, due to reasons of different cultural and subcultural back grounds. However, if it is hypothesised that language is derived from the fundamental social nature of human beings, perhaps there are common purposes or reasons which stimulate the two different children to have a similar pattern of usage of the primitive functions beyond their individual differences.

This common motivation in the way of utilising infant language could imply the existence of core purpose in how human beings develop their language competence. Furthermore, if the core purpose can be speculated through the analysis of infant primitive functional usage of language, it can be said that Halliday's (1975) claim of child language development through social interaction, as well as the existence of the primitive functions, is firmly supported by the findings of this study.

The difference from other studies and the further need for research

1. <u>Tones and the transitional period</u>

It could appear that there is not an adequate amount of data to find a consistency of tones, although there seems to be a tendency of usage of high tones in the interactional function (Appendix 3). Data was taken when Asuya was 16-16 ½ months which is around the beginning of the transitional period.

As discussed previously, the two different tones, rising and falling, are used according to the emergence of the mathetic and pragmatic 'macrofuncions' (Halliday, 1975).

In Asuya's speech data, such consistent tone difference was not observed, leading to speculation that he has not developed enough to reach that phase, or, that he could be developing his functions in somewhat different way. This can be of significance if the study continues to follow his further development of functional usages in order to verify the hypothesis of the emergence of macrofunctions.

2. <u>The bilingual context</u>

One of the most considerable differences in the socio-cultural contexts between other studies and this study is perhaps Asuya's bilingual language learning context. As mentioned in the introduction, he spent most of his day time in the English speaking child care centre and after school with his Japanese speaking mother. It must also be taken into consideration that his socio-cultural context changed dramatically from monolingual to bilingual at the time of data collection, which took place from the end of February to the middle of March, 2006: two to four weeks after arriving back in Australia.

During the period his speech samples were taken, the only recognisable adult words Asuya was able to say were Japanese words such as, [kole] –Kore (*this*), [choude] –Chodai (*Give me*). However, according to the portfolio written by the child care workers, he was able to say 'no', 'more' and 'yum' clearly, by the middle of March.

Pham (1994) states that 'young children who learn two languages simultaneously acquire it by distinguishing two distinct contexts for the two languages such as home/neighbourhood, home/school' (p.3). It can be hypothesised that Asuya was possibly distinguishing the different language contexts: English and Japanese.

Pham (1994) also points out that there is a possibility of a slightly slower acquisition rate of mother tongue in dual language acquisition contexts (p.3). So, it is possible that Asuya's context of language development has perhaps influenced his acquisition rate, which, combined with the small amount of data, adds to the difficulty of comparing this study with others.

It could be said that longitudinal studies are ideal in producing good bilingual language acquisition studies. Bodycott (1987) conducted a case study of his daughter's language acquisition in a bilingual context: English and Spanish from her birth to 16 ½ months. He describes her bilingual language acquisition as 'incipient, that is, (not

complete, but) developing into a 'complete bilingual' by the time of the end of study, 16 ½ month old' (p.117). It should be also noted that the context of Zoe, Boddycott's daughter, is quite different from Asuya's contexts in many aspects. Primarily, Zoe's bilingual context started from her birth whereas Asuya's bilingual context started much later. Nevertheless, it can still be an important finding that Asuya seems to be able to distinguish the two different language contexts. Further study on his continuous bilingual language acquisition could be beneficial for drawing a clearer perspective of how a young infant develops competence of two languages simultaneously.

Discussion

The primitive functions identified in Asuya's speech

As pointed out in the previous section, all the 50 samples of Asuya's speech can be identifiable within the primitive functions hypothesised by Halliday (1975). Halliday (1976) claims 'systematicity' and 'functionality' as a requirement of defining signs made by infants as the domain of language (p.67, edited in Webster, 2004), the former requiring constant examples of a content-expression relationship. As previously mentioned, due to the time constraints of the research, the result perhaps fails to show as much 'systematicity' as other studies have, although a majority of the 50 expressions are firmly categorised within the functions, especially in the instrumental, personal, and interactional functions. Therefore it can be said that Asuya's vocal expressions certainly satisfy another requirement for becoming a language. Also the similarities with other studies in the child's functional usage, such as the varieties of meaning options or the frequency of each function, can validate the credibility of the categorisation of the functions used by Asuya in this study. Thus the results imply the existence of the primitive functions in the child, perhaps as well as an existence of language system at his protolinguistic stage, although its systematic features could have been more firmly observed under a longitudinal study. (Appendix 3)

What the existence of the primitive functions implies

Halliday (1975) claims the primitive functions are 'the primary source for building up the context of culture' (p.59). He explains that children learn the culture through their initial functional abilities, and by learning the culture they also learn the adult language of the culture and how to mean by the language. As mentioned previously, because language plays a key role in learning the social contexts, language and human social and cultural behaviour interplay each other. Due to this interplay, it appears that culture cannot exist without language, and conversely, language cannot exist without culture.

Asuya, during his 16-16 ½ months age period, seemed to utilise his primitive functions for fulfilling his fundamental social needs. As pointed out, although the study lacks the longitudinal perspectives of his development, it is still possible to speculate that he is following the initial developmental stage in order to learn about his environment and social contexts before stepping up to the next developmental stage.

Significance of using Halliday's (1975) model in this case study

Halliday's (1975) model of primitive functions in infant language is a theory drawn from an individual development through the intensive observation of the child. The way of

approach could be appropriate in order to verify the undeniable influence of communication behaviour for encouraging child language development.

As stated earlier, there are other interaction-oriented studies on child language, such as motherese studies and speech act theories, however the Halliday's (1975) approach is perhaps unique on the aspect that he regards child language as a language system in its own right, which differs from the adult language as he states that 'in principle, at this stage the expression owes nothing to the adult language at all' (p.13).

It could be said that a functional approach could avoid judging child language based on the adult standard language, since it does not require a syntactic correctness. Protolinguistic stage in language development is perhaps an area which seems to have many aspects yet uncovered. Gillis, Beinum and Stele (1988) also uses the metaphor 'only a few pieces of the immense jigsaw puzzle have found their places as yet'(p.50) to describe the area of prelinguistic studies. In order to draw an important insight into such a mysterious study theme, it perhaps is a right choice to adopt the Halliday's (1975) approach; an approach which tries to find out characteristics of human language origin without a risk of prejudging infant utterances from the surface structure.

This case study is also an observation of a child so that it could bear some phenomena appeared only in this specific case which cannot be interpreted as a general feature of language development, nevertheless an analysis of individual interaction could be significant since the considerable influence of interaction on language development. Although the result would probably be interpreted more precisely through a continuous longitudinal research, it could still be said that the analysis of Asuya's infant language by a functional approach leads to a significant implication with how and why human beings get to utilise their language competence.

Observation of Asuya's further development

What is most observable in his later development is the increase of vocabulary. At approximately 18 months, at the early stage of transitional period, he started saying 'no' in the presence of his Japanese-speaking mother. Until that time, although he seemed to have built up English vocabulary according to the childcare portfolio, he was seldom heard to express English words.

Painter (1991) claims that introduction of words is a key step to the next developmental stage (p.21). This claim has validation in the case of Asuya, as it appears that his vocabulary gain is proof of that his protolanguage is developing into a more adult-like language system. After he was heard to say 'no' frequently, he soon began revealing other English vocabulary such as 'more,' 'hello,' and 'yeah!'.

Bilingual language acquisition

1. Period of residence in Australia

    While building his English vocabulary, an interesting phenomenon surfaced is that he lost or stopped using some of his Japanese vocabulary. At the time of data collection, he certainly used some Japanese words such as 'Kore'(this), 'Chodai'(give me), etc; however, he stopped using most of them by the following month. Ito (2005) points out that language components acquired later seem to be forgotten earlier when the regression of mother tongue ability occurs by being in a second language context for a certain length of time (p.66). In Asuya's case, he stopped using most of his Japanese vocabularies but an expression [əteə] –'atta' (*I found it*) persisted. 'Atta' is one of his first words which had been learnt at the

earliest stage and that fact could be a reason for his continuous usage of the vocabulary under an English dominant context.

It could be speculated that the main reason for the reduction in the use of Japanese vocabulary was perhaps due to the fact that as we were living with non-Japanese housemates, and English was spoken most of the time when we were at home. However, on occasions when I converse with him in Japanese, he exhibits strong 'receptive' Japanese language skills evidenced by his appropriate responses and actions.

Bodycott (1987) reports that her daughter, Zoe, had developed bilingual receptive skills at 8-10 ½ months as a result of having been in a bilingual context since birth. In Asuya's case, development of both of his receptive and productive Japanese skills appears to have occurred by having been in a Japanese monolingual context during the age of 2-15 months, before his return to Australia. An interesting theme for further research could be based on examination of what factor in his bilingual context possibly caused the reduction in his use of Japanese vocabulary. Also, because the change in his receptive skills did not overtly emerge, there is also a necessity to observe more precisely and carefully how these changes manifest.

2. After returning to Japan

We returned to Japan when Asuya was about 21 ½ months. By the following month, he reversely started abandoning his English vocabulary. It should be noted that the reduction of English vocabulary had a certain difference from the reduction of Japanese had occurred earlier. The lost Japanese vocabularies were not switched by English counterparts whereas his English vocabulary was soon taken over by Japanese. For example, his Japanese vocabulary 'manma' was not exchanged by 'food', on the contrary one of his first English vocabulary, 'no' was quickly switched by [menme] –'Menme'.

