Beers, kaffi, and Schnaps – Different grammatical options for 'restaurant talk' coercions in three Germanic languages[1]

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Abstract

This paper discusses constructions like "We'll have two beers and a coffee." that are typically used for beverage orders in restaurant contexts. We compare the behaviour of nouns in these constructions in three Germanic languages, English, Icelandic, and German, and take a closer look at the correlation of the morpho-syntactic and semantic-conceptual changes involved here. We show that even within such a closely related linguistic sample, one finds three different grammatical options for the expression of the same conceptual transition. Our findings suggest an analysis of coercion as a genuinely *semantic* phenomenon, a phenomenon that is located on a level of semantic representations that serves as an interface between the conceptual and the grammatical system and takes into account inter- and intralinguistic variations.

1. Introduction.

The term 'restaurant talk' refers to constructions such as (1 that are typically used for beverage orders in restaurant contexts:

(1) We'll have two beers and a coffee.   [restaurant talk construction]

An interesting feature of this construction is the unusual behavior of the nouns that identify the beverages: nouns like *beer* and *coffee* that usually behave like mass nouns, as illustrated in (2 below, appear as count nouns in (1. That is, unlike their counterparts in (2, mass nouns in (1 are marked for number or combined with the indefinite article. This morpho-syntactic change goes together with a reference shift from substances (beverages) to portions of substances (servings of beverages), making restaurant talk constructions an instance of mass/count coercion: transitions within the mass/count domain leading to a change in interpretation from substances to objects[2] or vice versa.

(2)   She drinks {beer / coffee}.   [*beer* and *coffee* as mass nouns]

In this paper, we take a closer look at the correlation of the morpho-syntactic and semantic-conceptual changes involved in restaurant talk (RT). We compare English RT with similar constructions in two other Germanic languages, Icelandic and German, and show that even within such a closely related linguistic sample one finds at least three different grammatical options for the expression of the same conceptual representation. We provide evidence for interlinguistic as well as intralinguistic variation in the way the grammatical system can reflect the conceptual transition from substances like beer or coffee to portions of these substances as served in restaurant contexts. We discuss the implications of these findings for the interface of conceptual and grammatical structures.

     The first two sections of this paper summarise the conceptual and grammatical background on the constructions under discussion. The first section characterises the conceptual shift that underlies RT-constructions as instances of mass/count coercion, and describes the relevant conceptual distinction of substances and objects. In the second section, we discuss the grammatical counterpart of this distinction: we show how the conceptual distinction can be reflected by differences in the morpho-syntactic number marking of nouns. On this basis, the third section analyses the different ways in which the distinction of non-plural (mass) and plural (count) nominals is put to use for mass/count coercion in English, Icelandic, and German restaurant talk. In the fourth and final section of this paper, we bring together our results and discuss them from the broader perspective of linguistic architecture.

2. Mass/count coercion.

Coercion occurs when the basic (standard) interpretation[3] of an expression yields an improbable or impossible conceptual representation, due to an incompatibility of its constituents. For instance, in the standard interpretation, 'chicken' refers to an animal. However, in a sentence like 'There is chicken in the soup', this would yield to an improbable representation, suggesting that there is e.g. a whole animal somehow swimming in the soup. In order to avoid such an interpretation, the representation is enriched by concepts associated with this standard interpretation that give rise to a well-formed or more plausible interpretation. In our example, one would enrich the representation such that the sentence is interpreted as 'There is chicken *meat* in the soup.' (rather than a whole animal).

This introduction of additional conceptual material has been shown to have an effect in real-time language processing: evidence from sentence comprehension suggests that an enriched version causes a higher processing load than one that receives the basic interpretation[4].

The examples in (3 – (5 illustrate three major kinds of coercion: complement coercion in (3, aspectual coercion in (4, and mass/count coercion in (5.

(3)   He finished the book.   (COMPLEMENT COERCION)
         Enriched interpretation: "He finished READING/WRITING the book."

(4)   The insect hopped until it reached the end of the garden. (ASPECTUAL COERCION)
         Enriched interpretation: "The insect hopped REPEATEDLY until … ."

(5)   There is chicken in the soup.   (MASS/COUNT COERCION)
         Enriched interpretation: "There is chicken MEAT in the soup."

In (3, an example of 'complement coercion'[5], the predicate denoted by the verb *finish* licenses an activity as its argument. However, the verb's complement, the noun phrase *the book*, denotes an object in its standard interpretation. This incompatibility is fixed by a introducing an activity associated with this object into the interpretation, like reading or writing.

(4 is an example of 'aspectual coercion'. The time span denoted by the adverbial phrase *until it reached the end of the garden* requires an unbounded – durative and non-telic – activity, while the modified predicate identifies a bounded activity, 'hopping'. This is consolidated by the introduction of a 'repetition' concept that maps 'hopping' onto an unbounded activity ('to hop repeatedly' / 'to keep hopping').

Finally, (5 is an example of 'mass/count coercion': the locative phrase *in the soup* suggests an edible substance, while *chicken* in its standard interpretation identifies an object. In this case, the coercion introduces the concept of a substance that is associated with this object, namely the substance that the edible parts of the object consist of, yielding the concept 'chicken meat' as an enriched interpretation for *chicken*.

There are three main kinds of mass/count coercion, which can be distinguished as 'grinder'-, 'sorter'- and 'packer'-constructions. The coercion described for (5 belongs to the class of 'grinder'-constructions. In this case, the enriched interpretation is based on a conceptual function that maps an object onto the substance the object (or some part of it) consists of. For instance, this function maps an animal like a chicken onto chicken meat. One can think of this mapping function as something like a "Universal Grinder"[6] that takes objects as its input and yields continuous masses as its output. In a similar vein, two additional 'universal' machines have been introduced in the philosophical literature that work the other way around, transforming substances into discrete outputs:[7] a "Universal Sorter" that yields discrete sorts of substances, and a "Universal Packer" that yields discrete portions of substances. A 'sorter'-construction is illustrated in (6; 'packer'-constructions are the ones we encounter in 'restaurant talk', illustrated in (7:

(6)   The best wines are from Chile.   ('Sorter'-construction)
Enriched interpretation: SORTS of wine

(7)   Two beers and a coffee, please.   ('Packer'-construction: RESTAURANT TALK)
Enriched interpretation: PORTIONS of beer / coffee

The unifying feature of mass/count coercion is a conceptual transition between substances and objects. The relevant distinction is defined in (i):[8]

(i) Conceptual distinction between substances and objects
Substances are conceptualised as homogeneous entities. Their structure is considered arbitrary.[9]
Objects are conceptualised as discrete, individual entities (or as consisting of individual entities) whose structure is considered non-arbitrary.

Under this notion of substances and objects, an example of a substance-denoting nominal is *beer* in its basic, non-coerced usage, but also *chicken* in a 'grinder'-construction like (5 above. Examples of object-denoting nominals are *a chicken* or *chickens* in non-coerced constructions, as well as nominals in the coerced 'sorter'- and 'packer' (= RT)-constructions we discussed.

(8 through (12 bring together examples of the different usages.

(8)   She owns {a chicken / chickens}.   (OBJECTS, no coercion)
(9)   There is chicken in the soup.   (SUBSTANCE, 'grinder'-coercion, cf. (5 above)

(10)   She drinks {beer / coffee}.   (SUBSTANCE, no coercion, cf. (2 above)

(11)   the best {beers / coffees}   (OBJECTS, 'sorter'-coercion, cf. (6 above)

(12)   Two {beers / coffees}, please.   (OBJECTS, 'packer'-coercion in RT, cf. (7 above)

In sum, on the level of the conceptual representation, 'grinder'-constructions are based on a transition from objects to substances (for example, edible parts of the object), while 'sorter'- and 'packer'-constructions reflect a conceptual transition from substances to (abstract) objects. In the case of 'sorter'-constructions, these objects are sorts of a substance, in the case of 'packer'-constructions they are portions.

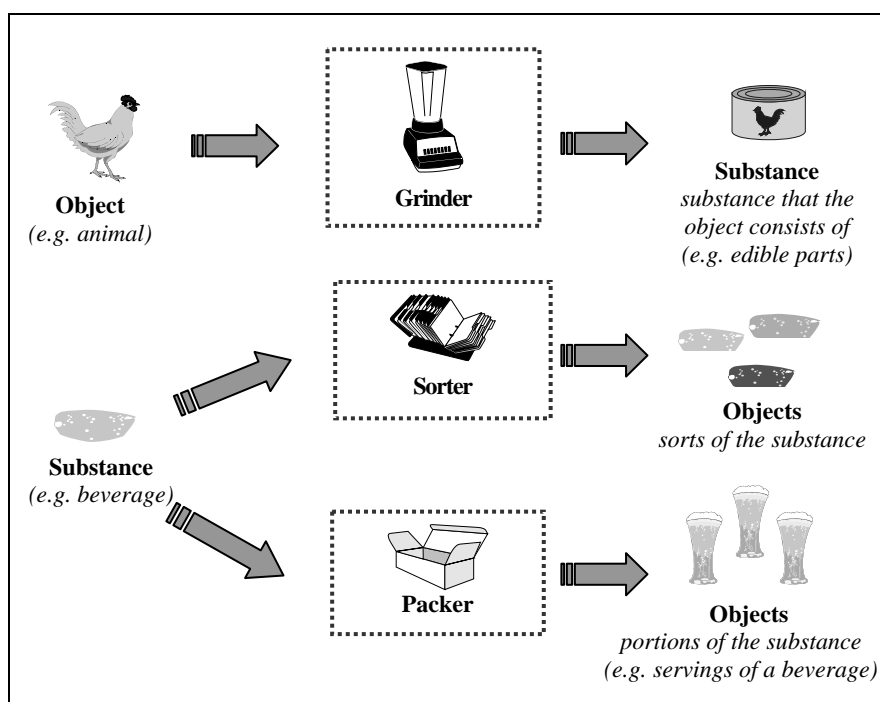Figure 1 illustrates the three kinds of conceptual enrichment:

Figure 1: Conceptual enrichment in mass/count coercion

The transition from substances to objects itself is a genuinely conceptual phenomenon: the conceptual system provides conceptualisations of objects and substances as well as their associations with concepts of edible parts of these objects, or sorts and servings of these substances, respectively. For instance, we have concepts of wine and beer and we know that there are different sorts of wine and beer, and that in restaurants, these beverages are served in different portions. Accordingly, the choice of particular conceptualisations for the enriched interpretation can be culture- and context-dependent, for example, 'three beers' can be three servings of 1 pint, 0.3 litres, 1 litre, etc.

