MASS AND COUNT NOUNS IN ENGLISH

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1. INTRODUCTION. This paper discusses the countness of nouns. For L2 (second language) learners, in making the choice of *a, the* or the zero article, ϕ, a question to ask is, "Is this a count noun?" For a count noun, the choice of articles is *a/the* (+ N) or ϕ/*the* (+ Ns); for a non-count noun, the choice is ϕ/*the* (+ N). This correlation of count and non-count nouns with articles is illustrated in the following examples:

(1) a. I have a/*ϕbook on fish.
b. I have *a/ϕ books on fish.
c. The book/books I bought today was/were on fish.

(2) a. I'm looking for *a gold.
b. I'm looking for gold/*golds.
c. The gold/*golds I found is/*are worth millions of dollars.

(1) shows that a count noun like *book*, if singular, must cooccur with *a* as in (1a), or with *the* as in (1c); if plural, it cannot co-occur with *a*, as in (1b). A plural count noun must co-occur with either *the*, as in (1c), or the zero article, as in (1b). (2) shows that a non-count noun like *gold* cannot co-occur with the plural morpheme "-s" nor with *a*, but it can co-occur either with the zero article or *the*.

Because of these systematic co-occurrence restrictions, L2 learners can narrow down their choices of articles if they can decide whether the noun in question is count or non-count. To better understand what is involved in determining whether a noun is count or non-count, we need to know the semantic distinctions between these two kinds of nouns, and understand the switching back and forth between count and non-count meanings of the same noun.

It is concluded in this paper that if L2 learners know the distinctions between count and non-count nouns, they do not have to learn separately for each noun whether it is count or non-count. Instead, what they have to learn is only two types of nouns. The first type is always non-count. The second type is always count. The rest of the nouns can be used either as count or non-count, depending on context. Here the semantic count/non-count distinction can be of help to the L2 learner in deciding when a noun is to be used in a count sense and when to be used in a non-count sense. Principles for the conversion of count nouns into non-count nouns and also the opposite are offered as guideposts for L2 learners.

Section 2 addresses the count/non-count distinction. Section 3 deals with the

degrees of countability. Section 4 is about count/non-count conversion. Finally, section 5 discusses some implications for L2 learners.

2. The MASS/COUNT DISTINCTION. Jespersen (1924, p. 198) called non-count nouns "mass words" and he gave them this definition:

> There are many words which do not call up the idea of some definite thing with a certain shape or precise limits. I call these "mass words": they may be either material, in which case they denote some substance in itself independent of form, such as *silver, quicksilver, water, butter, gas, air,* etc., or else immaterial, such as *leisure, music, traffic, success*...

Jespersen's definition of mass words seems to be vague because we can never know for sure what idea is called up in the mind of a speaker of a language. Further, there are things which come in similar shapes, but the nouns which denote them are of different status. One may be a count noun and another a mass noun. Asparagus and carrots are an example of this kind.[1] They come in similar shapes, but the noun *asparagus* is a mass word and the noun *carrot* is a count noun. Given the fact that they are similar in shape, we are not sure whether or not the two words will call up different ideas about their shapes in the mind of language sepakers just because one is count and the other is mass. That is, will *asparagus*, being a mass noun, fail to call up the idea of something with a certain shape or precise limits? In a broader sense, we are not sure whether or not language affects the way we see the world. This is another difficulty that Jespersen's definition of mass words encounters.

Jespersen was not the only one who assumed that the mass/count distinction is simply in the nature of the things referred to. Whorf was another one who held basically the same position. Whorf (1956) divides nouns denoting physical things into two categories: individual nouns and mass nouns. His remarks on the distinction between the two are: "Individual nouns denote bodies with definite outlines... Mass nouns denote homogeneous continua without implied boundaries" (p. 140). To explicate his point, he gave the following example. When we want to talk about only a certain portion of the homogeneous continuum of a mass noun, say *milk, water*, or *sugar*, we have to individuate the mass noun by an individual noun like *bottle, cup* and *lump*, as in *a bottle of milk, a cup of water, a lump of sugar,* etc.

Whorf's remarks on the mass/count distinction, like Jespersen's, are subject to attack. If the distinction is simply in the things referred to, a noun which refers to an identical entity through different times should be always mass or always count. The development of the English language, however, shows that there are nouns which were mass earlier in history but later became count. *Pea* and *cherry* are two historical examples.[2] The former comes from *pease* and the latter from *cherise*. Both *pease* and *cherise* were mass, but because they sounded like a plural, people took *pea* as the singular of *pease* and *cherry* the singular of *cherise*. Thus *pea* and *cherry* became count nouns. For nouns like these two, being count is nothing but a historical accident.

Are there better theories for the mass/count distinction? Quine (1960, p. 91) claimed that *shoe, pair of shoes* [count] and *footwear* [mass] refer to basically the same stuff, and are different from one another solely in how they divide their reference. Both *shoe* and *pair of shoes* divide their reference, differently. But *footwear* does not at all. Quine claimed that the mass/count distinction lies in the words themselves and not in the stuff they name. Count nouns individuaate their reference, but mass nouns do not.

McCawley (1975) illuminated this distinction further by arguing that "the meaning of a count noun specifies an individuation, whereas the meaning of a mass noun is neutral as to individuation" (p. 314). One of his examples is *cold* and *flu*. The following facts are given to support his contention: (p. 317)

(3) a. I have a cold.
b. I have a case of the flu.

(4) a. Do you have the same cold/*flu that you had last week?
b. Do you have the same case of the flu that you had last week?

