Frame Integration, Head Switching, and Translation: RISK in English and Japanese

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1. INTRODUCTION
The semantic relations in multi-clausal or phrasal sentences have traditionally been characterized in such terms as ADDITIVE, CAUSE-EFFECT, CIRCUMSTANCE, CONCESSIVE, CONDITIONAL, CONTRASTIVE, MEANS-END, TEMPORAL SEQUENCE, etc. (cf. Hasegawa 1996). About two decades ago, when we were analyzing and annotating intrasentential semantic relations of a variety of Japanese texts, we encountered this sentence:

(1) Oshoogatsu ni wa tako o agete asonda.
    New Year’s Day TIME TOP kite ACC fly-CONJ played/enjoyed
    ‘On the New Year’s Day we enjoyed flying a kite.’
    ‘On the New Year’s Day we flew a kite for fun.’

What is the semantic relation between tako o ageru ‘fly a kite’ and asobu ‘play/enjoy’? Lacking an appropriate semantic relation, we reluctantly labeled it as MEANS-END, i.e. ‘we enjoyed by means of flying a kite’. Since then, our knowledge of semantic analyses has been deepened and expanded, and we are now better equipped to tackle this problem. We analyze this sentence as an instance of frame integration. That is, tako o ageru indicates an activity, whereas asobu provides its interpretation. In this paper we will develop this idea of frame integration by examining English sentences involving the verb risk and their Japanese translations. The theoretical framework underpinning this study is frame semantics (Fillmore 1976, 1992, inter alia) as implemented in the FrameNet project (Fillmore et al. 2003, Ruppenhofer et al. 2006, inter alia).

2. FRAME INTEGRATION AND HEAD-SWITCHING
Some frame-bearing lexical units (approximately equivalent to the so-called content words, vis-à-vis function words) give information about the content of a state of affairs (content predicates); others locate a state of affairs within some larger interpretive schema (interpretation predicates). As opposed to content predicates, which describe or denote events, interpretation predicates have a low level of ‘direct descriptivity’ (Snell-Hornby 1983). That is, rather than denoting a particular sort of action (speaking, jogging, etc.), they describe or evaluate the larger situation surrounding the action. Interpretation predicates, then, frame a more ‘contentful’ predicate within a subjective, evaluative, often speaker-oriented situation. Create, dance, eat, laugh, read, think, walk, for example, are all content predicates; chance, condescend, dare, deign, insult, manage, risk are pure interpretation predicates.

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1 Most English sentences examined in this paper are extracted from the British National Corpus, a 100 million word balanced corpus of English (for more information, see http://www.natcorp.ox.ac.uk/).
When the head of a clause, e.g. its main verb, is of one type, and a grammatically subordinated element is of the other type, the semantic interpretation of the clause may require not the 'subordination' of the one to the other, but an integration of the two. This idea of frame integration can be exemplified by sentences (2); each reports the same action (bombing the village) and locates it as part of a REVENGE frame, but these two sentences differ in which verbal appears as the main predicate to evoke the pivotal frame. We call this predicate alternation head-switching.

(2) a. We \textit{retaliated} by \textit{bombing} their village.

b. We \textit{bombed} their village \textit{in retaliation}.

3. \textbf{THE RISK FRAME}

The English verb \textit{risk} has only an interpretive function. It expresses the likelihood of some mishap affecting the protagonist in some situation (Fillmore and Atkins 1992, 1994). When we hear, for example, that someone risked his health, we cannot know from that information alone what he actually did, but we do know that whatever he did is considered by the speaker harmful to the person’s well-being. The core concepts involved in the RISK frame are:

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{risk_frame.png}
\caption{RISK FRAME}
\end{figure}

\textbf{FRAME ELEMENTS}

\textbf{ACTION}: the act of the PROTAGONIST that has the potential of incurring HARM (e.g. a trip into the jungle, swimming in the dark).

\textbf{ASSET}: a valued possession of the PROTAGONIST, seen as potentially endangered in some situation (e.g. health, income).

