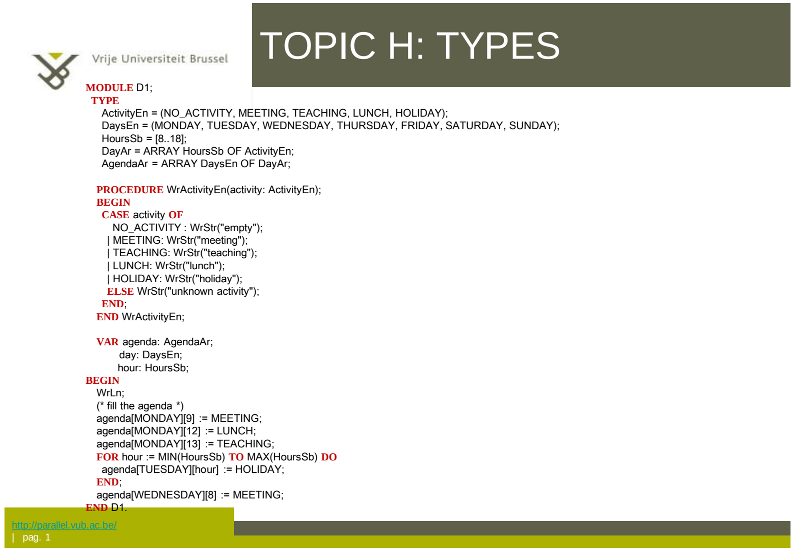

Vrije Universiteit Brussel

TOPIC H: TYPES

```
MODULE D1;
 TYPE
   ActivityEn = (NO_ACTIVITY, MEETING, TEACHING, LUNCH, HOLIDAY);
   DaysEn = (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY);
   HoursSb = [8..18];
   DayAr = ARRAY HoursSb OF ActivityEn;
   AgendaAr = ARRAY DaysEn OF DayAr;

  PROCEDURE WrActivityEn(activity: ActivityEn);
  BEGIN
   CASE activity OF
      NO_ACTIVITY : WrStr("empty");
    | MEETING: WrStr("meeting");
    | TEACHING: WrStr("teaching");
    | LUNCH: WrStr("lunch");
    | HOLIDAY: WrStr("holiday");
    ELSE WrStr("unknown activity");
   END;
  END WrActivityEn;

  VAR agenda: AgendaAr;
      day: DaysEn;
      hour: HoursSb;
BEGIN
  WrLn;
  (* fill the agenda *)
  agenda[MONDAY][9] := MEETING;
  agenda[MONDAY][12] := LUNCH;
  agenda[MONDAY][13] := TEACHING;
  FOR hour := MIN(HoursSb) TO MAX(HoursSb) DO
   agenda[TUESDAY][hour] := HOLIDAY;
  END;
  agenda[WEDNESDAY][8] := MEETING;
END D1.
```

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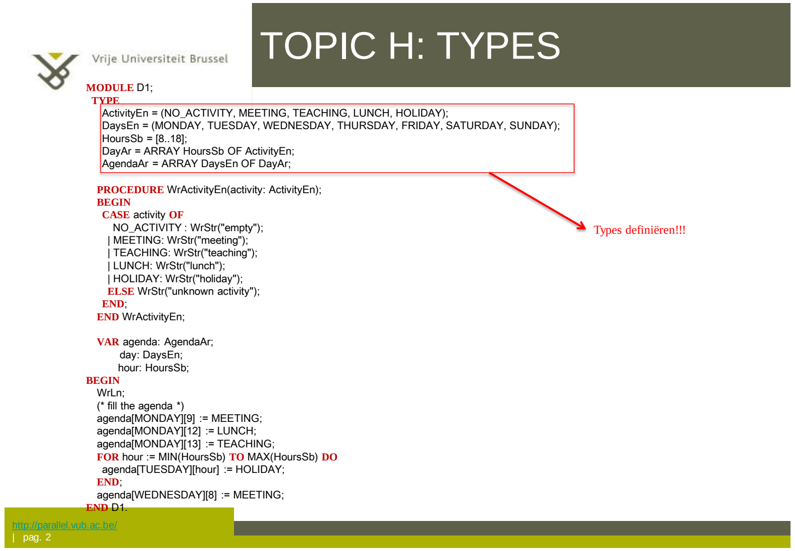