He says that "a cold is a 'case' of a particular infection" (p. 317), and argues that the countness of *cold* can be attributed to an individuation specified in its meaning. In contrast, the word *flu* does not individuate its referent, and hence when we are talking about a particular case, we cannot say "I have a flu"; instead we have to say (3b), using an additional unit word like *case*.

In sum, according to Quine and McCawley, count nouns differ from mass nouns in that the former, but not the latter, include an individuation in their meaning. This theory does not have the shortcomings of Jespersen's or Whorf's. If the mass/count distinction lies in word meaning, and not simply in the nature of the things referred to, the historical development of *pea* and *cherry* can be explained as a change in word meaning. We can say that an individuation for their reference was added to their word meaning at a certain point in history. And for the question why *carrots* is count and *asparagus* is mass, we can say that it is because the former includes an individuation in its meaning, but not the latter. It has to be admitted, however, that the correspondence between form and meaning is arbitrary. That is, we still cannot explain why the word *carrot*, and not the word *asparagus*, includes an individuation in its meaning.

This mass/count distinction explains why two words like *surgery* and *operation*, although similar in meaning, can be different in countness. To most native speakers of English, the word *surgery* denotes the treatment of injuries and diseases by operations and hence in this usage, it is a mass noun; whereas *operation* denotes the act performed by a surgeon and hence it is a count noun. Note that acts are relatively easier to individuate than treatment. Many Chinese learners of English do not know that *surgery* is a mass noun because when they are learning this word, they fail to learn its exact meaning, which does not include an individuation for its reference.

For abstract entities such as surgery and operations, L2 learners cannot decide whether the nouns which denote them are count or mass simply by logical reasoning. However, for nouns which refer to physical objects, there is a relatively reliable tendency. If a noun refers to a discrete object, i.e. an object with definite outlines or a certain shape, it tends to be a count noun. Things like cars, houses, chairs and tables are discrete and countable and hence the nouns refer to them tend to be count. On the other hand, if a noun refers to an object without a natural boundary such as water, air, milk, cotton, and sand, it tends to be mass. Here, we see that Jespersen and Whorf are not totally wrong.

Yet in English, we do have nouns which do not follow this tendency. *Asparagus* is such a word. McCawley (1975) gave us some more examples of this kind:

Count	Mass
noodles	spaghetti
onions	garlic
beans	rice
chairs	furniture

McCawley pointed out that rice comes in grains, which are countable; nevertheless the word *rice* is a non-count noun. Similarly, there is no physical reason why *noodle* is count and not *spaghetti*.

Nevertheless, an explanation was given by Markman (1985) as to why words such as *furniture* which apparently refer to discrete objects are non-count. Markman explained why many superordinate category terms, i.e. category terms of relatively high levels (e.g. *furniture, jewelry, money*), are mass nouns although conceptually they refer to diverse, discrete, countable objects. Let me take *money* as an example. Although we say, as many fairy tales go, "The king is counting his money in the palace", the word *money* is itself a non-count noun. If we can count money, *money* must refer to countable objects. Why is it a mass noun?

Markman's explanation was that mass nouns have the property of being a compromise between "collections" and "classes" and this property helps children to learn superordinate category terms. "Classes" have an inclusion structure; for example, all roses are flowers, but not all flowers are roses. The inclusion structure expresses the "is a" relation. A rose is a flower. A doll is a toy. In contrast, "collections" have a part-whole structure; for example, a tree is a part of a forest, but itself is not a forest.

Markman said that studies showed that children find it simpler to learn the part-whole structure than the inclusion relation. But collective nouns (e.g. *family, army*), said Markman, cannot be superordinate category terms because they do not express the inclusion relation. A soldier is a part of an army, but himself is not an army. However, a chair itself is furniture. A coin itself is money. Superordinate category

terms like *furniture* and *money* need to express the "is a" relation. Markman argued that mass nouns can be viewed as a compromise between part-whole and inclusion relations. A piece of clay is part of the whole mass of clay and each piece of clay is itself clay.

Markman's studies showed that children, at the age of 4, were better able to learn a new category such as "vehicle" if they heard "A car is a piece of vehicle" rather than "A car is a vehicle" (p. 31). Markman's conclusion was that "languages tend to use mass nouns to refer to superordinate categories because it helps children to learn them" (p. 51).

If Markman is right, L2 learners can expect English to evolve in the direction of regularizing all English category terms of relatively high levels to be mass nouns. Thus the learner would have a good rule to follow.

To sum up this section, the mass/count distinction lies in the meanings of mass and count words themselves: the latter specifies an individuation, but not the former. As a consequence, count nouns normally denote entities with a certain shape or precise limits; whereas the reference of a mass noun is normally a homogeneous continuum and not individuated. Being mass or count is part of the meaning of a word.

3. COUNTNESS OF NOUNS. Although traditionally nouns are classified into two types, count and mass, there are complications in that the distinction between the two is not a simple binary one. In the very beginning of this paper, it was noted that count nouns admit the singular article *a(n)*, but mass nouns do not. Yet it is found that there are mass words which nevertheless allow *a(n)* and there are count words which do not allow *a(n)*.

Allan (1980) challenges the traditional binary-feature notion of countness, which assigns either [+count] or [-count] to a given noun. He claims that instead of two, there are eight levels of countability: (p. 563)

REPRESENTATIVE	PERCENTAGE	LEVEL
car	100	7
oak	82	6
cattle	50	5
Himalayas	44	4
scissors	40	3
mankind	26	2
admiration	14	1
equipment	0	0

This chart indicates that a word like *car* is 100% countable, a word like *oak* is 82%

countable, and a word like *equipment* is 0% countable. If a word is 0% countable, it is on the lowest countability level, 0. In contrast, if a word is 100% countable, it is on the highest countability level, 7.