The *linguistic* aspect of coercion concerns the way in which such transition is reflected in the grammatical system. Can expressions undergo a reference shift and receive an enriched conceptual representation as their interpretation, and if so, does this go together with a morpho-syntactic change? The following section provides an overview of the morpho-syntactic side of mass/count distinctions, which will serve as a background for our discussion of various grammatical options for RT coercion.

3. The morpho-syntactic side of mass/count distinctions.

The morpho-syntactic distinction relevant for our discussion concerns the number-marking of nominals. In languages that have systematic syntactically-driven nominal plural marking ('plural' languages), such as English, Icelandic, and German, the conceptual distinction between substances and objects may be reflected in morpho-syntax: a nominal receives plural marking when referring to objects, for example beers as in three beers, but not when referring to a substance, for example beer as in She drinks beer. Following Greenberg (1973), we refer to these non-plural instances as 'transnumeral'[10]. Transnumeral nominals do not undergo pluralisation and do not mark the distinction 'one' versus 'many' grammatically. Hence, one can think of transnumeral nominals as nominals that *transcend* number marking. In (ii), we summarise the distinction between transnumeral [+ tn] and non-transnumeral [–tn] nominals. Note that (ii) applies to *nominals*, that is, to noun phrases, rather than nouns. This is because the same noun can often become either a [+ tn] or a [– tn] nominal, depending on the context (and correlated with a change in meaning – a central case in point being mass/count coercion). On the lexical level, though, a noun is usually marked for a preference for [+ tn] or [– tn] as a default. For instance, a noun like 'chicken' is first and foremost a count noun and hence [– tn] by default, while 'beer' is a mass noun and [+ tn] by default, but 'chicken' can also appear in transnumeral nominals, e.g. in "There is chicken in the soup.", and 'beer' can become a [– tn] nominal in a sentence like "We'll have two beers, please."

(ii) Grammatical distinction between [± tn] nominals

For [+ tn] nominals, the distinction 'one vs. many' is not specified: plural marking is not compulsory[11] for reference to more than one entity.

For [– tn] nominals, plural marking is compulsory for reference to more than one instance of the nominal concept.

[+ tn] and [– tn] nominals behave differently in a number of respects. In particular, [+ tn] nominals can occur without plural marking or article, and occur only in three-term cardinal constructions, that is, in constructions where the numeral is not followed by the noun directly, but first by a numeral classifier (= counting constructions) or a measure noun (= measure constructions). In contrast, [–tn] nominals are marked for number or combined with an article when in argument positions, and can occur in two-term counting constructions, that is, in constructions where the noun can follow the numeral directly (as well as in three-term constructions with measure nouns). Examples 13 – 16 illustrate this point.

(13)   She buys **beef**.   [+ tn: no plural or article]
(14)   two pounds of **beef** / *two **beef**   [+ tn: three-term cardinal construction]
(15)   She buys {**a cow** / **cows** / ***cow**}. [– tn: plural or article]
(16)   two **cows**   [– tn: two-term cardinal construction]

Accordingly, *beer* in our non-coerced example (10) above is a transnumeral nominal, while *beers* in the RT example in (12) above is non-transnumeral:

(17)   She drinks **beer**.   [+ tn: no plural or article, cf. (10) above]
(18)   two litres of **beer**   [+ tn: three-term cardinal construction]
(19)   She orders {**a beer** / **beers**}.   [– tn: plural or article]
(20)   two **beers**   [– tn: two-term cardinal construction,
                                                                        cf. (12) above]

Cross-linguistically, the following generalisation holds: nominals that denote substances usually behave as [+ tn], whereas nominals that denote objects usually behave as [–tn] (hence, it gets systematic plural marking). In plural languages, this gives rise to the following bi-directional default correlation between morpho-syntactic and conceptual features:

> **(iii) Default correlation between morpho-syntactic and conceptual features**
> In languages with systematic, syntactically-driven nominal plural marking ('plural languages'), the default correlation between morpho-syntactic and conceptual features is: transnumeral Û substance.

Hence, in plural languages, transnumeral nominals usually refer to substances, such as *beef*, while [–tn] nominals (henceforth: 'plural nominals', that is, nominals that systematically pluralise) usually refer to objects, such as *a cow/cows*. In first language acquisition, this correlation supports the interpretation of novel words and can lead to over-generalisations for nominals that deviate from the default.[12] Such deviations are realised by nominals like *cattle* or *furniture* that refer to objects, but behave as transnumeral morpho-syntactically: they are neither marked for plural, nor combined with an indefinite article, and occur in three-term cardinal constructions, where a numeral classifier like head or piece stands between numeral and noun.

(21)   She bought {**cattle** / **furniture**}.   [+ tn: no plural or article]
(22)   six {head of **cattle** / pieces of **furniture**}   [+ tn: three-term cardinal construction]

Note that the constructions in (22 are counting constructions, in contrast to the measure construction in (14 above: (14 specifies the WEIGHT of beef, while (22 specifies a NUMBER – it specifies the cardinality of a set consisting of individual instances of the nominal concepts 'cattle' or 'furniture' (for example, individual cows, or individual tables, chairs, etc.). Hence, although *cattle* and *furniture* in (22 are transnumeral nominals like *beef* in (14, they do occur in counting constructions, because, unlike *beef*, *cattle* and *furniture* refer to objects, and not to substances.[13]

In contrast to plural nominals (such as *cows* in *six cows*), transnumeral nominals like *cattle* and *furniture* are not marked for plural in counting constructions. Instead, they are combined with numeral classifiers, such as *head* or piece, as shown in (22. Semantically, such classifiers contribute an individuation function, that is, a semantic function that provides access to individual elements (e.g. individual animals in the case of 'cattle') and thus prepares the number assignment.[14] Numeral classifiers are typically nouns that, when used as classifiers, lose most of their lexical content in favour of their semantic function as an individuator: *head* in (22 does not refer to any particular head, but rather is used to provide access to individual animals, and likewise, the *pieces* of furniture in (22 are not really pieces, but rather whole tables, chairs, etc. Syntactically, this reduction in lexical content is reflected by the fact that, as classifiers, these nouns do not expand to a whole NP: they do not get modified, and are often not marked for number.[15]

Unlike transnumeral nominals, plural nominals occur in two-term counting constructions without a numeral classifier, such as *six cows*. In this case, the role of the numeral classifier is performed by the nominal number marker: individuation is part of the quantification that plural markers carry out, it is the prerequisite for marking the size of a set as 'more than one' (e.g. the plural marker in 'dogs' indicates that we have a set of individual dogs that has more than one element).

Syntactically, counting constructions can be viewed as quantifier phrases (QPs) with a numeral head that requires a feature "individuation" in its complement. This feature can be supplied by a plural noun or a numeral classifier. While the plural noun is part of the complement, numeral classifiers can be analysed as non-expanding nominal head adjuncts (that is, N^0-adjuncts to to Q^0). This accounts for central cross-linguistic characteristics of classifier constructions: (1) cardinals and numeral classifiers are adjacent; (2) classifiers have a nominal source, but do not show the behaviour of full NPs (as mentioned above); (3) numerals and classifiers together select their NP complements. Figure 2 illustrates this with syntactic representations for the two-term construction 'six cows', which has a plural NP complement, and the classifier construction *six head of cattle*, which has a transnumeral NP as part of the complement.
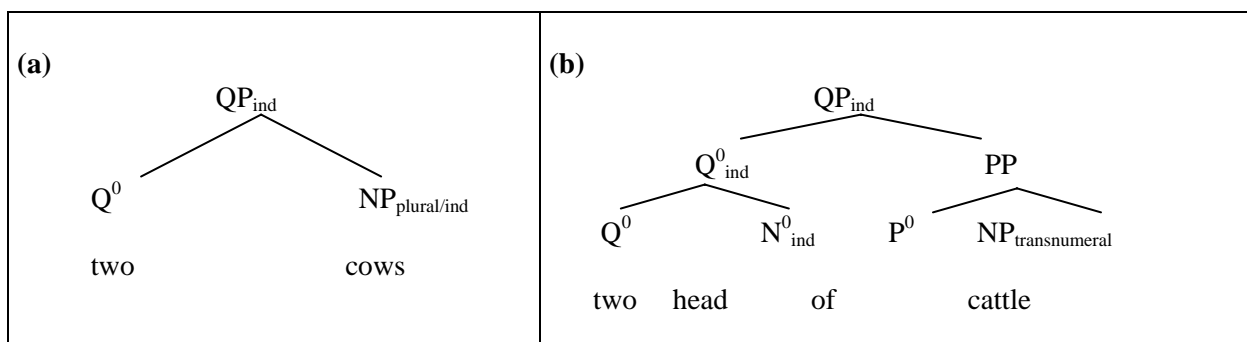

Figure 2: Counting construction (a) with plural noun, (b) with classifier and transnumeral noun

In plural languages, classifier constructions are the less common instance of counting constructions, since transnumeral nouns that refer to objects, such as *cattle* or *furniture*, are rare and constitute a deviation from the default correlation 'transnumeral -> substance'. Seen from a broader perspective, such nouns are very common, though. Among the languages of the world, a lot are 'transnumeral' languages, where nominals are generally [+ tn][16] and accordingly, counting constructions with numeral classifiers are the rule rather than an exception. (23 – (26 contain examples from two languages as diverse as Chinese and Kurdish.

