

# **ISO 8601 Dates in 29500**

GB Delegation, WG4 Meeting  
Seattle 2009

# Two Distinct Issues

- Inability to safely use ISO8601 as (un)defined
  - Unsafe to implement as per the OOXML spec
  - Subsetting and further specification is required
- Interoperability problems for existing applications
  - Allowing both serial dates & 8601 in Transitional causes data corruption in existing ECMA376-1 applications

# What we have now

- Key sections
  - **18.17.4 Dates and Times (SML)**
  - **18.17.4.1 Date conversion for Serial Values (SML)**
  - **18.7.7.x Predefined Formulas (SML)**

## 18.17.4 Dates and Times

- For compatibility with existing spreadsheet applications, a **consuming** application should allow certain numeric serial values to be interpreted as dates and times for display or for use in calculations.
- These values should behave as defined in §18.17.4.1, §18.17.4.2, and §18.17.4.3.

# Outstanding Issues

- Issues in Formulas not addressed
- Subsetting of ISO 8601 not addressed
  - ISO8601 very expansive
  - XML Schema Date/Time is a subset of ISO 8601 – therefore OOXML dates CANNOT be processed using XML schema data type conforming tools

# Outstanding Formula issues

- Examples (Part 1) Use serial dates.
  - Part 1 does not allow serial dates, so either change to use ISO8601 dates, or move to Part 4
- Formulas depend on serial dates, including such constructs as using integer operations. Obviously these are impossible on ISO8601 dates

# 18.17.7.2 ACCRINT

- ACCRINT ( *issue* , *first-interest* , *settlement* , *rate* , [ *par* ] , *frequency* [ , [ *basis* ] ] )
- **Description: Computes the accrued interest for a security that pays periodic interest.**

Uses Number type. ISO 8601 would be text or potentially a type of "Date" – Whatever that might mean!

Arguments:

Name	Type	Description
<i>issue</i>	number	The security's issue date.
<i>first-interest</i>	number	The security's first interest date.
<i>settlement</i>	number	The security's settlement date.

# 18.17.7.75 DATEDIF

- DATEDIF ( *start-date* , *end-date* , *unit* )
- **Description: Calculates the number of days, months, or years between two dates.**
- *start-date number* The first date in the period, truncated to integer.
- *end-date number* The last date in the period, truncated to integer.

Truncating an ISO8601 date to an integer is a nonsense

# More Twists

- In addition, when the return value is a date, for example COUPNCD, that is also of type number.
- e.g. COUPNCD –  
"Return Type and Value: number – The next coupon date after the settlement date, as a date."

# Affected functions TBC ...

- ACCRINT
- ACCRINTM
- AMORDEGRC
- AMORLINC
- COUPDAYBS
- COUPDAYS
- COUPDAYSNC
- COUPNCD
- COUPNUM
- COUPPCD
- DAYS360
- DISC
- DURATION
- EDATE
- EOMONTH
- INTRATE
- ISNONTEXT?
- ISNUMBER?
- ISTEEXT?
- MDURATION
- NETWORKDAYS
- NETWORKDAYS.INTL  
(Plus Bitmask!)
- ODDFPRICE
- ODDFYIELD
- ODDLPRICE
- ODDLyield
- PRICE
- PRICEDISC
- PRICEMAT
- RECEIVED
- TBILLEQ
- TBILLPRICE
- TBILLYIELD
- WEEKDAY
- WEEKNUM
- WORKDAY
- WORKDAY.INTL  
(Plus Bitmask!)
- YEARFRAC
- YIELD
- YIELDDISC
- YIELDMAT

# Date-related functions unaffected

## TBC ...

- DATE
- HOUR
- MINUTE
- MONTH
- TIME
- TIMEVALUE
- VALUE
- XIRR?
- XNPV?
- YEAR?
- DURATION
- EDATE
- EOMONTH

# What needs to be done?

- Address dual method of date handling in Transitional
- Specify an explicit subset of ISO 8601 date behaviour
  - Scope
  - Specific conventions

# Considerations Part 1

- Ability to be processed by W3C standards conformant applications. E.g aligned with value space of XSD
- Xpath Functions and Operators
- Do we want to go beyond ISO 8601?
- Accounting for differing value spaces between serial & 8601 dates.

# Considerations Part 2

- Interoperability with ODF / OpenFormula

## “Date and DateTime

A Date is a subtype of number; the number is the number of days from a particular date called the *epoch*. Thus, a date when presented as a general-purpose number is also called a *serial number*. “ - OpenFormula Draft May 2009

# Next Steps

- GB will issue following DRs
  - Definition of date and time in SML is imprecise
  - Functions use a disallowed date format
- Decision on removing ISO 8601 dates for spreadsheet cell data in Transitional.
  - New DR needed
- Volunteers