

Conceptual Evolution from Quality to Quantity

Yoshikata Shibuya
University of Manchester
yoshikata.shibuya@stud.man.ac.uk

1 Introduction

Semantic change does not take place at random. It is motivated by our general cognitive processes. For example, research on grammaticalization and subjectification has shown that semantic change involves a conceptual shift from an objective to a subjective/epistemic meaning, and that the shift reflects how we conceptualize things in the world (see e.g. Langacker 1990, 1998; Traugott 1989).

This paper introduces a model called the Evolutionary Concept (EC) model. The EC model is a concept model built on the evolutionary model of language change proposed by Croft (2000). The EC model provides a framework to explore semantic change (or the evolution of concepts) from an evolutionary perspective. In this paper, I will discuss the conceptual evolution from quality to quantity, and reveal the universal cognitive patterns involved in such a conceptual evolution.

2 Evolutionary theories in biology and linguistics

Let us first briefly discuss the fundamental theoretical components of evolutionary theories in biology and linguistics.

2.1 Croft's (2000) evolutionary model of language change

Croft (2000) proposes a model in which language change is understood as a fundamentally evolutionary phenomenon. Croft's model is built on the ideas in biology and the philosophy of science developed by scholars such as Richard Dawkins and David Hull. Below are the basic components of Hull's theory of selection (Hull 1988: 408-9; emphasis original):

- *replicator* – an entity that passes on its structure largely intact in successive replications.
- *interactor* – an entity that interacts as a cohesive whole with its environment in such a way that this interaction *causes* replication to be differential.
- *selection* – a process in which the differential extinction and proliferation of interactors *cause* the differential perpetuation of the relevant replicators.
- *lineage* – an entity that persists indefinitely through time either in the same or an altered state as a result of replication.

In biology, a paradigm example of a replicator is a gene. A gene has a structure to pass on in a sequence of replications. A paradigm example of an interactor in biology is an organism. An organism interacts with the environment as a cohesive whole. The interaction influences replication "in such a way that certain structures become more common" (Hull 1988: 409).

The two entities, replicators and interactors, function in selection processes. Lineage is the entity that results from successive replications.

Croft's model is called the "Theory of Utterance Selection", which is defined as "the theory that the utterance contains the paradigm replicators (the linguemes) in language change, altered replication of grammar largely occurs through form-function reanalysis, and selection occurs through social mechanisms" (Croft 2000: 244). In Croft's model, a speaker is defined as an interactor who, as a cohesive whole, interacts with the interlocutor. The speaker selects particular linguistic structures in particular utterances based on social factors (e.g. social relation of the speaker and the hearer).

Replication is "the creation of a new entity that preserves in large part the structure of its parent entity (or entities)" (Croft 2000: 3; see also Dawkins 1976 and Hull 1988). Replication, in biological evolution, is accomplished "by molecules of DNA splitting and the missing nucleotides being filled in so that the information contained in the resulting molecules is retained" (Hull 2001: 58). The production of a linguistic structure is an example of replication in language evolution. Replication can also involve alterations. A paradigm instantiation of altered replication in biology is the mutation of genes. When the original structure is altered in replication, the altered structure will be the structure to be passed on in the next replication. Namely, a replicator can become an altered replicator. In Croft's model, the sociolinguistic term "variant" is used to refer to an altered replicator.

In Croft's model, replication is classified into the following subtypes:

- normal replication – conformity to convention in language use
- altered replication – violation of convention in language use
- differential replication – establishment of a convention through language use

Normal replication produces a linguistic structure that is in conformity to convention in language use. For example, when one pronounces *bad* in the way that the speaker and other speakers of English recognize as conventional, the production of the linguistic utterance is called normal replication. Altered replication produces a variant which is not in conformity to convention in language use. For example, when one pronounces *bad* in an unconventional way (e.g. "with a slightly higher vowel than in earlier utterances", Croft 2000: 3), such a change is called altered replication. Altered replication is also called innovation – "the creation of a novel variant by altered replication of a lingueme in an utterance" (Croft 2000: 238). Differential replication is selection of a new convention. It involves the propagation – "the increase in frequency of a lingueme in a language by selection" (Croft 2000: 241) – of the new convention in communication. For example, if more and more speakers of English come to pronounce *bad* with a higher vowel than the convention now, such unconventional pronunciation could eventually become established as conventional. In Croft's model, such a change is called differential replication (Croft 2000: 4; see also Hull 1988: 409 for differential replication in biology).

Dawkins (1976), by analogy with "gene" in biology, coined a term "meme" to refer to a unit of cultural inheritance. A meme is a contagious idea that replicates its structure (i.e. a replicator). It is parasitically passed on from one person (mind) to another (mind). Examples of memes include tunes, catch-phrases, clothes fashions, etc. On the analogy of the term meme, Croft proposes a term "lingueme" to refer to a unit of linguistic structure. A lingueme is a replicator. It is the linguistic equivalent to a gene. The information of a

lingueme replicates and gets passed on from one speaker to another. When a speaker of a language utters words, the linguemes replicate.

Ever since the emergence of evolutionary theory in biology and linguistics as a science (both in the nineteenth century), the similarity between biological evolution and language change has been noted by researchers (see Croft 2000: §2.1). Croft's model provides a framework that is general enough to apply across evolutionary theory in biology and linguistics. Croft's model also integrates various areas of linguistics (e.g. historical linguistics, typology, sociolinguistics, etc.) in a unified framework, bringing a new perspective to the study of language change. With such a comprehensive model, Croft (2000) presents detailed accounts on grammatical change, the structure of speech communities, language contact, etc.

2.2 Evolutionary Concept model

As mentioned in §1, the Evolutionary Concept model is based on Croft's (2000) evolutionary model of language change. Basic theoretical components of Croft's model are also employed in the EC model. The main feature of the EC model is that, as is obvious by the naming itself, the theory focuses on the evolution of concepts. Below are some of the most fundamental theoretical concepts of the EC model:¹

- sense-meme – a type of lingueme, a “conceptual” unit (e.g. A.B. C of a concept X)
- conceptual linkage – linkage (lineage) of sense-memes (e.g. A > B > C > D)
- conceptual linker – a sense-meme that links another sense-meme with another one on the conceptual linkage (e.g. B in “A > B > C > D” is a conceptual linker of A and C)

A sense-meme is a replicator. It has a conceptual structure that is passed on from the mind of a speaker to another in replication. A conceptual linkage (lineage) is a history of the conceptual evolution. A conceptual linkage consists of conceptual linkers. In the EC model, semantic change (or conceptual evolution) is defined as the development of the conceptual linkage consisting of sense-memes.