Chinese:
    (23)   wo   xiang   chi   **pingguo**   [no plural or article]
            I   want   eat   apple
            'I want to eat {an apple / apples}.'

    (24)   san   ge   **pingguo**   [counting construction with classifier *ge*]
            three   "piece"   apple
            'three apples'

Kurdish (Sorāni):[17]
    (25)   **sew**-m   krī   [no plural or article]
            apple-1.sg.erg   bought
            'I bought {an apple / apples}.'

    (26)   sē   tā   **sew**   [counting construction with classifier *tā*]
            three   "piece"   apple

            'three apples'

Unlike measure nouns, such as *pounds* in *six pounds of beef* above, classifier expressions can be optional, that is, they need not be overt in some languages. This is the case, for instance, in Kurdish and also in some dialects of English (we will come back to constructions with implicit classifiers in our discussion of German restaurant talk below).

(27)   sē (tā) sew$_{[+\ tn]}$ [counting construction with optional classifier *tā*]
(28)   six (head of) cattle$_{[+\ tn]}$ [counting construction with optional classifier *head*]

Note that the difference between constructions with plural and transnumeral nominals is not a difference between constructions with and without agreement between numeral and plural noun. Rather, what we have here is a distincion between nominals that mark number distinctions and those that do not. In particular, there is no plural marking on numerals on the morpho-syntactic level: morpho-syntactically, a numeral like *three* is not marked for number (unlike *threes* in *They came in twos and threes*). Therefore, there can be no agreement of the numeral with the plural nominal in a construction such as the English *three apples*. It is only on the semantic level that numerals > 1 contribute 'manyness', and on this level, it would not make any sense for the nominal to AGREE: why would we need to contribute the same information – namely, that we are talking about a set of more than one element – twice? The sole reason why we get a plural nominal here is that we need the individuation that number markers in [–tn] nominals contribute.

Likewise, counting constructions with transnumeral nominals are not "non-agreement" constructions. Transnumeral nominals such as the Chinese *pingguo* or the Kurdish *sew* 'apple' or the English *furniture* are marked neither for singular nor for plural.[18] Rather, they *transcend* number distinctions in the sense that the distinction between 'one' and 'many' is not morpho-syntactically marked. In order to appear in an argument position, these nominals do not need to specify morpho-syntactically whether they refer to one or to many entities.[19]

This makes the distinction between transnumeral and plural nominals an instance of the general rule that, although it is principally possible to express everything in every language, different languages have different requirements as to what one has to express. For instance if in English one wants to refer to the brother (or brother-in-law) of either of one's parents, one can do so by using the word uncle, whereas in Kurdish one will have to specify whether the person in question is a brother of one's mother (in which case he is called *xālo*) or of one's father (in which case he is called *māma*). And similarly, if one wants to express the proposition that one has bought a certain kind of fruits, say apples, English forces one to specify whether it is one (in which case one would say "I bought an apple") or more than one ("I bought apples"), whereas Kurdish takes a more lenient approach and allows one to leave that open (i.e., *sew* can mean either 'an apple' and 'apples').[20]

4. Restaurant talk in English, Icelandic, and German.

How is the morpho-syntactic distinction of transnumeral and plural nominals put to use for mass/count coercion in plural languages, and in particular, for restaurant talk? This section discusses RT constructions in English, Icelandic, and German, three Germanic languages that, as we show, have at least three different options for the grammatical integration of 'packer'-transitions, with often more than one option realised in the same language.

In their basic interpretation, the nominals that denote beverages (*coffee*, *wine*, *beer,* etc.; henceforth: 'beverage-nominals') refer to substances and behave as transnumeral, that is, they are not pluralised and can occur as bare NPs. When such nouns occur in RT constructions, we find inter- as well as intra-linguistic variation with respect to the following questions:

(A)   Do the beverage-nominals involved in RT allow a reference shift from 'substance' to 'portion of a substance' (such that they can receive the an enriched interpretation in RT constructions)?
(B)   If so, is their reference shift reflected by a morpho-syntactic shift from [+tn] to [–tn] behaviour (such that pluralisation of the beverage-nominal marks reference to portions in RT constructions)?

4.1. English: coffees and beers.

In English, the answer to both of these questions is 'yes'. In RT coercion, beverage-nominals undergo a reference shift and refer to portions of substances, and this reference shift is accompanied by a shift in morpho-syntax from [+tn] to [–tn]. In their basic occurrence as illustrated in (29 below, the beverage-nominals refer to substances and show transnumeral behaviour, that is, they occur without an article and plural marking. In RT contexts such as (30 beverage-nominals refer to portions of the substances (hence, abstract objects) and show [–tn] behaviour, that is, they are combined with an indefinite article or marked for plural.

(29) She drinks {**beer** / **wine** / **coffee**}.
　　　non-RT: substances denoted by [+ tn] nominals (= non-plural)

(30) **A beer**, three **wines**, and two **coffees**, please.
　　　RT: portions of the substances denoted by [– tn] nominals (= plural)

Hence, in English beverage-nominals undergo both a conceptual shift and a morpho-syntactic shift. The two shifts go hand-in-hand based on the default 'transnumeral Û substance'. The semantic contribution of the constituents in a simple English RT construction such as *two coffees* can hence be characterised as follows: While the numeral *two* contributes the cardinality, the plural beverage-nominal *coffees* receives an enriched interpretation that identifies the complex concept 'portions of coffee', that is, it denotes the result of applying the 'packer' in Figure 1 above to the substance *coffee*. (31 summarises this distribution (the constituents are identified by subscripts, their semantic contribution by expressions in small caps):[21]

(31) *two coffees*:　[TWO$_{\text{numeral}}$ [PORTIONS(COFFEE)]$_{\text{plural nominal}}$]

From a syntactic point of view, an RT construction such as *two coffees* constitutes a standard plural counting construction, with a plural complement (*coffees*) that contributes the individuation aspect required by the numeral. This is illustrated in Figure 3.
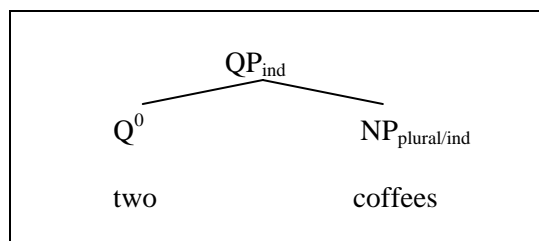

Figure 3: English RT: Counting construction with plural nominal

Excursus: Could coercion be a purely syntactic phenomenon?
As becomes clear from our analysis of constructions such as *two coffees*, we follow standard approaches in the semantic literature in regarding coercion as a phenomenon that is characterised by an enrichment of the semantic representation.[22] Is this the only way to look at it, or could coercion be also captured by syntactic derivations alone, that is, could the phenomenon of coercion be given a purely syntactic account? In this excursus, we briefly state the reasons why we do not think such a 'syntax-only' approach can work.

　　　In order to account for coercion as a purely syntactic phenomenon, one would have to assume a phonologically empty element as part of the syntactic derivation so as to get the meaning right: this element would have to contribute the 'portion'-aspect we need for the meaning of the construction. One can think of such a phonologically empty element as something along the lines of the "silent nouns" suggested in Kayne (2003a,b).[23] However, while the meaning of "portion" is clearly present in the SEMANTIC representation of an RT construction such as *two coffees*, there is no SYNTACTIC evidence for the presence of a corresponding silent element in syntax. If there was a silent noun "portion" in the syntactic tree, one would expect this to be reflected, for instance, in gender marking

of the numeral or of the determiner in languages that have gender agreement: if an element is part of the syntactic representation, and only PHONOLOGICALLY empty, then it should take part in syntactic phenomena like agreement.[24]

Moreover, if there is no conceptual enrichment for beverage-nominals, but instead a silent noun contributes the 'portion'-aspect, we have to account for the pluralisation of the beverage-nominal somehow. This could be done by a syntactic representation where "portions" is merged as "-s [portion]", hence "two coffees" would be represented as in (32:

(32)   two [-s [portion] coffee]

Since the plural marker -s is a suffix, and as such must be attached to the beverage-noun *coffee*, coffee would then have to raise to the left of *–s*, while "portion" is PF-deleted.[25] However, this kind of raising analysis would lead to wrong morphological marking in a number of cases. For example, in a language such as German, one cannot combine the plural suffix of one noun with another noun freely without running into morphological clashes.

