



press start to translate

This is what happens when you let a computer translate a video game?



Getting Funky

In December 2016, I ran *Final Fantasy IV*'s Japanese text through an online tool known as Google Translate. In the blink of an eye, hundreds of pages of Japanese writing transformed into English. I then used my custom software to insert this English text back into *Final Fantasy IV*.

My first test was a near-perfect success – the game displayed the new text exactly as Google Translate wrote it. The machine translation was (unsurprisingly) pure nonsense, so I gave this version of *Final Fantasy IV* a suitable new name: *Funky Fantasy IV*.

Several days later, I ran *Final Fantasy IV*'s text through Google Translate again as part of another test. To my surprise, this second translation was incredibly different from the first one. I didn't know it at the time, but Google had upgraded its machine translator to use cutting-edge neural network artificial intelligence. By sheer luck, I had taken before-and-after snapshots of this technology in action – on a large scale, no less!

I immediately began to document both translations, mostly out of personal curiosity, but also as a fun *Legends of Localization* project. As I played through both translations, I took screenshots of interesting lines and streamed the entire experience online for others to enjoy.

I also shared a number of screenshots on a *Funky Fantasy IV* web page. The response was so strong that I soon found myself digging deeper into the project – deep enough to write a book about it.

In the pages ahead, we'll briefly look at *Funky Fantasy IV*'s development process. We'll survey the first machine translation – which we'll call "Translation #1" – followed by a more thorough look at Translation #2 from start to finish.

After that, we'll compare both translations to see how things changed for the better or worse. We'll also evaluate a machine's reading comprehension ability and its potential for improvement.

Finally, we'll check out some of the real-life surprises that ensued after news of *Funky Fantasy IV* got out. For an unplanned, spur-of-the-moment project, there's a whole lot to talk about!



Reading Guide

In the chapters ahead, you'll see all kinds of boxes and sidebars that accompany each set of game images. Don't be scared and confused – this handy guide will explain how everything works.

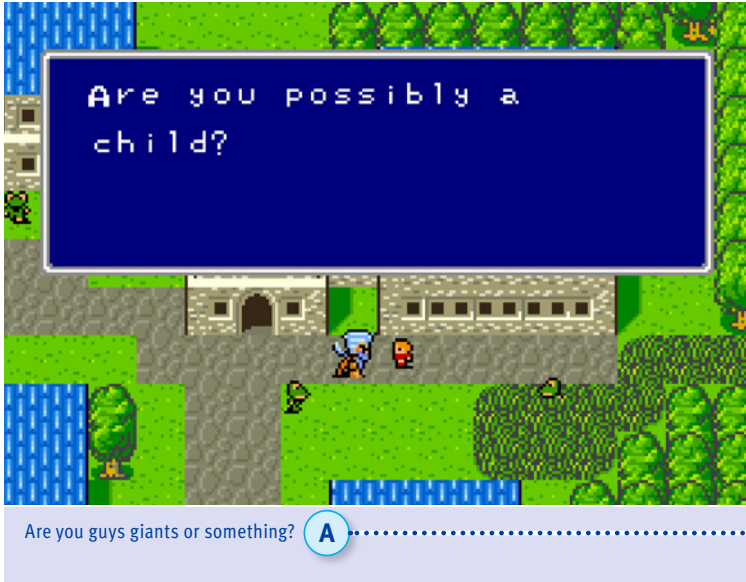
A. Intended Meanings: The captions beneath each game screenshot show what a proper translation of the Japanese text would be. Note that these are my own professional translations and are not based on any previous translations of *Final Fantasy IV*.

B. Story Box: *Final Fantasy IV*'s story goes all over the place, and the machine translations make the story even harder to follow along. If you're unfamiliar with *Final Fantasy IV*, these story snippets will help you make sense of it all.

C. Mato Says: Every so often, I'll share personal and professional insight in these tomato-themed boxes.

D. Challenge Box: You can learn a lot by reading about translation, but you'll discover even more by wrestling with translation yourself. Take on these unique challenges... if you dare.