In the EC model, it is hypothesized that a sense-meme cannot skip the next sense-meme on the conceptual linkage (the conceptual linkage hypothesis). In the conceptual linkage of “A > B > C > D” for example, a sense-meme (e.g. A) cannot skip the next one (i.e. B) to get conceptually connected with the others (i.e. C and D). The sense-meme B is a conceptual linker between the sense-memes A and C. B is a variant of A, not of C nor of D. C is a variant of B, not of A nor of D. On the linkage, A is conceptually closer to B than C and D.

The EC model seeks to reveal the mechanisms of how sense-memes form a linkage. The conceptual linkage reflects how human beings conceptualize things in the world, and its explication is the main concern of this model. In the EC model, a generalization is made based on an observation of the conceptual distributions across languages. Semantic change is one of the most fundamental aspects of language. The EC model presents a cognitive-typological approach to the issues on semantic change from an evolutionary perspective.

In the EC model, a concept written in capitals denotes a universal concept found

¹ The EC model is a form of the semantic map model. For the semantic map model, see Croft (2001).

across languages. For example, HEALTHY is a universal concept. Possession of good health is a universal phenomenon for human beings with similar physiological structures. HEALTHY denotes such a physiological state. Each language elaborates a universal concept in a different fashion. I will label a concept elaborated in a particular language in italics with the name of the language before it (e.g. the English *healthy*). By differentiating universal concepts from those elaborated in a particular language, the EC model attempts to capture universals and language particular facts on conceptual distributions.

Although there is more to say about the theoretical components of the EC model, this paper will not go into it any further. The theoretical concepts relevant to the arguments of this paper will be introduced at an appropriate place in the following sections. A more detailed account of the theoretical components of the EC model will be provided elsewhere in my future work.

3 Conceptual evolution of HEALTHY

Let us now turn to the discussion of the conceptual evolution from quality to quantity. There are numerous concepts that denote a quality in language. It is beyond the scope of the present paper to study all concepts that denote a quality. In this paper, we will focus on the concepts HEALTHY and GOOD.

3.1 QUALITATIVE use of HEALTHY

The argument of this paper is based on the cross-linguistic survey I conducted in Dutch, English, German, Japanese, (Venezuelan) Spanish, and Swedish. I asked a native informant of each language to translate English examples (e.g. 1a below) into their native language, and then examined the acceptability of the translated expressions.

First, consider the qualitative use of HEALTHY. In (1), the referent (person) is a living organism and HEALTHY denotes that the referent has a good physiological quality. The example illustrates the most central sense-meme of HEALTHY. I will call such a sense-meme <HEALTH-POSSESSING> (i.e. “fit”).

(1) <HEALTH-POSSESSING>

- a. If you can't exercise then you will lose all your ability to be a *healthy person*.
[BNC:A0V 605] (English)²
- b. een gezond persoon (Dutch)
- c. ein gesunder Mensch (German)
- d. kenkoona hito (Japanese)
- e. persona saludable (Venezuelan Spanish)
- f. hälsosam person (Swedish)

In the EC model, it is argued that (1) illustrates “normal elaboration” of HEALTHY. Normal elaboration is the case when a universal concept is elaborated in the prototypical way. For a type of elaboration to be called normal, a similar sense must be found cross-linguistically and is recognized as central. As illustrated in (1), the paradigm

² BNC = the British National Corpus

sense-meme is elaborated in all the examined languages.

HEALTHY can also be elaborated in an altered way. In (1), the head noun referent is a health-possessor. Notice that in (2) given below the referent is a health-indicator. Unlike (1), the referent in (2) is not a person, but something displaying a symptom of the person's health. I will call the sense-meme of (2) <HEALTHY-LOOKING>. Such an altered elaboration appears not possible in some languages. As illustrated in (2f), Swedish does not allow such an evidential sense of HEALTHY, which suggests that the Swedish *hälsosam* has not established the sense-meme <HEALTHY-LOOKING>.

(2) <HEALTHY-LOOKING>

- a. It helps to start with a glowing, *healthy complexion* before layering on your matte products. [Sunday Times (London, England), Oct 29, 2000 p57] (English)
- b. een gezonde teint (Dutch)
- c. eine gesunde Gesichtsfarbe (German)
- d. kenkoona kaoiro (Japanese)
- e. apariencia saludable (Venezuelan Spanish)
- f. * hälsosam hy [fräsch hy (fräsch = clean, fresh)]³ (Swedish)

The qualitative use of HEALTHY also involves a causal type as given in (3). In (3), the referent is not a health-possessor, but it is what makes a person health-possessing. This altered elaboration is causally motivated. In this type, the head noun referent is a health-giver. Unlike the sense-meme of (2), the sense-meme <HEALTH-GIVING> of (3) seems equally established in all the examined languages.

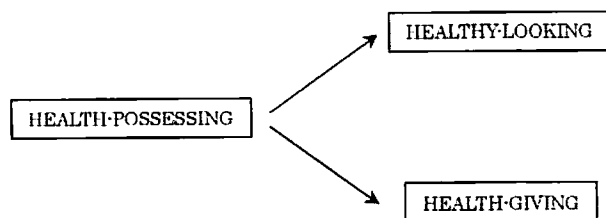
(3) <HEALTH-GIVING>

- a. Walking, cycling and swimming are *healthy exercise* which can help keep the patient's blood pressure down, if he does them sensibly, without putting himself under undue pressure. [BNC:ASO 479] (English)
- b. gezonde oefening (Dutch)
- c. gesunde Übungen (German)
- d. kenkoona undoo (Japanese)
- e. ejercicios saludables (Venezuelan Spanish)
- f. hälsosam motion (Swedish)

This section introduced three types of sense-memes that refer to a quality. Figure 1 depicts the conceptual linkage of the sense-memes in the qualitative use. <HEALTH-POSSESSING> is the most central sense-meme, from which the variant sense-memes <HEALTHY-LOOKING> and <HEALTH-GIVING> derive. The altered elaborations are motivated by our cognitive processes. <HEALTHY-LOOKING> becomes available by evidential association, and <HEALTH-GIVING> by causal association. These associations are metonymic, which is motivated by our frame-semantic knowledge on health.