Another point that speaks against such a raising analysis is the fact that we can have constructions such as *two black coffees*, where the beverage-nominal is preceded by an adjective that modifies the beverage. If there was the silent noun *portion* in the syntactic representation, it should come before *black*, that is, *black* would be between *portion* and *coffee*, as in (32':
(32') two [-s [portion] black coffee]

Raising of *coffee* to the left of *–s* would then lead to *two coffees black* and hence yield the wrong word order. What is more, one can get quantifiers that modify the "portion"-aspect, too, in a position right before adjectives such as *black*, as in *two small black coffees*. In this case, "portion" would have been between *small* and *black* before PF-deletion, as shown in (32'', and raising of *coffee* would lead to *two small coffees black*.

(32'') two [small [-s [portion]] black coffee]

On the other hand, having the meaning of 'portion' included in the semantic representation of *coffee*, but not in the syntactic representation of the construction, does not pose any special combinatorial problems: nouns with complex semantic representations can often be combined with modifiers that apply to only a part of the nominal semantic representation. For instance, in the default interpretation of "good dancer" the modifier "good" applies only to the semantic representation of the verbal stem "dance", not to the whole noun's: a good dancer is someone who dances well, not a good person who dances.[26]

Taken together, we interpret this as evidence that 'portion' appears only in the semantic, but not in the syntactic representation, that is, there is no silent noun "portion" in syntax: 'portion' does not get into the picture via a syntactic representation where it contributes its semantics before being deleted at PF; rather, it is introduced only on the semantic level, via conceptual enrichment of a representation that otherwise would lead to a clash in the interpretation.

4.2. Icelandic[27]: kaffi and bjórar.
Most Icelandic beverage-nominals do not undergo a syntactic change in RT. They remain transnumeral, that is, they do not receive number marking. Usually, they are combined with container nouns, as illustrated in (34 below. This means that there is no reference shift involved either: since the 'portion'-part is denoted explicitly by a container noun, the beverage-nominals receive their basic 'substance'-interpretation rather than an enriched interpretation as in English.

(33)   Hún drekkur {**kaffi** / **bjór**}.
       she drinks   coffee   beer
       'She drinks {coffee / beer}.'

non-RT: substances denoted by [+ tn] nominals (i.e., no pluralisation)

(34) Tvo   {bolla   af kaffi   /   kaffi-bolla}.
      two$_{MASC.}$ cups$_{MASC.}$ of coffee$_{NEUT.}$ coffee$_{NEUT.}$-cups$_{MASC.}$
      'Two cups of coffee, please.'

      RT: substance denoted by [+ tn] nominal, portion denoted by container noun

Note that in Icelandic, one can also use a compound like *kaffibolla* 'coffee cups' here: in contrast to English and German, the construction with a compound is ambiguous, that is, tvo *kaffibolla* in (34 can mean 'two cups of coffee' as well as 'two coffee cups'. Hence we have two kinds of constructions with explicit container nouns in Icelandic. In both cases, the nominal complement has a plural head, the container noun. Accordingly, the numeral agrees in gender with this container noun *bolla* in (34

(34, not with the beverage-noun *kaffi* in (34. Being plural, the container noun provides the individuation required for the QP. The transnumeral beverage noun is embedded morphologically in compound constructions, where the container noun acts as its morphological head, and syntactically in constructions where the container noun acts as its syntactic head:
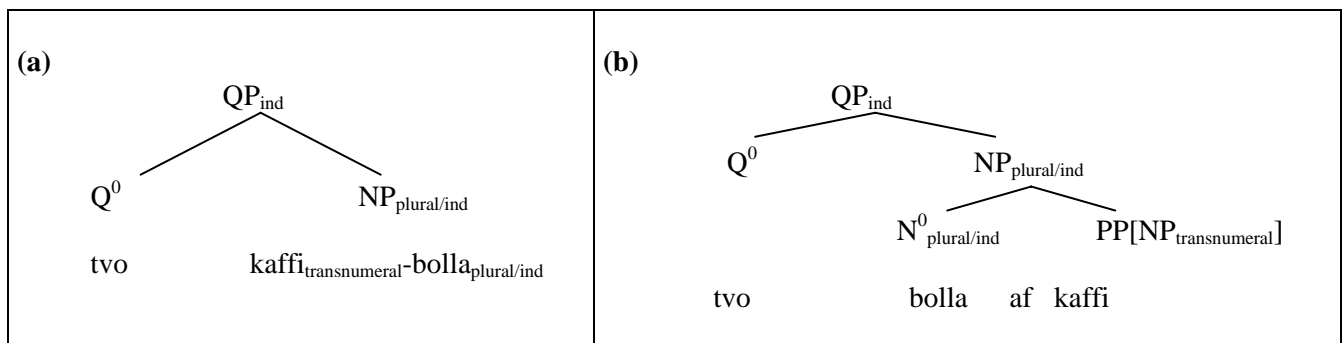

Figure 4: Icelandic RT with explicit container nouns that embed the beverage-nominals (a) morphologically or (b) syntactically

In addition to this explicit kind of RT construction, there are two kinds of constructions without container nouns in Icelandic. The first kind is similar to English RT, with a plural beverage-noun that receives an enriched 'portion'-interpretation. As in English, this coerced nominal does not have a container noun as its head, but is combined with the numeral or determiner directly. Accordingly, in this kind of Icelandic RT construction, there is gender agreement between the determiner or numeral (for numerals up to four) and the beverage-noun:[28]

(35) tvo   **bjóra**
      two$_{MASC.}$ beers$_{MASC}$
      'two beers'
      RT: portions of the substances denoted by [–tn] nominal

However, this construction is restricted to a few nouns. In general, Icelandic RT constructions without explicit container noun are characterised by *transnumeral* beverage-nouns, that is, nouns that do not get plural marking, although they are not embedded under an explicit container noun. Compared to the explicit construction in (34, this third kind of construction is somewhat marginal, and speakers' intuitions may differ about the acceptability of particular examples. In general, nouns seem to be likely to occur in these constructions if they do not have a straightforward plural form (unlike *bjór* 'beer') and denote beverages that are often ordered in standard portions in restaurants or bars or in liquor shops.[29] In addition, there seems to be some dialectal variation (for example, (37 below seems

to be more acceptable for speakers from the North). The exact distribution patterns for this construction are beyond the scope of this paper, though. What is important for our discussion here is that, as we will show below, this third kind of Icelandic RT construction is elliptical, that is, it contains a phonologically empty container noun. This means that, unlike those in English, the beverage-nouns do not undergo a reference shift, since the 'portion'-concept is contributed by the implicit container noun, just as in explicit container constructions of the kind illustrated in (34 above.

The presence of such an empty container noun is indicated by agreement relations within the noun phrase. In contrast to plural RT constructions such as in (35, the determiner or numeral in these constructions agrees in gender with the empty container noun, not with the overt beverage-noun.[30] As the contrast between (38 and (39 illustrates, this can even support the distinction betweem different empty container nouns.

(36)   Get ég fengið annan   kaffi?
       may I   have another$_{\text{MASC.}}$ coffee$_{\text{NEUT.}}$
       'Could I have another coffee?'   [container noun: *bolli* 'cup', masculine]

(37)   einn   mjólk [31]
       a$_{\text{MASC.}}$ milk$_{\text{FEM.}}$
       'a milk'   [container noun: *bolli* 'cup', masculine]

(38)   tvo   viskí   (used for orders in a bar)
       two$_{\text{MASC.}}$ whiskey$_{\text{NEUT.}}$
       'two whiskeys'   [container noun: *sjússar* 'drinks', masculine]

(39)   tvær {viskí /   Fanta}   (used for orders in a liquor shop)
       two$_{\text{FEM.}}$ whiskey$_{\text{NEUT.}}$ Fanta$_{\text{NEUT.}}$
       'two {whiskeys / Fantas}'   [container noun: *flöskur* 'bottles',
                                                         feminine]

The agreement with an empty container noun distinguishes these RT constructions from 'sorter'-constructions in Icelandic. In 'sorter'-constructions, we also find a numeral followed by a beverage-noun, but in this case, the determiner agrees with the beverage noun, suggesting a reference shift of the beverage noun whose interpretation is enriched by a 'sorts'-concept. Compare, for example, the RT construction from (36 above and its 'sorter'-counterpart in (40.

(40)   Get ég fengið annað   kaffi?   ['sorter'-construction]
       may I   have another$_{\text{NEUT.}}$ coffee$_{\text{NEUT.}}$
         'Could I have another (kind of) coffee?'

Hence in the Icelandic RT constructions in (36 – (39, beverage-nominals are combined with a empty container noun. The agreement relations discussed above indicate the presence of such a container noun in the grammatical representation, and since container nouns contribute 'portion'-concepts, this means that the beverage-nouns in these constructions, unlike those in English, do not receive an enriched interpretation. Unlike their English counterparts, they undergo neither a reference shift, nor a morpho-syntactic change, but remain substance-denoting and transnumeral.

Our findings for the example *tvo kaffi(-bolla) / (bolla af) kaffi* 'two (cups of) coffee' are summarised in (41, parallel to the sketch of semantic contributions of English RT we provided in (31 above (subscripts in brackets indicate optionally elliptical constituents):
(41)   tvo kaffi: [TWO$_{\text{numeral}}$ [PORTIONS$_{\text{(container noun)}}$ [COFFEE$_{\text{transnumeral nominal}}$]]]

Given the lack of oblique case marking on the beverage-nominal,[32] we believe that elliptical phrases such as *tvo kaffi* are derived from constructions such as *tvo (bolla) kaffi*, where *kaffi* stands in

apposition to the numeral plus container noun. Such constructions without a preposition occur for instance in shopping lists.

