

Buchberger's Algorithm Implementation

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Here is an implementation of Buchberger's algorithm that will work with all the previous code implemented in the lecture notes.

```
GroebBasis := proc(F,variables,weights)
local G, Gprime, i, j, S;
G := F;
Gprime := 0;
while G <> Gprime
do
Gprime := G;
i := 1;
j := 2;
while i < nops(Gprime) + 1
do
while j < nops(Gprime) + 1
do
S := MULTIDIV(SPOLY(Gprime[i],Gprime[j],variables,weights),
Gprime,variables,weights)[2];
if S <> 0 then
G := [op(G),S];
fi;
j := j + 1;
od;
i := i + 1;
j := i + 1;
od;
od;
end proc;
```

```
od;  
G;  
end;
```