Mass to count shifts in the Galilee dialect of Palestinian Arabic
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1. Introduction: This paper explores the use of the morpheme –*a*/e[1] in the Galilee dialect of Palestinian Arabic (henceforth "PA$_G$" to mark a shift in the noun from a mass usage to a count usage. While the phenomenon has been noted in Standard Arabic (Fassi Fehri 2003) and in Lebanese Arabic (Ouwayda 2014), this study adds an in depth analysis of the conditions under which the mass-to-count shift occurs: we show (i) that not all nouns can be the input to this process and (ii) that denotation of the count noun which is the output of the operation is constrained by the denotation of the input.

2. Background: Hnout (2017) shows that PA$_G$ distinguishes between count nouns and mass nouns systematically. Count nouns can by directly modified by numerals, while mass nouns cannot (1).

(1) a. *θala:θ   bana:t*
    three.F   girl-F.PL
    "three girls"
  b. * *θalaθe   ħali:b/   *θalaθe   ħali:bat*
    three.M milk-M.SG/   three.M   milk-M.PL
  Intended: "three milk(s)"

Mass nouns can be counted via classifiers, while count nouns cannot:

(2) a. *ʃribet   kuba:yet   ħali:b*
    drink.M.PAST.1ST P   cup.F.SG.CS   milk
    "I drank one cup of milk".

  b.* *θalaθ   wiħda:t   bana:t/bint*
    three.F   unit.F.PL.CS girl.PL/girl.SG
    Intended: "three girls"

The interrogative word *akam,* 'how many', can be used directly with count nouns as in (3a), but needs a classifier when it occurs with mass nouns as in (3b/c). Note that *akam* is always followed by a noun in the singular.

(3) a. *akam   walad /*wla:d ʔindek?*
    how   many   boy.SG   you have
    "How many boys do you have?"

  b. **akam   tˤħi:n   ʔindek?*
    how much   flour   you have
    "How much flour do you have"?

  c. *akam   ki:s   tˤħi:n   ʔindek?*
    how much CLASS.M.SG   flour   you have
    "How many packs of flour do you have?"

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[1] The selection of –a/e is subject to variation in the Palestinian dialects, as well as other dialects, and the distinction between them is irrelevant for the purpose of this study.

Hnout (2017) lists a number of other tests which further indicate that the distinction between count and mass nouns s grammatically encoded.

3. Mass to count shift The morpheme –*a/e* is usually an expression of feminine gender in all varieties of Arabic, but as Ouwayda (2014) showed for Lebanese Arabic, it can can also double as a classifier which is affixed in a lexical operation to a mass noun, resulting in a count noun. An example is given in (4): *xobez* 'bread' is masculine and has a mass interpretation while *xobze* is feminine and denotes a piece of bread[2]. As (5) shows, only the count noun can be questioned via *akam*.

(4)   *xobez* + -*a/-e* → *xobz-e*   →   *xobz-a:t*
         bread.M   (piece of) bread-F.SG   (piece of) bread-F.PL

         a. *xobz-e*   *wa:ħad-e*   b. *θalaθ*   *xobz-a:t*
            bread-F.SG   one-F   three.F   bread-F.PL
            "one piece of bread"   "three pieces of bread"

(5)   a. * *akam*   *xobez*   *ʔindek* ?
              what quantity bread   you have
              Intended: "How much bread do you have?"
         b. *akam*   *xobze*   *ʔindek*
              what quantity bread   you have
              "How many pieces of bread do you have?"

However, Hnout (2017) shows that there are lexical constraints on the application of the mass-to-count operation, (which we call M-to-C). We divide these constraints into three groups: (i) constraints on the input noun; (ii) constraints on the interpretation of the output noun; (iii) constraints exemplified by nouns traditionally considered a type of plural and labelled *sˁenf* nouns.

(i) **constraints on the input noun**
M-to-C can only apply to nouns which denote solids. It does not apply to nouns denoting liquids or powders. There is no form *ħali:ba:t* "milks", denoting portions or servings of milk. (6) is infelicitous.

