KINDS OF NUMBER (AND GENDER): SYNTAX AND INTERPRETATION

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Interpretation and syntax of plurals (and singulars) pose challenging problems of description, theory, and representation. *Whole/part* dimensions may be behind dividing predicates inducing plurality into (a) genuine collectives (or groups), (b) pluralized individuals (or sums), or (c) essentially plural predicates (the latter behaving like genuine collectives in not being true of individuals, and like pluralized predicates in supporting cumulative inferences, etc; Hackl 2002, Dobrovie-Sorin 2009). Likewise, *cardinality* of plurals is involved in distinguishing (a) strong (>1), (b) weak (or 'transnumeral' (Greenberg 1993); i.e. ≥1), or (c) atomic/genuine groups (i.e. = 1). In a (partially) ordered lattice, interpretation of plurals then depends on *upward* ('superset') properties, as well as *downward* ('subset') properties. The ontology of individuals (singulars or groups), or other entities (masses or kinds) on which pluralization operates (if conceived as derivational) is obviously in need of characterization, since it is often claimed that masses (and kinds) do not pluralize (Chierchia 1998a &b), although plurals of masses (and kinds) are widely documented in the literature. The *plural of plural* phenomenology is no less relevant in that recursive plurality of individuals most often behaves like plurality of masses. More fine-grained and granular distinctions are then called for.

A fine grammar of plurals is obviously needed, and it will help clarify various philosophical and semantic issues. Plurality arises in the lexicon and in the syntax, and it needs precise characterization in terms of *how*, and *where*. It is only when a precise grammar of plurality (or Number) is established, with appropriate design, and an adequate system of features is adopted, that the available combinations and variations can be better described and explained, and the syntax/semantics issues sorted out (Longobardi 2001, 2006). The contribution is dedicated to the investigation of Number, typically the Plural, and Gender is dealt with only because it is used as a form of expression of collective Number. Arabic will be used to provide thorough instantiations, in addition to other languages like English, Irish, Breton, or Greek.

1. Count/mass

How many counts and how many masses are needed? Count includes individual objects like *samak-at* 'a fish', or groups like *fariiq* 'team', *lajnah* 'committee', etc. Countability is tested by the compatibility with numerals and plurals. Mass is [–count], as manifested by its incompatibility with numerals and plurals. Kind has not totally been integrated in the schema, but if Kind is distinct from individual objects, it is rather [–count]. Only its instances (units of kind) are [+count]. The latter are formed by overt/covert classifiers. Kind can pluralize, but only like Mass. The plural then (a) increases the quantity/amount, (b) is a taxonomic plural, (c) but is not a multiplier, involving a cardinality relation with the singular (Fassi Fehri 2004; Fassi Fehri & Vinet 2007, Wiese & Maling 2005). Mass can also be counted and pluralized, but obviously not like [+count] nouns. What is then important is not a rigid ban against pluralization of Mass (as in Chierchia 1998a), but rather against one 'mode' of pluralization, namely cardinal pluralization, (i.e. >1). The increasing amount plural (called 'plural of abundance'), or the packaging plural of masses (seen as discrete entities) available with *miyyaah* 'waters', are widely documented. *Miyyaah* can mean a lot (or an impressive amount) of water, or many packages of water. In the package reading, the plural is compatible with quantifiers applying to discrete entities, i.e. discrete waters. The grouping quantifier *jamii^c* 'all together' applies normally with (a) plurals of

individual objects, (b) collectives of individuals like *naas* 'people', (c) collective of singulatives like *samak* 'fish'. It applies also to (d) plurals of masses (in the package reading; *jamii^c l-miyyaah* 'all together the waters'), but crucially not to singular masses (* *jamii^c l-maa?* 'all together the water'). Second, the indefinite *kull-un* meaning 'each' is divisive of discrete entities, and it also distributes in predictable ways. That singular and plural forms of masses behave differently recalls the distinct behavior of singular and plural generics (Chierchia 2005), kinds (Dayal 2004; Espinal & McNally 2007), or groups (Magri 2003), but also their dual reference nature (Ojeda 2005, Laserhorn 2008). Mass also raises the question of cross-variation as to how a language (like e.g. Greek; Tsoulas 2007) instantiates only substance Mass, and no object Mass. For a global discussion, see Krifka (2008).

2. Group and Plural
Group formation differs depending on whether the group is formed in syntax, or the lexicon. A lexical group (a) is normally singular, (b) undergoes cardinal pluralization, (c) behaves unambiguously with reciprocal verbs, etc. But a group in the syntax (a) must be formed from an already plural noun, (b) does not undergo normal pluralization, although (c) it gives rise to a 'collection' pluralization, (d) exhibits ambiguity with reciprocals, etc. Compare *fariiq* 'team' and *falaasif-at* 'philosophers'. The first group is morphologically and syntactically singular. The second is morphologically plural; it is only in the syntax that it is identified as a group (or a 'plural-unit'), or as (distributive) collection or sum. Conceptually (and ontologically), plurals can be different. Cardinal plural, amount plural, package plural, taxonomic plural, group plural, etc. can be distinguished. The content of these distinctions varies depending on lexical and grammatical information.

3. Grammar
Verbal Gender and Number typically encode the plural-unit (or group) vs. the multiplier (or sum) distinction. Plural merger operates at various levels in the lexicon and the syntax, at RootP, nP, ClP, NbP, etc.; as head, or modifier (Wiltshko 2008, Borer 2005, Ritter 1993). Plural attaches not only to nominal projections, but in parallel fashion to verbs/events and their projections. Phrasal distributivity requires the extension of plurality to apply to both the *D* (individual) and *E* (event) domains (Kratzer 2008), and the symmetry of reciprocal verbs (or essentially plural predicates) is a form of event plurality which may or may not be seen as a form of event group formation (Fassi Fehri 2009, Rubinstein 2008, Siloni 2008).

4. Feature system
Following Fassi Fehri (2004, 2009), three features are shown to be necessary for treating Number variation. A [± atom] characterizes the *whole* denotation of a (nominal) entity. Individual objects and groups are seen as [+atom], while masses, kinds, and plurals are not. A [± sing] (singulative) characterizes discreteness of the *parts*. Kind and Individual (object) are [+sing], whereas Mass and Group are not. Finally, a [± collect(ive)] distinguishes plurals, i.e. entities marked as [- atom]. A group can be lexically formed, or formed in the syntax. A syntactic group is [+collect], whereas a syntactic sum is [-collect] or distributive. Comparable triliteral systems are found in the literature, but they are hardly equivalent (Harbour 2007, Noyer 1992). Double pluralization multiplies 'cohesive' collections (or groups; Kratzer, to appear), or modifies a cardinal plural (hence preserving the nature of plurality). The system can be refined even further by appealing to the formal/semantic (interpretable/non-interpretable) distinction built in Probe-Goal Agree (as in Chomsky 1995, 2008), or zero valuation (e.g. in the case of general Number).