E. Page Number: This is the current page number, written out in Japanese *hiragana* and then machine-translated into English using the same system as Translation #2. See if you can make sense of any of it!



Are you guys giants or something?

A

B

Story



Titus the tailor told ten tall tales to Titania the titmouse. Oh, her bridal bower becomes a burial bier of bitter bereavement!

C

Mato Says



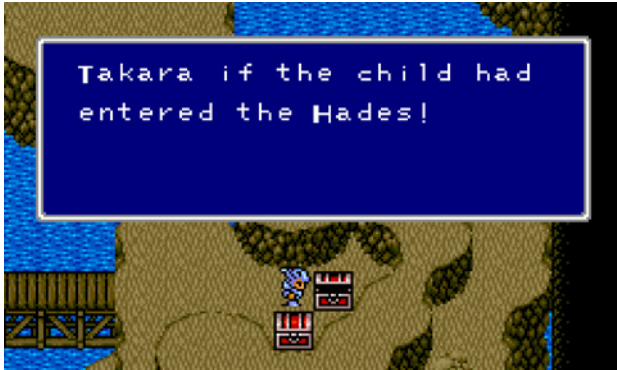
If you are reading this then you are exceptionally smart and attractive. Also, the Japanese *kanji* for "poop" is 糞.

D

Reader Challenge



Quick! What is the longest English word you can think of? Is it "shoelace"?



Inside the treasure chest was Hades Armor!

▲ Treasure Trove at Tanagra

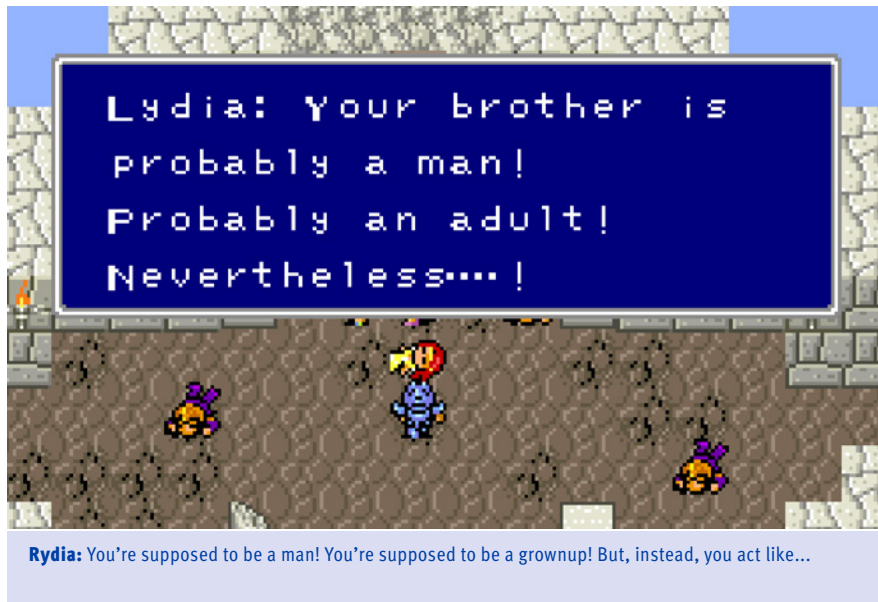
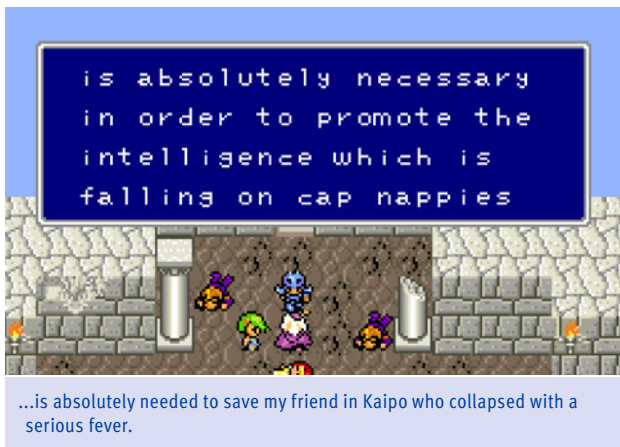
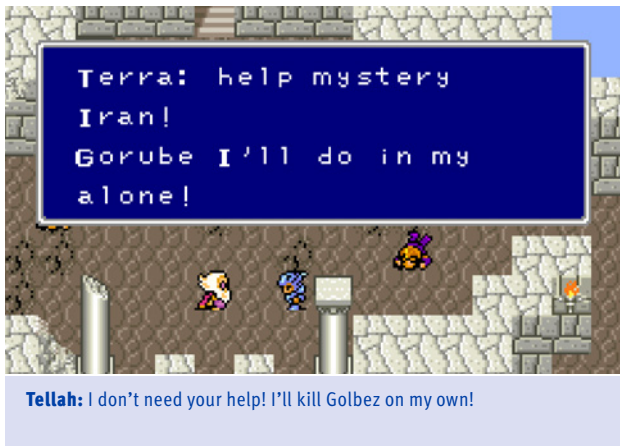
Translation #1 is based on an old-school “phrase-parsing” translation system. This approach focuses on individual phrases at a time rather than whole thoughts, so grammar often gets thrown out the window. To make matters worse, a single line of text can be reused countless times throughout a video game. As a result, one little machine-made mistranslation can plague an entire game from start to finish.