³ An acceptable expression is given in the square brackets.

Figure 1. Network of sense-memes (qualitative use of HEALTHY)



3.2 QUANTITATIVE use of HEALTHY

3.2.1 Hybrid sense-meme

In some languages, HEALTHY is elaborated in such a way that it refers to a quantity. For example, (4) illustrates the case when HEALTHY means “considerable” or “large”. In this type of elaboration, HEALTHY does not denote a physiological quality, but a quantity of the referent. I will call this a quantitative use of HEALTHY.

(4) <LARGE>

- a. Meanwhile, Hogarth was making a name and *healthy income* as an engraver. [BLC:TimesFeb95] (English)⁴
- b. een gezond inkomen (Dutch)
- c. ein gesundes Einkommen (German)
- d. *kenkoona shuunyuu [sootoona shuunyuu (sootoona = considerable)] (Japanese)
- e. *entrada saludable [buena entrada (buena = good)] (Venezuelan Spanish)
- f. *hälsosam inkomst [en ansenlig inkomst (ansenlig = considerable)] (Swedish)

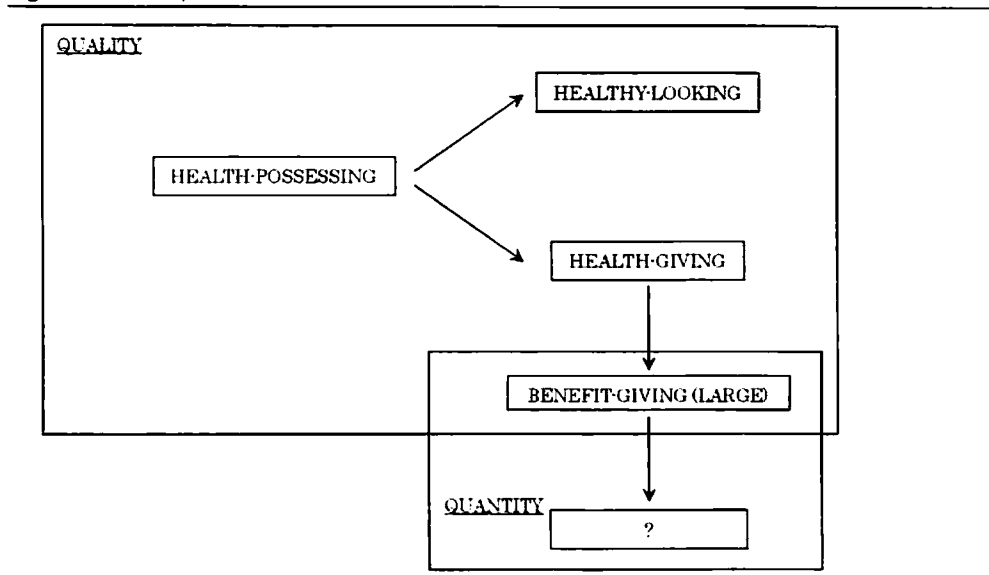
How does the quantitative use become available? Which sense-meme as given in Figure 1 links with the sense-meme <LARGE> of (4)? I argue that the sense-meme <HEALTH-GIVING> brings about the emergence of the sense-meme <LARGE> of (4). A health-giving thing is a benefit-giving thing at the physiological level. Based on such a conceptual similarity between a health-giving thing and a benefit-giving thing, the sense-meme <BENEFIT-GIVING> emerges as a variant sense-meme of <HEALTH-GIVING> (i.e. metaphorical extension). The sense-meme <LARGE> of (4) is a variant of <BENEFIT-GIVING>. The sense of “large (in quantity)” emerges by the understanding of a noun referent as a benefit-giving thing. Benefit-giving income is a large income. Small income is (normally) not beneficial for the recipient. By such social knowledge, we understand that the quantity of income denoted by expressions such as a *healthy income* is large. The sense-meme <LARGE> in (4) can thus be also called <BENEFIT-GIVING (LARGE)>.

In §3.1, we observed that apart from the Swedish *hälsosam*, all the qualitative uses are available in the examined languages. In contrast, the availability of the sense-meme <BENEFIT-GIVING (LARGE)> is much lower than that of the qualitative use. As illustrated in (4), <BENEFIT-GIVING (LARGE)> is only available in English, Dutch,

⁴ BLC = the Online Business Letter Corpus (<http://isweb9.infoseek.co.jp/school/ysomeya/>)

and German. What does the low availability of this sense-meme imply? In the EC model, the distributions of available sense-memes are explained in terms of the selection of sense-memes in a language. In terms of that of (4), I argue that in a language like English (also Dutch and German), innovation to use the concept *healthy* in such a quantitative sense took place sometime in the past, and now the sense-meme has been selected by speakers of the language. In the languages (Japanese, Venezuelan Spanish, and Swedish), where <BENEFIT-GIVING (LARGE)> is not found, the selection process to use HEALTHY in such a quantitative sense has not yet occurred.

Figure 2. Conceptual shift from QUALITY to QUANTITY



The conceptual linkage given in Figure 2 shows that the sense-meme <BENEFIT-GIVING (LARGE)> is a hybrid of the qualitative use and the quantitative use of HEALTHY. <BENEFIT-GIVING> as a conceptual linker connects the categories of quality and quantity together. The figure shows that the boundary between quality and quantity is not sharp. What type of sense-meme develops from <BENEFIT-GIVING (LARGE)>? The next section discusses the sense-memes that are purely quantitative.