Allan computes the countability of words by trying them against four tests. In the following, I will take as examples five words from the above chart, *car*, *oak*, *cattle*, *mankind* and *equipment* to illustrate what Allan's countability tests are and how these five nouns behave in different environments.

(i) A + N Test: to see if the form "*a/an* + N" is grammatical or not, e.g.:

(5) a. *A car* is a convenient vehicle for transportation.
b. *An oak* is a tree.
c. *I saw *a cattle* in the field.
d. I'd like to see *a mankind* full of charity and sweetness.
e. **An equipment* in our lab was destroyed by the fire.

(ii) F(uzzy) + Ns Test: to see if a noun can be preceded by a fuzzy denumerator such as *several, many, about fifty*, e.g.:

(6) a. *Several cars* were crushed in the accident.
b. *Many oaks* were chopped down by the boy.
c. I saw *about fifty cattle* in the field.
d. *I have met with *several mankinds* and they are all different.
e. **Several equipments* in our lab were destroyed by the fire.

From (5) and (6) we see that *car* and *oak* pass both (i) and (ii) tests. On the other hand, *equipment* fails in both tests. In (5c) we see that *cattle* fails in the A + N Test, but in ((6c) we see that it passes the F + Ns Test. Conversely, *mankind* passes the A + N Test, as shown in (5d), but fails the F + Ns Test, as shown in (6d).

(iii) Ex(ternal)-PL(ural) Test: to see if an NP governs plural NP-external number registration, e.g.:

(7) a. *Those cars are* wonderful and I like *them* all.
b. *Oaks are* deciduous, aren't *they*?
c. *Those cattle are* dying for lack of water, aren't *they?*
d. *Mankind are* expected to give an account of *themselves* before God, aren't *they*?
e. **Equipment(s) are* essential, aren't *they*?

(7) shows that all the five words except *equipment* pass the EX-PL Test.

(iv) All + N Test: to see if the form

"*all* + N + Vsingular" is grammatical or not, e. g.:

(8) a. **All car is* convenient vehicle for transportation.
b. *All oak is* flammable.
c. **All cattle is* dying for lack of water.
d. *All mankind is* rational.
e. *All equipment* in our lab *was destroyed by the fire.*

(8) shows that *oak, mankind and equipment* pass the All + N Test; whereas *car* and *cattle* fail in this test.

Among the four tests, the All + N environment (Test (iv) above) is an uncountable one whereas the other three are countable. To compute the countability of nouns, Allan gives a plus to a noun if it passes a countable test (Tests (i-iii) and he also gives a plus when a noun fails the non-count test (Test (iv)). *Equipment* fails in all the three count tests, and passes the non-count one. Hence it receives no plus and is 0% countable. For nouns of this category, there is no problem for us to assign the feature [-count] to them. However, words on Level 6, like *oak*, pass all of the countable tests and also the non-count one. In terms of feature assignment, which feature, [+count] or [-count], shall we give to them?

The four countability tests show that words on level 2, like *mankind,* pass the All + N Test and thus are non-count, but they admit the indefinite article, which non-count nouns normally do not. And they pass the EX-PI. Test (i.e. take a plural verb or plural pronoun), which again non-count nouns normally will fail. Are they count or mass? The reader might suggest that we can treat words like *mankind* as either mass or count. Yet this treatment cannot rule out bad forms like *several mankinds.*

On the other hand, although words on level 5, like *cattle*, fail the uncountable All + N Test and thus they are not non-count nouns, they do not admit the indefinite article, which count nouns normally do. We cannot simply assign [+count] to them. We have to say, in addition, that they never take the indefinite article.

Being the opposite of words on level 5 (e.g. *cattle*), words on level 1, like *admiration, heat, sincerity, darkness* (derived nominals), and *physics* (names of sujects for study) pass the uncountable All + N Test and hence are non-count. Like typical mass nouns, nouns of this category do not admit fuzzy denumerators; nor do they govern plural NP-external number registration. However, unlike typical mass nouns, they admit the indefinite article. Some examples are as follows:

(9) a. *A physics* in which energy is lost rather than transferred is quite inconceivable; where would the energy go to?
b. *There are *several physics:* geophysics, astrophysics, nuclear physics- and I don't know what else.

(Allan, 1980, p. 550)

c. **Those physics are* all difficult to study, aren't *they*?

For (9b), if we say "several types/kinds of physics" instead of "several physics", the sentence will become well-formed. Similarly, in (9a), *a physics* means 'a kind of physics', but the indefinite article itself without *kind of* does the job. Here we see a difference between the indefinite article and fuzzy denumerators.

Derived nominals like *heat* and *darkness* behave similarly.

(10) *A dry heat* is so much more bearable than *a damp heat.*

(11) a. *We got up in *a darkness.*
b. We got up in *a pitchy darkness.*
c. *An oppressive darkness* hung all around us.
(Allan, 1980, p. 559)

In (11a) we see that *darkness* does not behave like an ordinary count noun since it cannot co-occur with the indefinite article. However, in (11b) and (11c) we see that with a modifier, *pitchy* and *oppressive* respectively, the indefinite article becomes acceptable. Similarly, in (10), the two occurrences of the non-count noun *heat*, with the modifiers *dry* and *damp* respectively, become countable. Allan describes this kind of usage as "referring to instances or occasions of particular note" (p. 559).

The preceding usage of *a* was treated as one of the important functions of English articles in Frank's (1972) exercises for non-native speakers. He comments on this as follows: (p. 160)

> In some sentences, noncountable abstract nouns with adjective modifiers may be used with *a*. In many such sentences *a* is the equivalent of *a kind of*.