4.3. German: Bier, Schnaps, and Schnäpse.

German has two kinds of RT constructions. One has the same structure as English RT constructions, with plural beverage-nominals as in (42, the other kind of construction involves transnumeral beverage-nominals that do not get number marking, as illustrated in (43.

(42)　　Zwei **Martinis**, bitte.　　　　　　　　　　[plural beverage-nominal]
　　　　　two　martinis　please

(43)　　Zwei **Kaffee**, vier **Bier**　und drei **Wein**, bitte.　　[transnumeral beverage-
　　　　　two　coffee　four　beer　and three　wine　please　　　　　　　　　nominal]
　　　　'Two coffees, four beers, and three wines, please.'

Note that the nominals in (43 are neither explicitly marked for plural nor implicitly, that is, by phonologically empty plural marking. Given that some nouns in German have identical forms for nominative and accusative singular and plural (for instance, the plural of *Sänger* 'singer' is *Sänger* 'singers'), one might argue that the beverage-nominals in (43 are not transnumeral, but rather plural nouns with implicit, phonologically empty plural allomorphs, which would make this construction comparable to the one in (42 and to those in English RT, and thus of rather less interest for our discussion. However, 'sorter'-constructions as (44 show that this is not the case: in these constructions, *Kaffee*, *Bier*, and *Wein* do occur in their plural forms, and these are forms with explicit plural suffixes, indicating that plural for these nouns is not realised by zero suffixing.

(44)　　Hier gibt　es die besten {**Kaffees** / **Biere** / **Weine**}.　　　['sorter'-construction]
　　　　　here gives it the best　　coffees　beers　wines
　　　　'In this place, they have the best {coffees / beers / wines}.'

This means that the beverage-nominals in (43 are indeed transnumeral; they occur in their non-plural forms, unlike the ones in (42 and (44. The transnumeral versus plural behaviour of nominals like *Kaffee*, *Bier*, or *Wein* in mass/count coercion can hence distinguish constructions with 'sorter' interpretation (44 from RT constructions with 'packer' interpretations (43 in German. While beverage-nominals in German 'sorter'-constructions are always plural, for RT contexts, the construction with transnumeral beverage-nominals seems to represent the default case, and constructions with plural beverage-nominals as in (42 are marginal and involve only a few nouns. Some nouns can occur in both kinds of constructions, as is the case for *Schnaps*, as in (45.

(45)　　Zwei {**Schnaps** / **Schnäpse**},　bitte.　　　　　　　([± tn] beverage-nominal)
　　　　　two　schnapps$_{SG.}$　schnapps$_{PL.}$　please
　　　　'Two schnapps, please.'

In contrast to Icelandic RT constructions with transnumeral nominals, in German RT the determiner agrees in gender with the overt beverage-noun, not with a possible empty container noun, as suggested by the contrast between (46 and (47.

(46)　　Einen Kaffee,　　ein　Bier　　und eine Milch, bitte.
　　　　a$_{MASC.}$　coffee$_{MASC.}$　a$_{NEUT.}$　beer$_{NEUT.}$　and　a$_{FEM.}$　milk$_{FEM.}$　please
　　　　　'A coffee, a beer, and a milk, please.'

(47)　　Eine Tasse Kaffee,　　eine Flasche Bier　　und einen Becher　Milch.
　　　　a$_{FEM.}$　cup$_{FEM.}$　coffee$_{MASC.}$　a$_{FEM.}$　bottle$_{FEM.}$　beer$_{NEUT}$　and　a$_{MASC.}$　mug$_{MASC.}$　milk$_{FEM}$

'A cup of coffee, a bottle of beer, and a {mug/cup} of milk.'

This speaks against an analysis of these constructions as elliptical in German: unlike Icelandic, German does not have container noun ellipsis in RT. The beverage-nominals are combined with a determiner or a numeral directly, without the interference of a container noun. Hence in these constructions, the beverage-nominals themselves, albeit transnumeral, encompass the 'packer'-aspect, they receive an enriched interpretation and denote portions of the substance in question. This analysis implies that German RT deviates from the standard correlation 'transnumeral Û substance' (since we have transnumeral, non-plural, nominals with object-reference). As we have shown above, such a deviation is not uncommon: it is an option not only realised in transnumeral languages such as Chinese and Kurdish, but also by lexical items such as *cattle* or *furniture* in plural languages such as English, German, and Icelandic. Just like these nouns, beverage-nominals in German RT are object-denoting expressions, even though they remain transnumeral, rather than being pluralised.

Further support for this analysis comes from constructions like (48, where an optional numeral classifier (CL) occurs with the transnumeral beverage-noun:

(48) Zwei (Glas)   Wein, bitte.   [RT construction with classifier *Glas*]
       two   glass_{CL}   wine   please
       'Two wines, please.'

The fact that *Glas* is not marked for number indicates that it is used as a numeral classifier in (48, and not as a container noun: while it is characteristic of classifiers to be combined with numerals in their bare form,[33] container nouns require plural marking in German (as well as in other plural languages, such as English or Icelandic). Hence, in a construction like (49 where *Glas* is used as a container noun, it occurs in its plural form, *Gläser*.

(49) zwei Gläser   Wein   [construction with container noun *Gläser*]
       two   glasses   wine
       'two glasses of wine'

Taken together, this suggests that German RT constructions with transnumeral nominals involve an implicit – optionally overt – numeral classifier, similar to RT constructions in transnumeral languages like Kurdish, where classifiers are optional in general (see also our discussion of optional classifiers above).

(50) Du (**tă**)   čāi-mān   bō   bēna.   [Kurdish RT with optional classifier]
       two [CL]   tea-us   for   bring
       'Bring two teas for us, please / Two teas, please.'

These data support an analysis of German RT constructions such as *zwei Wein* as counting constructions with an implicit classifier and a transnumeral nominal complement. Hence, the beverage-nominals in German RT constructions can remain transnumeral (and do so by default), but they still undergo a reference shift from 'substance' to 'portions of a substance'. Unlike plural nominals – and like all transnumeral nominals – they are not individuated in their semantic representation; the individuation is contributed by an (implicit or explicit) numeral classifier. (51 summarises the semantic contribution of the constituents in German RT for our example of 'two coffees' (German *zwei Kaffee*).

(51)   *zwei Kaffee*:   [TWO_{numeral} [INDIVIDUATION]_(CL) [PORTION(COFFEE)]_{transnumeral nominal}]

Figure 5 sketches the syntactic representations for such constructions with explicit and implicit classifiers.
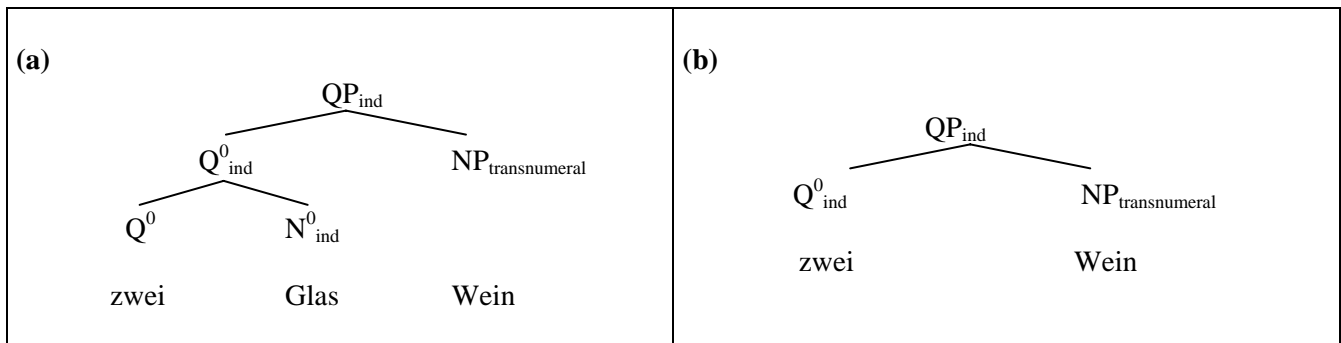
Figure 5: German RT with (a) explicit and (b) implicit numeral classifier

Note that by talking about an "implicit classifier", we do not mean that there is a specific covert classifier ("Glas", "Tasse" etc.) somewhere in the syntactic representation. Rather, what happens in German RT (as in similar constructions in other languages with implicit classifiers, for example, Kurdish example (50, is that the individuation that a classifier contributes is added to the representation implicitly: syntactically, the individuation requirement is satisfied within the QP head; semantically it is bound by existential quantification.

The availability of such constructions in German RT is supported by the existence of constructions such as in (52, where a propositional classifier *Mal*, whose meaning is approximately 'time' is employed for meal orders in restaurants:

(52) Zwei Mal   den kleinen Salat, bitte.
       two times$_{CL}$ the small salad please
       'Two small salads, please.'

While these constructions are *similar* to RT constructions such as (51, in that they also involve a classifier (albeit one for propositions, not for portions), they are not structurally identical to them. This becomes evident, for instance, from the fact that 'Mal'-constructions typically involve a definite article, as in (52) (DEN kleinen Salat), whereas this is not possible in RT, as shown in (53.

(53) *Zwei Ø {das Bier / den Wein}, bitte.
       two   the beer the wine please

Hence, constructions such as (51 cannot be analysed as constructions similar to (52, but with an element *Mal* being deleted at PF. Rather, they constitute a separate category of RT constructions.