Vrije Universiteit Brussel

TOPIC H: TYPES

```
MODULE D1;
 TYPE
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   DaysEn = (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY);
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   DayAr = ARRAY HoursSb OF ActivityEn;
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  PROCEDURE WrActivityEn(activity: ActivityEn);
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   CASE activity OF
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    | TEACHING: WrStr("teaching");
    | LUNCH: WrStr("lunch");
    | HOLIDAY: WrStr("holiday");
    ELSE WrStr("unknown activity");
   END;
  END WrActivityEn;

  VAR agenda: AgendaAr;
      day: DaysEn;
      hour: HoursSb;
BEGIN
  WrLn;
  (* fill the agenda *)
  agenda[MONDAY][9] := MEETING;
  agenda[MONDAY][12] := LUNCH;
  agenda[MONDAY][13] := TEACHING;
  FOR hour := MIN(HoursSb) TO MAX(HoursSb) DO
   agenda[TUESDAY][hour] := HOLIDAY;
  END;
  agenda[WEDNESDAY][8] := MEETING;
END D1.
```

Types definiëren!!!

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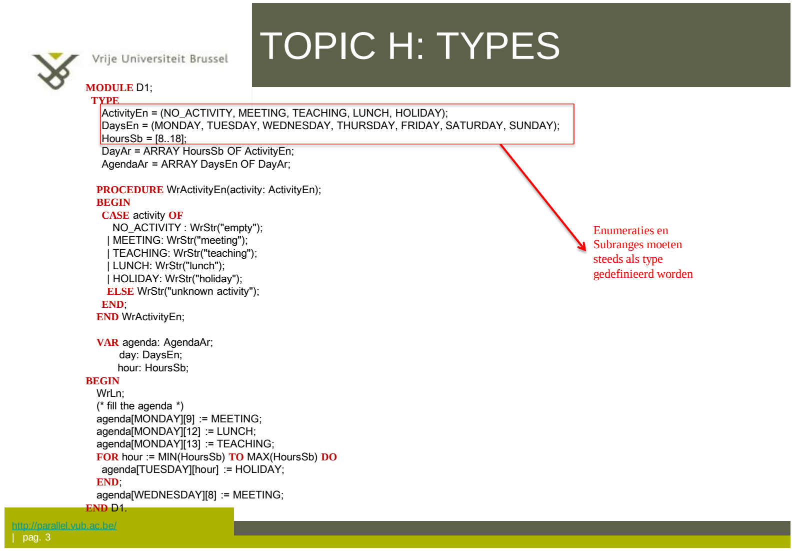

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TOPIC H: TYPES

```
MODULE D1;
 TYPE
   ActivityEn = (NO_ACTIVITY, MEETING, TEACHING, LUNCH, HOLIDAY);
   DaysEn = (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY);
   HoursSb = [8..18];
   DayAr = ARRAY HoursSb OF ActivityEn;
   AgendaAr = ARRAY DaysEn OF DayAr;

  PROCEDURE WrActivityEn(activity: ActivityEn);
  BEGIN
   CASE activity OF
      NO_ACTIVITY : WrStr("empty");
    | MEETING: WrStr("meeting");
    | TEACHING: WrStr("teaching");
    | LUNCH: WrStr("lunch");
    | HOLIDAY: WrStr("holiday");
    ELSE WrStr("unknown activity");
   END;
  END WrActivityEn;

  VAR agenda: AgendaAr;
      day: DaysEn;
      hour: HoursSb;
BEGIN
  WrLn;
  (* fill the agenda *)
  agenda[MONDAY][9] := MEETING;
  agenda[MONDAY][12] := LUNCH;
  agenda[MONDAY][13] := TEACHING;
  FOR hour := MIN(HoursSb) TO MAX(HoursSb) DO
   agenda[TUESDAY][hour] := HOLIDAY;
  END;
  agenda[WEDNESDAY][8] := MEETING;
END D1.
```