If we use *a kind of* instead of *a* in (10) and (11b-c), we get:

(12) A dry kind of heat is so much more bearable than a damp kind of heat.

(13) a. We got up in a pitchy kind of darkness.
b. An oppressive kind of darkness hung all around us.

Does this mean that *a kind of* is a reliable test for using *a* with abstract mass nouns modified by adjectives or relative clauses? Consider:

(14) a. He provided us with a kind of information that only insiders can.
b. This is a kind of evidence that could be used to persuade people to believe in God.

If we delete *kind of*, both (14a) and (14b) become ungrammatical, as shown in (15):

(15) a. *He provided us with an informatin that only insiders can.
b. *This is an evidence that could be used to persuade people to believe in God.

Frank's rule does not tell us when *a* can replace *a kind of*; Allan's eight levels of countability tell us that this occurs when the noun in question is on level 1 (e.g. *darkness, heat*). Words on level 0, like *information* and *evidence*, can never be used with *a*.

Notice that we can drop the indefinite article in both (10) and (11) and we get:

(10') *Dry heat* is so much more bearable than *damp heat*.

(11') a. We got up in *darkness*.
b. We got up in *pitchy darkness*.
c. *Oppressive darkness* hung all around us.

In (10') and (11') we see that after the dropping of the indefinite article, all the grammatical sentences remain well-formed and the ungrammatical one, (11a), becomes acceptable. Nevertheless, if we have restrictive relative clauses modify the underlined NP's, the indefinite article has to be put back again. Take (11') for example:

(16) a. We got up in a/*ϕ darkness that was really scary.
b. We got up in a/*ϕ pitchy darkness that was really scary.
c. An/*ϕ oppressive darkness that was really scary hung all around us.

Restrictive relative clauses seem to have a stronger effect on individuating the whole mass of darkness into different types than prenominal adjectives. Perhaps this is why the indefinite article is obligatory in (16), but optional in (11b) and (11c).

Besides derived nominals like *darkness*, and *heat*, and names of sujects for study like *physics*, Allan gives *English*, as a name for a language, as an example of words on level 1, i.e., abstract mass nouns that admit *a*:

(17) He speaks *an English* that I can barely understand at all; and I was born in London. (p. 558)

Some native speakers find (17), with the proper name *English* turned into a count noun, not acceptable. There is definitely no problem if, instead of (17), we say

(18) He speaks *a kind of English* that I can barely understand at all; and I was born in London.

This indicates that a language change, moving *English* from level 0, where mass nouns

can never be used countably, to level 1, where mass nouns with modifiers can co-occur with *a*, is not yet complete.

To sum up this section, Allan's discussion shows that the grammatical correlates of the mass/count distinction are complicated by the fact that this distinction is not a simple binary one. There are words like *cattle* which are [+count] except that they do not admit the singular indefinite article *a(n)*. There are words like *heat* which are [-count] except that they admit *a(n)* under certain circumstances. Further, there are words like *oak* which are either [+count] or [-count]. Allan's four tests of countability, however, are of little help to L2 learners because the grammaticality judgements are exactly what is in question. Further it would be a great burden for L2 learners to learn which word falls on which level, so the existence of the levels is of little help. In the next section, I will discuss an alternative to the solution to the complications of the mass/count distinction offered by Allan.

4. MASS/COUNT CONVERSION. The mass/count distinction, as has long been observed in the literature, is better taken as a distinction among word-senses, or ways of using words, rather than a distinction among words themselves. A good illustration of this point is found in nouns which denote either the animal or its flesh as food. For example:

(19) a. I don't eat chicken because I like chickens.
b. Lamb is delicious and lambs are lovely, too.

The singularity and plurality of *chicken* and *lamb* in (19) are determined by the different senses of the same words; and in turn, the grammatical correlates reveal the different senses of the words. When referring to the animal, *chicken* or *lamb* denotes a discrete countable object, and hence it is used as a count noun and thus has to take the form "*a/the* + N" or "*ϕ/the* + Ns". In contrast, when referring to the flesh of the animal as food, *lamb* or *chicken* becomes non-count and thus has to take the form "*ϕ/the* + N".

Besides the above animal/meat example, we have a lot more instances of shifts in sense leading to shifts in countness. Jespersen (1924, p. 199) gives us the following examples:

a parcel in brown *paper*	state *papers*
little talent	few *talents*
it is hard as *iron*	*a* hot *iron* (flat iron)

Ware (1979) in "Some bits and pieces" gives more examples of this kind:

(20) a. His *politics* are atrocious.
b. Politics is not his bag.

(p. 16)

(21) a. His *faculties* are intact.
b. how much *faculty* he has for the project
(p. 17)

(22) Many *glasses* do not have any *glass* in them.
(p. 17)

From these examples we see that many English nouns have both mass and count meanings. According to Allan's computation, these words, like *oak* (wood/tree), will fall on Level 6, with 82% countability. They pass all the three count tests and also pass the non-count test. In other words, they are either [+count] or [-count]. It is suggested here that words like these be treated as two words instead of one. Take the mass/count--meat/animal words as an example. *Chicken* is a name for both the animal and the meat. Yet as in the case of pork/pig or mutton/sheep, it could have been the case that for chicken too the animal and the meat were named by two different words. The word that named the animal, a discrete object, would be a count noun and the word that named the meat would be a mass noun.

Another example is found in the language/people words such as *Chinese*, *Italian*, and *Greek*. When referring to the people, the noun is count and when referring to the language, it is mass. Words such as *authority* (quality/person) constitute still another example of this kind. The word *authority* has two distinct senses. When we are talking about special knowledge as in *write with authority* it is non-count; whereas when we are talking about a person with such knowledge as in *an authority on nuclear physics*, it is count.