It could be speculated that his cognitive development had a certain influence on the phenomenon above. Ito (2005) states that infants gradually develop their 'recognitory understanding' (Bates, et al., 1995, cited in Ito, 2005, p.7) which enables them to recognise the situation-expression relationship. Perhaps the phase of Asuya's recognition development did not allow him to use any English substitute word when losing Japanese vocabulary. Also, the fact could not be ignored that Asuya spent a year in a Japanese monolingual context prior to our return to Australia.

He also used both language vocabularies in equivalent contexts for a while after we returned to Japan. Ex) He sometimes utters 'no' but at other time 'Menme' in similar contexts.

The following example was observed when he was 23 months old.
(Asuya and his mother were in an elevator. A man came in and he let Asuya push an elevator button for him because Asuya seemed to want to do so)
Mother: (To the man) Arigato Gozaimasu (*Thank you*)
Asuya: Ta

Asuya's utterance above could show evidence of his recognition development, in other words, his expansion of functional usage achieved by his cultural understanding of 'Arigato'(*Thank you*) context. Cummins (1979, cited in Yamamoto, 1996) claims that there are the two aspects of language ability which

are 'BICS; Basic Interpersonal Communicative Skills' and 'CALP; Cognitive/Academic Language Proficiency' and 'BICS' development precedes 'CALP' (p.88). Yamamoto (1996) points out that the acquisition rate of those skills could also differ between two languages adding to the difference of overall language abilities. (p.88). Asuya's case above could be interpreted as a show of his early acquisition stage of 'BICS' in English.

Again, the perspective above seems to imply the inseparable relationship between language development and social skills therefore the significance of focus on influence of individual interactions in language development research. Also, cultural influence seems a notable factor of influence on his language development. Ito (2005) claims that cultural values inherited through parental behaviour are reflected on child language acquisition (p.47). It could be a notable phenomenon that Asuya often greeted people saying 'Hello' while he was in Australia but he ceased doing so back in Japan even though he had acquired the word 'Konnichiwa' (Hello).

Bilingual language development seems to have many implications such as socio-cultural influence as Yamamoto (1996) points out (p.4) and it could hardly be explained merely by surface language structure. Perhaps a functional point of view could draw more of significant insight into such complex features of bilingualism, although it should also be noted that for credible results in child bilingual language development, longitudinal studies would be preferable to shorter time spans.

From the observation of Asuya's usage of Japanese and English vocabulary and his distinctive way of switching the language, further intensive study may result in significant findings on the influence of the learning environment and interaction with people has on both first and second language acquisition. It is also possible that further research on Asuya's bilingual language development could be beneficial in providing effective data for the improved implementation of effective second language education methodology.

Conclusion

This case study on Asuya's first and second language development, following Halliday's (1975) primitive function model, implies the possibility that Asuya is utilising his infant language with a clear motivation in fulfilling his fundamental needs as a human being, and by doing so is continuously expanding his cultural understanding through language as a media.

The findings of this study also imply the significant role socio-cultural factors have in influencing language acquisition: factors such as parental behaviour, which can perhaps significantly influence early childhood language development.

From the moment a baby is born, she/he starts her/his endeavour to explore a vast human society. During the first couple of years, she/he gets ready for their journey into human culture by equipping herself/himself with language competence, which enables her/him to do so by the limitless 'metafunctional' (Halliday, 1975) system. The primitive functions and the child's experience of learning social contexts through the functions can be fundamentally significant for her/his subsequent life, as can be the role of parents in providing her/him with initial social contexts.

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Appendix 1:
The numbers of utterances in meaning options in each function and main sounds

Functions	Meaning options	The number of utterances	Main sound	Gloss
Instrumental	Demand	12	a:::a:::	Let me touch the camera!
	Require aid	6	etete	Read this book for me/sing this song.
Interactional	Object-mediated (Giving)	7	ekunne	I will give it to you
	Object-mediated (Display)	1	ekunne	Look at what I got!
	Exchange	3	ekunne	I will give it to you, so you give it back to me
	Greet	2	ne	Hello, you there!
	Share amusement	1	etete	It's fun, isn't it!
Personal	Interest	8	ete::	I found an interesting thing!
	Feeling	4	ne:ne:	Tastes nice!
	Activity	2	ete::	I am eating!
Heuristic		2	epee	Leopard!
Imaginative		2	ekunne	(Sound play)

Appendix 2 : A comparison of the numbers of expressions in Nigel's language and the numbers of functional usages in Asuya's language

	Nigel(15-16 1/2 months)	Asuya (16-16 1/2 months)
Instrumental	10	12　(Demand in instrumental function)
Regulatory	7	6　(Require aid in instrumental function)
Interactional	15	14
Personal	16	14
Heuristic	?	2(?)
Imaginative	4	2(?)
Informative	–	–
Total	52	50

Appendix 3 : Constancy of sound and expression

Functions	Sound	constancy of sound and expression (within the same function)	Intonation
Instrumental/demand	a::a::	2(3)	→
	ete::	2(3)	→
	choude	1(2)	→
	kole	1	→
	eieiei	1	→
	bubu:::	1	→
	ekun/ekunnb /ekunke	2(3)	→
	bui	1(2)	→
	dedede	1	→
Instrumental/require aid	etete	1(2)	→
	tete	1	→
	choude	1(2)	↗
	ekunke	1(3)	↗
	a::a::	1(3)	→
	bui:bui:	1(2)	↗
Interactional/object-mediated(giving)	ekunkun /ekunne	4(7)	↗
	dachue	1	↗
	dedede	1	→
	bebebe	1	→
Interactional/object-mediated(display)	e	1	→
Interactional/exchange	ekunne /ekunche	3(7)	↗
Interactional/greet	ne	1	↗
	ete::	1	→
Interactional/share amusement	ete::	1(2)	→
Personal/interest	nde	1	↗
	kole	1	↗
	dedede	1	→
	ehi:hi:	1	→
	ete::	2(3)	→
	eu::	1	→
	etede	1	→
Personal/feeling	a::a::	1	→
	ne:ne:	1	→
	nenenen	1	→
	emememem	1	→
Personal/activity	ete::	1(3)	→
	menmenme	1	→
Heuristic	epee	1	→
	ekesen	1	→
Imaginative	echdʒibdʒi	1	→
	ekunne	1	→

Appendix4

Asuya's protolanguage at the age of 16-16 1/2 months

Date	Context	sound	tone	function	meaning option	gloss
26-Feb	Trying to reach the video camera	a::a::	→	Instrumental	Demand	Let me touch the camera!
	Giving a playing card to Mother	dededede	→	Interactional	Giving	I will give this to you.
	Trying to swap a playing card with Mother	ekunne	↗	Interactional	Exchange	I will give it back to you so you give that to me.
27-Feb	Trying to reach the video camera	a::a::	↗	Instrumental	Demand	Let me touch the camera!
	Found a pet bottle on the floor	nde	↗	Personal	Interest	I found an interesting thing!
	Showing the pet bottle he got	e	→	Interactional	Object-mediated (display)	Look at what I got!
3-Mar	Swapping picture books with Mother	ekunne	→	Interactional	Exchange	I will give it back to you so you give that to me.
	Sitting on Mother's lap	ekunne	→	Imaginative	Sound play	

Date	Context	Utterance		Function	Sub-function	Gloss
	Bringing a picture book to Mother	etete	→	Instrumental	Require aid	Read this book for me!
	Pointing at a picture on the book	kole	↗	Personal	Interest	This is interesting!
4-Mar	Asuya finished his milk	a::a::	→	Personal	Feeling	Ah, tastes good!
	Showing the page of the song in a picture book	tete	→	Instrumental	Require aid	Sing this song to me!
	Looking at the video camera	dededede	→	Personal	Interest	How interesting!
5-Mar	Playing with a toy	ehi:hi:	→	Personal	Interest	It's fun!
	Found some bread on the table and ate it	ete::	→	Personal	Activity	I am eating!
	Pointint at Mother's bread	ekunche	→	Interactional	Exchange	I eat! You eat!

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	Giving a big chunk of bread to Mother	choude	↗	Instrumental	Require aid	This is too big, you make it smaller for me.
	Found yogult and wanting it	ete::	↗	Instrumental	Demand	Give it to me!
	Climbing a slide up in a park	menmenme	↑	Personal	Activity	I am climbing!
7-Mar	Pointing at the picture book and looking at Mother	ekunke	↖	Instrumental	Require aid	You read the book for me?
	Giving something to Mother	ekunkun	↗	Interactional	Giving	I will give this to you.
	Mimicking Mother clapping her hands	ete::	↑	Interactional	Share amusement	Yes, it's fun!
	Playing with shoes	ete::	↑	Personal	Interest	They are intersting!
	Playing with paper clips	ne:ne:	↑	Personal	Feeling	This is so much fun!
	Touching a notebook	eu::	↑	Personal	Interest	I am playing with this!

