

COMP 410  
Fall 2024

Unification with Lists in Prolog

Finish writing the unifications below so that the queries produce the correct values. The first one has been done for you, with the answer shown in **bold**.

1.)-----

```
?- List = [1, 2, 3, 4, 5],
```

```
    List = X.
```

```
List = X,
```

```
X = [1, 2, 3, 4, 5].
```

2.)-----

```
?- List = [1, 2, 3, 4, 5],
```

```
    List =
```

```
List = [1, 2, 3, 4, 5],
```

```
H = 1,
```

```
T = [2, 3, 4, 5].
```

3.)-----

```
?- List = [1, 2, 3, 4, 5],
```

```
    List =
```

```
List = [1, 2, 3, 4, 5],
```

```
A = 1,
```

```
B = 2,
```

```
T = [3, 4, 5].
```

4.)-----

```
?- List = [1, 2, 3, 4, 5],
```

```
    List =
```

```
List = [1, 2, 3, 4, 5],
```

```
A = 1,
```

```
B = 2.
```

```
% different problem than #3 - no T
```

5.)-----  
?- List = [1, 2, 3],

List =

List = [1, 2, 3],  
A = 1,  
B = 2,  
C = 3.

6.)-----  
?- List = [[1, 2], 3],

List =

List = [[1, 2], 3],  
A = [1, 2],  
B = [3].

7.)-----  
?- List = [[1, 2], 3],

List =

List = [[1, 2], 3],  
A = 1,  
B = [2],  
C = [3].

8.)-----  
?- List = [[1, 2], [3, 4]],

List =

List = [[1, 2], [3, 4]],  
A = 1,  
B = 2,  
C = [4],  
D = [].