A note on RT- vs. 'sorter'-constructions
Note that in both Icelandic and in German, there is a difference between RT constructions and constructions with 'sorter'-interpretation: while we found RT constructions with transnumeral beverage-nominals (in addition to plural constructions), no such option was available for 'sorter'-constructions. In 'sorter'-constructions, beverage-nominals are marked for plural in German, and agreed in gender with the determiner in Icelandic. Accordingly, we found minimal pairs as in (54 and (55.

German:
(54a) zwei **Bier**   [transnumeral beverage-nominal: *portion*-interpretation, RT]
        two   beer

(54b) zwei **Biere**   [plural beverage-nominal: *sorts*-interpretation]
        two   beers

Icelandic:
(55a) annan   kaffi   [transnumeral beverage-nominal, no gender agreement:
        another$_{MASC.}$ coffee$_{NEUT.}$ *portion*-interpretation, RT]

(55b) annað   kaffi   [gender agreement: *sorts*-interpretation]
     another$_{NEUT.}$ coffee$_{NEUT.}$

The examples in 54 – 55 suggest that sorter coercions are always morphologically marked, while RT constructions can remain unmarked. At present, we cannot tell whether this pattern holds only for the languages we investigated, or whether it reflects a general cross-linguistic tendency in plural languages. We believe the latter to be the case, though, in view of the linguistic and extra-linguistic context of RT constructions. RT constructions occur in specialised contexts, namely as part of restaurant orders, where the beverage nominal is usually combined with a numeral. This context is strong enough to support a 'portion' interpretation for the construction even if there is no morphological marking to trigger this.

Compared to this, 'sorter'-constructions are much freer in their distribution, their occurrence is not bound to particular contexts. This means that in the absence of an explicit noun like 'sorts' (parallel to an explicit container noun in RT), one needs to indicate that a sortal interpretation is intended. Given the default correlation 'transnumeral Û substance' for conceptual and grammatical distinctions in plural languages, a straightforward way to do this in languages like English, Icelandic, and German, is to mark the beverage-nominal for number: plural marking – or, in singular constructions as in Icelandic: agreement with the determiner – then indicates reference to objects (in this case: sorts of a substance), rather than to substances. Hence, we have a strong motivation to morphologically mark sorter coercions, while for RT 'portion'-interpretations, constructions without such a marking are possible as well.

If this account is correct, one would expect a tendency in transnumeral languages to avoid sorter coercions and to favour explicit constructions with a noun meaning 'sort' instead, since these languages cannot make use of the default 'transnumeral -> substance' found in plural languages and hence cannot indicate reference to objects (= sorts of a substance) via plural marking. RT constructions, on the other hand, should be unproblematic, since the context is here sufficient to indicate reference to portions.

5. Conclusions: Three different ways to integrate the same conceptual representation into the grammatical system.

Our discussion has shown that restaurant talk in English, Icelandic, and German makes use of three different grammatical options for the same underlying conceptual structures, and that variation occurs not only between languages, but even within languages:

Option 1: Reference shift accompanied by morpho-syntactic change
This is the option most significantly realised in English RT. It is also available in German and Icelandic, but here, the construction has only a marginal status in restaurant talk, where it is restricted to a few nouns (while it is dominant for sorter-constructions).

In this kind of construction, beverage-nominals undergo a reference shift from 'substance' to 'objects': they receive an enriched interpretation and refer to portions of a beverage. This shift is accompanied by a morpho-syntactic change, in accordance with the default correlation of conceptual and grammatical distinctions in plural languages: when they denote substances, beverage-nominals are transnumeral (= do not receive number marking), and when they denote portions of these substances in RT constructions, they undergo pluralisation and are semantically individuated.

Option 2: No reference shift, no morpho-syntactic change
This option does not involve coercion and exists in all three languages. However, in Icelandic it may give rise to RT constructions with a numeral immediately followed by a beverage-nominal. In this kind of construction, beverage-nominals do not undergo a reference shift, but remain substance-denoting. Accordingly, they also do not change their syntactic behaviour and remain transnumeral, hence no pluralisation occurs. The 'packer'-concepts that map the substances in question onto their portions are contributed by container nouns. These container nouns can be phonologically empty in Icelandic, leading to two-term RT constructions.

Option 3: Reference shift, but no morpho-syntactic change
This is the dominant option in German RT. In this construction, beverage-nominals undergo a reference shift, as in Option 1 (and unlike in Option 2): they receive an enriched interpretation and refer to portions of a beverage. However, and in contrast to Option 1, the nominals remain transnumeral and semantically non-individuated. Implicit or overt numeral classifiers contribute the individuation that is necessary for counting constructions.

Table 1 summarises the correlation of morpho-syntactic and conceptual features in RT constructions consisting of a numeral and a beverage-nominal:

morpho-syntactic features / *conceptual features*	nominal refers to **substance** (no conceptual enrichment)	nominal refers to **portions of the substance** (conceptual enrichment)
nominal is **transnumeral** (no morpho-syntactic change)	Icelandic ('tvo kaffi')	German ('zwei Wein')
nominal is **plural** (morpho-syntactic change)		English ('two coffees') German ('zwei Martinis') Icelandic ('tvo bjóra')

Table 1: Correlation of conceptual and morpho-syntactic features of beverage nominals in RT constructions

From the perspective of the grammatical-conceptual interface, these findings suggest two kinds of distinctions. First, they support a distinction between syntactic and semantic classifications in the mass/count domain, since elements of the same syntactic 'mass/count' category, namely transnumeral (= non-plural) nominals, can belong to different semantic 'mass/count' categories, denoting either substances or objects. In particular, transnumeral beverage-nominals are substance-denoting in Icelandic restaurant talk – as well as in their basic (= non-RT) interpretation in English, Icelandic, and German – while they are object-denoting in German restaurant talk.

Second, our analysis supports a distinction between language-specific semantic and general conceptual aspects of mass/count coercion: while there are always the same 'packer'-associations between substances and portions of substances available in the conceptual system (= associations that support the conceptual transitions underlying mass/count coercion), languages differ as to whether and how these associations are integrated into the semantic representation of the expressions employed in restaurant talk.

In English and German, enriched interpretations that include 'packer'-concepts are available for beverage-nominals in general, whereas in Icelandic this holds only for a few nouns (such as *bjór* 'beer'), while for the others, the 'packer'-aspect has to be contributed by an over or phonologically empty container noun.

Moreover, beverage-nominals that receive enriched interpretations get pluralised and contribute an individuation function as part of their semantic representation in English and – for those nouns that allow enrichment at all – in Icelandic, but only in a few cases in German. By default, in German restaurant talk the beverage-nominal remains transnumeral, and hence the 'individuation'-aspect has to be contributed by an explicit or implicit numeral classifier. Since there is also another, marked kind of plural construction in German that follows the English pattern, this second difference occurs not only between languages, but can also be observed between different nouns in one language (for example, German *Bier* versus *Martini*), and, as our data have shown, different options can even be available for individual nouns (as is the case for *Schnaps*).

Hence we find inter- and intra-linguistic differences as to whether reference shifts leading to enriched 'packer'-interpretations are available for the beverage-nouns in RT at all, and if so, whether or not they bring with them a shift to semantic individuation and plural behaviour of the nominal in question. This variation in view of the same underlying conceptual representations supports an analysis of coercion that makes use of a mediating level of semantic structure to account for language-specific as well as lexical-idiosyncratic differences in the integration of conceptual structures into the grammatical system.[34] It suggests that there is no direct way from concepts to grammar, but rather that

conceptual structures enter the linguistic system via semantic representations that take into account grammatical and lexical constraints.

Under this view, semantic representations constitute the interface between grammatical and conceptual structures rather in the way that phonological representations constitute the interface between grammatical and phonetic structures: while the semantic interface accounts for the way that the grammatical system of a language accesses and integrates representations of meaning, the phonological interface accounts for the way that the grammatical system of a language accesses and integrates representations of sounds.[35]

The three options for RT constructions we discussed in this article can hence be regarded as three different ways in which semantic representations integrate the conceptual representations of substances and their portions in the case of beverage-nominals. They identify which conceptual representations can be accessed, i.e., whether a beverage-nominal can only refer to a substance, or whether it can also undergo coercion and refer to portions of this substance, and in what form they enter the grammatical system, i.e., whether the nominal is semantically individuated or non-individuated, and accordingly morpho-syntactically plural or transnumeral.