3.2.2 Purely quantitative sense-memes

In (5), the sense of HEALTHY is close to “at least”. I will call such a sense <AT LEAST>. The sense of (6) is close to “full”, and I will call such a sense <FULL>. These two senses illustrate the sense-memes that are purely quantitative. An important syntactic characteristic of the purely quantitative type of HEALTHY is that in this type the head nouns are numerals (or measurement terms). In this paper, <AT LEAST> and <FULL> are called the fulfillment type of the quantitative use, since, although “at least” and “full” denote a different type of quantity, they both denote fulfillment of some quantity.

(5) <AT LEAST>

- a. Even with a weak June, second-quarter industrial production still grew at a *healthy 2.5 percent annual rate*, double the first quarter's 1.2 percent rate. [BLC:Business.txt] (English)
- b. # een gezonde 2,5 procent op jaarbasis (Dutch)
- c. * gesunde 2,5 Prozent jährliche Zuwachsrade [gute 2,5 Prozent jährliche Zuwachsrade (gut = good)] (German)
- d. * kenkoona 2.5 paasentono nenritu [sukunakutomo 2.5 paasentono nenritu (sukunakutomo = at least)] (Japanese)
- e. * saludable 2.5 tasa anual [por lo menos 2.5 tasa anual (por lo menos = at least)] (Venezuelan Spanish)
- f. * hälsosamma 2.5 procent årligen [sunda 2.5 procent årligen (sunda = sound, healthy)] (Swedish)

(6) <FULL>

- a. And McDonald's is entering a team - just to prove that you can walk a *healthy 100 kilometres* after eating a hamburger and French fries. [BLC:scmp1.txt] (English)
- b. * een gezonde 100 kilometer [de volle 100 kilometer (vol = full)] (Dutch)
- c. * gesunde 100 Kilometer [volle 100 Kilometer (voll = whole, (full))] (German)
- d. * kenkoona 100 kilomeetaa [tappuri 100 kilomeetaa (tappuri = full, enough)] (Japanese)
- e. * saludable 100 kilometros [seguros 100 kilometros (seguros = sure)] (Venezuelan Spanish)
- f. * hälsosamma 100 kilometer [hela 100 kilometer (hela = all, whole)] (Swedish)

We have discussed that the sense-meme <BENEFIT-GIVING (LARGE)> is only available in English, Dutch, and German (see example 4). The availability of the fulfillment type is lower than that of the sense-meme <BENEFIT-GIVING (LARGE)>. As illustrated in (5) and (6), it is only English that has the fulfillment type. I argue that the fulfillment type emerges as a variant of <BENEFIT-GIVING (LARGE)>. In my accounts, a language that has developed the sense-meme <BENEFIT-GIVING (LARGE)> as a conceptual linker between the qualitative use and the quantitative use has a chance of developing the fulfillment sense-meme next (sometime in the future), and what is suggested in (5) and (6) is that of the languages (i.e. English, Dutch, and German) that have selected the sense-meme <BENEFIT-GIVING (LARGE)>, it is only English that has selected the sense-memes of the fulfillment type today.

The argument that the fulfillment type emerges as a variant of <BENEFIT-GIVING (LARGE)> is also supported by the Dutch data. In Dutch, the expression of (5b) itself is acceptable, but the phrase *gezond* means "benefit-giving", not "at least". This implies that the Dutch *gezond* has developed the sense-meme <BENEFIT-GIVING>, but has not yet established <AT LEAST>. The conceptual proximity of <BENEFIT-GIVING> and <AT LEAST> is suggested by such a fact.

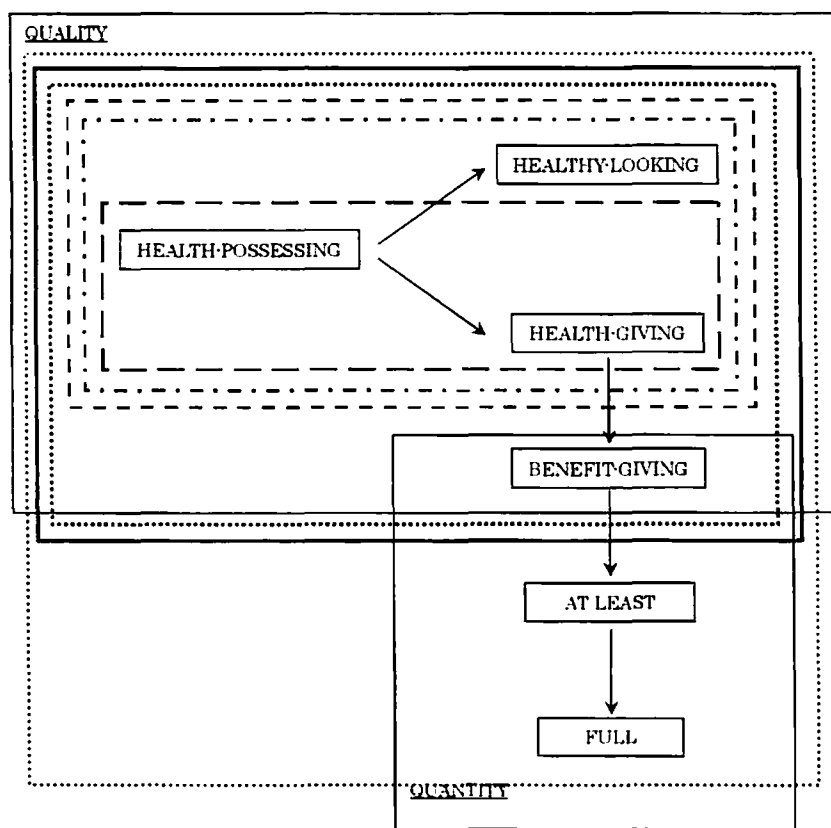
I argue that the conceptual linkage of the fulfillment type is "AT LEAST > FULL". This is also supported by the Dutch data. As shown in (6b), the sense-meme <FULL> is not available in Dutch. In the EC model, it is explained that the Dutch *gezond* has not developed the sense-meme <AT LEAST> yet, and hence <FULL> has not yet been

established either. As noted in §2, the EC model has a hypothesis that a sense-meme cannot skip the next sense-meme on the conceptual linkage (the conceptual linkage hypothesis). Under this hypothesis, the Dutch data can be interpreted as giving support for the proposed conceptual linkage.

