Eiffel: Beispiel 1a

```
class
    TIME_OF_DAY
            -- Absolute time within a day
feature
    hour: INTEGER is
            -- Hour of day, 00 to 23
        do
            Result := minutes // 60
        end -- hour
    minute: INTEGER is
            -- Minute in hour, 00 to 59
        do
            Result := minutes \\ 60
        end -- minute
```

Eiffel: Beispiel 1b

```
set (hh: INTEGER, mm: INTEGER) is
    require
        0 <= hh and hh < 24
        0 <= mm and mm < 60
    do
        minutes := hh * 60 + mm
    ensure
        hour = hh
        minute = mm
    end -- set
adjust (hh_by: INTEGER, mm_by: INTEGER) is
        -- Advance (+) or retard (-) either or both
    do
        minutes := minutes + hh_by * 60 + mm_by
        normalise
    end -- adjust
```

Eiffel: Beispiel 1c

```
feature {NONE}
    minutes: INTEGER
            -- Minutes since midnight

    normalise is
            -- Restore invariant after adjustment
        do
            minutes := minutes \\ 1440
            if minutes < 0 then
                minutes := minutes + 1440
            end
        end -- normalise
```

Eiffel: Beispiel 1d

```
invariant
    0 <= hour and hour < 24
    0 <= minute and minute < 60
    0 <= minutes and minutes < 1440

end -- class TIME_OF_DAY

...

    finish_time: TIME_OF_DAY;
    ...
    !!finish_time
```

Eiffel: Creation

```
class TIME_OF_DAY

creation
    set

feature
    ...

    lunchtime: TIME_OF_DAY
    ...
    !!lunchtime.set (12, 30)
```

Eiffel: Clone

```
ff_start, ent_start: TIME_OF_DAY
...
!!ff_start
...
if starting_together then
    ent_start := clone (ff_start)
end
```

Eiffel: Rename

```
class
    HOUR12
            -- Hour component of time of day
inherit
    DIGIT12
        rename
            increment as advance,
            decrement as retard
        end

end -- class HOUR12
```

Eiffel: Export

```
class
    DIGITF

inherit
    DIGIT
        export
            {NUMBER} more_sig
        end

end -- class DIGITF
```

Eiffel: Überschreiben

```
class HOUR12 -- Hour component of time of day
inherit
    DIGIT12
        redefine
            symbol
        end
feature
    symbol: STRING is -- 12, 1, 2... 10, 11
        do
            ...
        end -- symbol
end -- class HOUR12
```

Eiffel: Generizität

```
digits: ARRAY [DIGIT]
!!digits.make (1, 3)
```

auch gebundene Generizität:

```
class
    SORTED_LIST [ET -> COMPARABLE]
    ...
```

Eiffel: Input and Output

```
class FILTER
creation run
feature
    run is -- Echo until end of file
        do
            from
                io.read_line
            until
                equal (io.last_string, "")
            loop
                io.put_string (io.last_string)
                io.put_new_line
                io.read_line
            end -- loop
        end -- run
end -- class FILTER
```

Eiffel: Beispiel 2a

```
class
    MON12
            -- Month of year
inherit
    DIGIT12
        redefine
            symbol, increment, decrement
        end
creation
    make,
    connect_day
```

Eiffel: Beispiel 2b

```
feature
    increment is
            -- As parent, but note change
        do
            Precursor
            changed
        end -- increment
    decrement is
            -- As parent, but note change
        do
            Precursor
            changed
        end -- decrement
```

Eiffel: Beispiel 2c

```
feature {NONE} -- new features, protected
    day: DIGITV -- Day of month, we control range
    changed is -- Month has changed: update day range
        do
            if day /= Void then
                inspect value + 1
                when 1, 3, 5, 7, 8, 10, 12 then
                    day.set_range (1, 31)
                when 2 then
                    day.set_range (1, 28)    -- leap?
                when 4, 6, 9, 11 then
                    day.set_range (1, 30)
                end
            end
        end -- changed
```

Eiffel: Beispiel 2d

```
    full_names: ARRAY [STRING] is
            -- Full month names
        once
            Result := <<"January", "February", "March",
                "April", "May", "June",
                "July", "August", "September",
                "October", "November", "December">>
        end
end -- class MON12
```

Quelle (kurze Sprachbeschreibung)

Simon Parker: Eiffel for beginners

www.maths.tcd.ie/∼odunlain/eiffel/eiffel_course/eforb.htm