In sum, ambiguities between a mass and a count meaning are likely to be found in wood/tree, meat/animal, language/people, and quality/person words. The same noun can be treated as two words. One that denotes the discrete object is count and the other that denotes the constituent substance or a peculiar quality of the discrete object is mass.

Words such as those we discussed above are clearly ambiguous between two distinct meanings. Other words may not involve an ambiguity, but they have both the count and the mass use. *Candy*, *hair*, *stone*, and *wine* are some examples. When we are talking about the substance or material, they are mass; whereas when we are referring to shaped pieces (instances) or kinds of the substance, they are count. For example:

(23) a. Do you want a candy?
b. Candy is bad for your teeth.

(24) a. I found a hair in my soup.
b. The cat has a fine coat of hair.

(25) a. The box is filled with heavy stones.
b. The wall was made of stone.

(26) a. This is a French wine.
b. I do not drink wine.

We have identified two groups of words which can be readily used either in a count or a mass sense. Let us state this fact in the form of a conversion principle:

Principle 1:

Mass ~ Count: If a noun is used to denote a discrete entity, it is count; if it is used to denote the material content or a particular quality of the discrete entity, it is non-count.

On the other hand, there are many words like *car* and *book* which we believe behave only as count nouns. Notice that these words are 100% countable according to Allan's computation. But some linguists point out that given the right context, they can be used as non-count. For example, Gleason (1965) asks us to imagine an animal story "featuring a mother termite concerned over her child: 'Johnny is very choosey about his food. He will eat book, but he won't touch shelf' " (pp. 136-37). In this context, the mother termite is talking about the material constituents of books and shelves, but not the discrete objects themselves. Thus *book* and *shelf* beocme mass nouns. Conversely, a word like *ice cream* which we think behaves typically as a mass noun can be used countably. Gleason says, "...a customer, unable to choose between two brands, might say: 'I don't care; one ice cream is as good as another' " (p. 136). Here *ice cream* is used as a count noun. He concludes that "every noun, given the right context, can occur in either type of usage, count or mass" (p. 137).

Is it true that every mass noun can be used as a count noun and every count noun can be used as a mass noun? Different linguists (or philosophers) hold different positions. Pelletier (1979, p. 5) says:

> I think that reflection on the example of above, [How many oatmeals are in your kitchen?] provides convincing evidence that every word which would normally be called a mass noun can be given a perfectly clear count sense.

Pelletier, like Gleason, holds that every mass noun can be converted into a count noun and also the opposite. He describes a thought experiment to persuade people that all count nouns can be given a mass sense. He asks us to imagine a machine, the Universal Grinder. The machine can chop and grind anything, say dogs, cats, cars, or men. Put whatever object you wish to, say a porcupine, into one end of the grinder. After the grinder chops the porcupine and grinds it up into a homogeneous mass and spews it

onto the floor from the other end of the grinder, ask what is on the floor. The answer: "There is porcupine all over the floor". In real life, we do see porcupines, raccoons, and squirrels smashed by cars.

Pelletier is aware that his machine can only grind physical objects, and that there remains a problem for those count nouns which denote non-physical things. Nevertheless, he argues that the thing to be put into the grinder does not have to be grindable. If a normal sentence can use a count noun in a mass sense, his theory holds. His example is the word *number*. He uses this count noun in a mass sense in the following sentence: (p. 6)

> (27) If numbers were physical objects, and if we were to put one into the grinder, there would be *number* all over the floor.

I will leave this issue to philosophers. I think that it is reasonable to say that practically every count noun which denotes an object with material content can be used in a mass sense, given the right context, that is, when we use the word to refer to the material constituent or the mass of the object, and not to the discrete object itself. I agree with Ware's (1979, p. 19) position:

> I do not think that all homophones with count occurrences have mass occurrences and vice versa. Words for orifices seem to have count but not mass occurrences, e.g. *opening, hole, mouth.*

Obviously there is no mass of openings or holes to be talked about. Furthermore, some nouns that denote abstract entities like *idea, trick,* and *characteristic,* do not seem to have mass occurrences.

To L2 learners, the conversion of count nouns into mass nouns causes fewer troubles, because after all cases like

> (28) a. The scrapyard is full of *smashed car* awaiting recycling.
> b. Emmy finds *squashed spider* more nauseous than the thing alive.
> (Allan, 1980, p. 547)

are unusual and if the count nouns remain count, as shown in (29):

> (29) a. The scrapyard is full of smashed *cars* awaiting recycling.
> b. Emmy finds *a* squashed *spider* more nauseous than the thing alive.

the sentences still are well-formed. In other cases like *There was cat all over the road* describing, e.g. a poor cat smashed by a car, failure to convert the count noun into a mass noun, as in *There was a cat all over the road*, might lead to a semantic anomaly. However, if we state the conversion principle as follows:

Principle 2:

Count→Mass: When we are talking about the undifferentiated mass of a physical object, but not the discrete object itself, the count noun denoting that physical object should be converted into a mass noun.

since the principle is well-defined, it will not cause too much confusion for L2 learners.

The conversion of mass nouns into count nouns, on the other hand, is much more troublesome. First of all, is it true that every mass noun can be used as a count noun? Recall the Universal Grinder that turns count nouns into mass terms. Bach (1986, p. 10) suggests an opposite switch, a machine called the Universal Packager that is capable of packing all substances into precise units and hence converting mass nouns into count nouns. In the mass/count conversion, the Universal Packager is supposed to have the same function as the Universal Grinder, though working in the opposite direction. However, it turns out to be not so plausible.