\textbf{HARM}: a potential unwelcome development coming to the PROTAGONIST (e.g. infection, losing one’s job).

\textbf{PROTAGONIST}: the person who performs the ACTION that results in the possibility of HARM occurring.

\textbf{BACKGROUND KNOWLEDGE}

\textbf{Chance}: the uncertainty about the future.

\textbf{Choice}: the PROTAGONIST’S decision to do the ACTION.

\textbf{Risky Situation}: the state of affairs within which the ASSET might be said to be at risk.
Like *retaliate*, the verb *risk* permits head-switching; in (3), the same information is expressed in different syntactic arrangements, without significant difference in meaning and function.

(3) a. She *risked* her life *by* telling FBI the story.

b. She *told* FBI the story *at risk to* her life.

As an interpretation predicate, *risk* evokes the frame that provides frame elements adequate for interpreting (3a): *She* instantiates the PROTAGONIST, *her life* the ASSET, and the content predicate the ACTION.

![Figure 2](image)

The main predicate of (3b), *tell*, on the other hand, evokes the TELLING frame, which contains verbs that communicate the act of a SPEAKER to address a MESSAGE to an ADDRESSEE.

![Figure 3](image)

In (3b), *she* instantiates the role of the SPEAKER; however, the TELLING frame lacks an appropriate frame element for *at risk to her life* to fill. Therefore, we need to invoke also the larger interpretation frame of RISK with which the given situation is interpreted, as shown in Figure 4.
Being interpretive, the RISK frame is inherently integrative of content and interpretation predicates. The proposition expressed by the content predicate *constitutes* in the RISK frame the situation which is interpreted as being risky.

Its potential for head-switching makes the verb *risk* particularly appropriate for our investigation of frame integration across languages because head-switching (i.e. rephrase) is **intralingual translation** (Jakobson 1959/2000), which shares fundamental problems with **interlingual translation**. We frequently encounter during a translation process the situation in which the target language lacks a grammatical construction equivalent to the source-language construction. In such a case, skillful translators will, consciously or unconsciously, check the possibility of head-switching. Furthermore, head switching has attracted considerable attention in recent years especially in the field of machine translation. We, therefore, examine English RISK sentences and their Japanese translations with a particular focus on head-switching in the source language first and then see if the target language has its equivalent grammatical construction.

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2 The third category that Jakobson proposes is **intersemiotic**, e.g. translation of a novel into a film.
4. SUB-FRAMES
The three sub-frames in the RISK family of frames are JEOPARDIZING, INCURRING, and DARING. In the JEOPARDIZING frame the PROTAGONIST and ASSET are foregrounded and encoded as core arguments, e.g. (4a).

(4) a. **She** risked **her life** {by going to Iraq}. (JEOPARDIZING)
   
   b. She went to Iraq at risk to her life.

![Figure 5: JEOPARDIZING](image)

In the INCURRING frame, the PROTAGONIST and the HARM are foregrounded, e.g. (5a).

(5) a. **He** risked **losing his life savings** {by investing in such a company}. (INCURRING)
   
   b. He invested in such a company risking losing his life savings.

![Figure 6: INCURRING](image)

When the ACTION is explicitly mentioned, RISK sentences with the JEOPARDIZING or INCURRING frame normally permit head-switching, as shown in (4-5).

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3 This three-way distinction is useful in discussing the different senses of *risk*. However, the current FrameNet analysis of the senses of *risk* places them in a family of frames with relation to other frames. The jeopardizing and incurring uses of *risk* are analyzed as different points of view on a generalized frame (see the RUN_RISK frame and RISKY_SITUATION frames). The daring sense of *risk* is in a separate frame, DARING, which is a subtype of an INTENTIONALLY_ACT frame.
In the DARING frame, the PROTAGONIST and the ACTION are foregrounded, e.g. (6a), although the ACTION is not encoded as a core argument.