Figure 6 illustrates this organisation of linguistic meaning, that is, the integration of substance and portion concepts into the grammatical system via semantic representations, for beverage-nominals in the different kinds of restaurant talk constructions we found in English, German, and Icelandic.
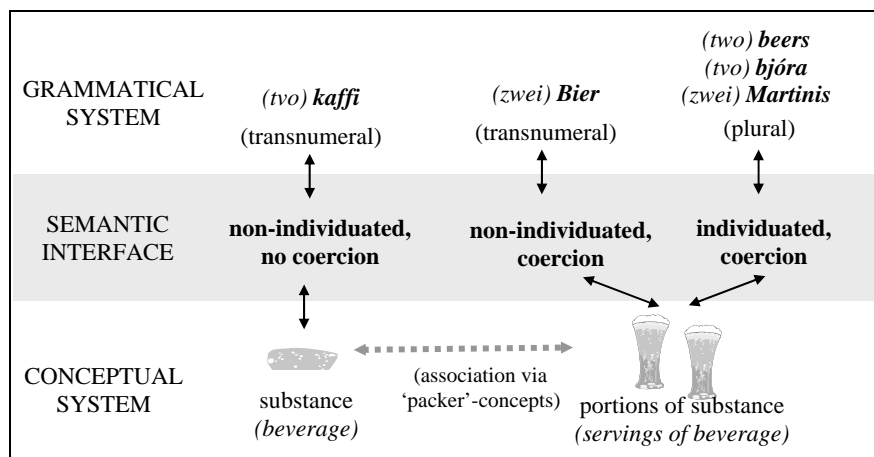

Figure 6: Integration of conceptual representations into the grammatical system via semantics

One way to look at the mediating semantic level is to regard it as a system that captures the generation of QUALIA STRUCTURES from general conceptual structures, as suggested within the Generative Lexicon framework[36]. These qualia structures are defined as a part of lexical representations; they integrate those aspects of conceptual information that are relevant for the flexibility of lexical items in the generation and adjustment of meaning in complex constructions, a prominent example being coercion. Accordingly, the qualia structure of an English beverage-noun like *beer* has to include such information about the substance 'beer' as is necessary to identify its function as a drink and to associate it with 'packer'-concepts in restaurant contexts.

Under this approach, the function of a semantic level as suggested here – hence, a system mediating between conceptual and grammatical representations – is then to identify the elements that enter such qualia structures in the representation of beverage-nominals in different languages, and to determine which associated concepts (in our case, 'packer'-concepts) can be integrated, in the course of semantic composition, into the linguistic representations that these items enter.

As our discussion has shown, this process of generating enriched interpretations is not based on a straightforward, immediate access to (classes of) associated representations in the conceptual system, but is subject to language-specific constraints that govern the availability of enriched interpretations for certain expressions as well as the way this enrichment is reflected in their grammatical behaviour. This speaks for an analysis of coercion as a genuinely semantic – as opposed

to general conceptual or syntactic – phenomenon, a phenomenon that is located on an interface between the conceptual and the linguistic system, that is on a level of semantic representations.

References

Bierwisch, Manfred (1983). Semantische und konzeptuelle Repräsentation lexikalischer Einheiten. In: R. Ruzicka & W. Motsch (eds.), *Untersuchungen zur Semantik*. Berlin: Akademie. pp.61-99.

Bloom, Paul (1994). Syntax-semantics mappings as an explanation for some transitions in language development. In: Y. Levy (ed.), *Other Children, Other Languages: Theoretical Issues in Language Development*. Hillsdale, NJ: Erlbaum. pp.41-75.

Bloom, Paul (2000). *How Children Learn the Meanings of Words*. Cambridge, Mass.: MIT Press.

Brown, Roger W. (1957). Linguistic determinism and the parts of speech. *Journal of Abnormal and Social Psychology* 55: 1-5.

Bunt, Harry C. (1985). The formal representation of (quasi-)continuous concepts. In: J. R. Hobbs & R. C. Moore (eds.), *Formal Theories of the Commonsense World*. Norwood, New Jersey: Ablex. pp.37-70.

Corbett, Greville G. (2000). *Number*. Cambridge: Cambridge University Press.

Dölling, Hannes (2001). *Systematische Bedeutungsvariationen: Semantische Form und kontextuelle Interpretation* [= Linguistische Arbeitsberichte 78]. Leipzig University.

Egg, Markus (2004). Anti-Ikonizität an der Syntax-Semantik-Schnittstelle. To appear in *Zeitschrift für Sprachwissenschaft.*

Eschenbach, Carola (1993). Semantics of number. *Journal of Semantics* 10;1: 1-31.

Greenberg, Joseph H. (1973). Numeral classifiers and substantival number. Problems in the genesis of a linguistic type. *Working Papers on Language Universals* 9: 1-39.

Indriðason, Þorsteinn G. (1999). Um eignarfallssamsetningar og aðrar samsetningar í íslensku ['On genitive compounds and other compounds in Icelandic']. *Íslenskt mál* 21: 107-150.

Jackendoff, Ray S. (1997). *The Architecture of the Language Faculty*. Cambridge, Mass.: MIT Press.

Kayne, Richard S. (2003a). Some notes on comparative syntax, with special reference to English and French. New York University.

Kayne, Richard S. (2003b). Silent years, silent hours. In: L.-O. Delsing, C. Falk, G. Josefsson, & H. Sigurðsson (eds.), *Grammar in Focus, Vol. II, Festschrift for Christer Platzack, 18 November 2003*. Lund: Department of Scandinavian Languages, Lund University. pp. 209-226.

Kress, Bruno (1982). *Isländische Grammatik*. Leipzig: Enzyklopädie.

Krifka, Manfred (1995). A theory of common nouns. In: G. N. Carlson & F. J. Pelletier (eds.), *The Generic Book*. Chicago: University Press. pp.398-411.

Lang, Ewald (1994). Semantische vs. konzeptuelle Struktur: Unterscheidung und Überschneidung. In: M. Schwarz (ed.), *Kognitive Semantik*. Tübingen: Narr. 25-41.

McElree, B.; M. J. Traxler, M. J. Pickering, Ray S. Jackendoff and R. E. Seely (2001). Coercion in on-line semantic processing. *Cognition* 78: B17-B25.

Pelletier, Francis Jeffry (1975). Non-singular reference: some preliminaries. In: F.J. Pelletier (ed.), *Mass Terms: Some Philosophical Problems*. Dordrecht: Reidel, 1979. pp.1-14.

Pelletier, Francis Jeffry, & Schubert, Lenhard K. (1989). Mass expressions. In: D. Gabbay & F. Guenthner (eds.), *Handbook of Philosophical Logic*, Vol. IV. Dordrecht: Reidel. pp.327-407.

Piñango, Maria; Zurif, Edgar, & Jackendoff, Ray S. (1999). Real-time processing implications of aspectual coercion at the syntax-semantics interface. *Journal of Psycholinguistic Research* 28(4), 394-414.

Pinker, Steven (1989). *Learnability and Cognition. The Acquisition of Argument Structure.* Cambridge, Mass.: MIT Press

Prasada, Sandeep (1996). Quantification, arbitrariness of structure, and the count-mass noun distinction. In: A. Stringfellow, A. D. Cahana, E. Hughes, & A. Zukowski (eds.), *Proceedings of the 20th Annual Boston University Conference on Language Development*, I-II. Somerville, Mass.: Cascadilla. pp.600-609.

Prasada, Sandeep (1999). Names for things and stuff: an Aristotelian perspective. In: R. S. Jackendoff, P. Bloom, & K. Wynn (eds.), *Language, Logic, and Concepts: Essays in Memory of John Macnamara*. Cambridge, Mass.: MIT Press. pp.119-146.

Pustejovsky, James (1991). The generative lexicon. *Computational Linguistics* 17;4: 409-441.

Pustejovsky, James (1995). *The Generative Lexicon*. Cambridge, Mass.: MIT Press

Smith-Stark, T. Cedric (1974). The plurality split. *CLS* 10: 657-671.

Todorova, Marina; Straub, Kathy; Badecker, William, & Frank, Robert (2000). Aspectual coercion and online computation of sentential aspect. In: L. R. Gleitman & A. K. Joshi (eds.), *Proceedings of the 22nd Annual Conference of the Cognitive Science Society, Philadelphia, PA, August 2000*. Mahwah, NJ: Erlbaum.

Wiese, Heike (1997a). *Zahl und Numerale. Eine Untersuchung zur Korrelation konzeptueller und sprachlicher Strukturen* [= studia grammatica 44]. Berlin: Akademie-Verlag. Ch.7: 'Kardinal-Konstruktionen'.

Wiese, Heike (1997b). Semantics of nouns and nominal number. *ZAS Papers in Linguistics* 8: 136-163.

Wiese, Heike (2003). Sprachliche Arbitrarität als Schnittstellenphänomen. Habilitation thesis, Humboldt-Universität Berlin.

Wiese, Heike (2004). Semantics as a gateway to language. In: H. Härtl & H. Tappe (eds.), *Mediating between Concepts and Language.* Berlin: Mouton de Gruyter. Berlin, New York: de Gruyter [Trends in Linguistics 152]. pp.197-222.

Wiese, Heike, & Piñango, Maria (2001). *Mass* and *count* in language and cognition: Some evidence from language comprehension. In: J. D. Moore & K. Stenning (eds.), *Proceedings of the 23rd Annual Conference of the Cognitive Science Society, Edinburgh, August 1-4, 2001*. Mahwah, NJ: Erlbaum.

Wunderlich, Dieter (1991). Bedeutung und Gebrauch. In: A. von Stechow & D. Wunderlich (eds.), *Semantik / Semantics.* [HSK, vol.6]. Berlin, New York: de Gruyter. pp.32-52.

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[2] In a general approach, 'objects' includes concrete physical objects as well as abstract objects like portions or sorts.

[3] With 'basic' interpretation, we refer to the default interpretation of a construction that can be derived from the semantic representations of its constituents directly, without enrichment. In some models of semantics, this will be the only interpretation that conforms to strict compositionality, while in others, enriched interpretations are compositional as well (cf. Dölling 2001, Wiese 2003 for a detailed discussion).

[4] Cf. McElree et al. (2001) for complement coercions; Piñango et al. (1999), Todorova et al. (2000) for aspectual coercions.

[5] For a detailed discussion of complement coercions cf. Pustejovsky (1991; 1995), Jackendoff (1997).

[6] Cf. Pelletier (1975); Pelletier & Schubert (1989).