Since every concrete count noun denotes something with certain material content, when we want to talk about the mass instead of the form denoted by a count noun, the right context arises for the mass use of the count noun. On the other hand, in a hypothetical world, we can have each and every substance denoted, e.g. by *water*, *milk* and *gold*, whatever you wish, packed by the Universal Packager. When the new product, say milk, comes out of the packager, what will be the answer to the question, "What is on the floor?" Will we answer "There is a milk on the floor" (or "There are milks on the floor")? Probably not; instead, the answer most likely will be "There is an X of milk on the floor" (or "There are Xs of milk on the floor"). A unit word X, e.g. *bottle*, *glass*, is still needed.

Why would the Universal Packager fail to convert mass nouns into count nouns? If we do not take *milk* as denoting a bounded and discrete object, we will not use it as a count noun. The Universal Packager can pack everything in natural units, but our intuition about word meaning does not change accordingly.

Although the Universal Packager fails to convert mass nouns into count nouns, the real world packaging does create some conversions. Jespersen (1924) claims that "in English, *bread* is only a mass-word" (p. 200). In the twenties, probably it is true that *bread* was used only as a mass-word, but it is no longer true now. We find a lot of occurrences of *bread* as a count noun. To cite only a few of them:

(30) a. coarse whole grains blended in *a* light brown *bread* (American Meal Bread ad)
b. For many years, so-called "diet" *breads* attempted to create the illusion... (Story of Less, Schafer's Less ad)
c. Try the other delicious Country Hearth *Breads*. Look for the Country Hearth family of quality variety *breads*... (Country Hearth ad)
d. The Mackinaw Milling Co. family of *breads* are all made with...to create a line of *breads* which can please...Whichever variety you choose, feel confident

you're serving *a bread* which...(Mackinaw Milling Co. ad)

From the occurrences of *bread* in singular and plural forms in (30), it might be inferred that bread manufactures perceive the different kinds of bread they produce as well-defined, individuated objects, and the word *bread* is used countably to denote one "kind" of the mass.

Bread makers use *a bread* to denote a kind of bread and *breads* for different kinds of bread. L2 learners, however, cannot jump to the conclusion that all instances of "X kind(s) of bread" can be reduced to "X bread(s)", as in

(31) I went to Shop-Rite today. ?I bought two breads.

To some people, (31) is just ungrammatical. To some, at best *two breads* can be taken as "two loaves of bread", but not "two kinds of bread".

Bread denotes something edible and it can be packed into discrete units. Words denoting abstract entities such as *surgery* also can gain an individuation in their meaning and eventually gain a count sense. As I mentioned in section 2, *surgery* as opposed to *operation* is a non-count noun. However, in a survey that I did in which 50 subjects were asked to choose the one they preferred in the following pair of sentences:

(32) a. I had a CHOLELITHOTOMY, which is surgery, and it was covered under surgical expense benefits.
b. I had a CHOLELITHOTOMY, which is a surgery, and it was covered under surgical expense benefits.

25 subjects chose (a) and 25 chose (b). In random interviews following the survey, one subject said that the reason he chose (a) was that *surgery* is basically a mass noun. Another subject said that he chose (b) because *CHOLELITHOTOMY* is not a term for surgery in general. Still another one said that although he chose (a), (b) was possible. A last one said that he chose (a), but he preferred *a form of surgery* than *surgery* alone. From this equal split of 25 to 25 and the comments made by the subjects, I conclude that *surgery* is undergoing a semantic change, moving from being mass to count.

In fact, a health insurance company worker, while she was explaining that different types of surgery are covered under different policies, did say this to me: "If you have *another surgery*...". Non-medical people probably would say, "If you have surgery again..." in this case. I think to health insurance workers, the word *surgery* has gained a discrete reference through constant application of the word to well-defined categories of surgery, exactly like the word *bread* to bread manufacturers.

In addition to *bread* and *surgery*, the real world "packaging" has brought about other count uses of mass nouns. In restaurant orders, we have occurrences of "a large coke", "a small coffee", or simply "two coffees", "three cokes", etc. This is because

in such places as fast food stands or stores, these drinks typically come in cups. Instead of saying "two cups of coffee" or "three cups of coke", the elliptical forms, "two coffees" or "three cokes" are used. However, when we are at an American friend's house, the host/hostness will not ask, "Would you like *a coffee?*" (meaning "Would you like a cup of coffee?"); nor will we answer, "Yes, a small coffee, please". The elliptical forms presumably are not used in these contexts because these drinks are not packed in some standard containers at home.

Summarizing the above discussion of *bread, surgery, coke* and *coffee*, let us state another conversion principle:

Principle 3:

Mass→Count: In commercial contexts, a mass noun, through constant application of the noun to well-divided instances of the referent, can gain an individuation for its reference and thus can be used as a count noun.

In this section, the complications of the binary mass/count distinction are resolved by treating the uses of a noun and not the noun itself as being mass or count. In contrast to Allan's approach, the countness of a noun is not treated as a question of percentage of countability. Instead, a noun is taken as being basically count (e.g. *book, car*) or mass (e.g. *bread, surgery*) or both (e.g. *chicken, authority*), and then a conversion principle is offered to account for its converse use. Three such principles have been offered.

In the preceding section, it was noted that Allan identified a group of abstract nouns (e.g. *sincerity*) which are basically mass, but admit the singular article *a(n)* when they co-occur with a restrictive modifier. Let us state this in the form of a conversion principle:

Principle 4:

Mass→?Count: Abstract non-count nouns such as a derived nominal or a name of a subject for study, when modified by a restrictive modifier, admit *a(n)*, which is the equivalent of *a kind of* in this context.