(6)   **ʃribet*   *xames*   *ħali:ba:t*
           drink.1stperson.pst five   milk   one.M.SG
           "*I drank five milks"

This is all the more striking because it is possible to count portions of milk in a restaurant context, but using a different construction. As (7a) shows, the noun remains mass, and (as is clear not only from its morphology, but also from the fact that the numeral is masculine) and the numeral immediately precedes the mass noun. It seems plausible that in this construction there is a null syntactic portion classifier as proposed in (7b). But whatever the analysis, this is clearly a different construction from the mass-to count-operation induced by –*a/e* suffixation.

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[2]In some cases the base undergoes alternations (e.g. vowel deletion) when this morpheme is added. Such alternation are irrelevant for the current study.

(7) a. *jibi:-li*   *θla:θe*   *ħali:b*   *sˤoxon*
　　　2nd person.bring   three.M   milk.M   hot.M
　　　　"Bring me three hot milks."

　　b.　*θla:θe* [Ø_CL   *ħali:b*   *sˤoxon*]
　　　　three.M   classifier milk.M   hot

(ii) constraints on the output noun

M-to-C takes as input mass nouns denoting solid substances and maps them onto nouns denoting individual pieces of that substance. Given the ban on applying the operation to nouns denoting liquids and powders, it seems that the constraint is that the individual pieces in the denotation of the count noun must keep their shape independent of any container. However, even within the group of nouns denoting non-liquid/powder substances, there are lexically determined constraints on what the count noun can denote:

-　if the input noun denotes an inherently granular substance, the output count noun denotes a set of individual grains:

　　　rozz → *rozze*　　　　　　　　*ʕadas*　　→　*ʕadase*
　　　rice　　　grain of rice　　　　　　lentil.mass　　　lentil

-　if the input noun denotes a substance with a 'continuous texture' such as *xobez* 'bread', the output mass noun denotes a set of disjoint arbitrary chunks. Thus *xobze wa:ħad-e* "one (chunk of) bread can be a loaf of bread or a slice of bread of a hunk of bread. Crucially, *xames xobza:t*   "five breads" can denote a collection consisting of pieces of non-uniform shape: two loaves, two slices and one chunk.

-　In a restricted set of cases, the derived count noun has a lexically specified interpretation, for example the mass noun *θalj* "ice" is the basis for the count noun *θalje,* which means "ice-cube", while *ʔutˤen* "cotton" is the basis for deriving *ʔutˤne* "cotton wool ball".

(iii) *sˤenf* nouns

Arabic, including PA_G, has a form of noun traditionally referred to as *sˤenf* (see e.g. Ryding 2005, Fassi Fehri 2003). Traditionally, these have been considered a form of plural. The standard paradigm is given in (8):

(8)　　a. *toffa:ħ*　　　　b. *toffa:ħ-a*　　　c. *toffa:ħ-a:t*
　　　　apple.SENF　　　　apple.F.SG　　　　apple.F.PL
　　　　"apples"　　　　　"apple"　　　　　"apples"

Crucially, the morpheme distinguishing the singular count noun *toffa:ħ-a* (which is feminine) from the bare *sˤenf* form *toffa:ħ* (which is masculine) is the same morpheme as is used in the previous examples to where count nouns are derived from mass nouns. The *sˤenf* form is used in situations in which we might expect a plural, and it can be antecedent for a plural pronoun:

(9)　*akalet*　　　　　　*toffa:ħ,*　　*ka:nu*　　　*kti:r* *tˤayba:t*

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eat.1rdperson.pst   apple.SENF   PRON.PL a lot   tasty.PL
"I ate apples, they were very tasty."

Hnout (2017), following Ouwayda (2014) for Lebanese Arabic, shows that *sˤenf* forms are grammatically mass. They cannot be modified by numerals (10a), they can be counted using classifiers (10b), they cannot occur with *akam* (10c), but *akam* can precede a measure phrase:

(10) a.   *xamse toffa:ħ*
              five   apple.SENF
     b.   *θala:θ   haba:t   toffa:ħ*
              three.F   unit.F.PL.   apple.SENF
           "three apples"
     c.   *akam   toffa:ħ   maʕak?*
              how many   apple.SENF do you have
              Intended reading: "What quantity of apples do you have?"
     d.   *akam   ki:lo   toffa:ħ   maʕak?*
              how many   kilo.SG apple.SENF do you have
              "How many kilos of apple do you have?"