(6) a. He risked leaving the security of his home {to deliver the message}. (DARING)

b. He *daringly* left the security of his home to deliver the message

![Diagram of DARING frame]

Figure 7

Note that DARING RISK sentences do not undergo head-switching in the same manner as JEOPARDIZING and INCURRING RISK sentences; *risk* is normally rephrased in a DARING RISK sentence with such an adverbial as *daringly*. Semantically, DARING RISK sentences are highly underspecified. In (6a), for example, we do not know what the risky situation that the act of leaving the security of his home might bring about. Nor can we identify what the endangered ASSET or potential HARM might be. In other words, with respect to the interpretation function, DARING RISK is the purest among the three; it provides nothing more than the speaker’s judgment about the ACTION specified by the content predicate. Therefore, interpreting DARING RISK sentences thoroughly requires a significant amount of inferences and thus is highly context dependent. If the ACTION is clearly negative, e.g. (7a), we can imagine without effort many adverse consequences, and thus the interpretation is easier. However, if the ACTION is neutral, e.g. (7b), more active interpretation effort on the hearer’s part becomes essential.

(7) a. I wouldn’t risk *offending my colleagues*.

b. I wouldn’t risk *waiting for her* (possibly because she is always tardy, and if they’re late, they might not be able to find seats).

5. **TRANSLATION INTO JAPANESE**

   RISK sentences frequently resist direct constructional transfer into Japanese due to complex lexicalization pattern differences between the two languages. The main noun in the Japanese RISK frame is *kiken*, and in many cases the noun *risk* can be translated as *kiken* with a little adjustment. Japanese predicates that belong in the RISK frame include *kiken o okasu/maneku, kiken ni sarasu*, and *kakeru*, each with different combinatory properties.
(8) a. Sonna kiken wa okashitakunai.  
   such risk top not.want.to.commit  
   ‘I don’t want to {take such a risk/risk doing such a thing}.’

   b. Iranai kiken wa manekitakunai.  
   unnecessary risk top not.want.to.invite  
   ‘I don’t want to {invite an unnecessary risk}.’

   c. Kodomotachi no inochi o kiken ni sarashita.  
   children gen life acc risk to exposed  
   ‘They risked the children’s lives.’

   d. Shoobooshi wa hito no tameni inochi o kaketeiru.  
   fire fighters top people gen for life acc risk  
   ‘Fire fighters risk their lives for others.’

5.1. **JEOPARDIZING Frame**

Sentences with the verb *risk* in the three sub-frames exhibit different characteristics when translated into Japanese. In JEOPARDIZING sentences, the **protagonist** is encoded as the topic/subject of the sentence; the **asset** is encoded either as the direct object NP (9a) or as the genitive NP modifying *kiken* (9b).

(9) a. Kanojo wa iraku ni itte, jibun no inochi o kiken ni sarashita.  
   she top Iraq to go-conj self gen life acc risk to exposed  
   ‘She risked her life by going to Iraq.’

   b. Kanojo wa inochi o kiken ni sarashite, iraku ni itta.  
   she top life acc risk to expose-conj Iraq to went  
   ‘She went to Iraq at risk to her life.’

When *kiken o maneku* is in an affirmative sentence, the subject is normally a **cause** or means, but not a sentient being. Therefore, it might be more appropriate to consider it as a complex construction *put X at risk*. In FrameNet, *put X at risk* is analyzed as having *at risk* in the **being_at_risk** frame, and *put* in the causation frame. *Put* is thus a causative support verb. Consequently, the subject of the sentence is not a frame element in the **risk** frame; it is merely the agent in a **causation** frame. For example: [He _cause_] put [the children at risk _effect_] (causation frame); He [put **support-verb**] [the children _asset_] at risk (risk frame).

(10) They know that, unless I am very fortunate, the only chance I’ll have to catch them is the moment in which they take the ransom, and they know equally well that you won’t <risk> your daughter’s life by telling me where that’s going to happen.