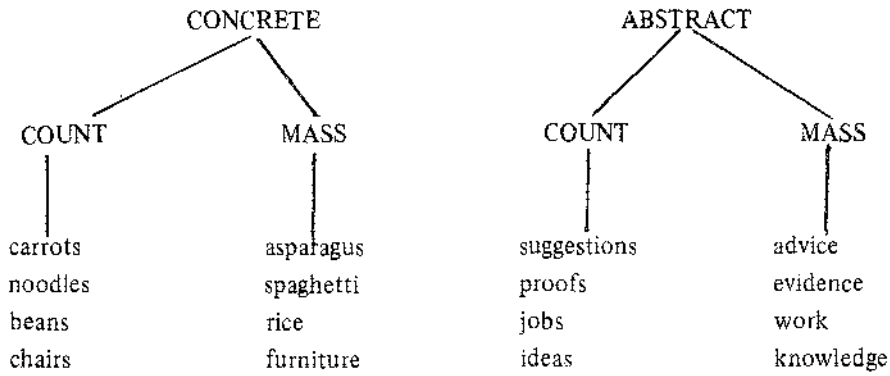
5. IMPLICATIONS FOR L2 LEARNERS. What implications does the preceding discussion have for L2 learners in their choice of English articles? In English, there is a systematic distinction in the choice of articles between two classes of nouns, count and mass:

COUNT	MASS
the + N/Ns	the + N
a + N	ϕ + N
ϕ + Ns	

For mass nouns the choice is limited between ϕ and *the* whereas for count nouns it is more complicated. It has to be decided first whether the noun in question is singular or plural. For singulars, the choice is between *a* and *the* and for plurals ϕ and *the*. ϕ or *a* on the one hand indicates indefiniteness and *the* on the other hand indicates definiteness. In the above chart, we see only one overlapping, i.e. in the form *the* N. We cannot tell whether a given noun is used countably or uncountably just by looking at the form *the* N. In other words, only in cases where a noun is definite and at the same time it is singular, we do not have to make a distinction between count and mass nouns for the choice of articles. Except for cases like this, the question "Is this noun count or mass?" has to be answered first.

L2 learners might want to answer this question through some kind of logical inferrence. A first hypothesis might be that nouns referring to concrete objects (e.g. "milk", "book") are count and nouns referring to abstract entities (e.g. "idea", "music") are non-count. But this is not true of English. A second hypothesis might be that only those nouns referring to discrete, differentiated concrete objects (e.g. "lettuce", "pillow") are count. But this is not true, either.

In English, even for two concrete (material) nouns referring to objects with similar shapes, one can be count and the other mass. The same thing happens with abstract nouns. For two abstract nouns with similar meanings, one can be mass and the other count. This arbitrariness is exemplified as follows:



The arbitrariness of *noodle* being a count noun and *spaghetti* a mass noun, on the one hand, and *idea* being count and *knowledge* mass, on the other hand, suggests that the mass/count distinction is not simply in the nature of the things referred to. Being mass or count is part of the meaning of a word. A count word includes an individuation in its meaning, but not a mass word.

Furthermore, Allan's eight levels of countability suggest that the mass/count distinction is not a simple binary one. The traditional view that a noun is either [+count] or [-count] is inadequate. Not all English nouns have a fixed feature [+count] or [-count]. There are words like *oak* which are both [+count] and [-count]. There are words like *heat* which are [-count] except that they admit *a(n)*

under certain circumstances.

The discussion of mass/count conversion shows that every concrete count noun can be converted into a mass noun (recall the Universal Grinder), but not vice versa. Gleason (1965), and Pelletier (1979) went wrong in saying that every mass noun can be converted into a count noun. Bach's (1986) University Packager cannot convert every mass noun to count, either. The use of a mass noun which is 0% countable as a count noun occurs only when the word has changed in its meaning to include an individuation for its reference. This language change usually happens first within a circle of a particular trade like bread manufacturers or health insurance company workers. We find expressions like "so-called diet breads" and "coarse whole grains blended in *a* light brown *bread*" in bread ads. But it will be odd if I say "I bought two breads today" to my friend. People of a particular trade sometimes use mass nouns countably where others do not.

We have already had established expressions like "two coffees" and "a large coke" in restaurant orders. This, nevertheless, does not entail that we can use mass nouns like *milk* and *coffee* countably in any context. For example it will be ungrammatical, or at least strange, to say "This morning I drank a large milk at home".

This restriction in the conversion of mass nouns into count nouns explains why a blind application of Kaluza's (1981) rule that "practically every U (uncountable noun) can be converted into a C (count noun) with one of the following meaning: a) a unit of, b) a kind of, and c) an instance of" (p. 10), can lead to the wrong choice of articles for words like *furniture* and *equipment*, as in

(33) a. *He bought an expensive furniture yesterday.
b. *We need a new equipment in our lab.

To conclude this paper, I now turn to present an overall picture of the mass/count distinction as I see it for L2 learning. I start with common sense. The things in the world can be divided into two categories, abstract and non-abstract. Abstract entities do not have physical forms and hence do not occupy any space. Since they do not have physical forms, we cannot count them perceptually. Therefore, let us assume initially that nouns which denote abstract entites are all non-count. On the other hand, non-abstract entities can be divided into two subcategories. One contains discrete, differentiated objects, i.e. objects with definite outlines or precise limits. The other contains substances or masses that do not have natural boundaries. The former is presumably countable and not the latter. Therefore let us assume that nouns which denote the former are all count and nouns which denote the latter are all non-count. In brief, the three assumptions that I made are:

Assumption 1: Nouns which denote discrete objects are all count.
Assumption 2: Nouns which denote undifferentiated substances are all non-count.
Assumption 3: Nouns which denote abstract entites are all non-count.