	Situation	Utterance				Translation
	Giving a paper clip case to Mother	dachue	Interactional	↗	Giving	You want this?
	Giving a picture book to Mother	ekune	Interactional	↗	Giving	You read the book for me?
	Pointing at a leopard picture in the book	epee	Heuristic	↑	Imitation of the name	Leopard!
	Looking at the book	etede	Personal	↑	Interest	Umm, it's interesting!
	Found Mother in the video camera screen	ekesen	Heuristic	↖	Imitation of the name	Okaasan!(In Japanese, meaning mother)
8-Mar	Wating for food	choude	Instrumental	↑	Demand	Give it to me!
	Playing with a telephone and giving it to Mother	ekunne	Interactional	↖	Giving	Here you are!
	Pointing at a water bottle	kole	Instrumental	↑	Demand	Give it to me!
	Wanting to play with Mother	a::a::	Instrumental	↑	Require aid	Come here and play with me!

Date	Action	Utterance		Function	Speech function	Gloss
10-Mar	Bringing a picture book to Mother	bui:bui:	↗	Instrumental	Require aid	Read this book for me!
	Pointing at his plate	eieiei	↑	Instrumental	Demand	I want more food.
	Walking towards the housemate	ne	↖	Interactional	Greet	Hello, you there!
	Trying to reach food	bubu:::	↑	Instrumental	Demand	I want that food!
	Waving to the housemate	ete::	↑	Interactional	Greet	Hello, you there!
	Giving his water bottle to Mother	bebebe	↑	Interactional	Giving	I will give you this.
	Trying to get the water bottle back	ekun	↑	Instrumental	Demand	Give it to me!
	Refusing the water bottle	bui	↑	Instrumental	Demand	I don't want that any more.
11-Mar	Spotted a fly	ete::	↑	Personal	Interest	I found an interesting thing!

Date	Context	Utterance		Function		Gloss
	Pointing at food	ete::	→	Instrumental	Demand	I want that food!
	Getting bored and frustrated	nenenen	→	Personal	Feeling	Come here and play with me!
15-Mar	Picking up a handkerchief on the table	echdʒibdʒi	→	Imaginative	Sound play	
	Eating and chewing food	emememem	→	Personal	Feeling	It tastes good!
	Pointing at food	dededede	→	Instrumental	Demand	I want that food!
16-Mar	Looking at the food on the table	ekunnb	↗	Instrumental	Demand	I want that food!
18-Mar	Giving some laundry to Mother	ekunne	↗	Interactional	Giving	I will give this to you.

日本語ヘルプテクストの修辞構造分析と対話型ユーザ支援システムへの応用

An Analysis of Rhetorical Structure of Japanese Instructional Texts and its Application to Dialogue-based Question Answering Systems

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要旨

本稿ではテクスト内に生起する修辞ユニットの意味的なつながりを中心に扱う修辞構造理論に基づくテクスト分析の結果をコンピュータによる自動テクスト解析・生成に応用する方法を具体的に示した。Microsoft Office Word 2000 に付属のオンラインヘルプから抽出された 25 個のヘルプテクストを分析した結果を示し、分析結果に基づいて設計されたヘルプテクストの修辞構造解析の処理モデルを提案した。さらに、ヘルプテクストの修辞構造を使うことでユーザの問い合わせに合致したヘルプテクストを選び出しそこから必要な情報だけを的確に取り出してユーザへの答えを生成する方法を提案した。本稿で提案した修辞構造の自動解析、修辞構造解析結果を利用した情報検索およびテクストプランニングの手法を対話型ユーザ支援システムに組み込むことにより、ソフトウェア会社が作成したオンラインヘルプという既存の資源を有効活用できるようになり、コンピュータをより身近なものにすることができる。

Abstract

The purpose of this paper is to demonstrate the rhetorical structure analysis of Japanese texts with special reference to word processor help texts and to apply the analysis results to text understanding and generation. The rhetorical structure analysis of 25 texts extracted from the online help accompanying Microsoft Office Word 2000 is conducted based on Rhetorical Structure Theory. Several linguistic clues to identify the rhetorical structure are drawn. The findings are embodied in the model of rhetorical structure analysis by computer. Also, several ways of utilizing the rhetorical structure of the help texts in information retrieval and text planning in the course of interaction with the user are proposed. These methods are integrated into a dialogue-based question answering system, so that it is possible to make effective use of the existing resource (i.e., online help) and bring the computer closer to the people.

1. はじめに

　本稿の目的は、いわゆる節や文の意味的なつながりを中心に扱う修辞構造理論に基づくテクスト分析の結果をコンピュータによる自動テクスト解析・生成に応用する方法を具体的に示すことにある。対象とするテクストのジャンルは読み手にソフトウェアの操作方法を教えるという手続的かつ教示的なもので、主としてワープロソフトの操作方法に関するヘルプテクストを扱う。図1はヘルプテクストの例である。
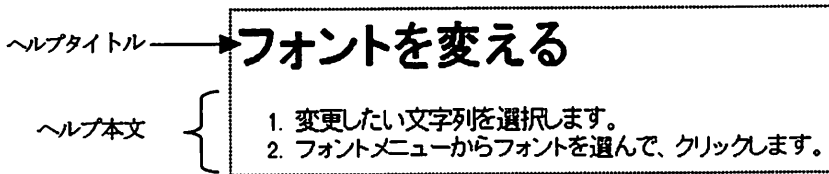
図1：ヘルプテクストの例

これは我々の研究の目的が市販のソフトウェアに付属のオンラインヘルプを利用してユーザにとってより使い勝手の良い対話型ユーザ支援システムを作ることにあるからである。

　以下第2節では修辞構造理論について解説し、日本語テクストの修辞構造自動解析に関する先行研究を概観する。第3節ではMicrosoft Office Word 2000に付属のオンラインヘルプから収集した25個のヘルプテクスト（118文）を分析した結果を示し、分析結果に基づいて設計したヘルプテクストの修辞構造解析の処理モデルを提案する。第4節ではヘルプテクストの修辞構造を使うことでユーザの問い合わせに合致したヘルプテクストを選び出しそこから必要な情報だけを的確に取り出してユーザへの答えを生成する方法について説明する。第5節では本稿のまとめと今後の研究の方向性について述べる。

　本論に入る前に、言語単位に関する用語の使い方について説明しておく。今回分析の対象とする修辞構造は意味層に位置づけられるものであり、その構成単位を本稿では修辞ユニットと呼ぶこととする。修辞ユニットは、隣接するユニットが意味的につながって1つのまとまりをなし、さらに他の修辞ユニットとまとまりをなすというような階層構造をなす。また、修辞ユニットは、語彙文法層では節複合（clause　complex）や節（clause）によって具現され、それらは書記層（graphology）で文（句点によって区切られた範囲）あるいは sub-sentence として表現される[1]。ヘルプテクストの修辞構造は、文に対応する修辞ユニットを境に大きく特徴が異なるので、便宜上、文より小さい単位に対応する修辞ユニットで構成される修辞構造（以下、文内部の修辞構造）と文または文より大きい単位に対応する修辞ユニットで構成される修辞構造（以下、文以上の修辞構造）を分けて記述する。

2. 修辞構造に関する先行研究

2.1. 修辞構造理論

　修辞構造理論（Rhetorical Structure Theory）は 1980 年代にテクスト生成システムの基礎となるべくテクスト内に生起する修辞ユニットの間に見られる意味的な関係を記述する枠組みとして提唱された（Mann and Thompson, 1988）。現在でもテクスト生成システムの基礎として広く用いられており、さらにテクスト解析システム、テクスト要約システム、機械翻訳システムなども開発されている（Taboada and Mann, 2006）。

　修辞構造理論ではテクストの構造を修辞ユニットが様々な修辞的な関係（rhetorical relation）によって結びついたものとみなし、その関係を記述する。例えばヘルプテクストの場合、操作手順を時間的順序に沿って説明している修辞ユニットが連なっていることが多く、それらの関係は SEQUENCE という関係名で記述される。またヘルプテクストのタイトルと本文全体の間の関係は、タイトルで解決したい問題を本文でその解決方法を述べているので、SOLUTIONHOOD とみなされる。

　様々な修辞関係で結び付けられた修辞ユニットは、テクストの書き手（話し手）が意図を伝えるにあたって中心的な役割を担っていると解釈される場合もあれば補足的な役割を担っていると解釈される場合もある。このような役割関係は nuclearity と呼ばれ、中心となる方は Nucleus、補足的な方は Satellite として記述される。 SOLUTIONHOOD の場合、解決方法が述べられている方が Nucleus で、問題が述べられている部分が Satellite と定義されている。SEQUENCE の場合は、それぞれの要素が Nucleus となる。

　修辞構造は一般的に図２のような形で示されることが多い。図２は図１のヘルプテクストの修辞構造を O'Donnell（2003）が開発したマークアップツールを使って図にしたものである。
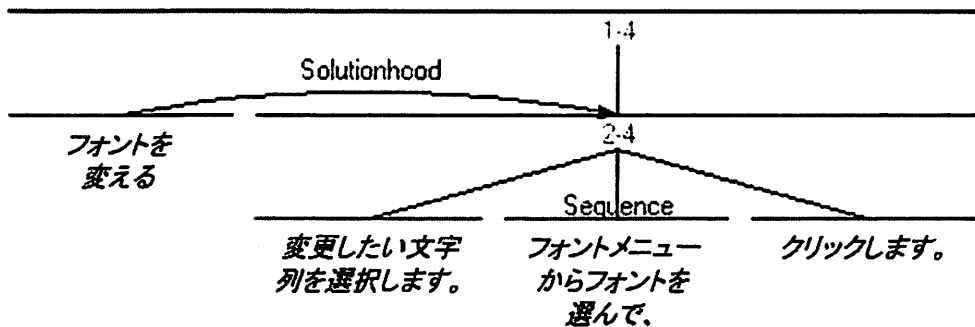
図２：RST Tool 3.41（O'Donnell, 2003）によるヘルプテクストの修辞構造の図