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**Footnote:**

4 ACC=accusative, CONJ=conjunctive particle, COP=copula, GEN=genitive, NMLZ=nominalizer, SFP=sentence final particle, QUOT=quotative, TOP=topical.
a. Anata ga watashi ni sono basho o oshiete, musume no inochi o you NOM me to that place ACC tell-CONJ daughter GEN life ACC kiken ni sarashitarishinai koto mo ne. risk to not.expose NMLZ also SFP

b. Anata ga musume no inochi o kiken ni sarashite made, watashi you NOM daughter GEN life ACC risk to expose-CONJ even me ni sono basho o oshietarishinai koto mo ne. to that place ACC tell-not NMLZ also SFP

(11) But what has this to do with Mr. Andrew? “Nothing,” I said. “I am simply making conversation while I decide whether to <risk> my job by telling you things that I certainly ought not to tell you.” “Don’t then,” she said.

a. Watashi wa tada, oshieru be kidenai koto o itte, jibun no shigoto I TOP just ought.not.to.tell thing ACC tell-CONJ self’s.job o kiken ni sarasu ka doo ka kesshin suru made no tsunagi ACC risk to expose whether.or.not decide until GEN to.fill.up.gap ni shabetteiru dake desu yo. for speaking only COP SFP

b. Watashi wa tada, jibun no shigoto o kiken ni sarasite made, I TOP just self’s.job ACC risk to expose-CONJ even oshieru beki de nai koto o iu ka doo ka kesshin suru made no ought.not.to.tell thing ACC tell whether-or-not decide until GEN tsunagi ni shabetteiru dake desu yo. to.fill.up.gap for speaking only COP SFP

JEOPARDIZING sentences normally permit head-switching alternatives, as shown in (9-11). However, while subordinating the RISK concept (b-sentences) is always possible, expressing it as the main predicate is sometimes impossible or unnatural, e.g. (12a, 13a).

(12) “I’ve lived in the mountains,” he said grimly. “I’ve seen what can happen to fools. I’ve also seen what can happen to the poor brave souls who <risk> their own lives searching for them.” He eyed her contemptuously.

a. ? Sooiu orokamono o soosaku ni itte mizukara no inochi o kiken such fool ACC search to go-CONJ self’s life ACC risk ni sarasu, yuukanna hitotachi no ki no doku na matsuro mo. to expose brave people GEN pity end too

b. Mizukara no inochi o kiken ni sarasite made, sooiu orokamono o self’s life ACC risk to expose-CONJ even such fool ACC soosaku ni iku, yuukanna hitotachi no ki no doku na matsuro mo. search to go brave people GEN pity end too
Fire-fighters <risked> their lives yesterday searching for two suspected young arsonists believed to be trapped inside a blazing school building.

5.2. INCURRING Frame
In INCURRING sentences, the PROTAGONIST appears as the topic/subject, and the HARM as an embedded clause modifying kiken, e.g. (14-16).

A young cancer victim whose mother refused him treatment because he was too weak will be at home for the Christmas he thought he would never see. Daniel Stoneman has defied the doctors who gave him a one-in-10 chance of survival from a rare brain tumour. His mother Angela had <risked> legal action by blocking radiation treatment — saying she would rather her son died in peace at home than suffer in hospital. Now Daniel, 10, appears to have made a remarkable recovery with just chemotherapy treatment and cancer tablets.