Enumeraties en
Subranges moeten
steeds als type
gedefinieerd worden

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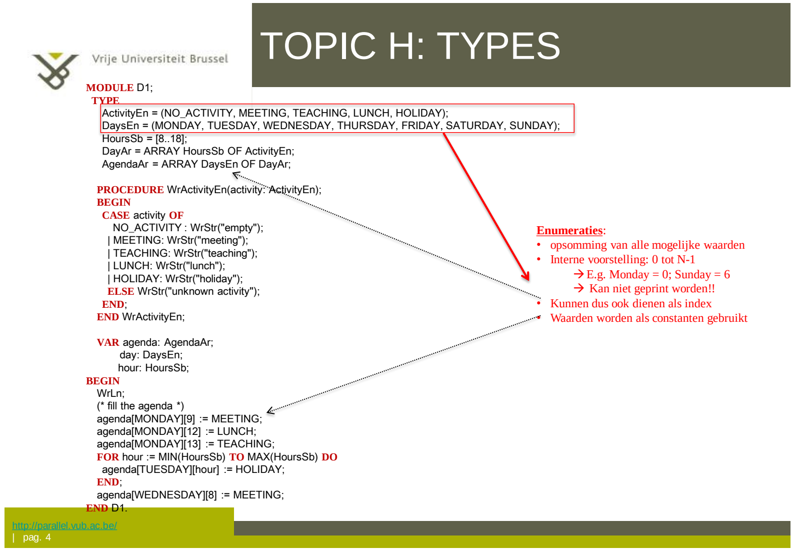

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TOPIC H: TYPES

```
MODULE D1;
 TYPE
   ActivityEn = (NO_ACTIVITY, MEETING, TEACHING, LUNCH, HOLIDAY);
   DaysEn = (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY);
   HoursSb = [8..18];
   DayAr = ARRAY HoursSb OF ActivityEn;
   AgendaAr = ARRAY DaysEn OF DayAr;

  PROCEDURE WrActivityEn(activity: ActivityEn);
  BEGIN
   CASE activity OF
      NO_ACTIVITY : WrStr("empty");
    | MEETING: WrStr("meeting");
    | TEACHING: WrStr("teaching");
    | LUNCH: WrStr("lunch");
    | HOLIDAY: WrStr("holiday");
    ELSE WrStr("unknown activity");
   END;
  END WrActivityEn;

  VAR agenda: AgendaAr;
      day: DaysEn;
      hour: HoursSb;
BEGIN
  WrLn;
  (* fill the agenda *)
  agenda[MONDAY][9] := MEETING;
  agenda[MONDAY][12] := LUNCH;
  agenda[MONDAY][13] := TEACHING;
  FOR hour := MIN(HoursSb) TO MAX(HoursSb) DO
   agenda[TUESDAY][hour] := HOLIDAY;
  END;
  agenda[WEDNESDAY][8] := MEETING;
END D1.
```

Enumeraties:
- opsomming van alle mogelijke waarden
- Interne voorstelling: 0 tot N-1
  - → E.g. Monday = 0; Sunday = 6
  - → Kan niet geprint worden!!
- Kunnen dus ook dienen als index
- Waarden worden als constanten gebruikt

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TOPIC H: TYPES

```
MODULE D1;
 TYPE
   ActivityEn = (NO_ACTIVITY, MEETING, TEACHING, LUNCH, HOLIDAY);
   DaysEn = (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY);
   HoursSb = [8..18];
   DayAr = ARRAY HoursSb OF ActivityEn;
   AgendaAr = ARRAY DaysEn OF DayAr;

  PROCEDURE WrActivityEn(activity: ActivityEn);
  BEGIN
   CASE activity OF
     NO_ACTIVITY : WrStr("empty");
    | MEETING: WrStr("meeting");
    | TEACHING: WrStr("teaching");
    | LUNCH: WrStr("lunch");
    | HOLIDAY: WrStr("holiday");
    ELSE WrStr("unknown activity");
   END;
  END WrActivityEn;

  VAR agenda: AgendaAr;
       day: DaysEn;
      hour: HoursSb;
BEGIN
  WrLn;
  (* fill the agenda *)
  agenda[MONDAY][9]  := MEETING;
  agenda[MONDAY][12]  := LUNCH;
  agenda[MONDAY][13]  := TEACHING;
  FOR hour := MIN(HoursSb) TO MAX(HoursSb) DO
   agenda[TUESDAY][hour]  := HOLIDAY;
  END;
  agenda[WEDNESDAY][8]  := MEETING;
END D1.
```

Subrange:

- Subset van originele type
  - → LET OP! Waarden moeten steeds op voorhand gedefiniëerd zijn
  - E.g: WeekendSB = [SATURDAY SUNDAY];
- Voordelen:
  - → Onmogelijke waarden kunnen niet toegekend worden
  - → Optimisatie van geheugen

Naam Conventies

- CONSEQUENT zijn in naam conventies
  → Beslis hoe je variabelen, constanten, procedures, types steeds dezelfde naam conventie gaat geven!

OEFENINGEN TOPIC H

- Oefening S1, S2, S4