Obviously, all of the three assumptions need to be modified. Assumption 1 that nouns which denote discrete objects are all count has a problem. There are nouns the referents of which come as discrete objects, but they are always non-count. *Asparagus, spaghetti, rice, lettuce, furniture,* and *equipment* are some examples. The last two are superordinate category terms which tend to become mass, as Markman's (1985) claimed. Yet in English we still have a lot of superordinate terms which are count such as *vehicles,* and *toys.* Under our assumption, nouns which denote discrete objects should be count. Hence we still have to treat words like *furniture* as exceptions, although they have good reason to be mass, if Markman is right. It is suggested that for these exceptions, the learner learn each noun together with a unit word that it goes with, e.g. *a grain of rice, a head of lettuce, an article of furniture.* The countness of this type of noun has to be learned by rote.

If the above-mentioned exceptions can be taken care of, Assumption 1 and 2 can stand as they are, if we do not regard a noun as having a fixed feature of [+count] or [-count]. It is the sense that a noun has, not the noun itself, that determines whether it is count or mass. We have nouns with two distinct senses, such as *chicken* and *oak.* We have nouns with both the count and the mass use, such as *candy* and *hair.* We have nouns which are normally count but given the right context can be used uncountably, such as *car* and *book.* For all these nouns, when used to denote a discrete object itself, they are count; whereas when used to denote the material constituent or the mass of the discrete object, they are mass, as made clear in Conversion Principles 1 and 2.

Although we have expressions such as *a large coke* and *a light brown bread,* assumption 2 that nouns which denote undifferentiated substances are all non-count is still valid, because Conversion Principle 3 states that only in commercial contexts do these expressions occur.

Parallel to our assumption about discrete objects, Assumption 3 that nouns which denote abstract entities are all non-count has a problem, too. There are nouns which denote abstract entities, but they are always count. *Tricks, ideas,* and *characteristics* are some examples. It is suggested that the learner learn the plural form Ns or the singular form *a(n)* N, and not simply N, for these words. This is another type of noun whose countness has to be learned by rote.

There is a second problem for Assumption 3. Allan (1980) identified a group of abstract nouns which are normally non-count, but when they are modified by a restrictive adjective or relative clause, they admit the singular article *a(n),* which is equivalent to *a kind of* in this kind of context. This group of nouns includes names of subjects for study like *physics* and *chemistry,* and derived nominals like *sincerity, admiration* and *heat.* To maintain Assumption 3, we have to treat this group of words as exceptions. Conversion Principle 4 takes care of it.

Nevertheless, not all derived nominals that are modified by restrictive modifiers allow *a(n).* *Information, evidence,* and *knowledge* are some examples. These are abstract nouns which are always non-count, exactly the opposite of those abstract

nouns like *tricks* and *ideas* which are always count. They have to be learned by rote. Again, it is suggested that learning the word together with a unit word that it goes with (e.g. *a piece of evidence*) might be of help.

For the rest of the abstract nouns, they are all non-count except for two situations. First, there is a group of nouns which has two distinct senses. One of the two senses denotes a certain abstract quality, and the other denotes a person that possesses this quality. *Authority* and *gossip* are two examples. When a noun is used to denote the person, it is count; when it is used to denote the quality, it is non-count. In fact, if we treat this kind of noun as being ambiguous in the sense that what we have is two different words instead of one, then they are not a problem for our assumptions.

The second situation where abstract nouns are not non-count is when separable instances of a certain quality or action, and not the quality or action itself, are referred to. *Suggestion*, *discussion*, *difficulty*, and *experience* are some examples of words that have both the count and the non-count use. Unlike concrete nouns such as *candy* and *hair*, which also have both uses, for abstract nouns, it is harder to decide when to use which. The general principle is that when things are done at different times or are of a different nature, they are individuated and hence the count use is the right choice. For example:

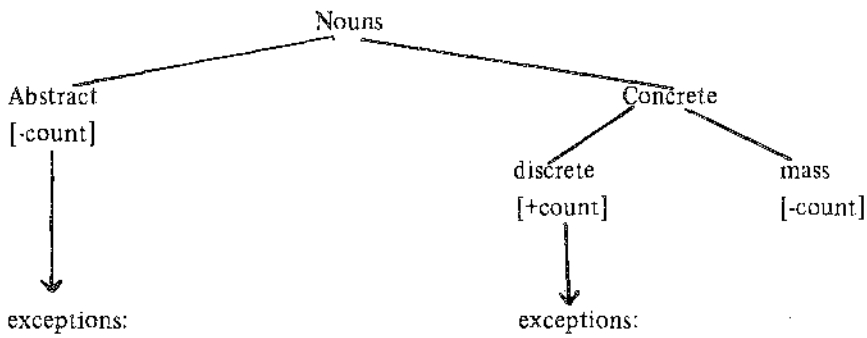
(34) a. After several long *discussions*, we finally reached the conclusion that...
b. Chomsky's *discussions* of transformational grammar and the theory of government and binding were boring.

On the other hand, consider:

(35) a. What implications does the preceding *discussion* have for L2 learners in their choice of English articles?
b. What implications do all the preceding *discussions* have for L2 learners in their choice of English articles?

The context for (35) is that I am writing a thesis on the topic of English articles. Since the discussion is on one topic and done by one person and within a single unit, sentence (a), the non-count use, is a better choice.

In brief, the whole picture of the mass/count distinction presented above is as follows:



a) *tricks*, etc. *rice*, etc.

b) *a sincerity*, etc.

c) *discussions*, etc.

NOTES

1. I am grateful to Barbara Abbott for giving me this example.
2. Again my thanks go to Barbara Abbott for this example.

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