(15) Around a hundred homosexual couples will <risk> arrest tonight by gathering in London’s Picadilly Circus for a kiss-in. The demonstration arranged by the Lesbian and Gay Direct Action Group, OUTRAGE, is to challenge public decency laws which it claims are being misinterpreted to criminalise public shows of affection between gay couples.
a. Yaku 100-kumi no dooseiaisha kappuru wa kon’ya rondon no about 100 homosexual couple TOP tonight London GEN pikaderii saakasu no kisu-in ni sanka shi, taiho-sareru kiken o okasu. Picadilly.Circus GEN kiss-in to join be.arrested risk ACC commit

b. Yaku 100-kumi no dooseiaisha kappuru wa kon’ya taiho-sareru kiken o about 100 homosexual couple TOP tonight be.arrested risk ACC okashi, rondon no pikaderii saakasu no kisu-in ni sanka suru. commit London GEN Picadilly.Circus GEN kiss-in to join

But across the Atlantic the news stunned the British government. Reagan was their great friend and ally, with whom they had this supposed special relationship and who shared Mrs Thatcher’s much-publicised belief that no deals of any kind should be made with terrorists or governments that supported terrorism. Indeed, Mrs Thatcher had <risked> her personal reputation by allowing American F-111 aircraft to attack Libya from British bases in April 1986.

a. Satchaa fujin wa 1986-nen 4-gatsu, amerika no F111-ki no Mrs Thatcher TOP year.1986 April America GEN F-111.aircraft GEN eikoku kichi kara no ribia bakugeki o kyoka shi, jibun no meisei o British.base from GEN Libya attack ACC allow self’s.reputation ACC kizutsukeru kiken o okashita. hurt risk ACC committed

b. Satchaa fujin wa 1986-nen 4-gatsu, jibun no meisei o kizutsukeru kiken Mrs Thatcher TOP year.1986 April self’s.reputation ACC hurt risk o okashite amerika no F111-ki no eikoku kichi kara no ACC commit-CONJ America GEN F-111.aircraft GEN British.base from GEN ribia bakugeki o kyoka shita. Libya attack ACC allowed

As shown in the a-sentences in (14-16), INCURRING RISK sentences do not accommodate head-switching well; a-sentences can be used appropriately only when the decision to take a risky action becomes the topic of succeeding sentences, rather than the risky action itself. For example, in (14), if the following sentence were instead She was brave or As things turned out, it was a wise decision, (14a) would be appropriate. Like JEOPARDIZING RISK sentences, expressing the notion of RISK as a syntactically subordinated construction sounds more authentic in INCURRING RISK sentences in Japanese.

5.3. **DARING Frame**

DARING RISK sentences in Japanese normally do not express the concept of RISK as a predicate but only as such adverbials as *aete* ‘dare’, *omoikitte* ‘dare’, and *osorezuni* ‘fearlessly’ subordinated to the verb, e.g. (17-19).
(17) a. *Watashi wa hitomae de wa sonna hanashikata o suru kiken wa
   I TOP in.public such way of talking ACC do risk TOP
   okasanai.
   commit.not
   ‘I wouldn’t risk talking like that in public.’

   b. Watashi wa hitomae de wa aete, sonna hanashikata wa shinai.
   I TOP in public daringly such way of talking TOP do.not
   ‘(Lit.) I wouldn’t talk like that in public daringly.’

(18) ‘What do you mean by that?’ She looked away, made uneasy by the threatening
expression on his harsh features. Why on earth had she <risked> provoking him? ‘Only
that you seem to be the darling of the tabloids,’ she muttered.

(19) Now there was the kind of silence one gets in the middle of a windy night before an
increase to gale force. Miss Green, having taken Hubert’s advice, looked up at her host.
Flora, sensing that nobody would be looking her way, <risked> looking up. All around
fellow diners hushed.

(20) “I shall wear my hair how I please.” “Not while you live with me,” he said quietly, and
she couldn’t decide if he was serious or not. She glared at him, but there was too much at
stake to <risk> a fight, so after a moment she pushed her hair away from her face and sat
down, pulling one of the mugs towards her. “Very wise,” he said maddeningly.