本稿では、文内部の修辞構造と文以上の修辞構造を区別しやすいように、文内部の修辞ユニット間の修辞関係には clausal-を、文以上の修辞ユニット間の修辞関係には sentential-を付けて、図３のような形で表すこととする。
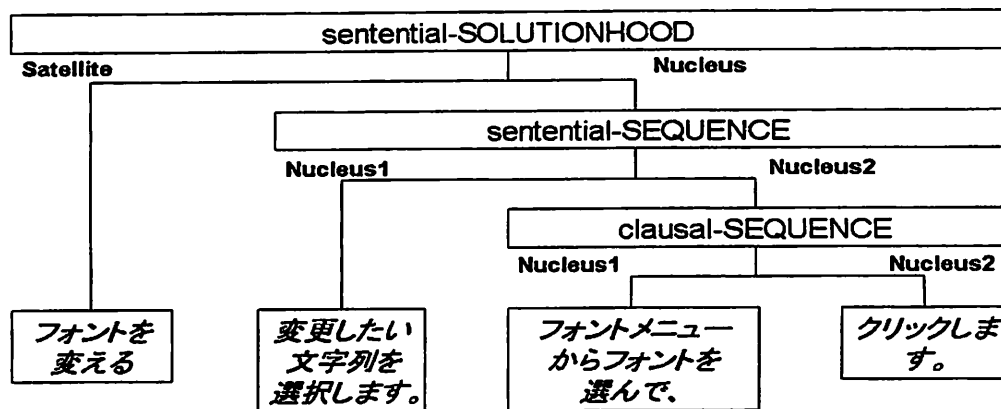
図３：文内部（clausal）と文以上（sentential）の修辞関係を区別した図

　修辞構造理論では、修辞関係が 30 個ほど定義されている。このうち今回分析したヘルプテクストに見られた修辞関係を表１と２に列挙する[2]。

関係名	Nucleus ユニット	Satellite ユニット
SOLUTIONHOOD	a situation or method supporting full or partial satisfaction of the need	a question, request, problem, or other expressed need
SUMMARY	text	a short summary of that text
ELABORATION	basic information	additional information
CONDITION	action or situation whose occurrence results from the occurrence of the conditioning situation	conditioning situation
MEANS	N presents an action	presented in S actually tends to make possible or likely the situation presented in N
PURPOSE	an intended situation	the intent behind the situation
CIRCUMSTANCE	text expressing the events or ideas occurring in the interpretive context	an interpretive context of situation or time

表１：ヘルプテクストに見られる修辞関係の定義（Nucleus-Satellite relations）

関係名	Nucleus ユニット	他の Nucleus ユニット
SEQUENCE	an item	a next item
CONJUNCTION	あるユニットで表現されている内容と他のユニットで表現されている内容がいずれも成り立つ。	
DISJUNCTION	あるユニットで表現されている内容と他のユニットで表現されている内容のいずれかが成り立つ。	

表2：ヘルプテクストに見られる修辞関係の定義（Multinuclear）

修辞関係は談話標識（discourse marker、日本語の場合は主に接続詞や接続助詞など）によって明示的に示されることが多い。そのため談話標識は修辞構造を人手で分析する際にもコンピュータで自動的に解析する際にも重要な手がかりとなる。

2.2. 日本語テクストの修辞構造解析に関する先行研究

　修辞構造理論に基づく日本語のテクスト分析に関する研究は、言語学の分野にはほとんど見られず自然言語処理の分野に多い。このことは、日本語研究において修辞ユニット間の意味的なつながりが研究の対象とされてこなかったということを言っているのではない。いわゆる複文における内部の意味的な関係や係り受けの関係は、南の従属句に関する網羅的な研究（南, 1993）があるため、そちらに依拠している研究が多いというだけである。本稿では、文内部の修辞構造と文以上の修辞構造の両方を統一的な指針で分析するために、南の研究ではなく、Mann らの修辞構造理論を基礎とした。

　日本語テクストの修辞構造をコンピュータで自動的に抽出する方法は大きく2つに分かれる。1つは、予め人手で一定量のテクストの修辞構造を分析し、その結果をテクストにタグ付けしたコーパスを使って機械学習させ、そこから得られた統計情報に基づいて、新規のテクストの解析を行うアプローチである（統計・コーパスに基づくアプローチ）。もう1つは、人手で修辞構造を分析し、その結果から人間が明示的なルールを書き出し、そのルールを適用することで新規のテクストの解析を行うアプローチである（ルールに基づくアプローチ）。我々は後者のアプローチで取り組んでいる。

　ルールに基づくアプローチの中には、談話標識のように修辞構造に関連性の高い語句に着目してルールを設定した研究もあれば、いわゆる主語の有生性といった意味的な特徴や述語の意思性、態、アスペクトといった修辞構造に特化していない特徴を基にルールを設定している研究もある。表3は日本語テクストの修辞構造解析に関する主な先行研究についてまとめ、本稿で提案するアプローチと比較したものである。

アプローチ		ジャンル	研究例
統計・コーパス		新聞記事	Nomoto and Matsumoto（1998）
		新聞記事	横山他（2003）
ルール	談話標識と文書構造	企業が発行している技術論文	住田他（1995）
	談話標識	科学技術論文	黒橋と長尾（1994）
	主語と述語の意味特性、談話標識	言語学の論文、日本語教育の教科書、ネットワークの解説書	向仲（2002）
	談話標識	特許請求項	新森他（2004）
	談話標識と文書構造	ヘルプテクスト	本研究

表3：日本語テクストの修辞構造の自動解析に関する先行研究と本研究の比較[3]

　いずれにせよ修辞構造解析の自動化についていまだ研究途中で機械学習やルール作成に用いたテクストと異なるジャンルを扱おうすると精度が落ちてしまうことが多く、形態素解析や構文解析と比較すると実用化のレベルには達しているとは言えないのが現状である。したがって、我々のようにヘルプテクストの修辞構造を利用した応用システムを作ろうとした場合には対象とするジャンルの修辞構造を自動解析できる仕組みを自前で用意しなければならない。

3. ヘルプテクストの修辞構造分析

　ヘルプテクストの修辞構造を自動解析する仕組みを構築するために、Word 2000 に付属のオンラインヘルプにある「文字列の書式設定」という見出しのところから 25 個のヘルプテクストを抜き出し、その修辞構造を人手で分析した。修辞構造を分析する前に、ヒント、メモ、他のヘルプテクストへのリンク等は取り除いておいた。25 個のヘルプテクストには 118 個の文が含まれていた。各ヘルプテクストからタイトルを除いた本文は１つから８つの文から成り立っており、平均すると１テクストあたり 3.72 文で操作手順が説明されていた。

　この 118 文に対して ChaSen（松本他、1999）と CaboCha（工藤と松本、2002）で形態素解析と係り受け関係解析を行い、その解析結果を基に宇津呂他（1999）の基準を適用して、主節と従属節に分割した。

・宇津呂他（1999）による日本語従属節の定義[4]
　　　一般に、文節は自立語部分と付属語部分からなるが、文節区切り済データ上で、自立語部分と付属語部分が以下の条件を満たす文節を従属節の主辞となる述語的文節とする。

(1) 自立語部分は、以下のいずれかを満たす（いわゆる述語）
   (a)   動詞または形容詞
   (b)   「名詞句＋判定詞（である）」
(2) 付属語部分は、以下のいずれかを満たす
   (a)   なし
   (b)   副詞タイプ
   (c)   副詞的名詞タイプ
   (d)   形式名詞タイプ
   (e)   時相名詞タイプ
   (f)   述語接続助詞タイプ
   (g)   引用助詞タイプ
   (h)   (a)~(g) の後に、副助詞、終助詞が付加されたもの

　この定義にのっとって節複合を分割した結果、節の数は 194 個であった。タイトルは
すべて１つの節で成り立っていた（連体修飾節を含むものはあったが、従属節を伴って
いるものはなかった）。ヘルプ本文では節の数は１つから４つで、平均すると節複合１つ
あたり 1.82 個の節で構成されていることが分かった。
　今回分析対象となったテクストで見られた修辞関係の出現回数をまとめると表４のよ
うになる。

修辞関係	文以上の修辞ユニット間にみられる修辞関係の数	文内部の修辞ユニット間にみられる修辞関係の数
SOLUTIONHOOD	25	0
SUMMARY	3	0
ELABORATION	7	0
SEQUENCE	26	22
CONJUNCTION	8	2
DISJUNCTION	1	3
CONDITION	0	6
MEANS	0	8
PURPOSE	0	32
CIRCUMSTANCE: SIMULTANEOUS	0	6
CIRCUMSTANCE: NON-SIMULTANEOUS	0	5
合計	70	84