3.3 Conceptual linkage of HEALTHY

Figure 3 gives the conceptual linkage of HEALTHY and describes how the sense-memes are distributed across the languages.

Figure 3. Conceptual linkage of HEALTHY and the cross-linguistic distributions of sense-memes



Dutch: ———, English: , German: - - - - -

Japanese: - . - . , Venezuelan Spanish: - - - - , Swedish: — — —

In the figure, arrows indicate the conceptual linkage patterns (i.e. the directionality of the conceptual evolution of HEALTHY). The sense-memes <HEALTHY-LOOKING> and <HEALTH-GIVING> are variants of the sense-meme <HEALTH-POSSESSING>. The quantitative use develops from <BENEFIT-GIVING>, which is a variant of <HEALTH-GIVING>. <AT LEAST> and <FULL> are purely quantitative. The latter

derives from the former.

As shown in the figure, each language elaborates HEALTHY in a particular way. The results show that the English *healthy* elaborates HEALTHY in the most extensive way among the examined languages. Dutch and German encompass the sense-memes <HEALTH-POSSESSING>, <HEALTHY-LOOKING>, <HEALTH-GIVING>, and <BENEFIT-GIVING (LARGE)>, but they have not yet established the fulfillment type. Japanese and Venezuelan Spanish have the sense-memes <HEALTH-POSSESSING>, <HEALTHY-LOOKING>, and <HEALTH-GIVING>, but not any quantitative uses. Swedish only has established <HEALTH-POSSESSING> and <HEALTH-GIVING>.

In §3.2.1, I argued that <HEALTH-GIVING> motivates the emergence of the quantitative use. Such an argument is also supported by the fact that Swedish does not have <HEALTHY-LOOKING>. The sense-meme <HEALTHY-LOOKING> is irrelevant to the emergence of the quantitative use. It is because the innovation to use <HEALTH-GIVING> as <BENEFIT-GIVING (LARGE)> and the selection of such a use have not yet taken place in Swedish that the Swedish *hälsosam* does not have the sense-meme with a quantitative value.

It is only English that has both <BENEFIT-GIVING (LARGE)> and the fulfillment type. A language without the sense-meme of the fulfillment type (e.g. Japanese, Swedish) does not have the sense-meme <BENEFIT-GIVING (LARGE)> either. The unavailability of the fulfillment type in these languages follows from the fact that these languages have not selected <BENEFIT-GIVING (LARGE)> yet. The fulfillment type is an altered replication of <BENEFIT-GIVING (LARGE)>. The EC model has a hypothesis that a sense-meme cannot skip the next sense-meme on the linkage. What the proposed conceptual linkage implies is that in order for a language to have the fulfillment type, it must have already established the sense-meme <BENEFIT-GIVING (LARGE)> as a conceptual linker between the qualitative use and the quantitative use.

The proposed conceptual linkage reflects our cognitive patterns in terms of the conceptualization of HEALTHY. As mentioned in §3.1, the motivation of the derivation of <HEALTHY-LOOKING> and <HEALTH-GIVING> from <HEALTH-POSSESSING> is metonymic. The former becomes available by evidential association and the latter by causal association. The emergence of <BENEFIT-GIVING> is metaphorically motivated. <HEALTH-GIVING> refers to the physiological domain, while <BENEFIT-GIVING> refers to the social domain. As discussed, it is our social knowledge that evokes the sense of “large (in quantity)” in an expression such as *a healthy income*.

It appears that semantic bleaching takes place in the conceptual evolution from <BENEFIT-GIVING (LARGE)> to the fulfillment type. In English, for example, *healthy* in *a healthy amount of chocolate cake* means “large”. Our social knowledge tells us that the referent (chocolate cake) is not a health-giver, but such an expression is acceptable. This example illustrates that the English *healthy* has a sense-meme that purely denotes “large (in quantity)”. Such a sense is the result of bleaching out the sense <BENEFIT-GIVING> and establishing the sense <LARGE> as the inherent conceptual information.

Semantic bleaching brings about the fulfillment type which is purely quantitative. The linkage from <LARGE> to the fulfillment type seems motivated by the pragmatic inference that a large thing fulfills a certain quantity (or “metanalysis” in Croft’s model; see Croft 2000: §5.4). Figure 3 depicts the conceptual evolution which reflects the cognitive motivations as explained.

4 Conceptual evolution of GOOD

How high is the generality of the proposed conceptual linkage of Figure 3? Is it only applicable to HEALTHY? Or, does it capture a general pattern of conceptual evolution from quality to quantity? I suggest that the conceptual linkage can also apply to the conceptual evolution of other concepts (but see §5). This section discusses another universal concept GOOD which denotes a positive value and shows similar sense-meme distributions as HEALTHY.

4.1 QUALITATIVE use of GOOD

As well as HEALTHY, the central use of GOOD is qualitative. For example, (7) illustrates a case when GOOD denotes that the head noun referent (person) possesses a moral quality (i.e. "morally nice").

(7) <QUALITY-POSSESSING>: "morally nice"

- a. "I don't respect him as a man who claims to be a *good person*, a fair person," Johnson said of the Olympic 100 metre champion," because he's done some things I think are contrary to that." [*The Independent* (London, England), May 26, 1997 pS21] (English)
- b. een goed persoon (Dutch)
- c. ein guter Mensch (German)
- d. yoi hito (Japanese)
- e. buena persona (Venezuelan Spanish)
- f. en bra person (Swedish)

GOOD is very general in meaning. It refers to various types of goodness. The English *good*, for example, can be found in examples such as *a good pencil*, *good coffee*, *a good mother*, and *a good pilot*, and the sense of *good* differs in each example (Fillmore 1982: 129). Likewise, the word *bueno* that denotes GOOD in Spanish can be used as in *buena memoria* (good memory), *un buen trabajo* (a good job), and *buenas noticias* (good news). Similarly, in Japanese, *yoi* (or *ii*) denotes GOOD, and it is used in various ways: *yoi kuruma* (good car), *yoi taido* (good attitude), *yoi hon* (good book). All of these uses of GOOD are subtypes of <QUALITY-POSSESSING>, since they all refer to a quality of the referent in question.