(21) If you have spent a long day on the airfield, it will be difficult to refuse your turn to fly,
even if you are tired. However, if you are going to fly solo, refusing is the only sensible
thing to do. Flying demands all your concentration and it is not wise to <risk> flying if
you have business worries or some other mental stress on your mind. Even a violent
argument will leave you mentally high and quite unfit to fly.
5.4. Manage
Another interpretation predicate which must be translated as an adverbial is *manage*. It belongs to the SUCCESS_OR_FAILURE frame, in which an AGENT has succeeded or failed in their attempt at achieving a GOAL. There is no predicate in Japanese that corresponds to *manage*; it can only be translated with such adverbials as *nantoka/doonika* ‘somehow’, and *karoojite* ‘barely’, with or without *dekiru* ‘be able to’.

(22) Mary’s heart was beating fast and her hands were shaking as she pushed the leaves away and found the key-hole. She took the key out of her pocket, and it fitted the hole. Using both hands, she <managed> to unlock the door. Then she turned round to see if anyone was watching.

Kanojo wa ryoote o tsukatte nantoka doa no kagi o aketa. she TOP both.hands ACC use-CONJ somehow door GEN lock ACC opened

(23) The various attendants and hangers-on departed at great speed, and Abu, Lorne and I rose abruptly and began backing away into the warong. The truck-driver, on the other hand, tore across the street, through the rising blue flames, and leapt into his cab. After a few heart-stopping moments the old engine coughed into life, and he <managed> to accelerate the loaded vehicle through the flames out to safety.

Suukai no kiwadoi shunkan no nochi, furui enjin wa a.few.times GEN dangerous moment GEN after old engine TOP sekikomu yoona oto o tatete shidoo shi, kare wa honoo o like.coughing sound ACC make-CONJ start he TOP flame ACC tsukkitte mansai no kuruma o doonika anzen chitai ni go.across-CONJ full.loaded GEN car ACC somehow safe.area to dasshutsu saseta. made.escape

(24) On Thursday, the tranquil scene was dramatically transformed by an invasion of 20 cars and trucks and a horde of cameramen and reporters. Mrs. Clinton was greeted by a young couple who offered a bowl brimming with fermented mare's milk, a traditional nomadic drink. After a sip, Mrs. Clinton <managed> a smile. Most Westerners hate the taste, sometimes described as a cross between buttermilk and beer.

Hitokuchi nonde kurinton-fujin wa karoojite hohoenda. a.sip drink-CONJ Mrs. Clinton TOP barely smiled
Based on our analysis of RISK and other sentence translations, we have hypothesized that, in the case of the RISK frames, the content predicates are preferentially primary and the evaluation predicates tend to be grammatically subordinated in Japanese. However, this generalization is not applicable to all evaluation predicates. Recall sentence (1).

(1) Oshoogatsu ni wa tako o agete asonda.
   New Year’s Day TIME TOP kite ACC fly-CONJ played/enjoyed
   ‘(Lit.) On the New Year’s Day we enjoyed flying a kite.’
   ‘On the New Year’s Day we flew a kite for fun.’

Here, asobu ‘play/enjoy’ is the interpretation predicate, and yet it appears as the main predicate. We will examine more interpretation predicates and investigate the causes of this discrepancy.

6. CONCLUSIONS
In a careful survey of sentences expressing the various concepts that make up the family of RISK frames as described for English, we have found clear cases illustrating differences in basic clause structure between English and Japanese. These differences suggest preferences for one or another way of selecting “head” and “subordinator” between the expression of the risk-taking action and the concept of risk itself. In the case of DARING RISK, the possibility of expressing the risk concept as a clausal head does not exist in Japanese.

In addition to DARING RISK, in translations of English verbs like manage, deign, condescend, and a few others, we find control verbs in English corresponding to adverbial modification in Japanese, with almost no possibility of expressing the idea in a main verb. These are phenomena that make up important differences between the two languages, which language learners and translators have to take into account.

Whether these observations can be taken as suggesting any kind of deep semantic-typological differences between English and Japanese, or whether they simply represent small insignificant corners within the meaning-space of each language is yet to be seen. Perhaps corpus investigations and translation research along the lines we have sketched out here, especially using the principles and requirements of frame semantics, will eventually make it possible to define useful ways of conducting such inquiry.

REFERENCES