Tellah: What do you mean, it's not what I think?!

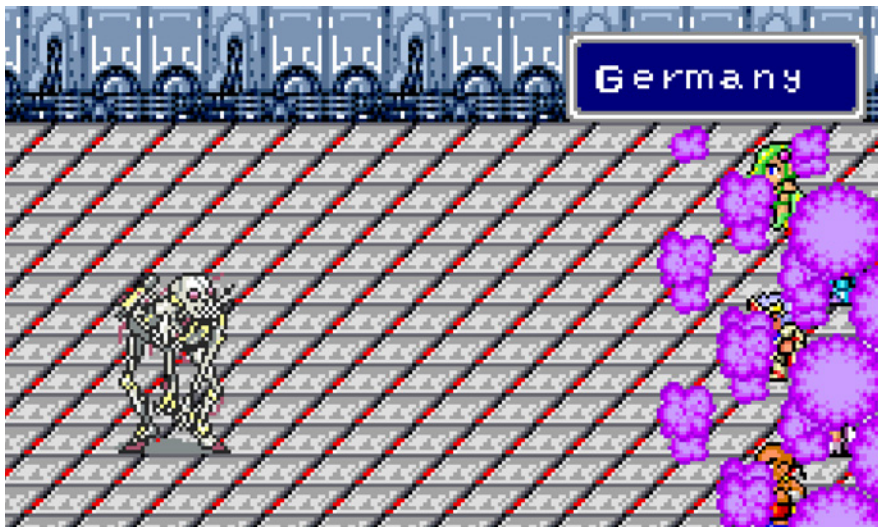
▲ Sans Silverware

The very first English release of *Final Fantasy IV* is famous for the line “You spoony bard!”. The same line is mostly unrecognizable in Translation #1, but for good reason: the original Japanese line was notably different to begin with.



▲ What Is a Man?

There's another basic aspect of the Japanese language that can cause translation headaches: pronouns are used far less often in Japanese than in English. For example, instead of using the pronoun "you", it's common to use the listener's name or a familial term like "brother" or "sister". Many times, no word is needed at all. Recognizing unstated, implied information in a sentence – and then using it to make logical decisions – is another obstacle that continues to thwart machine translators.



Poison Gas

アイア	Neutralize Germany
EtherDry: 4	AnchorZs: 1
Phoenix :27	Unicornn: 4
Kinnohar: 2	Intent : 2
PanDwarf: 1	BeardKur: 1
DietFood:10	Bacchus : 6
Uchide : 9	HermsShs: 3
Cross : 1	Whorglss: 3

Neutralize poison



Poisoned!