A subtype of <QUALITY-POSSESSING> involves the sense-meme <HEALTH-POSSESSING>. (8) illustrates that GOOD and HEALTHY are conceptually close to each other.⁵

(8) <HEALTH-POSSESSING>

- a. He has a *good heart*. [=He has a healthy heart.] (English)
- b. een goed hart (Dutch)
- c. ein gutes Herz (ein gesundes Herz) (German)
- d. yoi sinzoo (Japanese)
- e. buen corazón (Venezuelan Spanish)
- f. ett bra hjärta (ett friskt hjärta (friskt=healthy)) (Swedish)

⁵ The sense of GOOD in (8) is not the same as <HEALTH-POSSESSING> with HEALTHY as illustrated in (1), since in (8) the referent is a body part, not a person. Although they both denote a health state of a biological kind, the sense-memes are different. One has to describe such a subtle difference, but in this paper we will ignore such a fact and treat the two sense types similarly.

In GOOD, elaboration of <QUALITY-POSSESSING> is normal elaboration. As well as HEALTHY, GOOD involves altered elaboration. (9) shows that GOOD can be elaborated in an evidential way in some languages. In HEALTHY, we discussed that the Swedish *hålsosam* does not have the sense-meme <HEALTHY-LOOKING> (see example 2). In GOOD, as illustrated in (9), Swedish as well as Dutch and German do not have the sense-meme <GOOD (HEALTHY)-LOOKING>.

(9) <GOOD-LOOKING>

- a. She has *a good complexion*. (English)
- b. * *een goede teint* [een gezonde teint (gezond = healthy)] (Dutch)
- c. * *eine gute Gesichtsfarbe* [eine gesunde Gesichtsfarbe (gesund = healthy)] (German)
- d. *yoi kaoiro* (Japanese)
- e. *buena aparicencia* (Venezuelan Spanish)
- f. * *en bra hy* [en fin hy (fin = nice looking)] (Swedish)

In HEALTHY, we discussed that the sense-meme <HEALTH-GIVING> can be found across the examined languages (see example 3). (10) shows that such a causal elaboration is also found cross-linguistically with GOOD. The unacceptability of *gute Übung* (example 10c) does not imply that the German *gut* does not have the sense-meme <HEALTH-GIVING>. In fact, the German *gut* has such a sense-meme, as *gute Ernährung* (good nutrition/nourishment) is acceptable in this language. The unacceptability of *gute Übung* seems to have to do with the collocational restriction.⁶

(10) <HEALTH-GIVING>

- a. Taking a walk at lunchtime is not only *good exercise*, it is an excellent way to explore an area and discover its hidden corners and architectural gems. [*The Times (London, England)*, Oct 11, 2000 p14] (English)
- b. *goede oefeningen* (Dutch)
- c. * *gute Übung* [gesunde Übung (gesund = healthy)] (German)
- d. *yoi undoo* (Japanese)
- e. *buen ejercicio* (Venezuelan Spanish)
- f. *bra motion* (Swedish)

4.2 QUANTITATIVE use of GOOD

The quantitative use is also found in GOOD. In §3.2.1, we observed that the sense-meme <BENEFIT-GIVING (LARGE)> of HEALTHY is only available in English, Dutch, and German (see example 4). In the case of GOOD, as shown in (11), the establishment of the sense-meme <BENEFIT-GIVING (LARGE)> can be confirmed in all the examined languages.

(11) <BENEFIT-GIVING (LARGE)>

- a. The grapes and other fruit he harvested provided *a good income*, but for the past seven years his family has been unable to work the land. [*The Financial Times*, May 28, 2001 p8] (English)

⁶ However, NUTRITION and EXERCISE are very different things. Thus, the acceptability pattern may be systematic. More work has to be done in terms of this matter.

- b. goed inkomen (Dutch)
- c. ein gutes Einkommen (German)
- d. yoi shuunyuu (Japanese)
- e. buen income (Venezuelan Spanish)
- f. bra inkomst (Swedish)

GOOD also has the fulfillment type. In §3.2.2, I noted that only the English *healthy* has the sense-meme <AT LEAST> (example 5). As well as the establishment of the sense-meme <BENEFIT-GIVING (LARGE)> (example 11), a broader propagation of the sense-meme <AT LEAST> can be observed in GOOD. As illustrated in (12), such a sense-meme has been established not only in English, but also in Dutch, German, and Venezuelan Spanish.

(12) <AT LEAST>

- a. Even with a weak June, second-quarter industrial production still grew at *a good 2.5 percent annual rate*, double the first quarter's 1.2 percent rate. (English)
- b. een goede 2,5 procent op jaarbasis (Dutch)
- c. gute 2.5 Prozent jährliche Zuwachsrate (German)
- d. * yoi 2.5 paasentono nenritu [sukunakutomo 2.5 paasentono nenritu (sukunakutomo = at least)] (Japanese)
- e. buena 2.5 tasa porcentaje (Venezuelan Spanish)
- f. * bra 2.5 procent årligen [sunda 2.5 procent årligen (sunda = sound, healthy)] (Swedish)

In terms of <FULL> (of HEALTHY), we observed that only English has selected such a sense-meme (example 6). In the case of GOOD, such a sense-meme can be found both in English and German.