表４：ヘルプテクストに見られる修辞関係の数

この表を見ると、文内部の修辞ユニット間にのみ見られる修辞関係もあれば、文以上の修辞ユニット間にしか見られない修辞関係もあることが分かる。以下、文内部と文以上の修辞構造に分けて、分析の結果を説明する。

3.1.　文内部の修辞構造

　文内部の修辞構造については、従属節のところに主節との修辞関係を表す言語表現が現れていた。文内部の修辞構造に見られる修辞関係とそれらを表す言語表現をまとめたものが表5である。具体例については付録1を参照されたい。

修辞関係	言語表現
SEQUENCE	動詞連用形＋「て」、動詞連用形
CONJUNCTION	動詞連用形、対句表現
DISJUNCTION	動詞終止形＋「か」
CONDITION	「必要に応じて」、動詞連体形＋「場合」、判定詞連体形＋「場合」
MEANS	動詞連用形＋「て」
PURPOSE	動詞連体形＋「には」
CIRCUMSTANCE: SIMULTANEOUS	動詞連用形＋「て」、動詞連用形＋「ながら」
CIRCUMSTANCE: NON-SIMULTANEOUS	動詞連用形＋「たら」、動詞連用形＋「てから」、動詞連体形＋「まで」、動詞連用形＋「た後」

表5：文内部の修辞関係を同定する手がかりとなる接続表現

表中の下線は、2つ以上の修辞関係を表すために使われている接続表現である。例えば、接続助詞の「て」はSEQUENCE, MEANS, CIRCUMSTANCE: SIMULTANEOUSの3つの修辞関係を表す可能性がある。したがって、自動解析する際には、接続表現のみに頼っていては適切な修辞関係を検出することができないので、何か他の手段を用意しなければならない。

　接続表現以外の手がかりを探すために向仲に倣って各節の主語と述語の意味特性を調べてみたが、我々の分析対象としたテクストの範囲では意味特性は均質的で修辞関係を絞り込めるほどの違いは見られなかった。次に、隣接する節の述語をそれぞれ取り出してみたところ、複数の修辞関係に関与する述語のペアは存在しなかった。例としてMEANSとCIRCUMSTANCE: SIMULTANEOUSの子ユニット（直接構成素）に含まれる述語のペアを表6と7に示す。

Ｓユニットの動詞	Ｎユニットの動詞
置く	表示させる
クリックする	移動する
クリックする	表示する
使う	追加する
使う	変更する
ドラッグする	調整する
ドラッグする	配置する

表６：MEANS の子ユニットに見られる述語のペアリスト

Ｓユニットの動詞	Ｎユニットの動詞
押す	ドラッグする
含める	選択する
ポイントする	クリックする

表７：CIRCUMSTANCE:　SIMULTANEOUS の子ユニットに見られる述語のペアリスト

　文内部の修辞構造の深さに関しては、ある文が１つの節に対応していた場合、深さを０とみなすことにした。図１のヘルプテクストを使って説明すると、タイトルは節複合ではなく１つの節なので深さは０である。ヘルプ本文にある２つ目の文は節複合に対応しており、この節複合は２つの節から構成されているので深さは１である。図４のように、１つの文が３つの節から成り立っている節複合に対応しており、そのうちの２つがまずまとまりをなしてから残りの１つの節と結びついている場合はその深さを２と考える。今回分析したテクスト全体を見ると深さは０から３の間であった。
　修辞構造は、図４に示したように、右に枝分かれしているものが多かった。ただしMEANS または DISJUNCTION の修辞ユニットを含んでいる場合には、図５に示したように、左に枝分かれしていた。
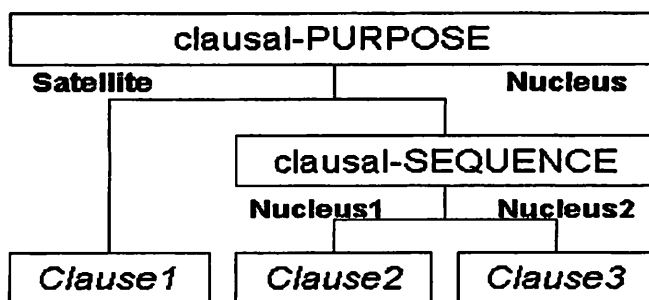
図４：右に枝分かれしている修辞構造
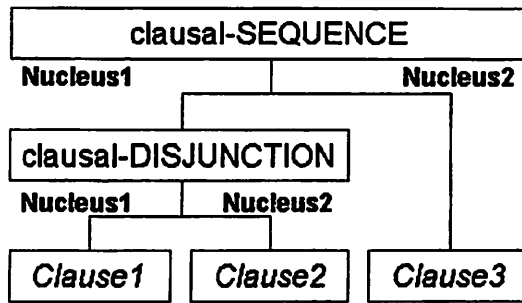
図５：左に枝分かれしている修辞構造

3.2. 文以上の修辞構造

　文以上の修辞構造については、深さは２から５の間であった。文内部の修辞構造とは異なり明示的に修辞関係を示す言語表現が用いられていることはまれで、118文のうち接続詞を含んでいたのは２文だけであった。文以上の修辞構造に見られる修辞関係とそれらを表す言語表現を表８にまとめる。具体例については付録２を参照されたい。

修辞関係	言語表現
SOLUTIONHOOD	φ
SUMMARY	「次のいずれかの操作を行います。」
ELABORATION	φ
SEQUENCE	「次に」
CONJUNCTION	φ
DISJUNCTION	「または」

表８：文以上の修辞関係を同定する手がかりとなる言語表現

　これらの言語表現だけでは修辞関係を自動的に検出することはできないので、さらにヘルプテクストの文書構造に着目した。まずヘルプテクストは、ヘルプのタイトルと本文に分かれる。ヘルプの操作説明をしている本文のところは、ほとんどが番号付きのリストになっており、操作を行うべき時間順に並べられている。リストの各項目の中で、段落に分かれていることがある（途中で改行されている）。段落の中には２つ以上の文が含まれていることがある。このような文書構造は図６に示すように階層的な構造となっている。
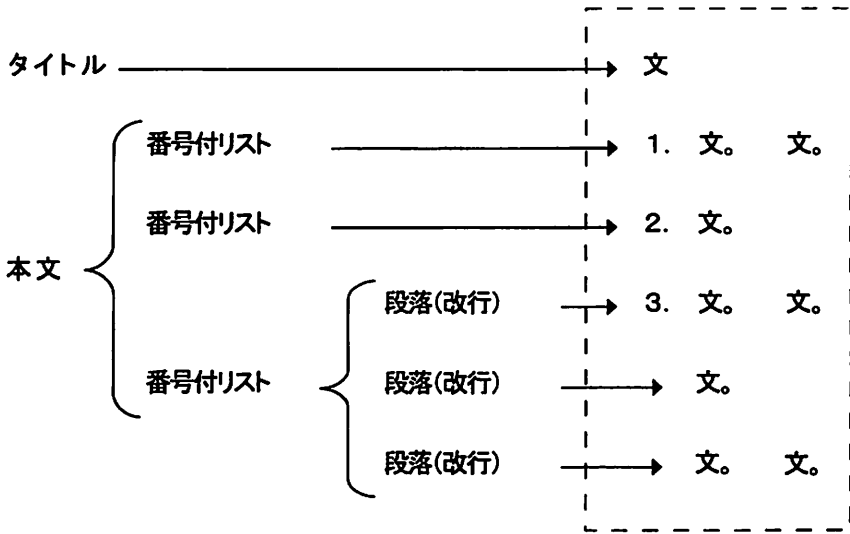
図6：ヘルプテクストの文書構造

　この文書構造の構成要素と修辞関係の間に関連がないかどうか調べたところ、修辞関係を自動的に検出する際の手がかりとなる点がいくつか見つかった。例えば、タイトルと本文に対応する修辞ユニットの間には SOLUTIONHOOD、番号付きリストの各項目に対応する修辞ユニットの間には SEQUENCE、各段落に対応する修辞ユニットの間には CONJUNCTION という修辞関係が見られた。また DISJUNCTION の場合、段落を超えて修辞ユニットを構成している例は見られなかった。

　番号付きリストや改行といった文書構造に関する情報は、Word のオンラインヘルプの場合すべて HTML で記述されている。図7は図1のヘルプテクストのソースファイルの内容である。

```
<html>
<head>
<title>フォントを変える</title>
</head>
<body>
<h1>フォントを変える</h1>
<ol>
<li>変更したい文字列を選択します。</li>
<li>フォントメニューからフォントを選んで、クリックします。</li>
</ol>
</body>
</html>
```

図7：ヘルプテクストの HTML ファイルの例

〈body〉タグで囲まれた部分が今回の修辞構造解析の対象である。例えば、タイトルは〈h1〉というタグで囲まれており、それ以外の部分が操作手順を示す本文である。〈ol〉は番号付きリストを表示するためのタグで、〈li〉で囲まれた部分の最初に番号が自動的に表示される。したがって、文以上の修辞構造を解析するときに HTML タグも参照するようにしておくことでテクストの文書構造から修辞関係を推定できることが分かった。

3.3. 修辞構造解析の処理モデル

　図8は、修辞構造を自動解析するための処理の流れを示したものである。解析は大きく(1) HTML 解析、(2) 形態素／係り受け関係解析、(3) 文内部の修辞構造解析、(4)文以上の修辞構造解析の4段階に分かれている。