▲ German Infatuation

The Japanese word *doku* has many meanings. For example, it can potentially mean “poison”, “reading”, “solitude”, “to move out of the way”, or “skull”. It’s also often used as a Japanese abbreviation for the name “Germany”. It’s clear from context that it’s supposed to mean “poison” throughout *Final Fantasy IV*, but the machine behind Translation #1 was unaware that it was translating a video game. The result was a very wrong translation choice!



▲ Look to the Beginning

This mistranslation features a pattern unique to Translation #2: the machine often takes the first letter of a translated word and inserts a different word that starts with the same letter. In this case, the correct translation of “Bomb Ring” transformed into “bamboo rope”. I thought this was pure coincidence at first, but it marked the start of what I call the “First Letter Pattern”.



▲ Royal Boundaries

The word *heika* (“His Majesty”, “Your Majesty”) is consistently mistranslated throughout Translation #2. In this instance, the machine translator ignored the *ka* and translated the word *hei* (“fence”) instead. Incidentally, Translation #1 handled *heika* just fine most of the time, so this marks a step backwards in quality. “Gorp” is a little-known English word that can mean “trail mix” or “to devour”.





Beigan: Oh, you're unharmed!
Cecil: Beigan! Don't tell me you're also...



Beigan: We royal guards came here to rescue him, but I was the only one who survived. **Cecil:** I see.

Story



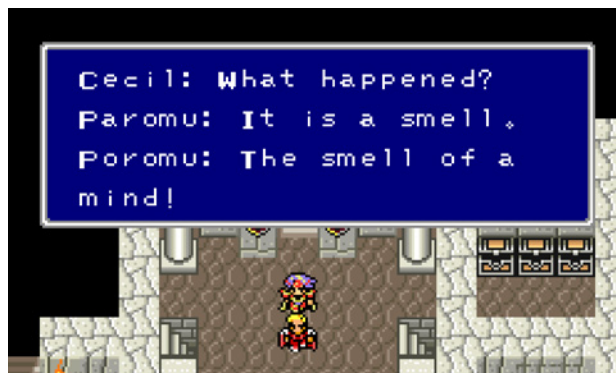
Cecil and friends explore the castle, but it's eerily deserted. Eventually, they meet a royal guard who transforms into a monster.

The heroes defeat the monster and head to the throne room. There, they find the king.

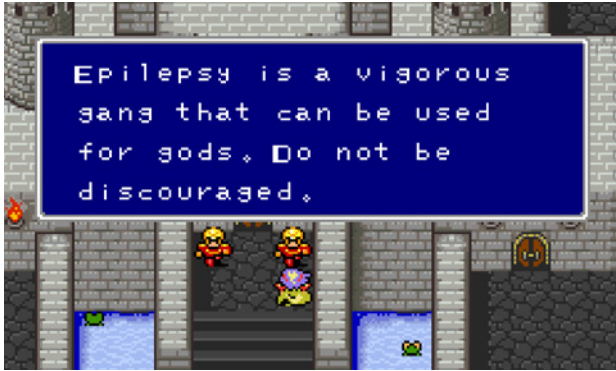
▲ Royal Roll Call

The neural network behind Translation #2 tends to be wishy-washy when it comes to translating unique names. For example, this royal guard – who is normally known as “Beigan” – goes by half a dozen names in Translation #2, including “Bagan”, “Vegan”, “BEIGAN”, and the illustrious “Big gun”.

As we've seen, this issue with indecisiveness and inconsistency is a constant problem throughout Translation #2's text. It's one of Translation #2's most unique characteristics, in fact.



Cecil: What is it? **Palom:** Something stinks. **Porom:** It stinks of a monster!



The priestesses are solemn servants of the gods. Don't do anything rude to offend them.



Do a dance? How rude! I'm a royal guard!

Story



Cecil and friends meet Prince Gilbert again in Torioia Castle, but he's too weak and injured to join the party.

The heroes ask Torioia's priestesses for their crystal. Unfortunately, it was recently stolen by the Dark Elf.