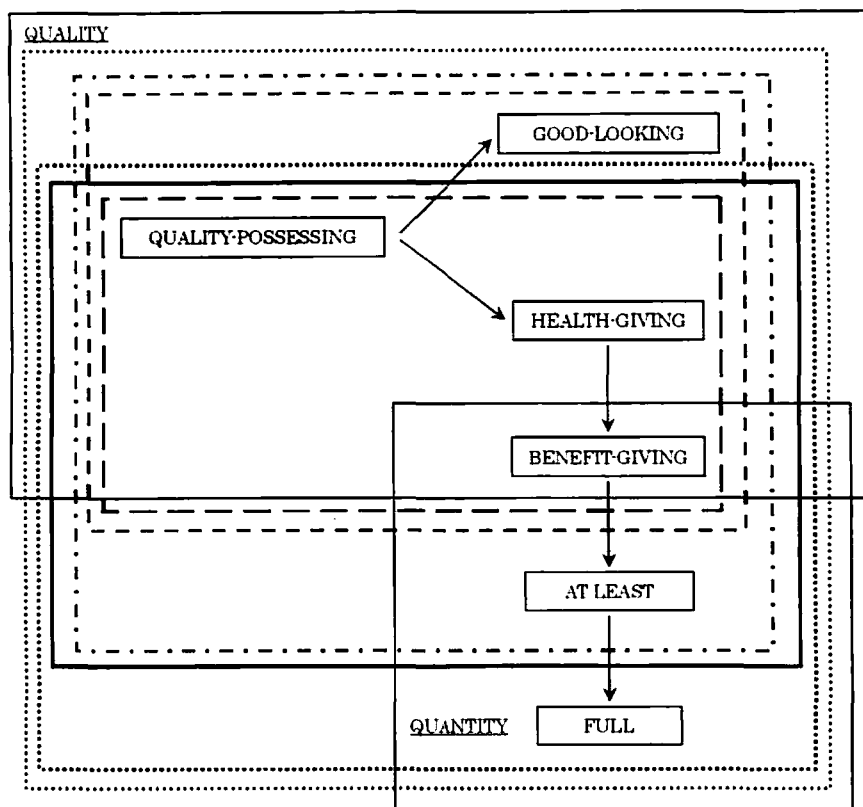
(13) <FULL>

- a. You can walk *a good 100 kilometres* after eating a hamburger and French fries. (English)
- b. * een goede 100 kilometer [de volle 100 kilometer (vol = full)] (Dutch)
- c. gute 100 Kilometer (German)
- d. * yoi 100 kilomeetaa [tappuri 100 kilomeetaa (tappuri = full)] (Japanese)
- e. * buenos 100 kilometros [100 kilometros completos (completo = full)] (Venezuelan Spanish)
- f. * bra 100 kilometer [hela 100 kilometer (hela = all, whole)] (Swedish)

4.3 Conceptual linkage of GOOD

We have observed the sense-meme distributions of GOOD. The observation suggests that GOOD undergoes a similar conceptual linkage process as HEALTHY does. Figure 4 gives the conceptual linkage of GOOD with the distributional facts in each examined language.

Figure 4. Conceptual linkage of GOOD and the cross-linguistic distributions of sense-memes



Dutch: ———, English: ·······, German: - - - - -

Japanese: - - - - -, Venezuelan Spanish: - · - · ; Swedish: — — —

Figure 4 depicts a similar conceptual linkage as proposed for HEALTHY (Figure 3). As well as HEALTHY, GOOD goes via the sense-meme <BENEFIT-GIVING (LARGE)> from quality to quantity (fulfillment). (However, see the next section for a more detailed discussion on the path which GOOD seems to take to establish the quantitative use.)

The figure shows a gradual establishment of the sense-memes of GOOD across the languages. As the figure shows, GOOD is elaborated across the languages more extensively than HEALTHY (recall Figure 3). GOOD is very general in meaning. In fact, virtually anything that is evaluated as positive by the conceptualizer is "good". It is probably because of its semantic generality that GOOD has experienced a wider elaboration than HEALTHY.

The figure shows that the sense-meme <GOOD-LOOKING> is irrelevant to the emergence of the quantitative use (see also §3.3). Swedish, Dutch, and German do not have the sense-meme <GOOD-LOOKING>, but they have <BENEFIT-GIVING (LARGE)>.

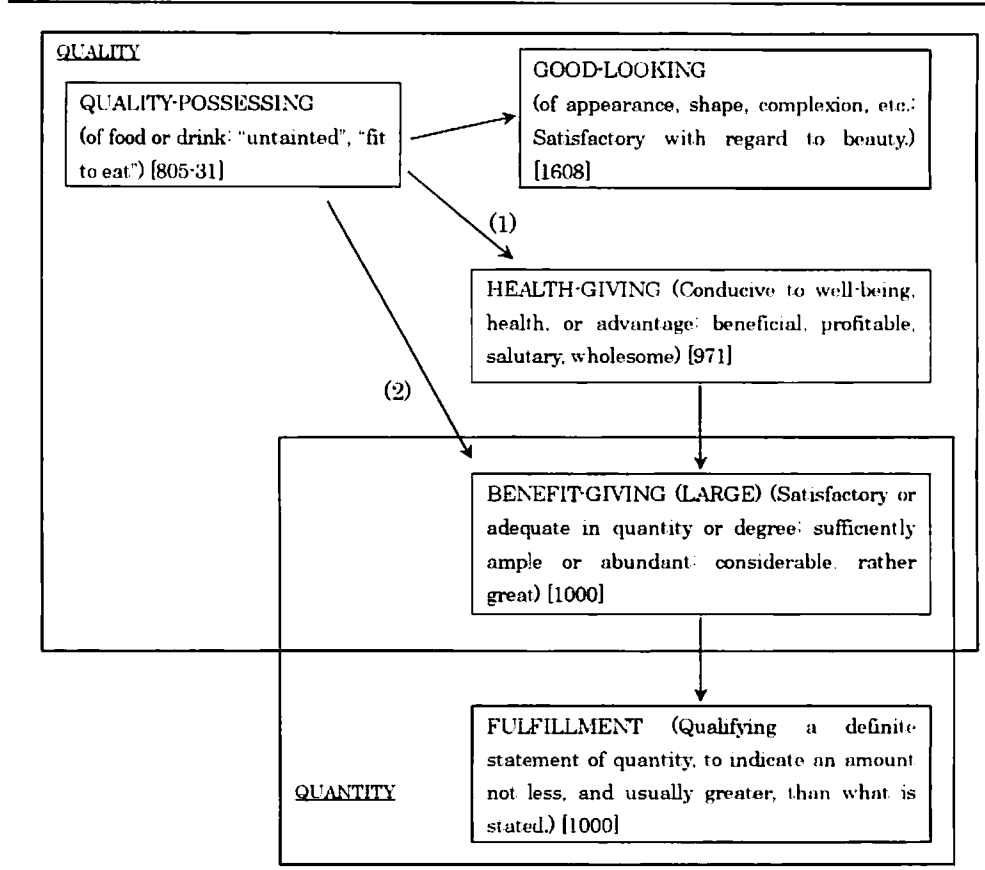
Why do we find a similar conceptual linkage pattern between HEALTHY and GOOD? I suggest that it is motivated by the conceptual proximity of the two concepts. When a similar sense-meme distribution can be found in the use of different concepts, the