図8：修辞構造解析の流れ
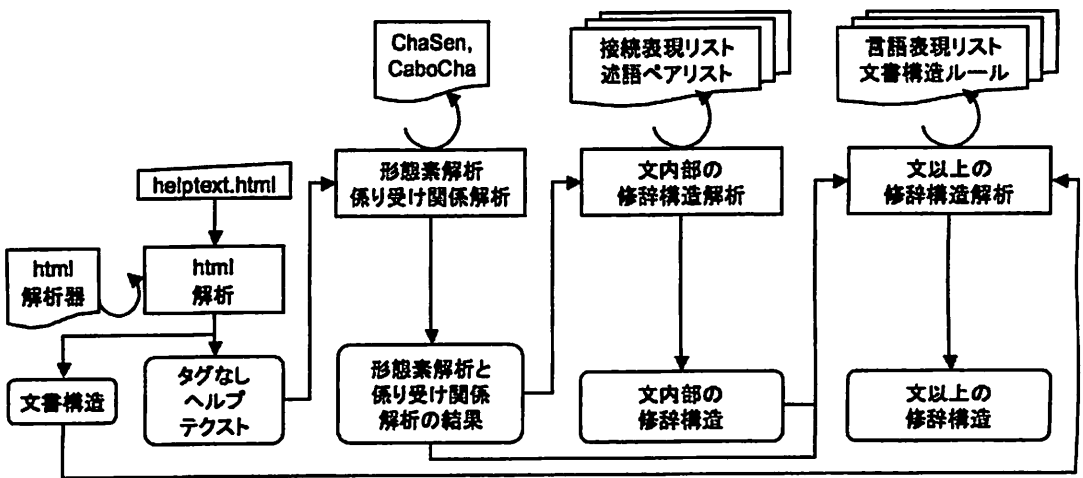
　修辞構造解析の前に、HTML 文書の解析を行って〈body〉タグで囲まれた部分のテクストを抽出し、ChaSen と CaboCha を使って形態素解析と係り受け関係解析を行う。文内部の修辞構造解析の段階では、前処理の結果と、3.1 節で示した接続表現と述語のペアリストを参照しながら、葉の部分（最小の修辞ユニット）が節、根の部分（最大の修辞ユニット）が節複合に対応する修辞ユニットとなる修辞構造を生成する。このとき、まず接続表現を利用して判定できる修辞関係を処理し、それで一意に決まらなかった部分について述語のペアリストを利用して判別を試みている。

　文以上の修辞構造解析の段階では、元の HTML 文書と前処理の結果と 3.2 節で示した言語表現や文書構造に基づいた規則を参照しながら、葉の部分が文、根の部分が1つのヘルプテクスト全体に対応する修辞ユニットとなる修辞構造を生成する。このとき、まず言語表現を利用して判定できる修辞関係を処理し、それで一意に決まらなかった部分について文書構造を利用して判別を試みている。各解析の詳細については、Ito *et al.*(2004) を参照されたい。

4. 修辞構造解析結果の対話型ユーザ支援システムへの応用

　近年の情報技術の発展・普及により、職業や年齢を問わず多くの人が日常的に情報システムに触れるようになった。しかしながらパソコンに代表されるそのようなシステムの多くは未だに操作が難しく専門知識がないと不自由な思いをすることが多いのが実情である。そのような場合でもユーザが自分で問題を解決できるようにと市販のソフトウェアには用語説明や問題解決方法を蓄積した大量のテクストデータを検索・表示できるオンラインヘルプが付属しているが、それもまた使いこなすにはある程度の知識が必要である。例えば、質問として正しく受理される語句のパターンが限られているために、ユーザが直面している問題を自然言語で自由に記述すると必要な解決方法を得られないことが多い。あるいは、せっかく検索がうまくいっても、解決方法として提示されたヘルプテクストの内容に専門用語がたくさん含まれていたり操作方法に細かな条件分けがなされていたりすると、初心者ユーザには内容を理解することができない。このような理由から、既存のソフトウェアに付属のオンラインヘルプは、最もそれを必要としているはずのパソコン初心者にほとんど利用されないままとなっているのである。

　このような既存のオンラインヘルプの問題点を解消するために、我々はユーザからの日常的な言葉による質問を理解し、ソフトウェアに付属しているオンラインヘルプを検索して、検索結果のテクストをそのままユーザに提供するのではなくてユーザのコンピュータの習熟度に合わせて適宜言い換えができるようなシステムを構築することにし、スマートヘルプシステムと名づけた (Iwashita et al., 2006)。この場合、ユーザの習熟度ごとに用意するのはヘルプテクスト本体ではなく言い換えの規則であり、規則を組み合わせることによってユーザ個人に合わせたバリエーション豊かなヘルプテクストを提供することができる。

　このようなシステムを作る際のポイントは、どのような言語的な特徴をヘルプテクストに予め付与しておくかという点である。より多くの言語特徴をヘルプテクストにタグ付けしておけば、それらを活用することでより効果的なヘルプテクスト検索や言い換えが行えるからである。我々は、ワープロを操作しながら文書を作成するユーザ役とユーザ役からの質問に答えるインストラクター役の二人一組による被験者実験を行い、ユーザ役とインストラクター役の対話を書き起こしたデータを分析し、その知見に基づいてユーザの習熟度別に言い換えのルールを設定した。その際にヘルプテクスト内に生起する様々な修辞ユニット間の意味的な関係が重要であることが分かった。そこでスマートヘルプシステムに修辞構造を解析する機能とその解析結果を利用する機能を組み込むことにした。

　スマートヘルプシステムがユーザからの質問を受けて、ヘルプテクストを検索し、それを基にユーザへの応答を生成する処理の流れを図9に示す。
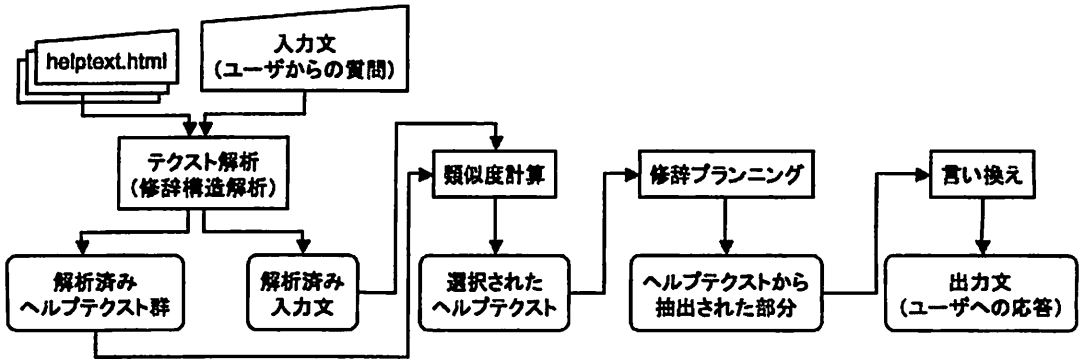
図9：スマートヘルプシステムにおける入力文理解と応答文生成の流れ

　この中で修辞構造解析の結果を利用しているのは、ユーザからの質問とヘルプテキストの類似度を計算するところと、選択されたヘルプテキストからさらに必要な部分だけを抽出する修辞プランニングのところである。以下では、表9のようなユーザとシステムの質問応答対話を想定し、表10のヘルプテキストを例としてどのように修辞構造解析の結果が利用されているのかを説明する。このヘルプテキストの修辞構造については、付録3を参照されたい。

ユーザ	この円の色を変えたい。
システム	変更したい円を選択してください。 ツールバーに立方体、円柱、Aの文字が表示されたボタンがあります。 そこをクリックして、図形描画ツールバーを表示してください。 ツールバーに、筆の下に青い線が表示されたボタンがあります。 そこの右側に下向き矢印があります。 そこをクリックし、必要な色をクリックして、色を変えてください。

表9：ユーザとスマートヘルプシステムの対話例

描画オブジェクトの輪郭または線を変更する	Title Clause 1
1. 変更する描画オブジェクト、線、または輪郭を選択します。	Clause 2
2. 標準ツールバーの図形描画をクリックして、	Clause 3
図形描画ツールバーを表示します。	Clause 4
3. 線または輪郭の色を変更するには、	Clause 5
図形描画ツールバーの線の色の右側にある下向き矢印をクリックし、	Clause 6
必要な色をクリックします。	Clause 7
必要な色が表示されていない場合は、・・・。	Clause 8
線または輪郭のスタイルを変更するには、・・・。	Clause 13
線または輪郭に点線のスタイルを設定するには、・・・。	Clause 19

表10：ユーザへの応答の基となったヘルプテクスト（Microsoft Cooperation, 2000）

4.1. 類似度計算における修辞構造解析結果の利用

　ユーザからの質問が解析されると、スマートヘルプシステムに蓄積されている解析済みヘルプテキストとの類似度計算が行われる。膨大なテクスト群の中から効率よくユーザへの応答として適切なものを選び出すために、我々はヘルプテキストの修辞構造を利用してヘルプテキスト中のどの部分から類似度計算をすればよいかに関する優先順位を設けた。