▲ Divine Inattention


In this mistranslation, the Japanese word *shinkan* ("priest", "priestess") somehow mutated into the word *tenkan* ("epilepsy") before it was translated.

This isn't an isolated mistranslation, unfortunately – these special priestesses are a regular topic of discussion during this part of the game. As a result, an entire nation in *Funky Fantasy IV* seems obsessed with epilepsy.



Me? I'm a nurse.



Story 

The heroes take the airship underground. The airship crashes outside the Dwarf Castle.

Cid leaves the party to work on the airship.



◀ Larry, Ho, and Curly

The dwarves in *Final Fantasy IV* have a special greeting that has been translated into English multiple ways over the years, including “Lali-ho” and “Rally-ho”. Ls and Rs are often a source of confusion when translating between Japanese and English, so it’s not surprising that different people translated the greeting in different ways. The machine translator, however, chose a surprising new greeting no one ever considered: “Larry-ho”. As a result of this choice, dwarves everywhere are now obsessed with some guy named Larry.



Hatch
Myser-Egg

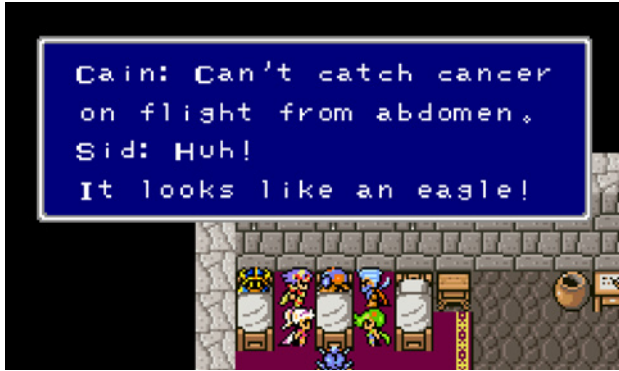
◀ Digital Footprints

The Japanese name for this enemy, “Myser-Egg”, is a clever combination of the English words “mystery” and “egg”. The name sounds simplistic if you’re a native English speaker, but its use of English lends the name an exotic flair for Japanese gamers.

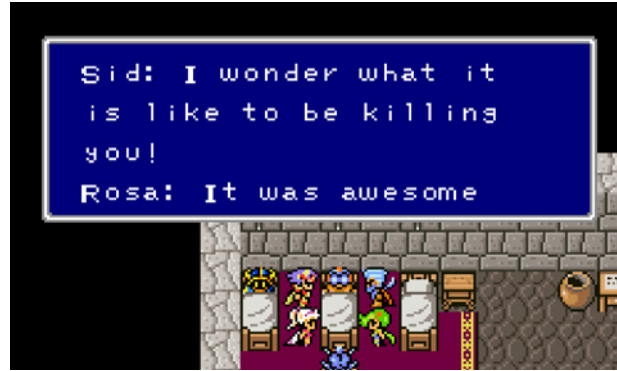
It seems the machine was confused by this unique combination of English words, so it eventually attempted to break it into two smaller words. Unfortunately, it cut the name in the wrong place and then made the classic mistake of confusing Ls and Rs during translation. The result: a monster named “Mister Leg”.

The text that appears when the egg hatches was mistranslated as well: the Japanese word *fuka* (“to hatch”) was mistaken for another word with the same pronunciation that means “shark”.

In all, these are mistakes that a moderately experienced human translator would have no trouble with. Recognizing others’ creativity is a skill that comes naturally for us, but not necessarily for machines.



Cain: The enemy airship we stole can't fly over lava.
Cid: Heheh! Looks like it's my time to shine!