EC model argues that the concepts are conceptually correlated. In the case of HEALTHY and GOOD, the sense-meme distributions show a high degree of conceptual correlation. In the EC model, the motivation for a conceptual correlation is called a "conceptual correlator". The conceptual correlator of HEALTHY and GOOD is a biological value. For a living organism, possession of good health is biologically significant, and this is how the two concepts are conceptually correlated.⁷

4.4 Semantic change of the English good

I have so far presented some of the synchronic sense-meme distributions of HEALTHY and GOOD and proposed a particular conceptual linkage pattern. In this section, I will present some historical data from the Oxford English Dictionary (OED second edition, 1989). The OED does not list any quantitative senses for the adjective *healthy*, and hence I cannot provide any historical data of *healthy* here. The OED, however, gives some data for *good*, which is summarized in Figure 5.

Figure 5. Semantic change of the English good



⁷ Conceptual correlators also include emotional values, social/cultural values, contextual values, and so on. See Shibuya (in preparation) for detailed accounts of these values.

Notice that <GOOD-LOOKING> emerged fairly late in the history of English (in 1608), whereas <HEALTH-GIVING> appeared much earlier (recorded in 971). This fact suggests that <GOOD-LOOKING> is irrelevant to the emergence of the sense-memes of the quantitative use, since the quantitative sense-meme <BENEFIT-GIVING (LARGE)> appeared in 1000.

Did the English *good* go via <HEALTH-GIVING> through <BENEFIT-GIVING> (see arrow 1 in the figure) or go directly via <BENEFIT-GIVING> (arrow 2) to finally get to the fulfillment type? Due to the fact that there is no historical evidence that can be trusted 100%, one cannot be totally sure which path the English *good* took. However, the data from the OED suggests that the direction of semantic change which the English *good* underwent was from quality (<QUALITY-POSSESSING> [805-31]) to quantity (<BENEFIT-GIVING (LARGE)> [1000] and <FULFILLMENT> [1000]). The conceptual linkage pattern proposed in this paper captures this.

It is true that the data from the OED does not make clear if <BENEFIT-GIVING (LARGE)> took place after or before <FULFILLMENT>, since the occurrence of both is recorded in 1000. I, however, argue that the sense-meme <BENEFIT-GIVING (LARGE)> had appeared before <FULFILLMENT>, since the example the OED gives as a fulfillment sense is different from our type of example. What the OED gives as an example of the fulfillment type involves the sense of fulfillment in the head noun (*c*1000 *Sax. Leechd.* II. 292 Genim gi³cornes leafa *gode hand fulle*), but in our example of the fulfillment type, the head noun referent is a measurement term (e.g. *a good 100 kilometres* of 13a). In fact, according to the OED, it was not until the 17th century that the type as we have been discussing appeared (1662 J. DAVIES tr. *Olearius' Voy. Ambass.* 17 *A good quarter* of an ell high.; 1842 MRS. CARLYLE *Lett.* I. 166 The Post-office, which is *a good two miles* off.; 1876 GEO. ELIOT *Dan. Der.* I. xii. 231 He..played *a good hour* on the violoncello.).

5 Conclusion

This paper discussed the conceptual evolution of HEALTHY and GOOD from an evolutionary perspective. In the positive-valued concepts such as HEALTHY and GOOD, the sense-meme <BENEFIT-GIVING (LARGE)> is the conceptual linker between quality and quantity. Conceptual linkage of relevant sense-memes leads to the emergence of purely quantitative uses such as <AT LEAST> and <FULL>.

Each language elaborates HEALTHY and GOOD in a particular fashion. In the EC model, such a language particular fact is explained in terms of selection processes. Languages differ from one another in terms of the establishment of sense-memes. Some languages have selected sense-memes that others do not have.

There are a variety of concepts that denote a quality in language. A sophisticated account of the conceptual evolution from quality to quantity thus needs a comprehensive study on various types of concepts. HEALTHY and GOOD establish the fulfillment type (purely quantitative) via the sense-meme <BENEFIT-GIVING (LARGE)>, but it is conceivable that some concepts do not have such a sense-meme as a conceptual linker to establish a quantitative sense. The clarification of what kind of (and how many of) such conceptual linkers are involved can only be empirically made. Although I believe that this paper has provided an important first step, obviously more work has to be done to provide the whole picture of the conceptual evolution from quality to quantity, and vice versa.

* I am grateful to Bill Croft for helpful comments on an earlier version of this paper. I would also like to thank Helen Bissett, Willem Hollmann, Stefan Fuhs, Luis Arrevillagas, and Brita Backlund for their patience and help with my cross-linguistic survey, on which the argument of the present paper is based.

References

- Croft, William. (2000). *Explaining Language Change: an Evolutionary Approach*. Harlow, Essex: Longman.
- Croft, William. (2001). *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Dawkins, Richard. (1976). *The Selfish Gene*. New York: Oxford University Press.
- Fillmore, Charles J. (1982). "Frame Semantics." in The Linguistic Society of Korea (ed.) *Linguistics in the Morning Calm*, pp. 111-137, Seoul, Korea: Hanshin.
- Hull, David L. (1988). *Science as a Process: an Evolutionary Account of the Social and Conceptual Development of Science*. Chicago: University of Chicago Press.
- Hull, David L. (2001). *Science and Selection: Essays on Biological Evolution and the Philosophy of Science*. Cambridge: Cambridge University Press.
- Langacker, Ronald W. (1990). "Subjectification." *Cognitive Linguistics* 1, pp. 5-38.
- Langacker, Ronald W. (1998). "On Subjectification and Grammaticization." in Jean-Pierre Koenig (ed.) *Discourse and Cognition: Bridging the Gap*, pp. 71-89, Stanford: CSLI Publications.
- Traugott, Elizabeth C. (1989). "On the Rise of Epistemic Meanings in English: an Example of Subjectification in Semantic Change." *Language* 65, pp. 31-55.