

Exercises 6 (Syntactic analysis) – Solutions

6A. (Fun syntactic analyser)

Token stream after lexing:

INT 'int'	ID 'm'	EQ '='	NUM '10'	PROC 'proc'	ID 'main'	LPAR '('	RPAR)'	COLON '.'
INT 'int'	ID 'n'	EQ '='	ID 'read'	LPAR '('	RPAR)'	IF 'if'	ID 'n'	LT '<'
ID 'm'	COLON '.'	ID 'm'	EQ '='	ID 'n'	DOT '.'	ID 'write'	LPAR '('	ID 'm'
RPAR)'	DOT '.'	EOF '"						

6B. (Mini-English recursive-descent parser)

```

void sentence () {
    subject();
    verb();
    object();
    match(FULLSTOP);
}

void subject () {
    if (...) {
        match(I);
    }
    else if (...) {
        match(A);
        noun();
    }
    else if (...) {
        match(THE);
        noun();
    }
    else ...
}

void object () {
    if (...) {
        match(ME);
    }
    else if (...) {
        match(A);
        noun();
    }
    else if (...) {
        match(THE);
        noun();
    }
    else ...
}

```

```
void noun () {
    if (...)
        match(CAT);
    else if (...)
        match(MAT);
    else
        match(RAT);
}
void verb () {
    if (...)
        match(SEE);
    else if (...)
        match(SEES);
    else if (...)
        match(SMELL);
    else
        match(SMELLS);
}
```