[7] Cf. Bunt (1985).

[8] Cf. Prasada (1996; 1999) for a detailed discussion of the status of STRUCTURE in the conceptual distinction between substances and objects.

[9] That is, even though a substance might have an internal structure, this does not feature in the representation. Hence, while for an object like e.g. a chicken, its internal structure is important and you cannot cut it in two pieces and still have the same animal, for a substance like chicken meat, we do not need to care about its internal structure: you can cut a piece of chicken meat up in two pieces, and will still have chicken meat.

[10] In addition to 'transnumeral', one also finds some other terms in the typological literature. Corbett (2000) mentions 'transnumeral', but chooses the term 'general number', describing the phenomenon as follows (p.9f): "In English, we are usually forced to choose between singular and plural when we use a noun. However, there are languages for which number is less dominant, languages in which the meaning of the noun can be expressed without reference to number. We shall call this 'general number', by which we mean that it is outside the number system."

[11] We describe plural marking as "not compulsory", rather than as obligatorily absent for transnumeral nominals for cross-linguistic reasons. In languages like English, transnumeral nominals do not get any plural marking (nor can they be combined with an indefinite article). In languages like Chinese, Persian, or Kurdish, however, where nouns are transnumeral as a rule, we often find optional number marking for transnumeral nominals. These transnumeral plural (and likewise singular) markers have a different meaning

than those of non-transnumeral nouns in languages like English: they do not indicate the quantity '> 1', but emphasise (non-numerical or numerical) size; accordingly, they can be attached to substance-denoting nouns as well as to object-denoting ones, cf. the Persian data in (a) and (b) (cf. Hincha 1961 and Windfuhr 1979 on a discussion of Persian number marking; cf. Wiese 1997b for a semantic account of transnumeral and non-transnumeral number markers):

    (a) {āb / āb-hā}   xord.   [substance-denoting transnumeral nominal]
        water water-PL ate/drank$_{3SG}$
      'He/she drank {water / plenty of water}.'

    (b) {mehmān / mehmān-hā} dāštīm.   [object-denoting transnumeral nominal]
        guest   guest-PL   had$_{1PL}$
      'We had {a guest or guests / many, all kinds of guests}.'

[12] Cf. Brown (1957), Bloom (1994, 2000) on data from English.

[13] Wiese & Piñango (2001) present evidence for the distinction of substance- versus object-denoting nominals within the [+ tn] class in language processing.

[14] Cf. Krifka (1995), Eschenbach (1993), Wiese (1997a) for a discussion of individuation functions in the semantic representation of cardinal constructions.

[15] Although, as the example of *pieces* in (22) shows, in plural languages like English, classifiers can undergo pluralisation.

[16] There sometimes exists a small class of nominals that show a tendency towards [– tn] behaviour in overall transnumeral languages: in particular nominals with a high position on the animacy hierarchy (i.e. pronouns and nouns referring to humans and some animals) are often systematically marked for plural when referring to more than one entity (cf. Smith-Stark 1974, Corbett 2000).

[17] For discussion of the Kurdish data we would like to thank Sarkaut Zandi, Diler Assad, and Adel Zhia.

[18] Singular marking in Kurdish is realised morpho-syntactically as suffixation; its counterpart in English is a lexical 'singular element', namely the indefinite article.

[19] Since transnumeral nominals transcend number marking (as opposed to being marked for plural or singular), there is variation as to whether they are combined with plural or singular verbs. In transnumeral languages like Kurdish and Persian that have number distinctions on verbs, the choice of plural or singular verbs for transnumeral subjects can depend on features like animacy or respect. In English, we find different options depending on the noun; e.g. while *furniture* is combined with singular verbs ("The furniture has been sold."), *cattle* goes mostly with plural verbs ("The cattle have been sold"), but can in some dialects also be combined with singular verbs. In counting constructions with numerals > 1, we get plural verb forms, triggered by semantic manyness.

[20] In plural languages like English, where transnumeral nominals have only a marginal status, they are often superordinate terms and carry the pragmatic implication that they refer to a non-singleton set, i.e., although in principle, a transnumeral nominal like *furniture* can refer to one sofa/table/chair etc. as well as to many, in a sentence like "Karen bought furniture.", the default interpretation will be that she bought more than one piece.

[21] This is an informal summary that serves as a basis for our comparison of English with Icelandic and German RT constructions; a general discussion of formal semantic representations for RT constructions is given in Wiese (1997a).

[22] Cf. Pustejovsky (1995), Jackendoff (1997).

[23] Kayne (2003a,b) proposes, for instance, silent nouns like NUMBER or COLOUR in constructions like "few NUMBER books" or "a red COLOUR car" (where capital letters indicate non-pronunciation).

[24] Below, we will discuss a different kind of constructions where this kind of morpho-syntactic evidence can be found, namely RT constructions with transnumeral beverage-nominals in Icelandic. We will show that in these constructions, gender marking on the numeral supports an analysis that involves phonologically empty nouns on the syntactic level (albeit empty container nouns, rather than a general silent noun 'portion').

[25] This syntactic analysis was suggested by one of the reviewers.

[26] Cf. Egg (2004) for a recent discussion of such cases and a proposal for the derivation of their semantic representations.

[27] For discussion of the Icelandic data we would like to thank Anna Sigurðardóttir, Berglaug Skúladóttir, Guðmundur Ásgeirsson, Halldór Ármann Sigurðsson, Helgi Skúli Kjartansson, Jóhanna Barðdal, Kjartan Ottósson, Magnús Björnsson, Margrét Jónsdóttir, Nanna Reykdal, and Sigríður Magnúsdóttir, and members of the audience at the Linguistics Discussion Group at the University of Iceland where the second author presented some of this material on September 17, 2004.

[28] Note that 'bjóra' is accusative, as are the beverage-nouns in (33) and (34) above, because in Icelandic (and similarly, in German, cf. (42)ff below), orders are given in the accusative case even if subject and verb are omitted.

[29] In addition, one can observe a list effect for the occurrence of container noun ellipsis in Icelandic RT, as suggested by Helgi Skúli Kjartansson, pers. comm. with J. Maling, 21 November, 2003: one is more likely to get gender agreement with an implicit container noun in a list, especially if the genders of the beverage-nouns in this list differ.

[30] Constructions with masculine numerals seem to be more common, probably because masculine gender for numerals appears also in other bare constructions without (explicit) head noun, which might support the acceptability of elliptical RT constructions with masculine numerals. These constructions include, in particular, numerals used in rote counting ('one, two, three, …'), but also numerals in – mostly idiomatic – constructions that refer to abstract entities, as in (a) and (b) below (we thank Helgi Skúli Kjartansson for pointing out these constructions to us). Note, though, that similar constructions with masculine numerals exist in German (cf. (a') and (b') below), which does not have container noun ellipsis in RT. This suggests that such elliptical RT constructions in Icelandic are an independent phenomenon (although the existence of constructions like (a) and (b) might lead to a higher acceptability of elliptical RT with masculine numerals in Icelandic).

(a) Á   ég að-gefa þér einn   á hann?   -   'Do you want a punch in the face?'
       should I   give   you one$_{MASC.}$ to it (i.e. the jaw)

(b) að fá sér   einn   gráan   -   'to slug one down'
       to get oneself one$_{MASC}$ gray $_{MASC.}$

(a') Willst du einen   auf-s Maul?   -   'Do you want a punch in the face?'
       want   you one$_{MASC.}$ on-the mouth$_{PEJORATIVE}$

(b') einen   {trinken / saufen}   -   'to {have a drink / slug one down }'
       one$_{MASC.ACC}$ drink   drink$_{PEJORATIVE}$

[31] Example from Kress (1982: 186), who comments: „Bei Bestellungen in Restaurants bleibt das Genus unberücksichtigt" (p.186, note 2; "In restaurant orders, grammatical gender is disregarded.", our translation) – In view of (38) and of (38) versus (39), this seems to be too general: there can be gender agreement in this kind of Icelandic RT; just not with regard to the beverage-nominal, but rather with regard to its head, the implicit container noun. Note that, as mentioned above, not all speakers can use the masculine form of the numeral as in Kress's example. Some speakers accept only "eina mjólk" with feminine numeral, while others, especially those from the north of Iceland, accept "einn mjólk". The masculine numeral may be default masculine (as discussed in fn.30 above), since milk would normally be served in a glass (denoted by a neuter noun in Icelandic) or a carton (denoted by a feminine noun). No speakers accept the neuter numeral 'eitt' with 'mjólk', nor even with the neuter noun 'vatn', *water*.

[32] Note that the beverage-nominal gets dative case from the preposition *af* in constructions like 'tvo bolla af kaffi' or 'tvær flöskur af víni', while in Icelandic compounds similar to 'tvo kaffibolla', the first element can be either a bare stem ('vínglas'), marked genitive case ('rauðvínsglas', 'mjólkurglas'), or contain a linking element (cf. Indriðason 1999).

[33] This is a general characteristic of numeral classifiers, cf. our discussion above and the English, Chinese, and Kurdish classifiers in (22), (24), and (26), respectively.

[34] Cf. Bierwisch (1983), Pinker (1989), Lang (1994), Wunderlich (1991), Dölling (2001), Wiese (2004) for a distinction of grammatical-semantic and conceptual structures in the derivation of interpretations for linguistic expressions.

[35] For a discussion of these architectural parallels cf. Wiese (2003:Ch.5; 2004).

[36] Cf. Pustejovsky (1991; 1995).