It seems plausible then, that *toffa:ħa* is a count noun derived from *toffa:ħ* via the M-to-C operation. However, Hnout shows that the semantics of the M-to-C operation differ in these cases from the M-to-C operation which derives *xobze* from *xobez* ("bread"). When the mass noun denotes a natural kind, the count noun can only denote single instances of that kind. So while *xobze* can denote pieces of bread of any shape or size, *toffa:ħa* can only denote a set of whole apples. As a correlate, while a piece of bread in the denotation of the count noun *xobze* can be broken into two pieces, which, in an updated context can both count as instances of *xobze*, an object in the denotation of the count noun *toffa:ħa* cannot have apple-parts which will also count as an instance of *toffa:ħa.*

4. Discussion
Up to this point, we have kept the discussion as theory neutral as possible, focusing on a description of the –*a/-e* suffixation operation. In the discussion, we will explore the implications of this data from Palestinian Arabic for theories of the mass/count distinction.   We note that the operation M-to-C is a lexical suffixation operation applying at the pre-syntactic level. It applies to nouns which cannot appear with numerals, both 'substance' nouns like *xobez* 'bread' and *xaʃab* 'wood', as well as nouns like *toffa:ħ* 'apple', and the output of the operation is a noun which is grammatically countable. This suggests both (i) a lexical distinction between nouns which are countable and those which are not and (ii) a distinction between grammatical countability and natural atomicity in the sense of Rothstein (2010, 2017). The constraints on the interpretation of the M-to-C operation, and on the denotation of the output noun described in section 3 indicate that at least these shifts from mass to count are not coercion operations determined by context.
     The contrast between the M-to-C operation and "apportioning operation" in restaurant contexts illustrated in (7) suggests that as well as the lexical mechanism M-to-C deriving count nouns from mass nouns, there is an additional syntactic mechanism involving a null classifier which allows mass nouns denoting liquids to be used in count contexts. In (7), an apparent null classifier maps the noun denoting

'milk' onto a phrase denoting countable portions of milk. Hnout (2017) lists some other highly restricted contexts where mass nouns can be apparently directly modified by a numeral, and which apparently also involve a null classifier. These include shopping lists and recipes, both apportioning contexts. It appears that in these cases, the null classifier maps the N onto contextually relevant portions. In a shopping list *θala:θe rozz* literally "three rice" would be interpreted as three bags of rice, but in a recipe, it would naturally be interpreted as three cups of rice. The data do suggest, tentatively, that while the lexical operation results in an expression denoting units or pieces of N, the phrasal operation is more appropriate for denoting contextually determined poritions. This is particularly clear in the case of *rozz* 'rice', where, as noted, the null classifier construction *θala:θe rozz* denotes three bags/cups of rice, while the M-to-C construction *θala:θ rozza:t* denotes three grains of rice.

Both shifts from mass to count result in an expression (noun or, by hypothesis, phrase) which denotes a set of salient or contextually relevant individuals, be they items or portions. Thus it seems that contrary to e.g. Chierchia 2010, shifts from mass to count cannot be thought of as involving a contextually determined partitions on the set denoted by a mass noun (since the union of a partition is the original set). Thus while pieces of apple can strictly speaking be in the denotation of *toffa:h*, as in (11), the count noun only has whole apples in its denotation.

(11)   *fi:*   *toffa:h*   *bi- l-*   *salata*
        there-is   apple.SENF   in DEF   salad
        "There is apple in the salad."

Similarly, while the mass noun *xaʃab* 'wood' includes any wood material, the derived count noun *xaʃabe* denotes pieces of wood of a contextually relevant size.

The data do further support the importance of context in determining what items are in the denotation of the count noun (as argued in Rothstein 2010), and the dynamicity of contexts (in the sense of Stalnaker 2014) may result in shifting the denotation of some count nouns. For example, take a dinner context in which a loaf of bread counts as an instance of *xobze*. In the course of the meal, the loaf is sliced into pieces, and after each slicing event, the denotation of *xobze* is updated to take account of the new relevant set of bread pieces on the table.

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