　例えばユーザからの質問が表9の「この円の色を変えたい。」のように操作方法を尋ねるタイプの場合、ヘルプテキストのタイトルと clausal-PURPOSE の Satellite ユニットとの類似度計算から始める。というのはタイトルと clausal-PURPOSE の Satellite ユニットには達成すべき目標が書かれているからである。表 10 の「描画オブジェクトの輪郭または線を変更する」というタイトルのヘルプテキストを例にとって説明すると、タイトルの Clause 1 と clausal-PURPOSE の Satellite ユニットである Clause 5、13、19 についてまず類似度が計算されるということである。

　両者を比較すると、タイトルにはやや大まかな目標が書かれており、clausal-PURPOSE の Satellite ユニットにはやや細かい目標が書かれている。具体的には、Clause 1 は輪郭または線全般であるのに対して、Clause 5、13、19 はそれぞれ輪郭または線の色、スタイル、点線のスタイルのように下位分類して説明がなされている。これを考慮に入れて、もしタイトルと clausal-PURPOSE の Satellite ユニットの両方とも入力文との類似度が高い場合には clausal-PURPOSE の Satellite ユニットが選ばれるようになっている。

　もしタイトルと clausal-PURPOSE の Satellite ユニットに類似度の高いものがなかった時には、より個別的な目標が書かれている clausal-MEANS の Nucleus ユニットとの類似度計算を行う。

　現在スマートヘルプシステムでは 25 個のヘルプテキストが利用可能である。表9のユーザの質問との類似度計算を行うと、25 個の中で表 10 のヘルプテキストの Clause 5 の類似度が最も高くなるので、このヘルプテキストが修辞プランニングの対象として選ばれる。

4.3. 修辞プランニングにおける修辞構造解析結果の利用

　類似度の高いヘルプテキストが選ばれた後そのテクストの中から特にユーザの質問に関連するものだけを絞り込む作業として修辞プランニングがある。これは一般的なテクスト生成システムにおけるテクストプランニングに相当する処理であるが、修辞構造に着目して処理を行うことから、スマートヘルプシステムにおいては修辞プランニングと呼んでいる。

　類似度計算の結果得られた表 10 のヘルプテキストには、達成すべき目標がタイトルの Clause 1 と clausal-PURPOSE の Satellite ユニットである Clause 5、13、19 の4カ所で述べられており、その中で最もユーザの質問に最も関連があるのが Clause 5 である。すなわち、ユーザの質問は円の（輪郭の）色に関するものであるのに対して[5]、Clause 1 は輪郭または線全般ということで漠然としており、Clause 13 は輪郭または線のスタイル、Clause 19 はそれぞれ輪郭または線の点線のスタイルということで Clause 13 と 19 はユーザの質問との関連が薄いと判断できる。したがって、ヘルプテキストの本文のうち

Clause 13-21 はユーザへの応答に含める必要がないことが分かる。

　このような修辞プランニングの規則はユーザの習熟度別に設けられている。例えば、ユーザは初心者だったとしよう。sentential-ELABORATION の Satellite ユニットは、付加的な情報を表している部分である。初心者ユーザにはたくさんの情報を与えすぎるとかえって混乱してしまうので、関連が薄い情報は取り除いて必要な情報から与えるのが適切であると考えられる。したがって、Clause 5 に関連してはいるが使いたい色が画面上に表示されていない場合にどうすればよいかという付加的な情報である Clause 8-12 はユーザへの応答に含めないこととした。

　それに対して、SEQUENCE で示されている手順については逐一与えることとした。これらの手続をへて Clause 2-7 が抽出され、この部分が言い換えられて、最終的に表9に挙げたシステムの応答のような文章が生成される。

5. おわりに

　本稿ではワープロソフトに付属の日本語ヘルプテクストの修辞構造を人手で分析した結果をまず示し、その知見に基づいてコンピュータによる自動解析の手順とスマートヘルプシステムの応答文生成に役立てる方法を提案した。修辞構造の自動解析、修辞構造解析の結果に基づく類似度計算および修辞プランニングの手法はスマートヘルプシステムの機能として実装済みである。しかしながら、このシステムはまだプロトタイプの段階で、自動解析できるテクストは3節で説明した 25 個に限られている。実用化に向けてより多くのヘルプテクストを自動解析できるようにするためには、今回分析した以外のヘルプテクストを人手で分析し手がかりとなる言語表現を明らかにする必要がある。

　提案した自動解析手法の特長の1つは、市販のソフトウェアに付属のオンラインヘルプという既存の資源を有効活用するという点にある。2つ目として、予め人手によるテクスト分析は必要であるが修辞構造を自動的に抽出するにあたってはとりわけ複雑な意味処理はしていないため、さらに広い範囲のテクストタイプ、例えばメールソフトのオンラインヘルプや家電の取扱い説明書などの修辞構造解析にも応用することが容易であると考えられる。テクストの修辞構造に基づいた類似度計算の手法についても一般的な情報検索の分野で利用可能であると考えられるが、定量的な評価実験については、今後の課題である。

　また、ヘルプテクストの文書構造を参照して修辞構造を抽出するためのルールを利用して、複数文からなるテクストを生成し、それらを理解しやすいように HTML で表示するための手法についても今後取り組んでいきたい。もう1つ重要な課題として、HTMLのタグを使ったテクストのレイアウトは書記層に関わってくるが、これに関する選択体系機能言語学的な研究はほとんどなされていない。今回の分析結果を基に、意味層、語彙文法層との関連付けも含めて、書記層の資源の開発、拡充に努めたい。

注

1 選択体系機能言語学における言語単位としての節と文の定義については、Halliday and Matthiessen（2004, 371）が言語体系の分層（stratum）と階層（rank）に関連付けて整理したものを参考にした。

2 MEANS の定義は Mann et al.（1992:74）、SOLUTIONHOOD, SUMMARY, ELABORATION, CONDITION, PURPOSE, CIRCUMSTANCE, SEQUENCE の定義は Mann（1999）から引用した。CIRCUMSTANCE については、Nucleus と Satellite で表現されている内容が同時に起こる場合（SIMULTANEOUS）とそうでない場合（NON-SIMULTANEOUS）とで区別した。CONJUNCTION と DISJUNCTION については、修辞関係に含めるのは一般的ではないがヘルプテクストの分析でこれらの関係を記述しておくことが対話型ユーザ支援システムへ応用するにあたって有効であったので、表のように定義した上でテクスト分析に加えることにした。

3 厳密に言うと、黒橋と長尾（1994）、住田他（1995）、Nomoto and Matsumoto（1999）、横山他（2003）の研究は、本稿で言う文以上の修辞構造の解析しか行っていない。向仲（2002）の研究は、南の従属句の分類を用いており、本稿で言う文内部の修辞構造の解析を目的としている。従って、文以上と文内部の両方の修辞構造を抽出する際にも彼らの提案している手法がそのまま適用できるとは限らない。

4 Halliday and Matthiessen（2004, 426）によるといわゆる連体修飾節は従属節ではないので、本稿では連体修飾節は修辞ユニットとして分割していない。

5 「この円の色を変えたい」は曖昧性を含んでおり、実際には、円の輪郭の色を変えたいのか円の塗りつぶしの色を変えたいのかをシステムがユーザに聞き返すというやりとりを経る必要があるが、この部分には修辞構造は特に関与しないので、本稿では説明を省略する。詳細は、Iwashita et al.（2006）を参照されたい。

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付録１：文内部の修辞関係を同定する手がかりとなる接続表現（表５）の例

　下線部は、修辞関係を同定する手がかりとなる言語表現を示している。‖は節の境界を示しており、節には番号が振られている。修辞ユニットの欄は、当該の修辞関係で結ばれている修辞ユニットとそれぞれの nuclearity を表している。SEQUENCE の最初の例について説明すると、節複合は３つの節①②③から構成されており、②と③が何らかの修辞関係で結ばれた１つの修辞ユニットになっており、それと①が SEQUENCE の関係で結ばれていることを表している。図で示すと右枝分かれになる。例はすべて実際の Word のヘルプ（Microsoft Cooperation, 2000）から抽出している。

修辞関係名・ヘルプ本文	ユ ニ ッ ト ・nuclearity	ヘルプタイトル
SEQUENCE		
①図形描画ツールバーのオートシェイプを<u>クリックして、</u>‖②吹き出しをポイントし、‖　③使用する吹き出しをクリックします。	①Ｎ と②③Ｎ	「引き出し線の付いた吹き出しまたはラベルを作成する」
①フォントの色の右側にある下向き矢印を<u>クリックし、</u>‖②色を選択します。	①Ｎ と②Ｎ	「文字列や数字の色を変更する」
CONJUNCTION		
①サイズ変更ハンドルのいずれかをドラッグして‖②吹き出しのサイズを<u>調整し、</u>‖　③目的の位置にドラッグして‖④吹き出しを配置します。	①②Ｎ と③④Ｎ	「引き出し線の付いた吹き出しまたはラベルを作成する」
①必要に応じて‖②<u>フォントボックスでフォントを、</u>‖③サイズボックスでフォントサイズを<u>指定します。</u>	②Ｎ と③Ｎ	「日本語の文字列にふりがな（ルビ）を振付ける」
DISJUNCTION		
①ヘッダーを作成するには、‖　②ヘッダー領域に文字列を<u>入力するか、</u>‖③グラフィックスを挿入します。	②Ｎ と③Ｎ	「ヘッダーやフッターを作成する」
CONDITION		
①<u>必要に応じて</u>‖②フォントボックスでフォントを、‖③サイズボックスでフォントサイズを指定します。	①Ｓ と②③Ｎ	「日本語の文字列にふりがな（ルビ）を振付ける」
①必要な色が<u>表示されていない場合は、</u>‖　②その他の色をクリックします。	①Ｓ と②Ｎ	「描画オブジェクトの輪郭または線を変更する」
MEANS		
①フッターを作成するには、‖　②ヘッダー／フッターの切り替えを<u>クリックして、</u>‖③フッター領域に移動します。	②Ｓ と③Ｎ	「ヘッダーやフッターを作成する」
PURPOSE		
①作業中の文書を<u>印刷するには、</u>‖　②標準ツールバーの印刷をクリックします。	①Ｓ と②Ｎ	「文書を印刷する」