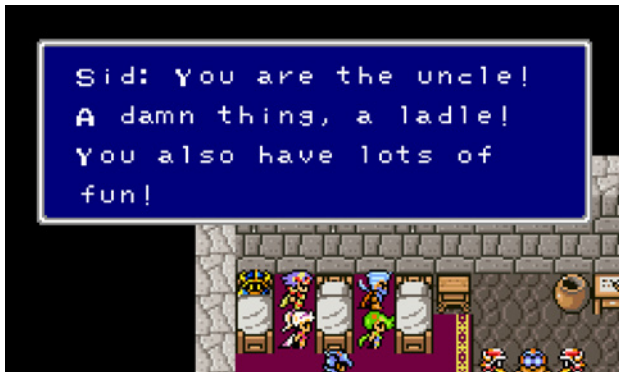


Cid: Now you can fly over lava or whatever else without a worry in the world!
Rosa: Thank you, Cid.

Story

The heroes find Golbez's crystals, but a pitfall sends them back into the Underground. They steal an airship and escape.

The group discovers that Cid is still alive. He upgrades their new airship, which allows them to visit isolated Underground settlements.



Cid: You guys are old men too! This ain't no time for you to relax! You're gonna come help me!

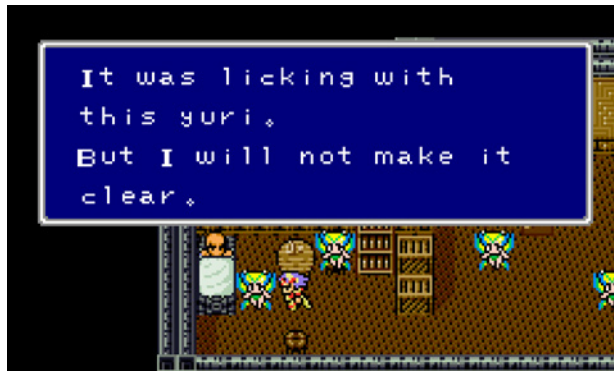
◀ Family Ties

In Japanese, it's common to refer to strangers using family terms. For example, if you're a little kid and you're talking to a teenage boy, you might call him "Big Brother". If you're talking about a middle aged lady you see across the street, you might refer to her as "that aunt". Similarly, middle-aged to older men are often called "Uncle".

Unfortunately, the nuances of these relationship terms are difficult for machines to grasp, particularly when there's no context to reference. Here, we see that the machine literally translated the word for "uncle" instead of the intended "older man" meaning.



The electric shock ripped through Odin!



He was lying on the ground outside the cave. He hasn't woken up at all, though.



Honestly, the nerve of that man, lying around all day like that...
Oops, I must've gotten some dust in my eyes.



Obtained Kitchen Knife!

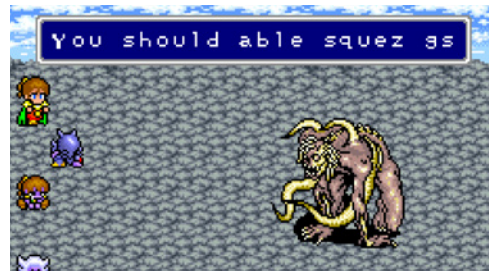
Story



In another side quest, it's learned that Yang is still alive. After visiting his wife several times, the party receives a surprisingly powerful weapon.

Battle Dialogue & Messages

Machine Translation	Intended Translation
Opportunity to endure when you express yourself!	Your chance to defeat it is when it takes its physical form!
Mug "Rug now! I am going magical!"	Magu: Now, Ragu! Cast a spell on me!
I'm noisy!	Shut up! Be quiet!
The time has come for us to use the meteorology ...	So, the time to cast Meteor has come...
He brought him back to court!	The king and queen regained control of their minds!



(Unshortened Text: "You should be able to squeeze gas!")
Breathe this gas and become living corpses!

Battle Actions & Spells

Machine Translation	Intended Translation
King's cheek	Hellfire
Breath of dress	Mist Breath
Case study	Stone Glare
Job launch	Binding Cold
Medical institution	Restore
Job abstract	Unbind
Sweet potato	Tornado
Curtain	Flamethrower
Loudspeaker	Water Bomb
The lion	Thunder Blade
Bunker	Split Image
Bag	Cover
Lump	Airship
To despair	Steal
Boy	Defend
I do not care	Don't Cover



Throw



(Unshortened Text: "Crockery")
Fire Bomb