CIRCUMSTANCE: SIMULTANEOUS

①特定のセルの網かけを変更するには、‖ ②表のグリッド線を<u>含めて</u>、‖ ③そのセルを選択します。	②Ｓと③Ｎ	「表、段落、または文字列に追加した網かけを変更する」
①図形の比率が変わらないようにするには、‖ ②Shift キーを<u>押しながら</u>、‖ ③ドラッグします。	②Ｓと③Ｎ	「オートシェイプ、円、または四角形を追加する」

CIRCUMSTANCE: NON-SIMULTANEOUS

①<u>完了したら</u>、‖ ②閉じるをクリックします。	①Ｓと②Ｎ	「ヘッダーやフッターを作成する」
①吹き出しを挿入する場所を<u>クリックまたはドラッグしてから</u>、‖ ②文字列を入力します。	①Ｓと②Ｎ	「引き出し線の付いた吹き出しまたはラベルを作成する」
①異なるサイズの図形が必要な場合は、‖ ②文書をクリックした後、‖ ③目的の大きさに<u>なるまで</u>‖ ④ドラッグします。	③Ｓと④Ｎ	「オートシェイプ、円、または四角形を追加する」
①異なるサイズの図形が必要な場合は、‖ ②文書を<u>クリックした後</u>、‖ ③目的の大きさになるまで‖ ④ドラッグします。	②Ｓと③④Ｎ	「オートシェイプ、円、または四角形を追加する」

付録２：文以上の修辞関係を同定する手がかりとなる言語表現（表８）の例

　下線部は、修辞関係を同定する手がかりとなる言語表現を示している。‖ は文の境界を示しており、文には番号が振られている。修辞ユニットの欄は、当該の修辞関係で結ばれている修辞ユニットとそれぞれの nuclearity を表している。SOLUTIONHOOD の例について説明すると、ヘルプはタイトル①と２つの本文②と③から構成されており、②と③が何らかの修辞関係で結ばれた１つの修辞ユニットになっており、それと①がSOLUTIONHOOD の関係で結ばれていることを表している。図で示すと右枝分かれになる。例はすべて実際の Word のヘルプ（Microsoft Cooperation, 2000）から抽出している。

修辞関係名・ヘルプ本文	ユニット・nuclearity	ヘルプタイトル

SOLUTIONHOOD

①文字列、数字のフォントサイズを変更する　‖ ②1．変更する文字列を選択します。‖ ③2．書式設定ツールバーのフォントサイズでフォントサイズをクリックします。	①Ｓと②③Ｎ	「文字列、数字のフォントサイズを変更する」

SUMMARY

| ①1．次のいずれかの操作を行います。‖ ②表の罫線を変更するには、表をクリックします。‖ ③特定のセルの罫線を変更するには、表のグリッド線も含めて、変更するセルだけを選択します。 | ①S と②③N | 「表の罫線を変更する」 |

ELABORATION

| ①3．オプションを選択します。‖ ②オプションのヘルプを表示するには、？をクリックし、さらに目的の項目をクリックします。 | ①N と②S | 「表、段落、または文字列に追加した網かけを変更する」 |

SEQUENCE

| ①1．変更する文字列を選択します。‖ ②2．書式設定ツールバーのフォントサイズでフォントサイズをクリックします。 | ①N と②N | 「文字列、数字のフォントサイズを変更する」 |
| ①必要な色が表示されない場合は、その他の色をクリックします。‖ ②次に、標準タブのカラーパレットで変更する色をクリックするか、ユーザ設定タブで独自に色を作成し、OKをクリックします。 | ①N と②N | 「描画オブジェクトの塗りつぶしの色を変更する」 |

CONJUNCTION

| ①表の罫線を変更するには、表をクリックします。‖ ②特定のセルの罫線を変更するには、表のグリッド線も含めて、変更するセルだけを選択します。 | ①N と②N | 「表の罫線を変更する」 |

DISJUNCTION

| ①2．ヘッダーを作成するには、ヘッダー領域に文字列を入力するか、グラフィックスを挿入します。‖ ②またはヘッダーとフッターツールバーのいずれかのボタンをクリックします。 | ①N と②N | 「ヘッダーやフッターを作成する」 |

付録３：「描画オブジェクトの輪郭または線を変更する」(Microsoft　Cooperation,　2000)の修辞構造
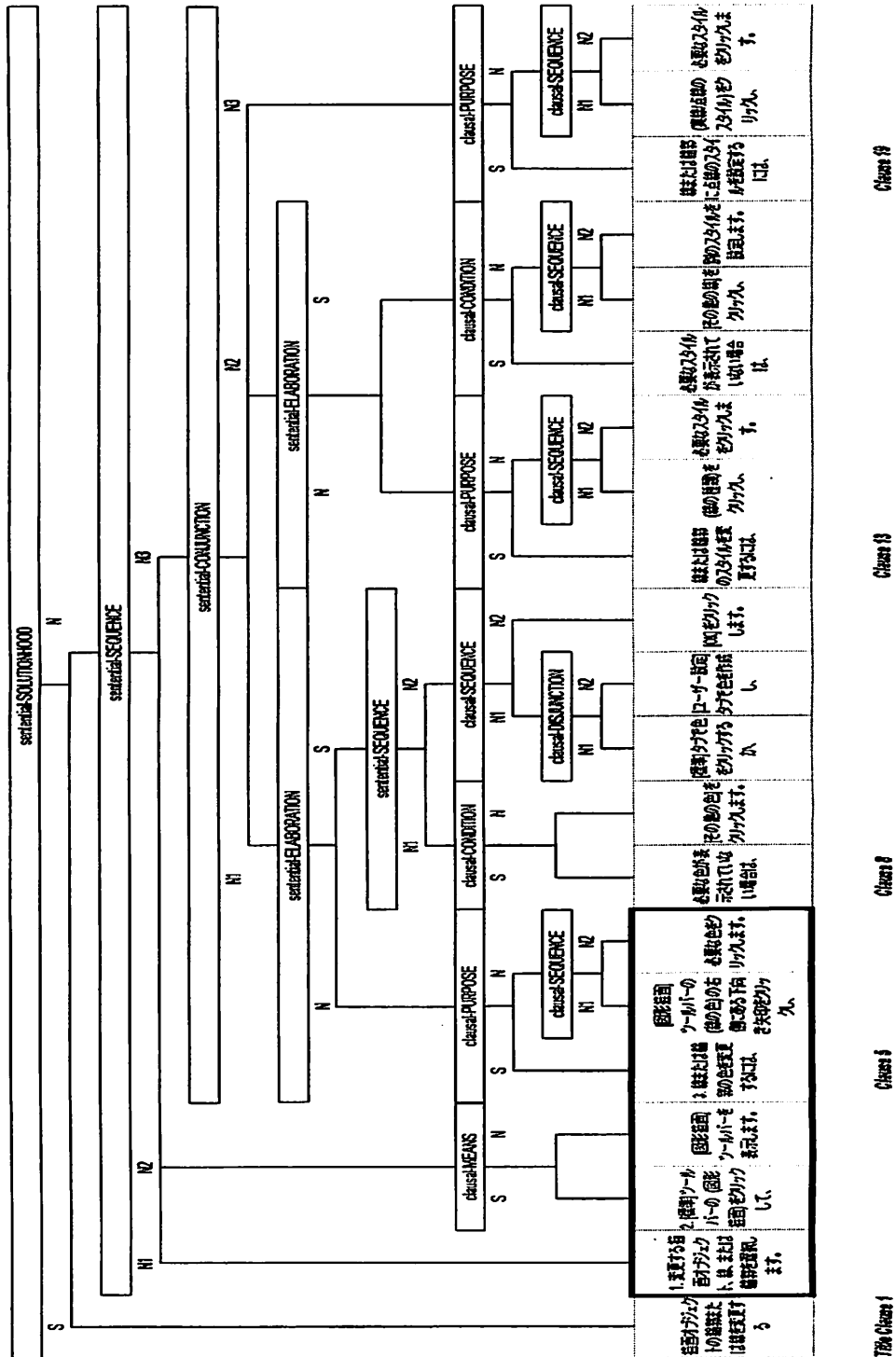
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Articles（論文）

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１．使用言語：日本語または英語

２．原稿の種類：

（１）研究論文　（２）書評・紹介　（３）研究ノート

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